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## **Serbo-Croatian Second Position Clitic Placement and the Phonology-Syntax Interface\***

*Carson T. Schütze*

### **1. Introduction**

#### **1.1 Theoretical overview**

The analysis of Serbo-Croatian (SC) second position clitic placement has been the source of much controversy in generative linguistics. The most important point of disagreement among competing analyses of this phenomenon has been the extent to which the various components of the grammar—syntax, morphology, phonology—are implicated in determining the position of the relevant clitics, and the type of interaction among these components that is required. It will not be the goal of the present paper to make specific detailed proposals concerning all aspects of a comprehensive account of the facts. Rather, my aim is first to clarify the empirical data that must be explained and the theoretical questions on which they bear, and second to argue for a specific class of solutions to the problems raised. In particular, I will show that neither the relative linear positions of clitics within the clitic cluster nor the position of this cluster in a clause can be completely determined by the syntax, although the syntax does have a crucial role to play in at least the latter problem. Rather, I will argue that the relative order of the clitics must be determined by the morphology, and that the position of the clitic cluster is subject to purely

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phonological constraints that can not only filter out syntactically valid orderings but also trigger a re-ordering of morphemes that does not conform to the syntax. The class of theories to which the present paper will add support are strictly derivational theories in which syntax feeds morphology, which in turn feeds phonology, with no “look-ahead” from one component to the next, where all three components can affect the linear order of morphemes in a sentence subject to their own constraints.

More specifically, I will argue for the necessity of Halpern’s (1992) proposed operation of Prosodic Inversion (PI), which can re-order a clitic and a potential host word in order to satisfy the clitic’s need for a host in a particular direction. In SC, this will allow enclitics that are clause-initial at S-structure to surface encliticized to the first prosodic word of the clause. Thus, at least some instances of “second word” placement are not due to the syntax. However, all instances of “second constituent” placement where the initial constituent is larger than one prosodic word are due to syntactic fronting across the fixed position of the clitics. I suggest that clitics are in  $\text{Comp}^1$  at S-structure, so that XPs that move to Spec-CP or heads that move to  $C^0$  are potential hosts for the clitics, but neither of these movements is obligatory. I propose that the level of Morphological Structure (Halle & Marantz 1993) is where lexical insertion takes place, including insertion of clitics, and that at this point a template based on morpho-syntactic features determines the order among the clitics under  $C^0$ . At this point, the clitic cluster becomes a morphological constituent, taking on the prosodic subcategorization frame of each of its member elements, i.e. the need for a host word to the left. After morphological operations are complete, the S-structure tree as modified by the morphology is subject to a process of prosodic mapping that derives a hierarchical prosodic structure for the sentence from its syntactic structure; it is the resulting prosodic structure that is subsequently input to the postlexical phonology. I argue that prosodic mapping must crucially happen in two stages, the first a blind application of constituent-forming rules sensitive only to syntactic boundaries, the second a repair phase that modifies the output of the first based on prosodic requirements of the language. I claim that PI is part of this second stage, repairing sentences wherein clitics are unlicensed due to the lack of a host by performing the minimal change needed to license them, namely inverting the linear order of the clitic cluster and the following prosodic word.

The approach in this paper will be a purely synchronic one, focusing on the standard language while abstracting away from extensive dialect variation except at the grossest level; I will also make almost no attempt to compare clitic placement in SC with that of closely-related languages such as Bulgarian, because in my opinion SC is different enough in this respect that the analysis of other languages is not very helpful at best and potentially misleading at worst. (For a comparative approach see Mišeska Tomić 1993; on related issues in Bulgarian, see Izvorski 1993; for diachronic considerations see Radanović-Kocić 1988.)

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<sup>1</sup> In this paper the word “Comp” will always refer to  $C^0$ , never to Spec-CP.

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### 1.2 Descriptive overview

Serbo-Croatian has quite free word order: although it is widely agreed that the basic unmarked order of clausal elements is SVO, there is extensive scrambling. As a case in point, all 24 possible orders of the words in (1) are possible (Progovac 1993), though obviously differing in emphasis and other discourse properties.

1. Ana daje čokoladu Marini.  
*Ana gives chocolate Marina*  
 ‘Ana is giving chocolate to Marina.’ (Progovac 1993: 15)

In striking contrast to this general freedom in constituent ordering, SC has a set of enclitics whose position in a sentence is fixed both relative to each other and relative to other constituents. These clitics include an interrogative particle, auxiliary verbs (including modals and copular *be*), dative, accusative, and genitive personal pronouns, and the reflexive pronoun/particle. Whenever more than one of these clitics occurs in a clause, they must all be adjacent to each other, in what I will pre-theoretically refer to as a clitic cluster. The order of clitics within the cluster is fixed based on their morpho-syntactic features, as shown in the following template (Browne 1974):<sup>2</sup>

2.

<i>li</i>	AUX	DAT	ACC/GEN	<i>se</i>	<i>je</i>
Q (question particle)	auxiliaries (except <i>je</i> )	dative pronoun	accusative/ genitive pronoun <sup>3</sup>	REFL (reflexive pronoun/ particle) <sup>4</sup>	3sg AUX

In (3) I give complete lists of the clitics that can fill the second, third, and fourth slots, so that glosses of example sentences to follow can be simplified.<sup>5</sup> I will

<sup>2</sup> Ćavar and Wilder (1992) claim that there is dialectal variation in this ordering, at least among the clitics *se* and *je*.

<sup>3</sup> See Browne 1975b, p. 131 for discussion of the very shaky and disagreeing judgements about ordering among accusative and genitive pronouns, likely due to the fact that most of the forms are homophonous. The template is not meant to imply that these share the same slot, but rather that the order among the two slots cannot be determined. Speakers generally avoid constructions requiring both as clitic pronouns in the same clause. This constraint may be of the same nature as that discussed by Bonet (1994).

<sup>4</sup> Note that *se* can be either a true reflexive object pronoun or a particle associated with particular verbs.

<sup>5</sup> The reader may consult Browne 1974 or Radanović-Kocić 1988 for the full (i.e. non-clitic) forms corresponding to these clitics where they exist. Since I claim that the clitic forms constitute separate lexical entries, I have nothing to say about the phonological or morphological relations between full and reduced forms. In (3), parenthesized forms are those that have a templatic slot separate from the rest of the paradigm. See Radanović-

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not devote any space to arguing that these are enclitics in the usual sense of the word, as this should become clear enough from their patterning; here I will simply note that they cannot appear sentence initially and cannot be emphasized, focused, contrasted or conjoined (Radanović-Kocić 1988).

### 3. a. Pronouns

	1sg	2sg	3sg-m/n	3sg-f	refl	1pl	2pl	3pl
Dative:	mi	ti	mu	joj	si	nam	vam	im
Genitive:	me	te	ga	je	(se)	nas	vas	ih
Accusative:	me	te	ga	je/ju <sup>6</sup>	(se)	nas	vas	ih

### b. Auxiliaries

	1sg	2sg	3sg	1pl	2pl	3pl
Future ('will'): <i>ću</i>	<i>ću</i>	<i>ćeš</i>	<i>će</i>	<i>ćemo</i>	<i>ćete</i>	<i>će</i>
Conditional ('would'): <i>bih</i>	<i>bih</i>	<i>bi</i>	<i>bi</i>	<i>bismo</i>	<i>biste</i>	<i>bi</i>
Past/Copula ('AUX'): <i>sam</i>	<i>si</i>		<i>(je)</i>	<i>smo</i>	<i>ste</i>	<i>su</i>

The position of the clitic cluster in the clause is traditionally but somewhat misleadingly called “second position” (2P). (I will occasionally use this terminology to refer descriptively to the phenomenon, and the word “clitics” in this paper will refer to SC second position enclitics unless otherwise noted.) Thus, SC clitics do not attach to a host of a particular syntactic category, but rather to whatever happens to be “first” in the clause. Traditional descriptions distinguish two sub-cases of 2P placement: following the first word of a clause versus following the first constituent. As has been pointed out by Renzi (1989) and Čavar and Wilder (1993), since the clitics encliticize to the preceding material, it is more accurate to refer to them as following the first element of the clause, be it a word or a full constituent, and forming part of it, rather than being second. Therefore, I will adopt abbreviations consistent with this idea, referring to 1C (first constituent) versus 1W (first word) clitic placement.<sup>7</sup> These placements are traditionally described as following Wackernagel’s Law; less commonly but more accurately they are also described as obeying the Tobler-Musafia Law. That is, clitics cannot be first in the clause (4), nor can they be later than second (5):

4.     \***Je ga** dao Mariji.<sup>8</sup>  
        *AUX it given Mary*  
        (‘He has given it to Mary.’)

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Kocić 1988 for a survey of the various syntactico-semantic functions that the clitics can perform as compared to the full variants.

<sup>6</sup> This alternation will be discussed later in §4.2.

<sup>7</sup> These correspond to Halpern’s (1992) abbreviations 2D (second daughter) versus 2W (second word).

<sup>8</sup> The relevant clitics are boldfaced in example sentences.

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5. \*Ivan Marije **je ga** dao.  
*Ivan Mary AUX it given*  
(‘Ivan has given it to Mary.’) (Ćavar & Wilder 1993: 9)

Sentences (6a–c) illustrate the basic possibilities for clitic placement mentioned so far: (6a) involves clitics apparently interrupting the first constituent, an NP subject, by following its first word; (6b) shows them following this constituent; (6c) shows that the first constituent can be anything, including an adjunct. If this were all there was to the problem, it might not be a very difficult or interesting one, but we see right away that there are more possibilities. (6d and e) are parallel to (6a and b) except that the initial adverbial has been added, separated off by a pause<sup>9</sup> from the rest of the clause and not affecting clitics, which can still come after the first word or first constituent of the clause proper, i.e. the subject. Thus, “second position” must apparently be defined not with respect to the entire sentence, but with respect to some notion of elements “internal” to the clause. This is confirmed by the facts in (7): clitics cannot follow the first word if it is in turn followed by a pause; the pause apparently demarcates the clause boundary in the relevant sense. (6f) illustrates what appears to be a clitic cluster in at least third position: even if we do not count *ove godine*, it is preceded both by the subject NP and by the participial main verb. We will see that this is a possibility dependent on the phonological size of the NP, and probably carries special semantics. Finally, (6g) shows that placing clitics any later than this apparent third position is ungrammatical.<sup>10</sup> (See Browne 1974, 1975b, Bennett 1986, Percus 1993, Halpern 1992, Radanović-Kocić 1988 and Progovac 1993 for more extensive descriptive presentations of most of the possible clitic placements; Bennett includes examples from texts.)

6. a. Taj **mi je** pesnik napisao knjigu.  
*that me AUX poet written book*  
(‘That poet wrote me a book.’)
- b. Taj pesnik **mi je** napisao knjigu.
- c. Ove godine **mi je** taj pesnik napisao knjigu.  
*this year*  
(‘That poet wrote me a book this year.’)
- d. Ove godine | taj **mi je** pesnik napisao knjigu.
- e. Ove godine | taj pesnik **mi je** napisao knjigu.

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<sup>9</sup> Pause is denoted by “|” in examples. I will return to its phonological and phonetic status later. I have occasionally inserted this symbol in places where the source sentence contained a comma, when it was clear that this was the intended interpretation.

<sup>10</sup> Actually, this sentence may be independently bad because the clitics come at the end, a position that is generally avoided when possible. Nonetheless, such late placement would be bad even if more material followed the clitics.

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- f. Ove godine taj pesnik napisao **mi je** knjigu.
- g. \*Ove godine taj pesnik napisao knjigu **mi je**. (Browne 1974: 41)<sup>11</sup>
7. a. Noću **je** ovdje mirnije.  
*at-night AUX here more-quiet*  
'At night it is more quiet here.'
- b. \*Noću l **je** ovdje mirnije.
- c. Noću l ovdje **je** mirnije. (Radanović-Kocić 1988: 106)
- Examples (8), (9) and (10) illustrate the 1W/1C alternation for an initial subject, an initial object, and an initial adverbial.
8. a. Moja mlađja sestra **će** doći u utorak.  
*my younger sister will come on Tuesday*  
'My younger sister will come on Tuesday.'
- b. Moja **će** mlađja sestra doći u utorak.
9. a. Sovjetske goste **je** primio i predsjednik Republike Austrije  
Jonas.  
*Soviet guests AUX received also president republic Austria*  
Jonas  
'The President of the Republic of Austria, Mr. Jonas, also received the  
Soviet guests.'
- b. Sovjetske **je** goste primio i predsjednik Republike Austrije Jonas.
10. a. Prošle godine **su** otvorili ugostiteljsku školu.  
*last year AUX open hotel-and-catering school*  
'Last year they opened a hotel-and-catering school.'
- b. Prošle **su** godine otvorili ugostiteljsku školu. (Browne 1975b: 113–114)

The element preceding the clitics can be a main tensed verb or a participle as well:

11. Dolazi **li** Marija?  
*comes Q Mary*  
'Is Mary coming?' (Progovac 1993: 18)

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<sup>11</sup> Many of the examples in this paper come from work by Wayles Browne, who often does not give word-by-word glosses; in such cases I have supplied glosses based on his translations and other sources without further comment.

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12. Pripremila **sam si** **ga** za sutra.  
*prepared AUX REFL it for tomorrow*  
'I made it ready (for myself) for tomorrow.' (Mišeska Tomić 1993: 4)

In these V-initial cases we cannot tell pre-theoretically whether we are dealing with 1W versus 1C placement, since the first word is arguably a syntactically mobile constituent; in fact it is not even clear at this point that it makes sense to ask this question. Also, although I shall not go into detail until §9, most of the placement options seen so far are also possible in embedded clause environments.

There is much discussion in the literature concerning the nature of the 1W/1C alternation, i.e. are the two placements equivalent? Here is Browne's opinion:

The choice between "first word" and "first phrase" in placement of enclitics is often a matter of individual taste, and different speakers and writers may express different preferences. In general it is more old-fashioned and literary to break up a phrase by putting the enclitics after the first word. This is especially true when a name is broken up, as in *Lav je Tolstoj*, or when there are more than one enclitic: a sentence like

Lav **bi te se** Tolstoj sigurno uplašio.  
*[Leo would you REFL Tolstoj certainly frighten]*  
'Leo Tolstoj would certainly be frightened of you.'

would be quite unusual. In everyday and conversational style, enclitics are more likely to be put after the whole phrase. (Browne 1975b: 114)

In contrast, Radanović-Kocić (1988) states that 1W placement (i.e. interrupting a constituent) is now limited almost exclusively to subject position and is more common in Croatian than Serbian. Silić (1975, p. 391) says, "In the spoken language the order of constituents is subject to logical factors while the order in the written language is subject to rhythmic rules. The order of the enclitics in the spoken language is therefore freer than in the written language," and goes on to claim that 1W placement "must" be used in written language. My impression from the literature and from informants is that most speakers accept both 1W and 1C placements given the right circumstances,<sup>12</sup> so I will assume that these have equal status within the grammar and attempt to account for that purported fact.

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<sup>12</sup> There may be preferences specific to particular constituent types. For instance, Browne claims that complex *wh*-constituents are preferred with clitics immediately following the *wh*-word, i.e., (ia) is better than (ib):

- i. a. Koje **su** boje gradski autobusi u Jugoslaviji?  
*what AUX color city busses in Yugoslavia*  
'What color are city busses in Yugoslavia?'  
b. Koje boje **su** gradski autobusi u Jugoslaviji? (Browne 1975b: 116–117)

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Returning to the unified nature of the clitic cluster and the fixed ordering within it, (13) shows that changing the order of clitics yields ungrammaticality (all other permutations are also bad), (14) shows that clitics cannot be divided among two valid positions, and (15) shows that the same clitic cannot be repeated in two valid positions.

13. a. Zašto **li mu ga je** poklonila?  
*why Q him it AUX presented*  
'Why did she present it to him?'  
b. \*Zašto **li ga je mu** poklonila? (Schütze, Dyck & Koskinen 1991: 285)
14. a. Taj **joj ga je** čovek poklonio.  
*that her it AUX man presented*  
'That man presented her with it.'  
b. Taj čovek **joj ga je** poklonio.  
c. \*Taj **joj ga** čovek **je** poklonio.
15. a. Taj čovek **je** voleo Mariju.  
*that man AUX loved Mary*  
'That man loved Mary.'  
b. Taj **je** čovek voleo Mariju.  
c. \*Taj **je** čovek **je** voleo Mariju. (Halpern 1992: 27–28)

Considering now the 1W option in more detail, it turns out that not just any word can precede clitics sentence-initially: most prepositions cannot (16b), nor can the verbal negation marker (17b) or certain conjunctions (18b).

16. a. Na sto **ga** ostavi  
*on table it leave*  
'Leave it on the table.'  
b. \*Na **ga** sto ostavi. (Progovac 1993: 4)
17. a. Ne vidim **ih**.  
*not see them*  
'I don't see them.'  
b. \*Ne **ih** vidim. (Browne 1975b: 112)
18. a. ...i ne gledaju **me**.  
*and not look me*  
'...and don't look at me.'  
b. \*...i **me** ne gledaju (Browne 1975b: 113)



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The relevant generalization seems to be that the host element to the left of the clitics must be a prosodic word, rather than just any syntactic terminal. By prosodic word (PWd) is meant a phonologically independent word, i.e. not a clitic; the set of prosodic words is often characterized by the ability to bear accent, although this latter criterion is highly problematic. For the cases just discussed, the notion that non-PWds cannot themselves host second position clitics will suffice: there is independent evidence that most prepositions in SC are proclitics, as is *ne*,<sup>13</sup> and most likely *i* as well, although other explanations for the badness of (18b) are possible. Thus the explanation for clitics as the fourth syntactic element in (18a) is that *i* and *ne* are both proclitic on *gledaju*, the first PWd in the clause, and *me* is in 1W position because it is enclitic on the first PWd. The notion that it is prosodic properties of certain words that blocks clitics following them, rather than syntactic properties, is given support by a fact noted by Percus (1993), namely that there seem to be prosodically heavier prepositions in SC that can host clitics at least marginally (19), and that independently are shown to have the accent properties of PWds, by bearing a High Tone that is not spread from the following word (20). (See Inkelas & Zec 1988 for details of the tone phenomena.)

19.      ?Okolo **je**   sobe trčao Marko.  
           *around AUX room run M.*   (Percus 1993: 3)

20.      okolo kuće  
           |         |  
           H        H  
           *around house*   (Percus 1993: 5)

Javarek and Sudjić (1972, p. 70) also note that prepositions can sometimes be stressed and then take enclitic pronoun objects, in which case the preposition is sometimes lengthened, e.g. *pred* 'in front of' becomes *preda*, although they give no example sentences. Progovac (1993) disputes this latter claim.

As a result of the possibility that clitics can follow the first PWd of a sentence, clitics may break up a constituent into pieces that are not themselves subconstituents, as with the PP in (21), where *na veoma* is presumably not a constituent, but it is a single PWd since the preposition is a proclitic.

21.      Na veoma **si se**   lepom mestu smestio.  
           *on very AUX REFL nice place placed*  
           'You've placed yourself in a very nice place.' (Mišeska Tomić 1993: 6)

This type of example is very suggestive in supporting the need for Prosodic Inversion (PI) in the analysis of SC clitic placement: it is hard to imagine a purely

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<sup>13</sup> Rivero (1991, p. 338) suggests that syntactically this is an instance of the verb incorporating into a Neg head. It is not clear whether that would force the two heads to form a single PWd or not, but it could independently prevent clitics from intervening between them. This is not really a problem: we have two independent explanations for the badness of (17b), both of which could be correct.

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syntactic process that would put clitics in this position (see §3.1 for detailed discussion). However, this cannot happen everywhere: certain types of NPs, dubbed “fortresses” by Halpern, disallow 1W placement for some speakers (although they seem to be fine for others):

22.    ?\*Lav **je** Tolstoj veliki ruski pisac.  
           *Leo AUX Tolstoy great Russian writer*  
           ‘Leo Tolstoy is a great Russian writer.’
23.    ?\*Sestra **će** i njen muž doći u utorak.  
           *sister will and her husband come in Tuesday*  
           ‘My sister and her husband will come on Tuesday.’
24.    ?\*Prijatelji **su** moje sestre upravo stigli.  
           *friends have my-GEN sister-GEN just arrived*  
           ‘My sister’s friends have just arrived.’
25.    ?\*Studenti **su** iz Beograda upravo stigli.  
           *students AUX from Beograd just arrived*  
           ‘Students from Beograd have just arrived.’       (Halpern 1992: 94–95)

Before closing this subsection, I note one set of facts that could be taken as exceptions to the claim that the SC clitic cluster is inseparable. In negative sentences containing an auxiliary, the auxiliary does not have to be in second position (26a): rather, it must be immediately adjacent to the negative morpheme (26b), and this Neg+Aux complex behaves not as a clitic but as a full-standing word, i.e. it can appear in any sentential position, including first position as host to the clitic cluster (27f, h). There have been some analyses of this phenomenon that claim it is a genuine case of splitting the clitic cluster, i.e. that the auxiliary verb continues to have all its clitics properties but whatever usually forces it to move to second position is satisfied by it moving next to negation. Another view, found in the traditional descriptive literature, is that negative auxiliaries have been reanalyzed as single (non-clitic) words, and thus behave like the full forms of positive auxiliaries (e.g., *jesam* in (27d)) or any other verbs. Under the latter view, these facts do not bear on the separability of the clitic cluster. I will discuss these facts further in §2.1.

26. a.    \*To **će ti se** ipak ne isplatiti.  
           *that AUX you REFL still not repay*
- b.    To **ti se** ipak neće isplatiti.  
           ‘That still won’t be worth it for you.’                   (Browne 1975b: 129)
27. a.    Ja **sam mu ga** dala.  
           *I AUX him it given*  
           ‘I gave it to him.’
- b.    Dala **sam mu ga**.

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- c. Da **li sam mu ga** dala?  
*COMP Q AUX him it given*<sup>14</sup>  
'Did I give it to him?'
- d. Jesam **li mu ga** dala?  
*1sgAUX*
- e. Ja **mu ga** nisam dala.  
*I him it NEG-AUX given*  
'I did not give it to him.'
- f. Nisam **mu ga** dala.
- g. ?Da **li mu ga** nisam dala?  
*COMP Q him it NEG-AUX given*  
'Did I not give it to him?'
- h. Nisam **li mu ga** dala? (Mišeska Tomić 1993: 42–43)

### 1.3 Issues

Now that we have seen the more important descriptive facts of SC clitic placement, let me set out the issues that are raised by these facts, by way of showing that the way they are explained has ramifications far beyond this small empirical domain. The broadest and most basic question is whether clitic placement is a function solely of syntax, or solely of phonology, or of some combination of the two; all three positions have been taken in the literature. Does morphology have any role to play in either clitic placement or clitic ordering? If phonology is involved, does it work purely by filtering out (certain) bad placements, or is it proactive, i.e. can it change the linear position of clitics? If clitics can move in the phonology, what sort of process is responsible for movement, and how is it constrained? Do clitics move to find hosts or do hosts move to support clitics? Must we posit a language-particular rule of clitic movement, or can it be made to follow from universal principles? On the other hand, if there is no post-syntactic movement, how can the syntax generate first-word placements that interrupt constituents? Where are the clitics at D-structure, and are they someplace else at S-structure? Is there only a single position where they can be at S-structure? What positions are available in front of clitics at S-structure, and what sorts of movement to these positions is allowed? If clitics move in the syntax, where do they move to, and why do they move? If they do not move, how do they fulfill their semantic function? Since most second-position enclitics in SC have corresponding full (non-clitic) forms, why would phonological movement ever be needed—why could the full form of the word not be inserted instead?

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<sup>14</sup> I am glossing *da* as a complementizer for now, although its status is actually unclear. See §5.

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Why is the clitic cluster inseparable (except perhaps for sentences with negative auxiliaries)? For that matter, why do clitics cluster in the first place, especially these clitics, which seem to have little in common semantically or syntactically: auxiliaries, pronouns, and the question particle do not seem to form any sort of natural class. Do they at least all have a syntactic category type in common, and if so what is it, i.e. are they all  $X^0$ s, all  $X^{\max}$ s, a mixture, something else entirely? How are they distinguished from other SC clitics that do not appear in second position? Why is their order fixed, and why does it almost but not quite follow semantico-syntactic classes? Does the fixed order follow from anything else in the grammar, or is it simply an independent fact for SC speakers to memorize? Why is clitic order fixed while the rest of SC word order is so free, especially among verbs and argument phrases?

What role do units of the prosodic hierarchy play in clitic placement, if any? Is there evidence for such a thing as a Clitic Group in SC, or what is the phonological status of the clitic-host relationship? Do we have to appeal to Intonational Phrases or other larger prosodic units to explain the apparent effect of pauses on clitic placement, or do pauses merely reflect some syntactic constraint? If 1W placement has a phonological basis, what is the nature of the phonological constituent involved? Are the apparent heaviness effects prosodic or syntactic, and in either case, how is heaviness defined? How do the various prosodic factors and constituents interact, and what sort of process is needed to construct them? Are the observed dialect differences reflective of differences in prosodic structure or syntactic structure?

Finally, what is the nature of the phonology-syntax interface needed to yield the SC clitic facts? Does the syntax need to “look ahead” to the needs of the phonology in order to ensure a host word is available in the appropriate position? If syntactic movement is no longer considered optional, can syntactic fronting be motivated by the need to support clitics, and if so, could that be accomplished without look-ahead? Is there some independent syntactic requirement that “coincidentally” provides hosts for clitics? Or is the relevant type of syntactic movement actually optional, so that the phonology can simply filter out bad structures while the syntax overgenerates? Does the syntax need information about phonological subcategorization and/or phonological heaviness in order to make the necessary distinctions, or is there a derivational alternative possible?

Obviously, I cannot hope to answer all, or perhaps any, of these questions definitively here. What I will try to do is bring to bear all the available facts and show what they can and cannot tell us about the likely answers. In §2 I will review the major analyses of SC clitic placement in the literature, summarizing their theoretical claims and the authors’ motivations for them, illustrating the range of possible approaches to the issues just listed, and pointing out problems with them. This will lead me in §3 to present the motivations for my own proposal and its basic tenets. In §4 I describe in detail the theoretical machinery that will form the basis of my analyses, broken down into syntactic, morphological, and phonological components, and show how it applies to the basic 1W/1C alternations. The next five sections of the paper are devoted to analyzing spe-

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cific classes of problems for the basic story, instances where the standard pattern of 1W/1C does not hold or where the basic analysis makes the wrong predictions. Section 5 covers cases of obligatory 1W placement, i.e. the impossibility of 1C in certain constructions. Section 6 looks at the opposite problem, instances of obligatory 1C where 1W is blocked. Section 7 is a systematic study of cases where clitics occur later than “second position” for various reasons. In §8 I turn to cases of 1C placement that seem to contradict the generalization proposed in §7, namely that “second position” is defined relative to pauses, because the facts here are that in some situations pauses are ignored in determining second position. Last among the problem cases, §9 concerns clitic behaviour in embedded clauses, which works differently from matrix clauses in certain respects. Finally, §10 presents some broader theoretical implications of the analysis, directions for future work, and conclusions.

### **2. Previous Work**

In this section I will review very cursorily the major accounts of SC clitic placement in the literature. For my purposes, it is useful to divide these into three classes, which I dub (perhaps somewhat misleadingly) pure syntax, pure phonology, and mixed. I will be arguing throughout this paper that pure syntax and pure phonology accounts are inadequate to the task of fully accounting for the facts, and will be making proposals for a specific type of mixed account inspired by previous accounts of that kind. Thus, since I cannot attempt a detailed critique or even a full summary of each proposal here, I will generally be focusing on the weak points of the first two kinds of theories and the strong points of the third kind. I am also focusing mostly on the placement of the clitic cluster rather than the order of clitics within it in this section; I will review some accounts of interclitic ordering in §4.2, where I will argue that neither syntax nor phonology is responsible, hence the backgrounding of that issue in this section.

#### **2.1 Pure syntax accounts**

By a pure syntax account of SC clitic placement I do not mean an account that claims that the relevant words are not phonologically clitics. Rather I mean an account under which the syntax is fully responsible for the linear position of clitics in the sentence string, i.e. clitics do not move in the phonology. Within this class one can imagine two subclasses: in a strong pure syntax account, phonology does not even play a passive filtering role in clitic placement, i.e. it does not rule out syntactically well-formed sentences on the grounds that clitics are in a phonologically illicit position, whereas in a weak pure syntax account, phonology could play this role, selecting among outputs of an overgenerating syntax.

The most detailed pure syntax account I have seen is that of Progovac (1993, 1994), which is meant to derive clitic ordering purely from syntactic

principles as well.<sup>15</sup> Although I do not believe that either of its goals can actually be met in the way Progovac wishes, I find much of her analysis compelling and will adopt many of her syntactic claims. First of all, I agree that clitics are in  $C^0$  (see §4.1 for arguments and discussion), and that elements can move to Spec-CP or to Comp and become their hosts. However, I disagree with her claim that at least one of these movements is obligatory when clitics are present, since I believe that clitics can lack a host at S-structure (see §3.1 for arguments). Since Progovac apparently does not have a morphological component to reorder elements in Comp, she must stipulate that clitics right-adjoin to it while verbs left-adjoin, since verbs precede clitics, and *li*, which she takes to be base-generated in  $C^0$ , precedes the other clitics, which she takes to have moved to Comp.<sup>16</sup> Her explanation for the 1W/1C alternations like (28) is based on noticing that in most of these cases, one can show independently that the first word is extractable and questionable independent of the presence of clitics, as in (29) and (30).<sup>17</sup>

28. a. [Anina drugarica] **mu** nudi čokoladu.  
*Ana's girl-friend him offers chocolate*  
 'Ana's friend is offering him chocolate.'
- b. [Anina **mu** drugarica] nudi čokoladu.
29. Anina dolazi sestra.  
*Ana's comes sister*  
 'Ana's sister is coming.'
30. Čija dolazi sestra?  
*whose comes sister*  
 'Whose sister is coming?' (Progovac 1993: 3)

Thus, the claim is that whatever is responsible for the word order in (29) is also responsible for 1W clitics intervening in the NP. I accept this account for the cases she cites, but I believe there are instances of 1W that cannot be analyzed in this way, as I will argue in §3.1. Conversely, she notes that prepositions generally cannot host clitics, and they also cannot be extracted from their PPs, so this restriction is captured without appealing to the status of prepositions as procli-

<sup>15</sup> It is not clear whether she has in mind that there is a syntactic requirement for movement or whether it is merely syntactically optional and the phonology will filter out sentences with clitics in which no movement has applied.

<sup>16</sup> Another argument she gives for clitic right-adjunction is that clitics always follow complementizers in subordinate clauses. I will argue in §9 that at least some subordinate clauses involve CP-recursion, in which case complementizer and clitics are in separate heads and this argument loses some of its force.

<sup>17</sup> There is an odd interaction at play here, however, which no one has even attempted to explain in the literature as far as I am aware. The examples in (i) show a pattern similar to (29) and (30) in the text. However, the option of separating the head of the NP from the possessive by *both* the predicate noun *and* the clitic is ungrammatical (ii).

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tics. Also, the constraints on placing clitics within NPs, demonstrated in (22)–(25) above, Progovac explains by noting that the substring of the NP preceding the clitics cannot be extracted or questioned in any of these cases; the speakers who do allow these clitic placements apparently do allow such extractions as well.<sup>18</sup>

Progovac argues against the claim that PWD is a relevant notion for clitic placement. She points out that while prepositions are normally unstressed in SC, they can be emphatically or contrastively stressed and yet still cannot host clitics:

31. \*Prema **ga je** Milanu Marija bacila, a ne od njega.  
*toward it AUX Milan-DAT Mary thrown and not from he-GEN*  
'Mary threw it toward Milan, not away from him.' (Progovac 1993: 5)

On the other hand, the complementizer *da* is never stressed according to her, yet it can host (and she claims must host) clitics in embedded clauses that it introduces, and also in matrix questions:

32. Stefan tvrdi [da **mu ga je** Petar poklonio].  
*Stefan claims that him it AUX Peter given*  
'Stefan claims that Peter has given it to him as a present.'

- 
- i. a. Markova supruga **je** Nina.  
*Marko(adj) wife AUX Nina*  
'Marko's wife is Nina.' or 'Nina is Marko's wife.'  
b. Čija supruga **je** Nina?  
*whose wife AUX Nina*  
'Whose wife is Nina?'  
c. Čija **je** Nina supruga?

- ii. \*Markova **je** Nina supruga. (Halpern 1992: 104)

(I have not explored the possibility, suggested by Michael Kenstowicz (p. c.), that (ii) might be acceptable with focal stress on *Markova*.) I have no idea how to explain this restriction, but the contrast between (ic) and (ii) does seem to imply that we should be cautious in what we count as evidence for syntactic extractability: *wh*-extraction seems to be freer than non-*wh* extraction in SC (as noted also by Halpern), so wherever possible we should try to corroborate it with other kinds of fronting data. (Progovac (1993) claims that *wh*-extractability should suffice as evidence for constituency, but the point is to have independent evidence for the specific kind of movement that a given clitic placement demands.)

<sup>18</sup> At least, this is what Progovac apparently must claim. (This is independent of the question of why these sentences are not completely starred for her.) The claim was actually made by Željko Bošković (p. c.), who notes that he can get all these placements and can also independently do the extractions.

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33. Da **li je** Marija stigla?  
*COMP Q AUX Mary arrived*  
'Has Mary arrived?'
34. Da **me slučajno** ne pozivas?  
*COMP me by-any-chance not invite*  
'Are you trying to say that you are inviting me?' (sarcastic)  
(Progovac 1993: 5)

Thus, the argument is that stress is neither necessary nor sufficient for hosting clitics. I disagree with this claim and will attempt to give evidence in later sections that PWD *is* a relevant notion, although I cannot necessarily argue against the cases she cites. Certainly for prepositions I would claim that there is a difference between lexical stress and contrastive or emphatic stress, such that clitics could be sensitive only to the former property. The latter case (*da*) really boils down to how we determine whether or not a word is stressed in a given environment. I do not know what criteria Progovac is using to decide that *da* is not stressed in (32), but other authors have claimed that it is. For my purposes what will matter is that the host-nonhost contrast be based on some prosodic difference; whether this difference always surfaces as stress is less important. It may well be that the fact that *da* is a function word means it is exempt from lexical stress rules, although it is marked as a PWD. Conversely, one must ask whether the presence of contrastive stress on a preposition necessarily means that it has been promoted to PWD status at the point in the grammar where clitic placement is assessed. We simply do not have enough independent evidence about how these phenomena work to build compelling arguments.

Let me say a bit about Progovac's proposal for clitic movement deriving clitic ordering; see her paper for full details. Her claim is that auxiliary and pronominal clitics move as heads in the syntax, and independent constraints on head movement (the Head Movement Constraint (HMC) and/or Relativized Minimality) conspire to put clitics in the order they surface in, with the added stipulation that clitics always right-adjoin when they undergo head raising. Recall the basic ordering facts from §1.2: auxiliaries follow *li*, pronouns follow auxiliaries. If *li* is base-generated in Comp and clitic movement leads to right-adjunction, then everything will follow *li*, as desired. If pronouns are generated in their  $\theta$ -positions then they will be below auxiliaries at D-structure; they cannot raise directly to Comp across the intervening Aux heads due to HMC, so they adjoin to Aux and then raise with it. Again, right adjunction puts pronouns after Aux, as desired. Given the right assumptions about the position of dative objects, their ordering with respect to accusatives can be similarly derived. While this account is initially very appealing, I do not believe that it can be maintained. The first problem, noted but not explained by Progovac, is the location of third singular auxiliary *je* at the end of the clitic cluster: why does its ordering differ from that of all other auxiliaries? Granted, it is morphologically different in that it is a verb stem rather than a person ending, but this will not explain its position unless it is base-generated somewhere low in the tree or somehow triggers pronouns to left-adjoin to it, and both of these options seem ad hoc. The second problem arises in sentences with negated auxiliaries, men-



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tioned in §1.2: in this case, the negative morpheme and the auxiliary form some sort of unit, and the auxiliary ceases to participate in the clitic cluster, being free to surface elsewhere in the sentence—see (36), contrasting with (35).

35. a. Miši            **ću** stolu doneti.  
*Misha-DAT will table bring*  
'I will bring the table to Misha.'
- b. \*Ću Miši stolu doneti.
- c. \*Miši stolu **ću** doneti.
- d. \*Miši stolu doneti **ću**.
36. a. Neću      Miši            stolu doneti.  
*NEG-will Misha-DAT table bring*  
'I won't bring the table to Misha.'
- b. Miši neću stolu doneti.
- c. Miši stolu neću doneti.
- d. Miši stolu doneti neću. (Halpern 1992: 84–85)

The traditional account is that Neg+Aux somehow constitutes a full PWD, i.e. has ceased to be a clitic. Progovac can adopt this explanation of the Aux not being in the clitic cluster,<sup>19</sup> but it raises problems for the other clitics, which still must raise to Comp (37), and need not even be adjacent to Aux (38).

37. a. Marija **go** neće            doneti.  
*Maria it NEG-will bring*  
'Maria won't bring it.'
- b. \*Marija neće **go** doneti.
- c. Neće **go** Marija doneti. (Halpern 1992: 84–85)
38. a. Sutra      **će ga** deca      videti.  
*tomorrow will him children see*  
'The children will see him tomorrow.'

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<sup>19</sup> In fact, she wishes to say that the Aux continues to be a clitic, but that Aux clitics have different “support” requirements from pronominal clitics; in particular, they must move to a head bearing truth-value features, which both Comp and Neg have, whereas pronouns need some other sort of feature, perhaps related to their representing old information.

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- b. \*Sutra **će ga** deca ne videti.  
*not*
- c. ?\*Sutra deca neće **ga** videti.  
*NEG-will*
- d. Sutra **ga** deca neće videti. (Progovac 1993: 13–14)

Unless negated auxiliaries are generated somewhere completely different in the syntactic tree, her assumptions seem to force the conclusion that an Aux that does not itself raise to Comp should block head movement of pronouns across it to Comp. Things get worse if the explanation for Neg+Aux not raising is the fact that Neg is a head generated in NegP above Tense, which blocks the movement of Aux to Comp but allows Aux to incorporate into Neg (see, e.g., Rivero 1991). Then pronouns would have to skip both the Aux head and the Neg head; if they can do that, why can they not skip just the Aux head in a positive sentence and end up preceding the Aux clitic?

I will say a few words about another recent pure syntax proposal, by Ćavar and Wilder (1992, 1993; Wilder & Ćavar 1993).<sup>20</sup> Their syntactic assumptions are quite similar to those of Progovac, but they explicitly wish to account for syntactic movement “rescuing” clitics. Adopting the assumptions of Chomsky’s (1993) Minimalist program, they propose that the need for clitics to have host words available is a convergence requirement at PF, and implicitly must be assuming that there is no phonological movement, so that syntactic movement can occur in violation of the Procrastinate principle in order to save a derivation from crashing due to unlicensed clitics. More specifically, they propose that movement of constituents to Spec-CP may happen or fail to happen for independent reasons, but if it fails to happen then as a last resort some form of a verb may raise to Comp. Under Minimalist assumptions, this movement must be motivated by a feature-checking requirement; they suggest some relatively ad hoc features that participles and infinitives might have to have in common with the auxiliaries in their clause (“auxiliary features”) that would require these non-finite verb forms to move to C to unite with auxiliaries that have already moved there. The features involved are weak, so by Procrastinate this movement should not happen overtly except when it must, namely in order to support clitics at PF. This then provides an explanation for the fact that we do not seem to find movement of non-clitics both to Spec-CP and to Comp in the same clause—the latter is delayed until LF unless the former fails to happen. They also suggest an explanation for the apparent fact that words outside CP cannot satisfy the need for a host: there is a syntactic cycle that includes only CP and ill-formed clitics must be “saved” on that cycle before the syntax can “know” whether there is a potential host outside CP.

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<sup>20</sup> Some of my comments are based on Ćavar & Wilder 1993, an extended abstract for a talk. Regrettably, I have not yet obtained access to a complete version of that work.

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This latter idea about cyclic constraint satisfaction strikes me as inconsistent with the Minimalist paradigm: if a PF condition is involved, why should syntactic cycles be relevant? It would be simpler just to stipulate that elements outside CP are not possible clitic hosts, that CP is a boundary to cliticization in the phonology, or some other such statement. Ignoring this complication, I would like to comment on the first portion of their proposal. Specifically, it should be noted that this aspect of the Minimalist framework effectively constitutes a form of globality, i.e. lookahead from the syntax to the phonology, of a kind that I am claiming is not necessary to account for SC. To the extent that this form of limited lookahead is independently motivated cross-linguistically, it is not of theoretical importance to show that it is not needed for this one language. However, since I am claiming that syntax does *not* always provide clitic hosts, I must show that my claim is still consistent with the Minimalist program, which I would like to be able to maintain. If phonological movement is available as an option in the grammar, then it too can save a potentially crashing derivation, and since it happens later than syntactic movement, it would be at least consistent with Procrastinate that satisfaction of weak feature requirements should not be invoked. We can then ask whether there are differences of empirical prediction between the two accounts, and I claim that there are, as I will argue in §3.1. It seems to me that there is then still an issue as to whether a phonological requirement of the form ‘element X requires a prosodic host’ ought to be the type of thing whose violation can crash a derivation and that can hence trigger syntactic movement, as opposed to the more standard kind of trigger such as the need to eliminate unpronounceable features or traces. All that I wish to conclude is that the former kind is not needed for SC.

### 2.2 Pure phonology accounts

By a pure phonology account of SC clitic placement I mean one under which the phonology itself is responsible for getting clitics to “second position”; that is not to say that syntax is completely irrelevant or that clitics are not present in the syntax, but rather that their placement is accomplished only by operations of the phonological component of the grammar. The only account that I have seen that clearly belongs in this category is that of Radanović-Kocić (1988, 1993). She devotes a large amount of time to arguing that clitic placement cannot be syntactic, since the conditions governing it are not syntactic but phonological in nature. I will not present her arguments here, since I summarize and critique them in §3.1. Her eventual proposal is that clitic placement is accomplished by the following rules:

Assign the feature [+clitic] to the accusative, dative, and genitive pronouns, and auxiliaries (except *budem*) and the copula in all positions except when they are carrying phrasal stress and when not preceded by an element that can serve as its host. (Radanović-Kocić 1988: 88)

Move all [+clitic] elements within an IP [intonation phrase] into the position after the first P [phonological phrase] of the same IP. (Radanović-Kocić 1988: 134)

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Note that clitics must thus move after prosodic mapping has applied; crucially the rule refers to constituents not present in syntax. She claims that in cases where an initial constituent that would normally constitute a single phonological phrase appears to be split by clitics, e.g. *Adj CL N*, the adjective receives focus and hence forms a phonological phrase on its own. Note that the cliticization rule is blocked when there is no valid host preceding the potential clitics, which would make PI impossible and make it very hard to derive certain PP-internal clitic placements that we will encounter in §3.1. To motivate assigning the feature [+clitic] by rule, she takes the complementary distribution of the clitic and full forms of each word within a clause as evidence that they are derived from the same lexical entry, but this does not follow logically. Independent of the fact that her arguments do not logically require the conclusions she wishes to draw from them, this account is unappealing a priori on several grounds. The most striking is of course the power required to implement the rule of clitic placement: if the phonology can contain a rule like this, what is to prevent it from doing just about anything it pleases? The other big disadvantage is that there are large classes of facts about clitic placement that are insightfully explained by reference to the syntax, as should become evident by the end of this paper, a fact that this rule simply washes away. Despite these seemingly fatal flaws, Radanović-Kocić's work has proved extremely useful, because in focusing on the role of phonology she has uncovered generalizations about the phonological constraints on clitic placement that other approaches have failed to notice.

Hock (1992, 1993) has followed up on Radanović-Kocić's work, proposing his own version of a phonology-based account while admitting that some syntactic information may be relevant. His version of the clitic placement rule is the following:

In clauses with topics or contrastively accented initial elements, place all [+clitic] elements into the position after the first accent-bearing element that forms a prosodic phrase with the rest of the clause. Elsewhere, the default position for [+clitic] elements is the clause-initial complementizer. (Hock 1993: 12)

This may be a slight improvement over Radanović-Kocić's proposal in terms of descriptive coverage, but still suffers from most of the same empirical and conceptual problems.

### 2.3 Mixed accounts

By a mixed account of SC clitic placement I mean one under which both syntax and phonology play a proactive role in the eventual linear position of clitics. I am only aware of a single line of research of this type, which traces its origins back to work by Zec and Inkelas (1990).

Zec and Inkelas's proposal was that phonology and syntax are at work simultaneously in establishing the placement of clitics; it is actually not clear (at least to me) whether they would want to say that only one of these components actually carries out re-ordering. Their model involves "co-presence" of syntax

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and phonology, i.e. a non-derivational interaction between these two components. Syntactic and phonological representations of a sentence exist concurrently and are linked via its prosodic structure, which is related by mapping principles to the syntactic structure and the segmental phonology. Both the syntax proper and the phonology proper have access to this prosodic structure, but neither has direct access to the other (i.e., syntactic rules cannot refer to phonological segments and phonological rules cannot refer to syntactic constituents). Zec and Inkelas do not explain formally how SC clitic placement is to work, but they do use the facts to argue for this model. Specifically, they do not deal with IC placement (for which they could presumably use a pure syntax explanation), but for IW placement they appeal to clitics appearing after the first PWd, crucially not a syntactic element, at least implying that this might be accomplished by a syntactic rule looking at the prosodic structure. Beyond the fact that they provide no details about how the system works, I wish to argue against it on theoretical grounds. One of the major goals of this paper will be to show that, while a mixed account of clitic placement is necessary, it can be implemented in a purely derivational framework, to be spelled out in §3.3. Specifically, I claim that the syntax can play its role in clitic placement without any phonological information whatsoever, where I take the fact that certain words *are* second-position clitics to be a syntactic as well as a phonological feature of their lexical entries. All other things being equal, a theory that allows the syntax access to phonological information is more powerful than one that does not. Of course, all other things are usually not equal, and in this case it is clear that the power of Zec and Inkelas's theory cannot easily be compared with that of my theory, partly because their whole framework is non-derivational, but mostly because we would first need to know the details of how their syntax works, which they do not provide. I cannot argue that there are no facts of natural language that would force us to adopt a co-presence model, but I will strive to show that the facts of SC clitic placement do not do so, and furthermore that they are accommodated in a derivational framework built out of syntactic and phonological components that already have much independent motivation.

Halpern (1992) proposes a mixed account that was inspired in many respects by the ideas of Zec and Inkelas but does not rely on their co-presence model. Halpern makes very explicit proposals about the syntactic, phonological and morphological operations that underlie his theory of SC clitic placement, as well as motivating the mechanisms from work on other languages. He gives arguments against pure phonology approaches, in particular from the fact that the first constituent in a IC placement sentence can at least marginally be arbitrarily heavy, so it seems unlikely that there is any single prosodic unit that is always the host. Halpern's theory forms the basis of my own; in many ways, the purpose of this paper is to confirm that his particular mix of syntax and phonology was the right one and to defend it against counter-arguments both before and since. I will propose some minor modifications to the details, particularly of the syntax, and I will extend the account to facts that Halpern does not discuss, but unless stated otherwise I am following his account throughout this paper. Thus, the fundamental insight upon which I base my work is his: phonology can move clitics if and only if their prosodic requirements are not satisfied, and it can move them only the minimal amount necessary to satisfy those requirements.

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Halpern dubs the process responsible for this movement Prosodic Inversion (PI), since it inverts the order of a clitic and its host prosodic word; I will maintain this terminology, without committing as to whether inversion in a technical sense is what is actually involved, as opposed to movement of one element around the other. This approach makes the following correct predictions about SC, as he notes. 1) The entire set of 2P clitics shows the 1C/1W alternation—there are no idiosyncratic differences among them; it is not obvious that this would follow from a pure phonology approach. 2) In a given sentence, the clitic cluster cannot be split between 1C and 1W positions, and there is no “doubling” of the same clitic in both positions. These two predictions follow from the fact that clitics have a unique syntactic position and PI is not optional. 3) There is no allomorphy sensitive to the 1C/1W distinction, since at the point when clitic morphemes are inserted PI has not applied.

The claim that prosodic adjunction can effect the inversion or reordering of syntactic terminals does not originate with Halpern, but appears in various forms in Sproat 1988, Marantz 1988, 1989, Sadock 1991, and other sources. Halpern’s particular construal is that PI is a last resort process, i.e. “The surface order of two lexical items reflects the order established by the syntax unless this would lead to an ill-formed surface (prosodic) representation” (p. 23). It is the “result of the mapping between syntactic and prosodic structure; its scope is limited to affecting adjacent elements, and its application makes reference only to prosodic constituency” (p. 2). He provides the following formulation, which I adopt verbatim:

Prosodic adjunction of clitics: For a DCL [directional clitic], X, which must attach to a  $\omega$ <sup>21</sup> to its left (respectively right),

a. if there is a  $\omega$ , Y, comprised of material which is syntactically immediately to the left (right) of X, then adjoin X to the right (left) of Y.

b. else attach X to the right (left) edge of the  $\omega$  composed of syntactic material immediately to its right (left). (Halpern 1992: 81)

Thus, clitics do not specify the morphological or syntactic properties of their hosts, but only prosodic subcategorization requirements. Halpern provides much cross-linguistic evidence for the necessity of such a process, which I will not attempt to summarize. As for the syntactic status of clitics, he considers them  $X^{\text{max}}$ s, because he finds them to have a similar syntactic distribution to adverbs crosslinguistically. He suggests that, like adverbs, they may only be able to adjoin to  $X^{\text{max}}$ s that are not sisters to lexical heads, e.g. VP, IP and CP; SC 2P clitics adjoin to IP.<sup>22</sup> Part of his empirical motivation for this choice is the apparently mistaken belief that they must immediately follow a complemen-

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<sup>21</sup> By “ $\omega$ ”, Halpern means a phonological word (adopting Nespor and Vogel’s (1986) symbol), which for our purposes can be read as “PwD.”

<sup>22</sup> Actually, this is one of two options he considers, the other involving an extra clausal functional projection, for which I refer the reader to his work; I find that proposal less appealing.

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tizer when one is present (see §9 below). Part of his theoretical motivation comes from the notion that clitics are associated with a syntactic domain that in some sense reflects their semantic scope, which he claims is IP for SC 2P clitics, and they should be structurally adjoined to this domain. While the latter idea is appealing, the empirical evidence for it is not overwhelming, and the former empirical motivation turns out to be false; we will see an additional argument against adjunction in §4.1. It is worth noting here, however, that Halpern's only substantive argument against the alternative that I will follow, name that clitics are in  $C^0$ , comes from facts of Homeric Greek, not SC. Halpern also analyzes cases of "late" (i.e. after 2P) clitic placement, by appealing to a process of "Heavy Constituent Shift" to a position above Spec-CP, noting that elements preceding the host constituent are often followed by a pause and often have a minimum size requirement. However, we saw in §1.2 (7) that there are cases of light adverbials that are followed by pause and trigger delayed clitic placement, so it seems unlikely that some sort of heavy shift can explain all delayed placement. However, I do agree with the following related claims he makes: "A constituent which is stylistically fronted is separated from the rest of a clause by a (large) prosodic boundary—that is, the fronted constituent is in a separate intonational phrase" (p. 91); "A clitic must be contained in the same intonational phrase as its host" (p. 152–153). The latter is a constraint on the prosodic adjunction rule, blocking clause (a) in some cases, thus triggering clause (b).

One more recent mixed account that also bases itself on Halpern's work is that of Percus (1993).<sup>23</sup> His basic premises and goals are much the same as my own, but he reaches a conclusion that I wish to argue against, namely that PI is more powerful than Halpern claimed, in that it can move clitics more than one prosodic word to the right under certain circumstances.<sup>24</sup> He formulates it as follows:

For a directional clitic, X, with the subcategorization ]<sub>w</sub>\_\_\_,

- a. if there is a w[, Y,] immediately to the left of X, then adjoin X to the right of Y if this will not violate any prosodic requirements;
- b. else ("Prosodic Inversion") move X EITHER
  - i. to the right edge of the next w to the right that receives phrasal stress OR
  - ii. to the left edge of the next p to its right and adjoin it to the right of the w to its left. (Percus 1993: 18–19)

The facts that motivated this claim will be discussed in §9, along with a proposed solution that employs only Halpern's more impoverished version of PI. In essence, Percus's extension was forced by assuming a more restrictive

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<sup>23</sup> Halpern's basic approach is applied to placement of the *li* clitic in Bulgarian by Izvorski (1993).

<sup>24</sup> It should be noted that Percus was clearly less than thrilled by this conclusion and went out of his way to stress its tentative nature.

syntactic structure than I will employ; it is my contention that the more liberal syntax is independently needed for SC, and therefore should be adopted in lieu of an enrichment of the phonology that I claim is qualitative as well as quantitative. It is not just that PI can move things further under Percus’s account, but in so doing it loses the character of a last-resort repair strategy, since it can do more than is necessary to save an ill-formed structure. It should be noted here that Percus also discusses many quirks of the SC data based on his own elicitation that have not been discussed in the literature; regrettably, space and time limitations prevent me from considering the ramifications of most of them. If anything, these facts illustrate that more prosodic constraints are at work in SC clitic placement than has been acknowledged in the literature, and so in that respect they support the mixed approach; accounting for the details could well complicate the theory beyond what I propose in this paper, but it is my hope that there are no irreconcilable contradictions that will arise when my theory is extended to all of Percus’s data.

### **3. Proposal**

#### **3.1 Motivation**

In this subsection I will present the facts and potential arguments for the fundamental starting claim of my analysis. As should be evident from the previous section, my claim is that phonological re-ordering is crucially required in a full analysis of SC clitic placement, as claimed by Halpern and Percus and contra the claims of Progovac, Čavar and Wilder, etc. There have been several classes of purported arguments for this in the literature, but in my opinion few of them are actually valid. I first briefly summarize the more dubious arguments, by way of illustrating what is necessary for a genuine argument to go through, and then concentrate on one that I consider sound.

One potential argument for the necessity of phonological movement comes from the fact that the set of possible host words for clitics is apparently prosodically rather than syntactically defined. That is, the host-nonhost distinction crosscuts syntactic categories: some complementizers and conjunctions can host clitics while others cannot; most prepositions cannot host clitics, but perhaps heavy ones marginally can. Descriptively, when a clitic “ought to appear” immediately following a nonhost, it instead surfaces further to the right in the sentence. Thus, we seem to need phonology in order to characterize the triggering environment for this apparent movement, hence the movement must be a phonological rule if (as I assume) syntax has no access to phonology. While the argument sounds reasonable in the abstract, when we apply it to the actual cases we find that it can be circumvented without terribly implausible stipulations. First take the case of conjunctions and complementizers: the generalization is that clitics usually must follow these words immediately, but cannot follow them if they are unaccented, as in (39) and (40).

39. a. Ivan je kupio vina i pio je ga.  
*Ivan AUX bought wine and drunk AUX it*



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- b. \*Ivan je kupio vina i **je ga** pio. (Ćavar & Wilder 1993: 11)
40. a. A Petar **je** u kući.  
*so Petar AUX in house*  
 ‘So, Peter is in the house.’
- b. \*A **je** Petar u kući. (Zec & Inkelas 1992: 508)

There could be a syntactic explanation for this fact. Suppose that accented complementizers are in Comp, but unaccented complementizers are in some higher functional projection outside CP, or perhaps CP-adjoined. Then the impossibility of clitics immediately following the latter would follow because they are outside the domain of cliticization; clitics require a host within their clausal domain (which I take to be CP), so there could easily be a syntactic requirement to that effect, e.g., either Spec-CP or C<sup>0</sup> must contain a non-clitic. The question that naturally arises is whether there would be any independent motivation for this difference in structure; Bennett (1986) and Ćavar and Wilder (1993) have argued that there is. I present some details of Bennett’s proposal in §9, but I will mention the basic idea here. Bennett claims that the accented/unaccented division among conjunctions/complementizers correlates with a semantic division, namely that of subordinating versus coordinating, and suggests that this semantic difference is reflected structurally: subordinating conjunctions are “part of” the following clause, whereas coordinating ones are “outside” it, occurring “between” clauses. While he does not propose specific structures, the general idea does not seem unreasonable. The same solution would apply even to cases where the same word alternates between host and non-host status depending on whether or not it is accented, as in (41): if these cases are genuine,<sup>25</sup> they merely require two lexical entries with different semantics, one accented and one unaccented.

41. a. Mi smo zvonili, ali **nam** niko nije otvorio.  
*we AUX rung but us no-one NEG-AUX opened*  
 ‘We rang, but nobody opened the door for us.’
- b. \*Mi smo zvonili, ali **nam** niko nije otvorio.
- c. Mi smo zvonili, ali niko **nam** nije otvorio. (Zec & Inkelas 1990: 368)

Now let us take the other case of a category that divides into hosts and nonhosts, namely prepositions, assuming for the sake of argument that heavy prepositions really can host clitics. If this were not the case, of course, a pure syntax account would simply appeal to the fact that prepositions cannot be syntactically extracted from PPs, thus we would never expect to find clitics after them. To the extent that sentences like (14) above are possible, however, it

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<sup>25</sup> Progovac (1993) explicitly denies the accuracy of these judgements. She gives (41a) a question mark, finds (41b) perfect, and states that the order in (41c) is fine with accented *ali*.

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looks like there is a genuine argument for phonological movement; in fact, I believe that to be the case. However, let us play devil's advocate for a moment in order to see what a descriptively adequate pure syntax account would have to look like. It has been suggested (Ljiljana Progovac, p. c.) that the reason why words like *okolo* can host clitics is that they are adverbs as well as prepositions. If it is true that the purely proclitic prepositions cannot function as adverbs (I have no data on this point, but it seems plausible), then the clitic placement facts would reduce to a syntactic category distinction. It is not immediately obvious what the actual account would be, however: when it takes a complement, as in (19), *okolo* presumably must be a preposition and not an adverb, almost by definition. Somehow its dual status would have to affect its extractability even when it functions as a preposition, which seems highly implausible but could be subject to empirical test easily enough, by seeing whether anything other than clitics can intervene between it and its complement. Another story about prepositions might be that they actually do extract freely in syntax, but the proclitic ones "pied pipe" the following word along since it is their host, whereas *okolo* is not proclitic and thus can move by itself. Putting aside the question of whether the syntactic claim is defensible, the nature of the solution contravenes the basic tenet of phonology-free syntax: the fact that one word will be phonologically dependent on another should not be visible to the syntax; this solution requires some sort of globality, either look-ahead or co-presence. A third possibility, brought up by Percus (1993), is that the nonhost prepositions require the word to their right to incorporate into them, thus preventing clitics from intervening. This is an ad hoc syntactic stipulation, in addition to being hard to implement mechanically due to the HMC.

Another argument for non-syntactic clitic placement, given by Radanović-Kocić (1988), is that it is sensitive to pauses, i.e. (by assumption) prosodic constituent boundaries. That is, clitics cannot generally appear immediately after a pause (42). What makes this argument initially compelling is that we find minimal pairs differing only on the presence or absence of a pause:

42. a. Noću **je** ovdje mirnije.  
*at-night AUX here more-quiet*  
'At night it is more quiet here.'
- b. \*Noću | **je** ovdje mirnije.
- c. Noću | ovdje **je** mirnije. (Radanović-Kocić 1988: 106)

The implicit assumption needed to make the argument go through is that a given string of words must have a single syntactic structure, i.e. (42a) and (42b) cannot differ syntactically, so there is no way to derive the need for re-ordering syntactically. I contend that the assumption is false, and hence the argument is invalid. In particular, it is at least plausible that there are multiple possible positions for adverbials in a sentence, two of which might be Spec-CP (42a) and CP-adjoined (42b, c). If, as proposed above, a clitic's host must be within its CP domain, then cliticization would be blocked in (42b) because the potential host is not within the CP domain. The pause facts are in some sense coincidental, mere re-

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flexes of the syntactic difference; we could suppose (and I will argue later) that there is always a pause at the left edge of CP. It remains to be explained how (42c) could be derived without moving the clitic across *ovdje*; the answer would be that *ovdje* in (42c) is not in the same place as in (42a); specifically, in (42a) it is below Comp, perhaps adjoined to IP, while in (42c) it is in Spec-CP, which is available because *noću* is outside CP. Thus, no appeal to phonological movement is necessary.

Another purported argument from Radanović-Kocić is based on certain correlations between heaviness and clitic placement that will be explored in detail in §7. For our purposes, the generalization can be stated as follows: in a sentence that begins with *NP V* order, clitics can follow V if NP is heavy (43a, c), but not if it is light (43b) (this is actually a gross oversimplification, but it serves to illustrate the form of the argument).

43. a. Taj čovek voleo **je** Mariju.  
*that man loved AUX Mary*  
'That man loved Mary.'
- b. \*Petar voleo **je** Mariju.  
*Petar loved AUX Mary*  
(‘Peter loved Mary.’)
- c. Petar Petrović voleo **je** Mariju.  
*Petar Petrović loved AUX Mary* (Zec & Inkelas 1990: 373–374)

Radanović-Kocić presupposes that heaviness is definable phonologically but not syntactically, an assumption I have no reason to question (in fact, we will see support for it in §7). Thus, if syntax is insensitive to phonological properties, clitic placement cannot be accomplished in the syntax: clitics must either move rightward away from heavy NPs or leftward toward light NPs, and such movement would have to be phonological. Again, I claim the argument does not go through. The correct analysis of these facts will depend on a general theory of “heavy movement” rules in general; for purposes of illustration I adopt the approach proposed in Schütze, Dyck & Koskinen 1991, which maintains the absence of syntactic access to phonological information. Schütze et al. propose an account of precisely the constructions Radanović-Kocić appeals to, responding to an argument by Zec and Inkelas (1990) that these facts require co-presence. The crucial notion that I wish to maintain from Zec and Inkelas’s analysis is that the constructions with heavy NPs and “delayed” (i.e. postverbal) clitic placement have distinctive semantics; Zec and Inkelas call them “topicalization” structures. I am leery of this terminology, since I will be claiming that Spec-CP is a topic position in SC and that cannot be where these heavy NPs go under my analysis. However, no one has sorted out the semantics of the various clause-initial positions in SC, so in the absence of any other name, I will refer to these sentences as “heavy topicalization,” to make it clear that I am not talking about movement to Spec-CP. The analysis then proceeds as follows. Heavy topicalization involves movement to a position outside CP, either CP-adjoined or Spec of some higher functional projection. Descriptively, this kind of movement is

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restricted to heavy NPs, but that is not a possible restriction on a syntactic movement rule. Rather, it is implemented as a phonological filter that rules out light NPs in the relevant position once they reach the phonology, in much the same way that Heavy NP Shift in English works under a non-copresent theory. Deferring some problematic details to §7, we can now see how to derive the clitic placement facts without phonological movement: as in the preceding cases, in a heavy topicalization sentence there will be no host for clitics in the CP domain, so V must raise to Comp to provide a host or else the sentence will be ruled out. The raising of V to Comp is a perfectly plausible syntactic operation; the fact that it does not apply when an initial NP is light derives from the fact that in that case, the clitics already have a host.

Finally we come to what I find to be the only truly compelling argument for phonological movement. Even here, it will turn out that a purely syntactic solution is possible in principle, but it is entirely ad hoc and really serves only to highlight the relative appeal of the phonological approach. Conceptually, the form of the argument is very simple: the claim is that there are certain clitic placements that are not derivable by the syntax at all, because the string preceding the clitics cannot undergo syntactic movement, but are derivable by phonological movement, since they involve clitics being exactly one PWD from the beginning of a constituent. The details, however, are complex, due to the abundant extraction possibilities afforded by SC. The origins of this argument are in Percus 1993, though he does not lay out the details very explicitly.

The crucial constructions involve sentence-initial PPs that contain pronominal modifiers in the NP object, where the preposition is a proclitic, as in the paradigms in (44) and (45). (I will not analyze the complete paradigm, but it is useful to see many relevant possibilities.)

44. a. U veliku Jovan ulazi sobu.  
*in big Jovan enters room*  
'Jovan enters (the) big room.'
- b. ??U ovu veliku Jovan ulazi sobu.  
*this*
- c. \*U ovu Jovan ulazi veliku sobu.
- d. U veliku **je** Jovan ušao sobu.  
*in big AUX Jovan entered room*  
'Jovan entered (the) big room.'
- e. U ovu veliku sobu **je** Jovan ušao.
- f. U ovu veliku sobu, Jovan **je** ušao.
- g. ???U ovu veliku **je** Jovan ušao sobu.
- h. ?\*U ovu veliku **je** sobu Jovan ušao.

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- i. U ovu **je** veliku sobu Jovan ušao.
45. a. U ovoj **je** sobi klavir.  
*in this AUX room piano*  
'In this room is the piano.'
- b. U velikoj **je** sobi klavir.  
*big*
- c. U ovoj **je** velikoj sobi klavir.
- d. ?\*U ovoj velikoj **je** sobi klavir.
- e. ??U ovoj velikoj sobi **je** klavir.<sup>26</sup>
- f. ?\*U ovoj velikoj sobi, klavir **je**.
- g. ?U ovoj velikoj sobi **je** postavljen klavir.  
*set*  
'In this big room the piano is set.'
- h. U ovoj velikoj sobi, klavir **je** postavljen.
- i. ?\*U ovoj velikoj **je** sobi postavljen klavir.
- j. ??U ovoj **je** velikoj sobi postavljen klavir.  
(Percus 1993; Željko Bošković p.c.; Ljiljana Progovac p.c.)

If PI is truly part of SC grammar, then we expect to find clitics following the first modifier, since it forms a single PWd together with the procliticized preposition, and this is indeed what we find. The question is whether there is an alternative, pure syntax account of this clitic placement. Now it is certainly true that prepositional phrases in SC can be interrupted by other material, as in (44a). Thus, independently of the clitic facts we need a syntactic way to derive this sentence, i.e. to split *u veliku* from *sobu*. There are in principle two ways of doing this: either by fronting *u veliku* and stranding *sobu*, or by extracting *sobu* to the right leaving *u veliku*. Neither of these options has an obvious analysis, but one of them must be possible, so let us consider what is required. Under any reasonable structure for PPs and NPs/DPs, *u veliku* does not form a constituent to the exclusion of *sobu*, so this cannot be a straightforward case of constituent movement. The only story I have heard for this involves a move mentioned earlier: if the syntax “knows” that *u* and *veliku* constitute a single PWd, then syntactic movement of one could “pied pipe” the other in order to avoid breaking up a phonological unit. I continue to find this solution unappealing since it relies on a non-derivational syntax-phonology interaction, but if we

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<sup>26</sup> My informants disagree strongly on the status of this example.

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suspend that objection for the moment, we are left with two syntactic possibilities. One is that the preposition extracts syntactically and drags the adjective along with it; the syntactic operation would then be head movement. The other is that the adjective extracts and drags the preposition along with it; the syntactic operation would then be either  $X^0$  movement,  $X^1$  movement or XP movement, depending on the structure of pre-modifying adjectives. It seems more promising to avoid  $X^0$  movement for this case, since it would apparently have to violate the Head Movement Constraint to cross the verb *ulazi*, so let us assume that it is the adjective that extracts. We know independently that pre-modifying adjectives can extract from NPs in SC, so this does not seem completely unpalatable, although we have no independent reason to believe this can happen from within a PP. Let us now consider the other alternative, namely that the head noun of the NP extracts. This again might be  $X^0$ ,  $X^1$  or XP movement, depending on whether there is a maximal projection that contains the noun but not the preceding modifiers. At any rate, the noun is certainly a constituent at some level, so this solution can be implemented without appeal to prosodic factors. It is thus more appealing on theory-internal grounds. It also gains some empirical support from the fact that head nouns can be independently shown to extract leftwards:

46. Studentkinje dodjoše sve njegovе.  
*students came all his*  
'All of his students came.' (Mišeska Tomić 1993: 52)

(Notice that I have said nothing about the landing site of any of these possible extractions; given the abundant word-order options in SC, there is no way to know where the phrases are in a sentence like (44a) without much further syntactic investigation. It does not seem unreasonable that there would be places for either part of the split PP to land and generate the observed word order.)

Thus, if all we had were sentences like (44a), there would be at least one palatable syntactic approach to derive the clitic placement. However, NPs can have multiple modifiers preceding the head noun, and when they do, we find a contrast between clitics and other material regarding where the PP can be split. Specifically, clitics can always appear after the first modifier ((44d, i), (45a, b, c)), that is after the first PWd, but nonclitics can only appear after the last modifier, that is, immediately preceding the head noun ((44a, b and g versus c). Under a theory that includes PI, this is exactly what we expect: PI can move clitics to their position following the first PWd when they would otherwise lack a host sentence-initially, but any other interruption of a PP must be syntactically derived, and the only way the syntax can split a PP is by extracting the head noun. That is, in addition to the conceptual arguments in favour of rightward N-extraction over leftward P+modifier extraction, we now have an empirical argument as well. In cases with a single modifier, we cannot tell whether syntactic or prosodic movement is involved since they yield the same result, but with multiple modifiers we see a difference. Thus, the prosodic movement account is strongly supported. There is one additional fact that will need to be explained under this approach, but before turning to that, I will go through the analysis that would be required under a pure syntax approach, in order to illustrate just how

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implausible it would be. Most of the suggestions in the following paragraph stem from conversations with Ljiljana Progovac (p. c.).

Given that clitics contrast with nonclitics in their placement options, a pure syntax approach must posit two different kinds of syntactic movement for the two cases and explain why they correlate with different kinds of intervening material. In particular, it is necessary to block nonclitics after an extraction that moves a P+modifier sequence to the left (even if rightward N extraction is available, it alone is clearly insufficient for the multiple modifier cases, so we must return to the already conceptually unappealing view of non-constituent extraction). If clitics are heads, say in Comp, while nonclitic intervening material necessarily contains an  $X^{\max}$ , then one could appeal to a contrast in landing sites: if a P+modifier raises to Spec-CP it will automatically be followed by clitics in Comp, but if there are no clitics in the sentence then perhaps movement to Spec-CP cannot be motivated (there is nothing in Comp that need “support”), so that ceases to be an option. Nonclitic material like *Jovan ulazi* could not raise to Comp anyway, since it is bigger than an  $X^0$ .<sup>27</sup> On the other hand, when a PP is split before the head noun, what remains (P+modifiers) is not a constituent, either prosodically or syntactically, and so cannot move as a unit. In order for other words to intervene, the subconstituents of the remnant PP must move individually to some adjunction position, say IP-adjoined; it is not clear whether all these adjunctions could be  $X^{\max}$  adjunction. This explains how to get nonclitics before the head noun, but why can the same analysis not yield nonclitics after the first modifier? There must be an additional stipulation to the effect that if parts of a PP undergo A-bar movement, they all must (except the head noun, which might have been independently extracted); that is, somehow we must rule out adjoining just the first P+modifier to IP and leaving the rest of the PP behind somewhere.

There is no escaping this sort of arbitrary stipulation under any pure syntax account of the PP facts, because of the basic descriptive fact that clitics go where nothing else can: to accomplish this in syntax requires a type of movement for which there can in principle be no independent motivation. We also need to explain why, if any part of a PP can extract to IP-adjoined position, why only the first word can move to Spec-CP and not some word from the middle of it;<sup>28</sup> there might be some sort of Minimality account for this, but details

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<sup>27</sup> The pure syntax account would seem to predict that a lone head, e.g. an infinitive or participle, could move to Comp and split a PP after the first modifier, unless the absence of clitics would prevent the raising to Spec-CP. I have never seen such a case, but I do not know for certain that it is impossible; such an example would be problematic for my account.

<sup>28</sup> Note that one could not even say that it is the first subconstituent of the NP that can move, but really only the first word: an Adjective Phrase containing an adjective and a modifier cannot host clitics when more modifiers follow it (iii):

- i. Izuzetno veliku **je** Jovan učinio uslugu Petru.  
*extremely big AUX Jovan did favour to-Peter*

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would have to be worked out. The parsimony argument is therefore quite straightforward: the prosodic account employs only syntactic movements that are independently motivated from non-clitic sentences and that move syntactic constituents, plus PI, a phonological re-ordering process that moves phonological constituents just when necessary to satisfy their prosodic constraints; the pure syntax account employs syntactic movement of a pair of words that is not a syntactic constituent and that lacks independent motivation, requires a special stipulation to get the crucial contrast, and requires syntactic access to phonological information. I find this a compelling argument in favour of prosodic movement.

One set of facts that I have not yet discussed concerns other possible options for clitic placement within PPs. I have said that clitics always have the option of following the first PWD,<sup>29</sup> but in some cases they marginally have another option, namely the possibility of following the last pre-noun modifier (44g). If the prosodic approach is correct in positing rightward N-extraction from PPs, this is not surprising: after the N extracts, the remnant PP (containing a trace of N) can move as an  $X^{\max}$ , and should be able to front to Spec-CP and host clitics, in a manner parallel to so-called remnant topicalization in Germanic. The fact that the resulting sentence is often quite bad in no way undermines the argument for PI. What it does seem to indicate is that one aspect of the pure syntax analysis could be partially correct: remnant PP fronting could have a landing site other than Spec-CP. If remnant PPs can always IP-adjoin but cannot always move to Spec-CP, this could explain the variation we find in possible clitic placements. That is exactly what I claim is going on in cases like (45d). The question is, what is responsible for this restriction? I propose that it is the fact that “remnant” PP fronting to Spec-CP is semantically an invalid Topic, since it is missing the head N of its argument.<sup>30</sup> If so, the rest of my account goes through unchanged. To the extent that first word clitic placement is better than later placement, i.e. (44i) versus (44h), this supports the idea that the former is derived by prosodic movement from an uncontroversially good S-structure while the latter is derived by syntactic movement that is not perfect.

It ought to be possible to construct arguments of the same form as the PP argument just given based on other constructions in SC as well. I have not

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ii. U izuzetno veliku **je** Jovan ušao sobu.  
*in extremely big AUX Jovan entered room*

iii. \*U izuzetno veliku **je** Jovan ušao praznu sobu.  
*empty* (Željko Bošković: p. c.)

This makes the process look even more like a PWD-based one and even less syntactic: why should a modified adjective have different extraction properties than an unmodified one?

<sup>29</sup> I have no explanation for the degraded status of (45j).

<sup>30</sup> If the N-extraction analysis is correct, then the remnant PP would contain a trace of the N, which might be sufficient for semantic interpretation, as pointed out by David Pesetsky (p. c.). If so, then another explanation must be sought.



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systematically searched for such examples, but I have come across one paradigm that might serve as a starting point:

47. a. Tvoja **su ti ga** mama i tvoja sestra kupile.  
*your AUX you it mom and your sister bought*  
'It was your mother and your sister that bought it for you.'
- b. \*Tvoja mama **su ti ga** i tvoja sestra kupile.  
(Mišeska Tomić 1993: 51–52)

The argument here would again be that the 1W placement in (47a) is clearly derivable by PI, but cannot be syntactically derived. To get it by syntax would involve extracting the possessive from the first NP of the conjoined structure, something we do not generally expect to be able to do. Of course, SC displays many unusual extractions, so arguments from other languages are not very compelling. However, the badness of (47b) supports the argument: since clitics are two words into the NP, they could only have been placed there by syntactically extracting the first conjunct; since they are illicit in this position, the first conjoined NP must not be extractable. If that is so then it seems highly unlikely that its modifier alone would be extractable.<sup>31</sup> Also, unlike the PP cases, the presence of the second conjunct seems to rule out an analysis of (47a) under which *mama* would have moved rightward stranding *tvoja*. We cannot make this a knock-down argument without more data, but this construction type looks promising: wherever we find contrasts between single-word and multi-word constituents in the same structure such that only the former can be followed by clitics, we may be seeing the effects of PI.

### 3.2 Hypotheses and approach to analysis

The arguments of the preceding subsection lead me to posit a number of hypotheses about SC clitic placement that will form the basis of the analyses in the rest of this paper. While these are not strictly proven by the empirical facts, I find them the most natural ones to adopt in light of those facts. Every theory rests on certain assumptions that, while in principle falsifiable, are taken as fixed for the purposes of a particular investigation. These are my starting points.

Starting with the most far reaching question, the nature of the syntax-phonology relationship, I will assume that syntax has no access to phonological information. In particular, syntactic movement is not sensitive to the phonological requirement that enclitics need hosts, nor can it necessarily distinguish prosodic words from other syntactic terminals that lack PWd status (e.g. prepo-

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<sup>31</sup> However, David Pesetsky (p. c.) points out (as observed by Ross and Lakoff) that certain kinds of extraction from conjoined structures are marginally possible in English, e.g. *This is the beer that I went to the store and bought*. Thus, a more compelling example would involve a deeper extraction, e.g. a structure of the form *Adv CL Adj N Conj ...*, where *Adv Adj* is a constituent, and/or independent evidence that the necessary syntactic extraction is ungrammatical in SC.

sitions). To the extent that elements move in the syntax to a position where they can host clitics, this movement must occur for independent reasons. To the extent that SC second position clitics have special syntactic behaviour, they must have special syntactic properties; phonological dependence alone is not a possible explanation.<sup>32</sup> On these assumptions I differ emphatically with Zec and Inkelas (1990). As for the other side of the syntax-phonology relationship, I follow much current literature in assuming that rules of the phonology proper are not sensitive to syntax, but only to the prosodic structure derived from it, and although it is possible that syntactic information is still visible at the point at which PI occurs, a version of PI that could refer to syntactic constituents is neither desirable nor necessary (see §3.3 for more discussion).

Turning more specifically to the mechanisms of clitic placement, I wish to say that re-ordering in the phonology is not generally available, but rather is strictly a last-resort option for saving otherwise ill-formed structures. Thus, clitics should be able to move only the minimum distance required for them to have a valid host, namely one prosodic word; this restriction need not be stated on a rule, but rather is a general property of the phonology. An immediate consequence is that any clitic placement that is not derivable purely in syntactic terms must involve movement over exactly one prosodic word in the phonology, and any instances where this movement is blocked should be attributable to phonological rather than syntactic factors. Conversely, clitic placements that can be derived by syntax alone need not be consistent with these phonological movement constraints (but see below); thus, it is useful to carefully examine purported pure-syntax accounts of clitic placement to see how small the set of cases requiring PI really is, in order to have a better chance of extracting the right generalizations about it.

I now wish to lay out explicitly the reasoning that I argue must be followed in analyzing particular instances of clitic placement, given the position I have just argued for, namely that clitics are in a fixed position at S-structure, but constituents can front ahead of them, and clitics can move rightward in the phonology across exactly one prosodic word if and only if there is no prosodically valid host to their left. I go through the logic because it has often not been followed in the literature on this topic, and invalid conclusions have often been drawn about the division of responsibility for clitic placement.

A descriptively adequate theory of clitic placement in SC must have the following properties. For any grammatical sentence containing clitics, i.e. any valid clitic placement, the theory must be able to derive at least one well-formed prosodic structure for the sentence, i.e. a representation in which the clitics have a PWd host to their left within the same I-phrase, etc. If any of these prosodic structures can in turn be derived from a valid syntactic S-structure with the same linear order, then the sentence is accounted for, provided the meaning of the

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<sup>32</sup> While there is reason to believe that SC syntax *can* pick out second position enclitics on some basis, I am not aware of any evidence that the syntax is sensitive to the status of (almost all) prepositions as proclitics. The only proposal of this sort that I am aware of is that of Progovac (p. c.), discussed in §3.1.

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sentence is consistent with the S-structure.<sup>33</sup> Independently, if any of the valid prosodic structures can be derived from a valid S-structure using PI, then the sentence is also accounted for, provided that *this* S-structure gives the right meaning. If derivations both with and without PI are possible, we cannot necessarily know whether PI applies to this sentence type, and we cannot draw any conclusions about the nature of PI from it.<sup>34</sup> However, if different S-structures with different meanings are implicated and these correlate with application versus non-application of PI, we can determine whether PI has applied in the derivation of the sentence and, if so, proceed to study its properties vis-à-vis the corresponding S-structure. This point is often overlooked. For instance, it is often said that clitic orderings such as *Adj CL N* tell us that PI can split an adjective from the following head noun. However, there is independent evidence that adjectives can extract from NPs and move ahead of clitics in the syntax, so that this kind of order can be derived without appeal to PI. Given that, this ordering tells us nothing about the constraints on PI unless we can show that adjective fronting has some semantic consequences that do not (necessarily) appear in this construction.

Conversely, the theory must account for ungrammatical clitic placements, requiring two separate explanations. First, we must be able to show that there is no valid S-structure containing the ungrammatical order to which the prosodic mapping can assign a well-formed phonological structure. Second, we must be able to show that there is no valid S-structure that could be re-ordered by valid application of PI to yield the ungrammatical order and to which the prosodic mapping can assign a well-formed phonological structure. Again, this is often overlooked: to completely explain a case like *\*[NP N CL NP-Gen]*, we must show not only that syntactic fronting of the head noun is impossible, but also that PI cannot move clitics into this position. As this meta-argumentation makes clear, it is impossible to say anything insightful about clitics without first independently motivating at least the basics of both the syntax and the prosody of the language. Thus, I will attempt to do so in §4.

### 3.3 Model of grammar

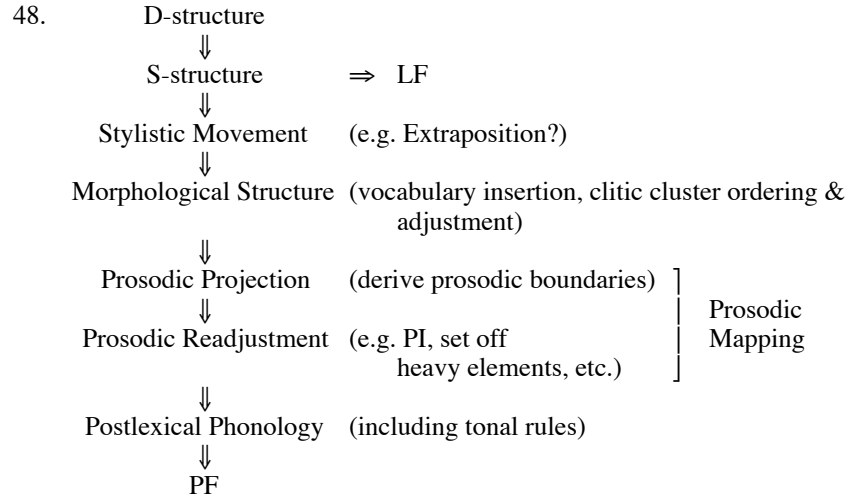
Before proceeding to lay out in detail how the various components of the grammar contribute to the placement of SC clitics, it will be useful to make explicit my assumptions about the overall structure of the grammar and the ways in which the components interact. This is shown diagrammatically in (48).

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<sup>33</sup> It is implicit in Halpern's account, though never stated, that he predicts semantic differences between clitic orders derived via syntactic fronting versus PI.

<sup>34</sup> Unless of course we have independent phonological evidence as to which prosodic structure is the correct one, in which case this may tell us whether PI was involved.

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Most of my assumptions come from recent work by Chomsky (1993) and Halle and Marantz (1993). Let us proceed through the diagram from top to bottom. Rules of the overt syntax map a D-structure into an S-structure, where the latter is defined as the point at which the phonetic spell-out of a sentence splits off from the derivation of LF. On the PF branch, the first thing that can happen to a sentence is that stylistic rules can be applied. I assume that the structures at this stage are still purely syntactic; the distinction between stylistic rules and other syntactic rules is that the former have no effect on (LF) semantics; Chomsky (class lectures, Fall 1993) has suggested that Extraposition may be such a rule. After the purely syntactic meaning-preserving rules we find the component dubbed Morphological Structure by Halle and Marantz. This is where semantic features are replaced in the syntactic tree by morphemes from the lexicon. As I will propose in §4.2, this may be done in accordance with language-particular stipulations on the relative ordering of morphemes within a syntactic terminal node; in particular, enclitics are placed in their proper order at this point, and the determination of the particular form of a clitic that is chosen may depend on other clitics in the cluster, just as with morphemes in a single word.

The next step in the process is prosodic mapping, which takes as input the syntactic tree containing words and computes a prosodic structure for it; algorithms for doing this have been proposed by Selkirk (1986), Nespor & Vogel (1986), Hayes (1989), and others. I have made a crucial distinction, however, between prosodic projection and what I call prosodic readjustment, the next stage of the derivation; these are often not distinguished in the prosodic phonology literature (but see Dresher 1993 for this proposal). Prosodic readjustment involves altering the prosodic structure computed during prosodic projection in order to satisfy various prosodic requirements, for instance, the need to set off heavy elements, the need to avoid overly long or overly short phrases, etc.; I claim in particular that it is at this stage that PI applies, i.e. clitics may move to satisfy their need for a phonological host. This phase still crucially requires ac-

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cess to the syntax. Thus, the output of prosodic projection must contain both the syntactic and prosodic constituent structures of the sentence, i.e. it is some sort of multi-tiered representation. The output of prosodic readjustment, on the other hand, is purely phonological: all syntactic structure is thrown away when prosodic readjustment is complete. Each of these components is constrained in a different way: prosodic projection can only make reference to syntactic properties of its input, e.g. category edges, the lexical-functional distinction, perhaps head-complement relations, and its purpose is to assign a prosodic structure independent of the phonological content of the sentence, based merely on its syntactic structure. Prosodic readjustment, on the other hand, is driven solely by a set of phonological well-formedness conditions, and is best viewed as a repair algorithm: it makes the minimal possible changes to its input in order to make it well-formed, and filters out representations that cannot be repaired. The well-formedness conditions themselves may make reference to syntax; for instance, there could be a constraint saying that a heavy NP must constitute its own phonological phrase, so syntactic information is still needed at this stage. Once prosodic readjustment is completed, however, no more reference to syntax can be made. Thus, this model maintains the claim of many researchers in prosodic phonology (e.g. those cited above) that phonology proper does not have direct access to syntactic structure, but only to prosodic structure, which is an impoverished and altered structure computed from syntax.

The last stage of the mapping to PF that will concern us is the postlexical phonology.<sup>35</sup> Although it will not be much discussed, I require the assumption that clitics are in their final (i.e. audible) position and attached in some way to their hosts when the postlexical phonological rules apply, since these rules can treat clitics as if they were part of the host word (Zec 1993). Since I claim that clitics can be re-ordered with respect to host words in prosodic readjustment, postlexical phonology must follow that component, and by the end of prosodic mapping, the attachment of clitics to their host words is reflected in the prosodic structure. It is important to reiterate the most important overall feature of the model in (48), namely that it is strictly derivational. The only information a given component has access to is the output of the immediately preceding component; any information not contained therein is simply unavailable. This contrasts with Zec and Inkelas's model wherein syntax has access to the prosodic structure of the utterance, allowing it to make distinctions that my syntax cannot (e.g. between light and heavy NPs, syntactic terminals that are or are not prosodic words, etc.). Given these assumptions about the gross structure of the grammar, I go on in §4 to describe in detail the contents of the relevant components and show how they apply to the basic cases of SC clitic placement.

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<sup>35</sup> I have no reason to take a position on where lexical phonology fits into this model.

#### 4. Analysis of basic cases (1C/1W)

##### 4.1 Syntactic analysis

It is beyond the scope of this paper to motivate a particular structure for SC clauses, the place of clitics in such a structure, and the movement processes that operate in these clauses. There is also a dearth of syntactic analyses of SC to begin with. Thus, the goal of this subsection is merely to propose in abstract terms the features of a syntax of SC that would be needed to support my analysis of clitic placement. To the extent that I will instantiate these requirements in the form of trees and node labels, I do so only for the sake of expository concreteness and convenience; I do not claim to be in a position to argue for the details.

My analysis will demand a position in the clause where clitics are found at S-structure, at least one position above that to which elements can be moved, and at least one position higher still where elements can be base-generated, and perhaps also moved. That is, the division of labour in my account involves assigning to the syntax the task of gathering the clitics together in a position near the front of the clause and sometimes moving a constituent ahead of them. I have seen no strong arguments concerning the question of whether clitics should be analyzed as having moved to their position versus being base-generated there and binding null elements in lower positions, or being copied from arguments that are subsequently deleted (see Klavans 1985 for an enumeration of the possibilities, and Radanović-Kocić 1988 for discussion of what the relevant base positions would be in SC), but for concreteness I shall follow the majority of recent literature (e.g. Rivero 1993, Progovac 1993) in assuming movement for all clitics except the question particle *li*, which I take to be base-generated high in the clause.<sup>36</sup> I have also not seen a great deal of compelling evidence on the question of whether the clitics are best analyzed as X<sup>0</sup>s versus XPs (see Halpern & Fontana 1993 for general discussion); it seems most natural to think of *li* and the auxiliaries as heads, so mostly for the sake of uniformity I shall assume that the pronouns are also heads.<sup>37</sup> Given certain additional assumptions, there is at least one argument that favours a uniform X<sup>0</sup> analysis, as we will see shortly. Under such a story, then, all the clitics are found under some X<sup>0</sup> node of the S-structure tree, possibly containing a

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<sup>36</sup> If clitic pronouns control *pros* in argument positions, these *pros* must never be realized: we never find clitic doubling in SC:

i. \*Sada **ga** Nada gleda psa.  
*now him Nada watch dog*  
 ('Nada is watching the dog now.')

One might hope to find some evidence on this question from the behaviour of clitics in gapping constructions; I have not seen any data on this.

<sup>37</sup> Cardinaletti and Starke (1994) argue that true clitic pronouns are always X<sup>0</sup>s and differ crucially from weak pronouns, which are XPs and move to a lower position than clitics.

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complex head-adjunction structure about which I have nothing further to say;<sup>38</sup> for concreteness, I will take this head to be  $C^0$ , following many previous analyses. This assumption has traditionally been motivated by the presence of *li* as part of the clitic cluster: being a question particle, it seems to be a reasonable candidate for a complementizer, although given the recent proliferation of functional projections, other possibilities certainly arise. Another argument comes from the fact that *wh*-words are usually assumed to be in Spec-CP (but see Izvorski 1993 for arguments that this is not the case in Bulgarian), and the first *wh*-word in a clause is always immediately followed by clitics.<sup>39</sup>

49.      Koga **je**    Stefan zbnunio?  
          whom AUX Stefan confused  
          ‘Who did Stefan confuse?’(Progovac 1993: 1)

Accepting the Comp assumption for *li*, the alternative for the other clitics (at least the pronominals) as XPs would be that they are (left-)adjoined to IP, assuming that IP is the projection immediately below CP.<sup>40</sup> It is difficult to tease these possibilities apart, but one plausible argument (from Progovac 1993) is based on Rudin’s (1988) analysis of multiple *wh*-fronting in SC. Rudin gives numerous arguments that SC, along with Polish and Czech, has multiple questions with the first *wh*-word in Spec-CP and the rest adjoined to IP (in contrast to Bulgarian and Romanian, where several *wh*-words can be in Spec-CP).<sup>41</sup> If we accept her analysis, then IP-adjoined clitics might be expected to be able to intermix with these IP-adjoined *wh*-phrases, but such interleaving is in fact impossible, as shown in (50). (51) shows that even if the clitic cluster were forced to stay together for independent reasons, it cannot be IP-adjoined below the second *wh*-word. By comparison, (52) shows that an IP-adjoined adverb is free to precede or follow the second *wh*-word while continuing to follow the clitic. The same argument can be made with regard to *li*, if we accept that it is in Comp: if other clitics were IP-adjoined, an adverb should be able to separate them from *li*, but (53) shows that it cannot. These facts seem to compel us not to analyze the

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<sup>38</sup> If clitics move, they must undergo adjunction rather than substitution in order to share the same target position.

<sup>39</sup> The force of this argument may be somewhat weakened by the fact that in Bulgarian, one can front elements above a single *wh*-word, suggesting that *wh*-words might be lower down in the tree (see Izvorski 1993 for such a proposal). However, it could also be that SC and Bulgarian differ in this respect.

<sup>40</sup> I assume that UG disallows adjoining heads to maximal projections or vice versa.

<sup>41</sup> Rudin’s main arguments are that Bulgarian-type languages allow multiple *wh*-extraction from a clause and *wh*-island violations, while SC type languages do not; conversely, SC-type languages allow clitics, parentheticals, adverbs and particles to break up a series of fronted *wh*-words, and have free order among the *wh*-words, while Bulgarian-type languages do not.

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clitics as IP-adjoined; they support the analysis of clitics as heads under Comp.<sup>42</sup>

50. a. \*Ko **li** koga **je** predstavio?  
*who Q whom AUX introduced*  
 ‘Who has introduced whom?’
- b. \*Ko koga **li je** predstavio?
- c. Ko **li je** koga predstavio? (Progovac 1993: 2)
51. a. Ko **mu je** šta dao?  
*who him AUX what given*  
 ‘Who gave him what?’
- b. \*Ko šta **mu je** dao? (Rudin 1988: 462)
52. a. Ko **je** koga prvi udario?  
*who AUX whom first hit*  
 ‘Who hit whom first?’
- b. Ko **je** prvi koga udario? (Rudin 1988: 467)
53. a. \*Da **li** možda **mu ga je** Goran dao?  
*COMP Q maybe him it AUX Goran given*  
 ‘Has Goran perhaps given it to him?’
- b. \*Da možda **li mu ga je** Goran dao?
- c. Da **li mu ga je** možda Goran dao? (Progovac 1993: 2)

Having several pronominal and verbal heads wind up in  $C^0$  at S-structure obviously raises difficult questions under a theory in which these elements have moved from their canonical D-structure positions. In particular, it is not at all clear how these movements could satisfy the Head Movement Constraint, or whether an appeal to something like Excorporation would be required.<sup>43</sup> Especially troubling is the fact that in sentences with a negated auxiliary, the complex Neg+Aux head is not a clitic and need not be in second position, while

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<sup>42</sup> One might hope for more direct evidence, e.g. binding restrictions between pronominal clitics in  $C^0$  and elements lower in the clause (David Pesetsky, p. c.), but I am not aware of any relevant data. It is also true that Rudin’s facts do not specifically show that lower *wh*-phrases are IP-adjoined, but merely that they cannot be in Spec-CP. One might still consider the possibility that SC clitics are more like Romance clitics in I, with adverbs and *wh*-phrases adjoined further down.

<sup>43</sup> Excorporation has been hypothesized as a syntactic operation whereby a head that has adjoined to a higher head can subsequently be extracted from the resulting complex head and move on its own again (Roberts 1991). The status of Excorporation is controversial.



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all remaining clitics must still be in second position; there seems to be no way to avoid pronominal clitics' need to excorporate from or skip over the auxiliary, perhaps by Long Head Movement of the type proposed by Rivero (1991). Another possibility is that pronominal clitics can first raise as XPs to some high position in the clause (e.g. IP-adjoined) and then raise as heads to  $C^0$ ; this approach might become more attractive under recent proposals by Chomsky (class lectures, Fall 1993) concerning the dual nature of clitics as  $X^0$ s and XPs. I will have no more to say regarding whether or how clitic movement in the syntax is accomplished.

Whatever positions clitics find themselves in at S-structure, there must be a position above them to which other elements can front. It seems reasonable to call this position Spec-CP, especially since *wh*-words are among those elements that can immediately precede clitics. This position must be distinguished from yet higher positions that have a different character, namely by being "outside" the clause, in a sense that will be made more precise. As we have already seen, clitics are in second position not with regard to the sentence as a whole, but with regard to the part of the sentence that seems to exclude initial material that is set off from the clause proper by a pause. Due to the restrictions on where such a pause can occur and what sort of elements can and cannot precede it, I will take certain pauses as diagnostic of a syntactic distinction between CP-internal and CP-external elements, where by the latter I mean elements that might be adjoined to CP or belong to higher functional projections. That is, there is crucially exactly one XP-position that precedes the clitic position within the CP domain, thus explaining many instances of second-position clitic placement. Two points should be noted here. First, we will have to explore what sorts of elements can be CP-external and how they come to be that way. Intuitively, the internal-external distinction corresponds to the distinction between topicalization and left-dislocation in English, and also in Bulgarian, where left-dislocated material is followed by a pause while topicalized material is not (Rudin 1985).<sup>44</sup> The distinction is not as well motivated in SC, since arguments that are CP-external do not require coindexed overt elements such as pronouns within the clause to be associated with them, unlike in English and Bulgarian. Thus, the internal-external distinction may or may not correspond to a movement versus base-generation difference in SC, although we certainly would want to say that adjuncts can be base-generated external to CP (but perhaps also in Spec-CP); perhaps movement to adjoin to CP is also possible, as a kind of multiple topicalization. Thus, I will continue to use neutral terminology. The second important point is that, in addition to Spec-CP, there is another potential site for elements preceding clitics, namely  $C^0$ . We will see evidence that this position can be filled by various verbal heads, finite and non-finite. Thus, the question will arise, what happens if Spec-CP should be filled and a verbal head

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<sup>44</sup> Interestingly, left-dislocation triggers "inversion" of clitics to follow the verb in Bulgarian, while topicalization does not, strongly suggesting that SC ought to have an analogous distinction behind the completely parallel clitic facts. On the other hand, left dislocation is restricted to nominative NPs in Bulgarian and cannot occur in embedded clauses; these restrictions probably do not hold of fronting above Spec-CP in SC.

should raise to  $C^0$ : this question will be deferred until more relevant facts have been seen.

Finally, something must be said about the motivation for syntactic movement to Spec-CP and to  $C^0$  (by both clitics and verbs). It has often been claimed under recent theories that Spec-CP is a “Topic” position, so that elements that move there represent old information; this idea is also reflected in traditional grammars under the heading “theme-rheme” (see, e.g., Browne 1975). In practice, it seems hard to give this claim empirical teeth, but given its widespread acceptance I will adopt it here. Under the most recent Minimalist approach to syntax, movement to a topic position cannot simply be optional, but must be motivated by a feature-checking requirement; that is, some “topic” feature in the Comp head must be checked against an XP bearing that feature. Note that I must assume that not only arguments but also adjunct phrases can bear this feature, to enable them to move to this position. I crucially disagree with approaches that claim that fronting to Spec-CP is motivated by the need to support clitics (e.g., Cardinaletti & Starke 1994). Under their account, clitics, being weak elements, lack some featural content that strong pronouns and full NPs have, and so clitics must move to a place where they can acquire the necessary features, and this in turn requires there to be some other element in a checking relation with their landing site; if the feature involved is strong (in the sense of Chomsky 1993), this movement must happen by S-structure. From the present perspective, there are several problems with this counter-proposal. First of all, to the extent that I have motivated the need for *phonological* re-ordering to provide a clitic host, this feature-checking requirement would actually be violable: for the crucial cases, the output of the syntax (S-structure) would lack any host in a feature-checking position. Moreover, it is unclear what sort of feature could actually be involved, such that an arbitrary XP or  $V^0$  could check the features of all the clitics (auxiliaries and pronouns) that had moved to Comp. Cardinaletti and Starke’s account does have one appealing feature, however, which is that it automatically yields the result that the filling of Spec-CP and V-raising to  $C^0$  are mutually exclusive: if both kinds of raising are forced only by the need to support clitics, then once one movement has happened, the clitics’ requirements are satisfied and a second raising would lack motivation.<sup>45</sup> Nonetheless, I find this theory’s drawbacks to be greater than its merits (at least for SC), so I shall not adopt it. There must then be some motivation for clitics to raise to Comp that has nothing to do with what will be in its Spec or head-adjoined to it. Progovac (1993) suggests that semantic features might be involved, i.e. that modals, auxiliaries and the question particle have clausal scope, and less obviously so do definite pronouns. Hock (1993) suggests that pronouns, being anaphoric, front for reasons of “iconicity.” These proposals do not seem very strongly motivated, so I will simply note that some motivation must be found in the syntax, and leave it at that. Note that this crucially requires that clitics be distinguishable from their

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<sup>45</sup> This reasoning probably needs refinement, since such movements may well be found in sentences with no clitics at all, although it is extremely hard to be certain which position is the target of movement. See discussion of this point in §2.1.

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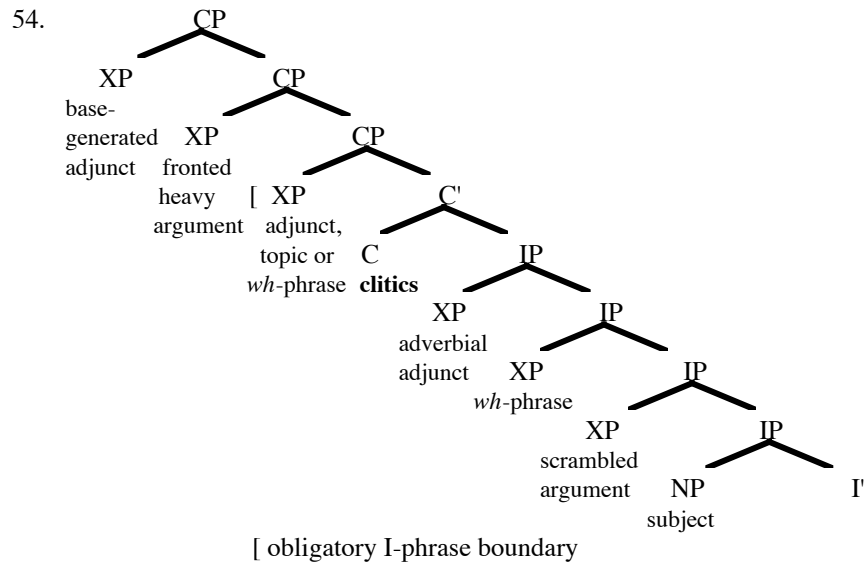
unreduced forms before S-structure, since full pronouns and auxiliaries have no such requirements on raising.

Under my account, the raising of verbs (both finite and non-finite) to  $C^0$  is also in need of motivation. It is difficult to say much concrete about even the descriptive facts, however: word order in SC is so free that it is very difficult to determine whether a verb has fronted to Comp in a given sentence. There might well be an intermediate projection between IP (whose Spec I take to be strictly a subject position) and CP, for instance a F(ocus)P of the type proposed by Rudin (1985) and Izvorski (1993) for Bulgarian, to accommodate elements that “scramble” ahead of the subject but still follow clitics, in which case a verb might be in  $F^0$ ; alternatively, IP-adjunction could be implicated.<sup>46</sup> Since it does look like verbs do not front when Spec-CP is full, one might speculate that there is a feature in Comp in all ([–WH]) clauses that can be checked either by an element in Spec or a head in Comp, so that we either find topicalization or verb-fronting; cashing out the content of this feature must await future work. Note that it need not be the finite verb that raises to Comp: a participle or infinitive is possible as well, so the standard account of finite V-to-I-to-C apparently will not apply. Even more problematically, cases where the syntax yields a clitic-initial sentence seem to show Spec-CP and  $C^0$  can both lack non-clitic material. Note that I have deliberately not committed myself to the structure of elements internal to Comp, i.e. the structural relationships among *li*, which is base-generated there, auxiliary and pronoun clitics that move there, and non-auxiliary V heads that also move there. Given my notion of the role of morphology, it will not matter how these morphemes are linearly or hierarchically arranged, so long as they are somehow dominated by the same  $C^0$  node. Indeed, under a base-generation account, Comp could simply be a collection of feature bundles. In particular, I do not wish to derive any of the ordering among clitics, or between the clitic cluster and a V head in Comp, by syntactic means. Progovac (1993) proposes such an account (see §2.1), but it strikes me as requiring many stipulations that belong more intuitively to the morphology, e.g. the fact that clitics must right-adjoin to C while full verbs left-adjoin.

Thus (54) shows the schematic structure for the top of SC clauses that I will use for illustration in the rest of this paper (order among adjoined elements may be free):

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<sup>46</sup> See Mišeska Tomić 1993 for the proposal that Spec-IP itself is a focus position.



Given this structure, the syntactic analysis of clauses with clitics is as follows.<sup>47</sup> (In this paragraph, I am working backwards from the appearance of a surface string to deduce its analysis, i.e. the “if-then” relations are not derivational.) In any clause where the clitic cluster is immediately preceded by a constituent containing more than one phonological word,<sup>48</sup> that constituent must be in Spec-CP. Where that constituent itself is preceded by other material, that material is either CP-adjoined or located in a projection higher than CP. Clauses where the clitic cluster is immediately preceded by a constituent consisting of a single phonological word have several possible S-structures: 1) The constituent might be in Spec-CP; 2) The constituent might be in  $C^0$ ; 3) The constituent might be below  $C^0$ . In some cases, the theory allows for multiple syntactic structures for the same sentence (possibly with semantic consequences), but in others the particular identity of the single-word constituent forces exactly one of these analyses. Let us consider them in turn.

1) If the constituent is in Spec-CP then it must be a single-word XP. Following standard practice and Rudin’s (1988) analysis of SC, I assume that clause-initial *wh*-words can only be in this position. Other single-word XPs, including adjuncts, can be in Spec-CP if they are topics (whatever that might entail). What constitutes a moveable XP in SC seems to be a considerably larger class than in, say, English. For instance, given the semantics of (55), it most likely involves movement of the adjectival possessive proper name to this topic position, which implies that such elements (presumably adjectival possessives in

<sup>47</sup> Some complications in embedded clauses are deferred to §9.

<sup>48</sup> That is, any two-word constituent where neither word is itself a clitic, e.g. a preposition.

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general) can be extracted as XPs from DPs.<sup>49</sup> (Strictly speaking, this example does not show that unequivocally: it could be that the head noun has been rightward-extracted and what is left of the DP (in this case, just one word) has undergone “remnant” topicalization.)

55. Marijanina se udala ćerka.  
*Marijana's REFL married daughter*  
'Marijana's daughter got married.'  
'As for Marijana, her daughter got married.' (Progovac 1993: 17)

2) If the constituent is in  $C^0$ , then it must be a verbal head or a complementizer.<sup>50</sup> This represents a theory-internal prediction, on the premise that verbs move to Comp but adjectives, for instance, do not. I am not aware of empirical evidence from SC that would directly support this assumption, but it is implicit in much work on SC (Rivero 1991, Ćavar & Wilder 1993).

3) If the constituent is below  $C^0$ , then Spec-CP must be empty and  $C^0$  must contain only clitics, in order that the lower constituent could end up preceding the clitics at PF. That is, a single phonological word can overtly precede clitics by immediately following them at S-structure (if linear order is represented in S-structure, otherwise by being the highest overt element below Comp) and being ordered before clitics by the phonology. The question then arises whether there are any constraints on how high this word must be in order to be able to become the host for the clitics. I am not aware of any evidence bearing on this question. Note also that the word that will be the host may be part of a larger constituent in this case.

We seem, then, to be left with an embarrassment of riches under this analysis. 1W clitic clauses have multiple possible analyses. Can we derive any empirical predictions correlated with these differences? For one thing, case 1) is distinguishable from the other two to the extent that we have independent ways of deciding whether something is a topic. Case 2) is distinguishable to the extent that we have independent constraints on what heads may raise to  $C^0$ ; we can presumably rule out cases where the initial PWd consists of two syntactic terminals, e.g. a preposition and a determiner, as in (45a). Case 3) is distinguishable to the extent that we have independent ways of deciding whether something is *not* a topic, and additionally, case 3) is the only analysis available when the host PWd is not syntactically extractable. That is, whenever clitics appear within some XP and we know that the material preceding the clitics within XP cannot be separated from that following them except by clitics, we can rule out analyses 1) and 2), since these involve syntactic movement of the preceding material. To take the crucial example once again, in sentences of the

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<sup>49</sup> See Babyonyshev 1993 for an analysis of the formation of similar adjectival possessives in Russian; she does not discuss whether or how they move, however.

<sup>50</sup> Clear examples of a complementizer in the same  $C^0$  as clitics are hard to come by, since I assume CP-recursion for (certain) embedded clauses. Sentences like (27c) from §1.2 might be candidates—see the discussion in §5.

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form *P Det CL Adj N*, analysis 3) is the only one available, because under no other circumstances can the sequence *P Det* be separated by other material from *Adj N*, so in particular, it cannot front to Spec-CP or to Comp to the exclusion of the rest of the PP, whether by stranding or by prior rightward extraction of *Adj N*. Thus, the residue of ambiguous cases (putting aside now the possibility of V movement to Spec-CP as remnant VP topicalization) are two. 1) Those where the first word is neither a *wh*-word nor a verb and has been shown independently to be syntactically frontable. In these cases, we predict an ambiguity between topic and non-topic interpretations of the first word.<sup>51</sup> Unfortunately, I do not have any data on this question. 2) Those where the first word is a verb, in which case it might be in Comp or it might be in some lower position (e.g. AgrS) if there are no overt elements between AgrS and Comp, assuming that a subject trace in Spec-AgrSP, for instance, does not block PI. Since the ability of all sorts of verbal heads to raise to C is mysterious to me in the first place, I do not know what predictions, if any, might be made that would distinguish these two possibilities. One further set of potential restrictions on these two types of ambiguity might come from phonology: if there are phonological constraints on the conditions under which clitics may be re-ordered to follow a host word, then the third analysis (host word following clitics at S-structure) might be ruled out in certain cases.

Some authors have taken facts about focus to show that syntactic fronting of NP modifiers cannot be the correct analysis of first-word placement. Specifically, consider the following paradigm, where underscoring indicates emphasis:

56. a. Moj **je** brat došao.  
*my AUX brother come*  
'My brother has come.'
- b. Moj brat **je** došao.
- c. Moj je brat došao, ne tvoj.  
*not your*  
'My brother has come, not yours.'
- d. Moj brat je došao, ne sestra.  
*sister*  
'My brother has come, not (my) sister.'

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<sup>51</sup> Strictly speaking, there is one more consideration. A non-topic reading might be excluded because the word in question cannot appear as (part of) the first constituent following Comp. That is, it might be unable to undergo PI because it is not adjacent to the clitics at S-structure, and thus must be topicalized in syntax. Given the free word order among major constituents in SC, this scenario seems unlikely to arise: non-subjects are probably quite free to front to some position between Comp and Spec-IP.

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- e. Moj brat **je** došao, ne tvoj.  
'My brother has come, not yours.'
- f. Moj **je** brat došao, ne sestra.  
'My brother has come, not (my) sister.' (Hock 1993: 8)

Clearly, being in front of clitics is not correlated with being focused. However, focus is not crucially associated with Spec-CP; if it has a positional account at all, the focus position would probably have to be below CP (again, see Rudin 1985 for Bulgarian). However, we still have problems with examples (d) and (e), since these must involve the subject NP being in Spec-CP under my analysis. Maybe this position can be associated with either Topic *or* Focus semantics, or else, maybe material can raise to Spec-CP from a Focus position without losing its Focus properties. Clearly, more investigation is needed on this question. It would be interesting to know whether *moj* and *brat* can be separated by non-clitic material while maintaining all these alternative focus readings.

Note that there is a converse implication that does not hold with regard to syntactic movement and hosting clitics. Just because some portion of a constituent can be “fronted” in a sentence without clitics does not mean that it can be a clitic host in Spec-CP; if there are lower fronting positions in the clause (e.g. a Focus position or scrambling as IP-adjunction), then partial constituents may be able to move there but no further. Then we would expect that when such elements precede clitics they cannot have Topic semantics, but must have been re-ordered in the phonology. It appears that this scenario does occur, again with PPs, although the judgements are not crystal clear. However, it seems that sentences of the form *Prep Det Adj...N* are possible, where the ellipsis is filled with one or more non-clitic constituents, and yet sentences of the form *Prep Det Adj CL N...* are out. This initially perplexing fact makes sense if the remains of the PP after N-extraction do not form a possible topic (being semantically incomplete),<sup>52</sup> but can raise to, say, a focus position, or simply scramble and adjoin to IP. Then there will be no way to derive the bad clitic placement: the string *Prep Det Adj* cannot front to Spec-CP or to Comp, and since it contains more than one phonological word, the clitics cannot “hop over” it in the phonology.

### 4.2 Morphological analysis

In this subsection, I will describe the role of morphology in clitic positioning under the type of account I am proposing, without specifying a particular theory of morphology or of the mechanics by which it is implemented. I claim that morphology is entirely responsible for the linear order among clitics in the clitic cluster in SC, but that it has no role to play in establishing the relative order of the clitic cluster and other words in the sentence. That is, at least for the data I am concerned with in this paper, it suffices to have a theory of morphology that operates entirely within  $X^0$  nodes of the S-structure tree and never be-

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<sup>52</sup> As mentioned in an earlier footnote, there are questions about the possible presence of the trace of N.

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tween them.<sup>53</sup> It looks at the various feature bundles under each such node, re-arranges them as necessary, and inserts the appropriate lexical items. (Hock (1993) also proposes this role for Halle & Marantz-type morphology.) (If we had adopted the IP-adjunction analysis of clitics, morphology would have to be able either to freely re-order the  $X^{\max}$ s adjoined to a given phrase or else filter out sentences where this ordering was incorrect; this strikes me as granting too much power to the morphological component.) While it is conceivable that a clitic's need for a host to its left or right could be a morphological requirement, I will argue later that the satisfaction of that requirement is subject to purely phonological constraints and does not show the usual characteristics of a morphological process. On the other hand, ordering within the clitic cluster shows these characteristics very clearly. Specifically, the ordering does not depend solely on syntactic category,<sup>54</sup> nor does it depend at all on phonological features.<sup>55</sup> Rather, it has the character of a template. That is, the clitic cluster can be viewed as a linearly-ordered set of optional slots into which morphemes bearing certain feature combinations must be placed. The particular features of the template are as follows (repeated from §1.2):

57.

<i>li</i>	AUX	DAT	ACC/GEN	<i>se</i>	<i>je</i>
Q (question particle)	auxiliaries (except <i>je</i> )	dative pronoun	accusative/ genitive pronoun	REFL (reflexive pronoun/ particle)	3sg AUX

Another typical characteristic of morphological processes that surfaces in SC are a set of readjustments that occur when particular morphemes co-occur in the clitic cluster. Specifically, the Accusative third person singular clitic, which is normally *je*, surfaces as *ju* just when the third singular auxiliary clitic, whose form is also *je*, is present in the cluster. When the morphemes *se* and *je* would co-occur, they must surface simply as *se* for most speakers.<sup>56</sup> In spoken language one also optionally finds *me je* reduced to *me* and *te je* reduced to *te* (Browne 1975b). (See Bonet 1991 for similar readjustments in Catalan.)

Perhaps the most compelling reason for adopting a morphological template model of clitic ordering comes from clitic climbing, by which I will mean raising of clitics from a subordinate to a matrix clause, as in (58) and

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<sup>53</sup> This is the claim Halpern makes as well.

<sup>54</sup> Furthermore, Halpern (1992) shows that cross-linguistically, syntactic function is not a predictor of clitic ordering.

<sup>55</sup> The position of *je* at the end of the cluster might be an exception to this—see discussion below.

<sup>56</sup> According to Browne (1974), in this case the vowel may be lengthened to *se:*, though it need not be. The question then arises whether this could be a purely phonological change, i.e. intervocalic *j* deleting. I have not investigated this possibility further.



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(59).<sup>57</sup> When this happens, the clitics that belong semantically to two separate clauses surface as part of a single cluster, in exactly the templatic order, regardless of which clause each clitic originated in, as in (60) and (61b). It seems almost inconceivable that this ordering fact could be derived purely by syntactic movements, but it is unsurprising under a template-based story. (As discussed earlier in §2.1, another problem for a syntactic ordering account would be the fact that negative auxiliaries are not part of clitic clusters: it is hard to see how the templatic order could be derived by head movements that operate independent of raising versus non-raising of a finite auxiliary to the clitic cluster position.)

58. a. Želim da **mu ga** dam.  
*want that him it give*  
 'I want to give it to him.'
- b. Želim **mu ga** dati.  
*want him it to-give* (Browne 1974: 44)
59. a. Milan želi [da **ga** vidi].  
*Milan wishes that him sees*
- b. ?Milan **ga** želi [da vidi].  
*Milan him wishes that sees* (Progovac 1993: 11)
60. Nena **mi ga je** zaboravila dati.  
*Nena me it AUX forgotten to-give*  
 'Nena has forgotten to give it to me.' (Mišeska Tomić 1993: 7)
61. a. Nije **se** usudio zabraniti **ga**.  
*NEG-AUX REFL dared to-forbid it*  
 'He didn't dare to forbid it.'
- b. Nije **ga se** usudio zabraniti. (Browne 1975b: 131)

The most interesting feature of the SC clitic group order is that the third singular auxiliary clitic of *biti* 'to be,' *je*, always comes at the end of the cluster, while all other forms of this verb and all other auxiliaries come in the second slot, following *li* if present. One would hope to find some explanation for this

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<sup>57</sup> I will not attempt an analysis of clitic climbing sentences in this paper. See Browne 1974 for some of the descriptive facts. Apparently the constructions are sometimes marginal for some speakers, as indicated in (59b). Eventually one would like to account for the (presumably syntactic) fact that clitics can, and in some cases apparently must, "raise" out of infinitival complements to a semantically restricted class of verbs, but never out of finite clauses, and show how they can get to the matrix clitic position. It would also be interesting to explore what happens when clitics that belong in the same templatic slot originate in separate clauses: is raising still possible, and if so, what orderings result? These issues must await further research.

idiosyncrasy, although we do expect exceptional behaviour of particular morphemes. This quirk may be related to the fact that *je*, unlike most other auxiliary clitics, is identical to the stem of the (unreduced form of the) verb. Also, it seems that *je* under certain conditions behaves like “less of a clitic” than other clitics. For instance, it can appear in environments where the other clitics are less acceptable, e.g. after an NP containing a relative clause. It can also host other clitics, at least *li*, in a colloquial form of *yes-no* question (see §5). Why marginal clitic-hood should place it last in the clitic cluster remains a mystery, however.<sup>58</sup> More generally, one can ask whether there is any logic to the ordering generalizations that are found in the SC clitic cluster. For instance, is the status of *li* as an interrogative particle, hence plausibly a true  $C^0$  category, in some way related to its being first in the clitic cluster?<sup>59</sup> How about the general fact that auxiliaries precede pronouns (except for *je*)? Regrettably, there seems to be nothing to say about these questions.

I have so far said nothing about ordering between clitic and non-clitic heads under  $C^0$ . Recall from §4.1 that I am proposing that non-clitic verbs, both inflected and uninflected, can raise to  $C^0$  and end up as hosts for the clitic cluster. I have not seen much evidence bearing on the question of whether the ordering between such a verb and the clitic heads under  $C^0$  is determined by morphology or phonology, but under the present account the phonology is guaranteed to order them correctly regardless of what the morphology does. This might then be the only case where clitics and their host form a single unit from the morphology’s point of view; even when a valid host word already exists to the left of the clitics in Spec-CP at S-structure, the morphology is oblivious to the eventual connection between them. There is one case of allomorphy that is particular to the combination of a  $V^0$  and a clitic which might indicate that the morphology does concern itself with their combination, pointed out by Halpern (1992): when the future auxiliary clitic combines in  $C^0$  with an infinitive, the infinitival suffix (*-ti* or *-ći*) is dropped.

62. a. Knjigu **ću** čita-ti.  
*book will read-*INFIN**  
 ‘A/the book, I will read.’

b. Čita **ću** knjigu.  
*read will book*  
 ‘I will read a/the book.’

(Halpern 1992: 84)

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<sup>58</sup> Michael Kenstowicz (p. c.) has suggested that a type of stress clash avoidance might be at work: *je* might be metrically more prominent than all other clitics and therefore need to be as far from the stressed host as possible.

<sup>59</sup> Anderson (1993) proposes a distinction between inflectional and derivational clitics, under which *li* would probably be the sole member of the SC cluster that is derivational, since it has “semantic or discourse functional content.” He claims that universally, derivational clitics attach closer to the host than inflectional ones within a given cluster, which would correctly derive the position of *li*. For a critique of other aspects of Anderson’s approach vis-à-vis SC, see Hock 1993.

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As we will see in the next subsection, the clitic cluster must form some sort of a unit by the time the morphology feeds into the phonology, because it moves as a unit: if the clitic cluster must be re-ordered with respect to another syntactic terminal to meet the encliticization requirement, the clitics maintain their relative ordering, something we would not necessarily expect if each one were moving individually to attach to a host word. It is not clear to me what the nature of this unit should be, but it is as if the Comp node, when it dominates only clitics, inherits the enclitic feature that each of the morphemes it dominates bears, so that Comp behaves like a single super-clitic. What makes the SC clitics a cluster, that is, a unit with internal ordering and co-occurrence restrictions, is the fact that it is dominated by a single syntactic head. Note that this account is not available to Halpern (1992), since he adopts an  $X^{\max}$  adjunction account; for him, clitics can form a cluster if they have the same syntactic domain, where possible domains for clitics include CP, IP, NP, etc. Under my account, the domain of clitics, i.e. where they need to be at S-structure, is a purely syntactic fact to which the morphology requires no access. Another difference from Halpern's approach is that he assumes that clitic ordering is stated in terms of morphological subcategorization, so that a clitic cluster will have hierarchical structure of the form in (63):

63.   [[[ *li* ]<sub>A</sub> *sam* ]<sub>B</sub> *te* ]<sub>C</sub>...

There seem to be a couple of problems with this approach. First, I am not aware of any evidence for the proposed hierarchical structure; a flat linear structure is simpler and will serve the purpose. Second, it is not immediately obvious how subcategorization requirements can be satisfied when some of the slots in the template are left empty: must the accusative pronouns, for example, subcategorize for dative pronouns *or* auxiliaries *or* the question particle? Are zero morphemes needed to fill in the empty spaces? At least for SC, this appears to be an excessive amount of machinery.

### 4.3 Phonological analysis

It has become widely accepted that utterances have a hierarchical phonological structure that is derived from, but not isomorphic to, their syntactic structure (Selkirk 1984, 1986, Hayes 1989, Nespov & Vogel 1986, inter alia). This phonological or prosodic structure will play a crucial role in a number of aspects of clitic placement. I will not adopt any particular version of prosodic phrasing here, but merely draw on aspects that are fairly widely accepted and point out the features of SC prosodic phrasing that crucially affect clitics. Under many theories, the hierarchy of prosodic categories begins with the Utterance at the top, which contains I(ntonational)-phrases, which in turn contain phonological (phi-)phrases of one or more sizes, which contain phonological or prosodic words (PWds), and in some cases this hierarchy is believed to continue at the sub-word level to encompass feet and syllables or moras. The prosodic units that appear to be most relevant to clitic placement are the I-phrase and the PWd, and perhaps also the phi-phrase, although I shall have very little to say about the latter. I shall not attempt to propose an algorithm for the construction of units higher than the PWd in SC, because I have simply not been able to find suffi-

cient phonological data to diagnose how they are constructed. In particular, the above-cited authors show that prosodic constituents of any size can form the domain for rules of segmental phonology, but I have not yet found any such rules that seem to be sensitive to constituents other than PWD in SC. Thus, my only diagnostic will be to assume that pauses represent I-phrase boundaries.<sup>60</sup> <sup>61</sup> Beyond that, all I can do at this stage is to assume that the universal phrasing principles that have been proposed in the literature (especially by Nespor and Vogel (1986)) apply straightforwardly to SC until we find evidence to the contrary.

Before describing in detail the nature of PWDs and I-phrases, I will describe the large-scale operation of the phrasal phonology that underpins my analysis. The model operates crucially in two stages: first, a “blind” mapping from syntactic (S-structure) boundaries<sup>62</sup> to prosodic boundaries of various sizes (prosodic projection), and second, a repair or readjustment phase during which the syntactically-based prosodic structure is altered to satisfy purely phonological requirements that the initial construction may have violated (prosodic readjustment). This general picture of two stages of construction is implicit in much of Nespor and Vogel’s (1986) account, and is proposed explicitly for Tiberian Hebrew by Dresher (1993). The idea is that while syntactic structure is a basic guide to constructing prosodic constituents, phonological factors such as the need for clitics to have hosts, the need for heavy elements to be set off, various size constraints, and so on must also be taken into account. While I have sadly little to say about the details of the first stage of this algorithm, the second stage is crucial to deriving clitic placement.

The only substantive thing that we will need from the first stage of mapping is to know where I-phrase boundaries fall. Here I will follow Nespor and Vogel’s description:

There are certain types of constructions that seem to form intonation domains on their own. These constructions include parenthetical expressions, nonrestrictive relative clauses, tag questions, vocatives, expletives, and certain moved elements...They all represent strings that are in some way external to the root sentence they are associated with. (Nespor & Vogel 1986: 188)

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<sup>60</sup> As Percus (1993) makes clear, “pause” in this context does not necessarily mean phonetic silence; what is perceived as a pause is often merely the onset of a new intonational contour. Nonetheless, at least some of these boundaries may be the sites of actual silences, and in any case I will follow the existing literature in referring to them as pauses.

<sup>61</sup> Inkelas and Zec (1988) describe some phrasal tonology phenomena in SC that could in principle be used to diagnose the edges of large prosodic constituents, but they do not commit as to exactly which constituents are relevant, nor do they give enough data about where the tone changes occur to provide any useful information for our purposes.

<sup>62</sup> Although the phonology is fed by Morphological Structure, I assume that at least all syntactic structure above the  $X^0$  level is maintained from S-structure through Morphological Structure to feed into prosodic mapping.

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They go on to say that the root sentence is mapped to a single I-phrase unless it is interrupted by one of these special elements. I will implement their suggestion for SC by proposing that an I-phrase begins at the left edge of the lowest CP dominating the matrix clause. That is, everything from Topic position (Spec-CP) down forms part of the matrix I-phrase, while anything CP-adjoined or higher is part of one or more separate I-phrases; there is an obligatory I-phrase boundary at the left edge of Spec-CP. This will immediately explain many of the pauses we have seen after sentence-initial elements, and the fact that material before the pauses does not count towards determining “second position,” because it is above Spec-CP. (I will return in §9 to consider I-phrasing vis-à-vis embedded clauses. I have seen strikingly little independent phonological evidence for these I-boundaries in SC. Radanović-Kocić (1988, p. 127ff) adopts Nespor and Vogel’s proposal and takes as evidence the fact that certain assimilation and degemination processes become optional across a hypothesized (perhaps optional) I-boundary. Unfortunately, she does not give any examples that include clitics, so we cannot determine whether the hypothesized correlations between I-boundary placement and clitic placement are independently supported, but this is clearly an important avenue to pursue in support of the analysis I am proposing.

In addition to syntactically-determined I-phrase breaks, we will also need I-phrasing that results from the second, readjustment phase of prosodic tree-building. In particular, “heavy” constituents will form their own I-phrases, at least in certain positions in the sentence. This proposal is also not new (see Nespor & Vogel 1986, Zec & Inkelas 1990, Drescher 1993). The definition of heaviness has been notoriously difficult, but many researchers now believe that it is to be defined prosodically, i.e. in terms of the number and/or size of prosodic elements contained in some domain, and not in terms of syntactic structure. The facts of SC seem to force the additional conclusion that there is not one absolute threshold that separates light from heavy elements, but rather that heaviness may be relativized to a particular level of the prosodic hierarchy (see especially Zec & Inkelas 1990) and perhaps also to semantico-syntactic distinctions. In §7 we will see perhaps the most compelling evidence yet uncovered for a purely prosodic definition of heaviness, which yields a constraint on “heavy topicalization” structures in SC. For now, what is important to note is that I-boundaries due to heaviness are introduced crucially in phase two of prosodic mapping, a fact that has important implications for its interaction with cliticization, the topic to which we now turn.

Most every description of SC clitic placement notes that the “second word” (1W) placement option refers to a phonological or prosodic definition of word, and not the notion of syntactic terminal, based on the impossibility of placing clitics after (most) prepositions. I believe this description is correct; now I will consider how the notion PWD can be defined for SC. Zec (1993), drawing on earlier work by Inkelas and Zec (1988), shows quite convincingly that prepositions in at least the most widespread dialects of SC are always proclitic on the following word, despite the fact that these dialects vary

considerably in the surface manifestations of Preposition + Host sequences.<sup>63</sup> Specifically, there are rules for the placement of pitch accent within words that apply also between a word and a preceding preposition in some dialects but not in others; Zec treats these as tone-spreading rules, but metrical treatments are also possible. She shows that even in dialects where there is no spreading to prepositions, the preposition must be treated as part of the same PWd as the following host, otherwise it should undergo a rule of default High-Tone insertion that applies to all lexically toneless PWds. (See also Selkirk 1993 for an Optimality Theory account of some of the same facts that also assumes that prepositions do not form independent PWds.) Accepting this conclusion, it is a reasonable next step to propose (a has been done in the literature, e.g. by Inkelas (1989)) that the set of possible clitic hosts in SC is exactly the set of PWds. The question is whether there are any independent criteria we can use to decide what the set of PWds is, aside from (in)ability to host clitics. At this point, I do not have any such criteria. In principle, it should be possible to look for pitch accent facts to make this determination, but the necessary data are not in the literature; all the cross-word phenomena involve prepositions, although many conjunctions are also standardly analyzed as proclitics.

Another possible criterion would be to equate PWd with accented word; unfortunately, to the extent that accenting on function words is discussed in the literature, the reports are somewhat contradictory. For instance, the complementizer *da*, which clearly can host clitics, is claimed to be accented by Browne (1975) and Magner (1991), but unaccented by Progovac (1993) and Radanović-Kocić (1988); it is not clear whether a dialect difference is involved, but if so it is not correlated with the possibility of hosting clitics, which holds for all dialects. Also, many normally unaccented words can be accented when used emphatically or contrastively, but this does not seem to make them available as hosts for clitics (Progovac 1993, for prepositions, but Javarek & Sudjić (1972) disagree). Inkelas (1989) says that PWds are characterized by always surfacing with High Tone and stress, whereas clitics would show these only in certain environments; she also claims that only PWds can be emphasized, apparently contradicting Progovac. A third possible criterion could be function word versus lexical word, but this would clearly produce the wrong results: we find both clitic hosts and non-hosts within the classes of conjunction, complementizer, auxiliary verb, and (at least marginally) preposition. In fact, in some cases the same word will have two variants, one of which can host clitics and the other of which cannot, notably the conjunctions *ali* and *pa* (and perhaps some verbal forms as well); it is not clear whether this difference correlates with a difference in meaning and/or a difference in accenting—again, there are disagreements in the literature, e.g. Browne (1974) and Zec and Inkelas (1990) versus Progovac (1993). Thus, we may be dealing with several orthogonal distinctions among the words of SC, so I will simply assume that PWd versus non-PWd is the one relevant to hosting clitics, and that this feature must be stipulated for individual lexical entries, at least among the syntactic classes that contain clitics (i.e.,

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<sup>63</sup> However, see the facts about the preposition *okolo* noted by Percus and discussed in §1.2.

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perhaps not among nouns, “contentful” verbs, adjectives, and adverbs). That is, PWd is a real phonological notion, but the literature does not allow us to determine whether it is transparently reflected in any surface phonetic criteria.

We can now distinguish clitics from non-clitics in the phonology: clitics fail to project a PWd, unlike other syntactic terminals. Under my account, clitics require an additional lexical diacritic that specifies their direction of attachment (cliticization) as leftward or rightward. (It is possible that this distinction might be made to follow from other factors, but at the moment I do not see how.) Thus, the output of the first stage of prosodic mapping will contain elements (which I shall call syntactic words, by which I mean to include the entire clitic cluster as a single element) some of which are labeled as PWds and others not, and these elements are grouped into (phi-phrases and) I-phrases.<sup>64</sup> The process by which clitics are attached to their hosts occurs in the second, readjustment phase, since it is not determined by syntactic structure. By clitic I now mean a syntactic terminal that is not a PWd, including the Comp clitic cluster which has inherited the enclitic nature of each of its morphemes. If there is a PWd on the appropriate side of a clitic within the same I-phrase, the clitic adjoins to become part of that PWd.<sup>65</sup> If there is no host next to the clitic in the specified direction within the same I-phrase, then a re-ordering takes place such that the clitic is adjoined to the right of the first PWd within its own I-phrase; in the case of enclitics, this will be a PWd to their right.<sup>66</sup> I have nothing interesting to say about whether this re-ordering involves movement of the clitics across the host or vice versa or whether it should not be conceived of as movement at all, but rather as affixation as formulated by Marantz (1988, 1989); however, see Barbosa (1994) for a specific solution in Old Romance. For expository convenience I continue to use Halpern’s term, “Prosodic Inversion” (PI), to refer neutrally to the process. Under my account, then, cliticization and PI are purely phonological processes triggered by the phonological dependence properties of certain words, and subject to phonological constraints (e.g., not crossing I-phrase boundaries, and possibly additional constraints to be explored in §6). PI represents a last-resort option to satisfy the licensing requirements of phonological material, and cannot apply unless needed. It is not a phonological

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<sup>64</sup> I must assume that syntactic words continue to be identifiable in some way after the first stage; either the syntactic tree is still visible or else some other organizational constituent must be invoked.

<sup>65</sup> Here I am following Zec’s (1993) description, under which a clitic and its host always form a PWd together; in contrast, for Selkirk (1993) they may form only a higher-level constituent together in certain dialects. Nothing in my account seems to hinge on this distinction. However, Zec makes additional proposals about when in the derivation prosodic words are formed, using these to differentiate the dialects; her ideas could probably be incorporated in my framework, but they would complicate the exposition so I leave them aside.

<sup>66</sup> I have not encountered any potential cases of re-ordering involving proclitics, perhaps because their syntactic properties conspire to ensure that there will always be a host to their right within the same I-phrase, but N-extraction from PPs could provide a counterexample.

rule in the usual sense, but could follow from a general repair strategy: make the minimum possible adjustment to license unlicensed elements. The general strategy would hopefully be universal, though its availability for particular types of prosodic licensing might be parameterized. A priori there would be another potential repair strategy, namely inserting a full form instead of a clitic form in environments that lack a host; this is apparently not available, at least in SC, perhaps because clitic and non-clitic alternants of the same word are featurally distinct in some way that blocks lexical insertion of one for the other. (For another recent proposal involving movement in the phonology, see Duanmu 1993). The criteria for the application of PI are reminiscent of the account of *um-* infixation in Tagalog under Optimality Theory (Prince & Smolensky 1993, McCarthy & Prince 1993), where what is normally a prefix can move rightward a minimal distance in order to avoid creating an invalid syllable. Another Optimality-type constraint in the SC system seems to be a preference against sentence-final clitics, which is violable only if there is no other way to satisfy the clitics' need for a host—see §5.

Note that the host PWD to which enclitics may attach after PI is not necessarily the first syntactic word to their right at S-structure; in particular, if the clitics are followed by a PP, the host word will be the word following the initial preposition, to which that preposition will also procliticize as part of the readjustment phase; whether there is any order among these cliticizations appears indeterminate. Notice also that the motivation for claiming that the relevant elements do in fact cliticize phonologically boils down simply to the impossibility of their occurrence in initial position. One would hope to find independent phonological evidence that encliticization is actually going on, especially in light of facts to be discussed later where it appears that enclitics can be phonetically separated from their hosts under certain circumstances. Unfortunately, I am not aware of any phonological processes that could be used to test the clitic–host boundary in this way. Zec (1993) mentions one phenomenon in the Old Štokavian dialect that could serve this purpose, namely the fact that the High Tone spreading process alluded to above is restricted in this dialect to apply only when spreading is from the final mora of a PWD. This explains the contrast in the realization of *dobro* in (64): in (64a) we find the expected spreading when the following word is a PWD of its own, but there is no spreading in (64b) because the enclitic *mi* is part of the same PWD as *dobro*, rendering its High Tone non-final.

64. a. svi da      **ste mi** dobro došli  
           |                          \|  \|  
           H                          H   H  
           *all COMP AUX me well come*  
           ‘welcome all of you’

b. [dobro **mi**] došli  
           |      \|  
           H      H  
           *well me come*  
           ‘welcome to me’

(Zec 1993: 40)



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Unfortunately, neither Zec's source nor any other relevant data from this dialect are available to me at the time of this writing (but see Alexander 1993 for a diachronic and cross-dialectal survey of the interaction between cliticization and accent in South Slavic that cites numerous effects of enclitics on word accentuation). Another way to test for phonological cliticization would be to construct a sentence where the constituent immediately preceding the clitic ends in a word that is itself not a PWd but a proclitic. Then we could factor out any possible restriction against initial placement and simply see whether the enclitic can stay in this position. Unfortunately, I do not believe a sentence of the required type is constructable in SC.<sup>67</sup>

Before closing this section, I would like to point out a difference between the present account of phonological cliticization and some previous accounts in the literature that I have not adopted because they appear problematic. Nespors and Vogel's (1986) treatment of clitics involves an additional prosodic constituent, the Clitic Group (CG), intermediate in size between PWd and phrase and consisting of a host word and any clitics attached to it. The problem with this account is that Nespors and Vogel follow the Strict Layer Hypothesis completely, which means that a CG must be exhaustively parsed into PWds. Thus, both clitics and non-clitics are PWds under their account. But clearly certain PWds are clitics and others are potential hosts, so their account requires a diacritic to this effect on PWds. (That is, some PWds can form CGs on their own, whereas others cannot; these latter words also fail to undergo rules of the lexical phonology.) As a result, their structures for clitic+host constituents involve two different prosodic units plus one diacritic feature, whereas the approach adopted here (following Zec 1993, Selkirk 1993, etc.) requires only one prosodic unit, the lexical diacritic being whether or not a given word projects a PWd or not. Since there seem to be no phonological generalizations to be stated on Nespors and Vogel's undifferentiated class of PWds, the more economical machinery seems preferable.<sup>68</sup> It may involve abandoning parts of the Strict Layer Hypothesis or reducing them to violable constraints (cf. Selkirk 1993), for

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<sup>67</sup> This test of course relies on the assumption that a proclitic and an enclitic cannot together form a valid PWd. This may well be too strong a claim cross-linguistically, but it seems to hold for SC, if we can find an explanation for negative auxiliaries. The negative morpheme *ne* behaves like a proclitic (the result of prefixing it to a full verb behaves like one PWd), but when prefixed to the reduced (enclitic) form of an auxiliary, the result is a word with no apparent positional restrictions that is traditionally said not to be a clitic (see §§1.2, 2.1). It is possible that these word sequences have been reanalyzed and now have their own lexical entries stating that they are PWds. As Heidi Harley (p. c.) points out, it is hard to see how two clitics could possibly unite as a PWd, since each needs a PWd host, a requirement that the other cannot satisfy.

<sup>68</sup> Under Zec's (1993) account of tone spreading in SC, there is a need to distinguish lexical PWds from postlexical PWds, where the former exclude clitics and the latter are what Nespors and Vogel would call Clitic Groups. Zec's strictly derivational account assumes that the lexical PWd boundaries become invisible postlexically, so that the two constituent types are never accessible simultaneously, making this still a more restrictive theory than Nespors and Vogel's.

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instance to allow recursion of the PWd node, but this seems to be necessary cross-linguistically anyway.

Another popular account in the literature, originating with Inkelas (1989) and adapted by Halpern (1992), involves a prosodic subcategorization frame for clitics:

65. [ [ ]<sub>ω</sub> \_\_\_\_ ]<sub>ω</sub> attach an enclitic to the right edge of a phonological word to form another phonological word

This notation states that the element in question requires a PWd to its left and will form another PWd when attached to it. This proposal also seems to invoke too much structure. The intuition behind it is that if clitics attach to their host one at a time, then in order for them to behave uniformly, each attachment must result in the same kind of prosodic unit. What this implies, as Inkelas makes explicit, is that a clitic cluster requires one recursion of the PWd node for each clitic:

66. [ [ [ [ [ zašto ]<sub>ω</sub> li ]<sub>ω</sub> mu ]<sub>ω</sub> ga ]<sub>ω</sub> je ]<sub>ω</sub> [cf. (13a)]

The problem with this proposal is that it creates numerous intermediate PWd constituents, with the concomitant prediction that the host plus any substring of enclitics could behave as PWd with respect to some phonological process. This seems like a highly unlikely outcome, although it is hard to disprove given the general lack of phonological interaction between enclitics and their host, but Zec's analysis of multiple *procliticization* in SC suggests that there is only a single recursion needed to attach multiple proclitics. The desire to avoid multiple recursion was part of the motivation in §4.2 for saying that the clitic cluster comes out of the morphology as a unit. The other reason was the fact that the templatic order among the clitics is preserved when they undergo PI. If the clitics were independent units in the phonology, each seeking a host, one might expect their order to become randomized as each underwent PI separately, or perhaps to become reversed, since only the rightmost enclitic would be adjacent to a PWd until PI applied once. Since no such reordering ever happens, a unit clitic cluster is more appealing, in which case Inkelas's subcategorization and recursion problems go away: in fact, we could use (65) in the lexical entries of clitics, so long as it was inherited by the cluster after Morphological Structure. (It is unclear how ordering among clitics is specified in Inkelas's system—unlike Halpern, she does not require clitics to subcategorize for particular preceding morpheme classes.) Even that may be more machinery than is necessary, however. Inkelas's motivation for this type of specification is the fact that other languages apparently have clitics that subcategorize for prosodic units other than PWd, e.g. phi-phrase (Hausa) or I-phrase (Tzotzil, Kinande, Gokana); these constitute another argument against the notion of Clitic Group as a constituent type in the prosodic hierarchy (see Zec & Inkelas 1992). One might hope, however, that this choice could be set on a language-by-language basis, rather than a clitic-by-clitic basis.

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### 5. Analysis of obligatory 1W placement

In this section I begin analyzing constructions that do not straightforwardly follow the usual 1C/1W clitic placement alternations accounted for in §4, and about which more must be said. In this section the focus is on predicative constructions, which have been claimed to disallow 1C placement and require 1W placement. Here are Browne's descriptions and examples:

If a clause begins with a verb, or with a form of 'to be' plus a predicate (predicate noun, predicate adjective, participle, adverb, prepositional phrase), the enclitics come after the first word. Here the alternative of putting them after a whole phrase is not open.

67. a. Dao **mi je** članak.  
*give me AUX article*  
'He gave me an article.'
- b. \*Dao članak **mi je**.
68. a. Žele **me** vidjeti sutra.  
*want me see tomorrow*  
'They want to see me tomorrow.'
- b. \*Žele vidjeti **me** sutra.
69. a. Bio **je** odličan student.  
*been AUX excellent student*  
'He was an excellent student.'
- b. \*Bio odličan student **je**.
70. a. Bio **sam mu** rekao da...  
*been AUX him told that...*  
'I had told him that...'
- b. \*Bio rekao **sam mu** da...

In this position when an adjective modifies a noun, or an adverb modifies an adjective, the two together form a phrase, and the enclitics, again, must come after the first word of the phrase.

71. a. Odličan **je** student.  
*excellent AUX student*  
'He is an excellent student.'
- b. \*Odličan student **je**.

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72. a. Jako **si mi** dosadan.  
*very AUX me boring*  
 ‘You’re very boring (to me).’
- b. \*Jako dosadan **si mi**.
73. a. Jako **mi je** dosadna njegova posljednja knjiga.  
*very me AUX boring his last book*  
 ‘His last book is very boring (to me).’
- b. \*Jako dosadna **mi je** njegova posljednja knjiga.
74. a. U drugoj **su** sobi.  
*in other AUX room*  
 ‘They’re in the other room.’
- b. \*U drugoj sobi **su**. (Browne 1975b: 118)

It is unfortunate that Browne is almost the only source who discusses these cases,<sup>69</sup> because his description and examples are not terribly clear. My suspicion is that two separate phenomena may be going on here. First, verb-initial clauses always have clitics following the verb, not appearing later.<sup>70</sup> Given my analysis, this is exactly what we expect if verb-initial sentences involve fronting of (some form of) V to Comp; see Rivero (1991) for numerous syntactic arguments that this is what is going on in these constructions. Why participles can front here in (67) and (69) is not clear, but evidently they can. I am not certain what Browne would consider to be IC placement in a sentence like (69), unless he is thinking of the VP as a constituent, in which case his first observation amounts to the claim that there is no VP-fronting to Spec-CP in SC; Rivero (1991) and Mišeska Tomić (1993) make this claim explicitly for SC and related languages, citing facts like the following.<sup>71</sup>

75. a. \*Kupio knjigu **je**.  
*bought book AUX*  
 ‘Buy the book, I did.’
- b. \*Kupio knjigu **sam**.  
*AUX*
- c. Kupio knjigu jesam.  
*Isg-AUX* (Mišeska Tomić 1993: 40)

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<sup>69</sup> Bennett (1987) mentions this 1W requirement as a tendency rather than an absolute.

<sup>70</sup> This correctly describes (68), but it could also be a case of obligatory clitic climbing.

<sup>71</sup> Actually, Mišeska Tomić merely claims that VP-topicalization is impossible across a clitic auxiliary.

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This does not appear to be entirely true, however, since the following (a) sentences are possible:<sup>72</sup>

76. a. Čitao knjigu **je** Ivan.  
*read book AUX Ivan*  
'Read a book, Ivan did.'

b. \*Čitao knjigu **je**.

77. a. Pio pivo **je** čitavi dan.  
*drunk beer AUX whole day*  
'Drink beer throughout the day he did.'

b. \*Pio pivo **je**. (Mišeska Tomić 1993: 53–54)

First, we should note that many of Browne's examples display a possible confounding factor: (67b), (69b), (71b), (72b) and (74b) all have clitics at the end of a sentence, a placement which Browne states is avoided when possible,<sup>73</sup> although there certainly are grammatical clitic-final sentences in SC (see, e.g., (17a)). The contrasts in (76) and (77) seem to show that a verb and its complement in that order can precede clitics as long as they are not sentence-final. Thus, at least V' can front to Spec-CP. We are then left with the ungrammaticality of (68b) and (70b) to account for. In (68b) we have fronted not a verb and its complement but a matrix verb and the verb of its complement clause; we would not expect these two words to form a constituent to the exclusion of a lower-clause adverb in any case, so this is not surprising. In (70b) we have fronted an auxiliary verb and a main verb to the exclusion of the latter's complement clause; again, we do not expect these to form a syntactic constituent.

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<sup>72</sup> These examples contradict Radanović-Kocić's (1988) claim that clitics *always* follow the verb in verb-initial sentences. Mišeska Tomić cites Čavar and Wilder as saying that these (a) sentences are good only in certain dialects; she herself claims that such cases are limited to the clitic *je* because of its less clitic-like status.

<sup>73</sup> "Putting the enclitics at the very end of a clause is disfavored if there is any other possible place for them" (Browne 1975b). This has the flavour of an Optimality-Theoretic constraint, in the sense that it only rules a sentence out when there is a competing sentence that satisfies the constraint, where the set of candidate sentences seems to include all those derivable by the syntax whose word order is identical modulo the location of the clitic cluster. Note that there are grammatical sentences that contain only one prosodic word, an extreme example of there being no other potential clitic location (assuming the constraint against sentence-initial clitic placement is inviolable):

i. Lako **ti je**.  
*easy you AUX*  
'It's easy for you.'

ii. Hladno **mi je**.  
*cold me AUX*  
'I am cold.'

(Radanović-Kocić 1988: 16)

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Browne's facts are thus consistent with the facts in (76)–(77), although his descriptive statement is incorrect.

The syntactic analysis of non-clitic verb-raising to Comp in SC has been extensively discussed by Rivero (1993, 1991). She claims that “Long Head Movement” of the participle or infinitive across an intervening  $Aux^0$  head must be appealed to, and suggests that this is allowed under a refinement of Relativized Minimality (Rizzi 1990) that employs a distinction between A- and A-bar heads, such that one kind is transparent to movement of the other. The distinction is motivated by the fact that non-finite V cannot front when the auxiliary is negated, whether or not there are clitics that require a host, seen in (78b) and (79e):

78. a. Nisam čitao knjigu.  
*NEG-AUX read book*  
'I have not read the book.'
- b. \*Čitao nisam knjigu.
79. a. Ja **sam mu se** predstavio.  
*I AUX him REFL introduced*  
'I have introduced myself to him.'
- b. Ja **mu se** nisam predstavio.  
*NEG-AUX*  
'I have not introduced myself to him.'
- c. \*Ja **sam mu se** nipredstavio/ne predstavio.
- d. Nisam **mu se** predstavio.
- e. \*Predstavio **mu se** nisam.<sup>74</sup> (Rivero 1991: 334–336)

Incidentally, the grammaticality of (79b) could be taken (and is by Rivero) as showing that pronominal clitics have a different syntactic nature from auxiliary clitics, since under her analysis negation blocks raising of the latter but clearly does not prevent the former from reaching Comp. However, it is hard to show conclusively that the auxiliary is prevented from moving to Comp, as opposed to merely lacking motivation to do so, perhaps because in combination with the negative morpheme it is no longer a clitic; its non-clitic status is apparently confirmed in (79d), where not only can it be sentence initial but it can itself host the pronominal enclitics. Incorporating this idea into my framework would require that the loss of clitic status be correlated with the loss of whatever (necessarily syntactic) property would otherwise force movement to Comp.

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<sup>74</sup> Rivero (1991) notes that this word order is grammatical with focus on *nisam* and the reading 'I have *not* introduced myself to him'; see her for analysis.

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Returning to Browne's data, the claim about copular sentences is intriguing. Why should multi-word copular predicate phrases not be able to be followed by clitics? Since (73b) does not end in a clitic and is still bad, I will assume that Browne's generalization about this sub-case is correct over and above other factors. Under my theory, there is in principle really only one way to rule out this word order. We have to say that the adjective phrase in (73) cannot front ahead of the clitics in the syntax; in particular, it cannot front to Spec-CP. If the Adjective Phrase (AP) always follows the clitics syntactically, perhaps sitting in a Focus position between Comp and IP, the clitics must move in the phonology to derive a valid sentence, and since I have claimed that they never move more than one PWd in the phonology, the ungrammaticality of (73b) would be explained. Of course, it remains to argue why fronting of *predicate* AP to Spec-CP is impossible, but it seems plausible to suggest an explanation related to that position's function as Topic: in the absence of contrastive focus on the subject of a copular sentence, the predicate is the new information, and thus incompatible with Topic position, which houses given information. Given the liberal word order of SC it might prove tricky to find independent syntactic evidence for this restriction, but it seems at least worth looking into. Notice that an analysis such as that of Percus (1993) that allows clitics to move more than one PWd to the right in the phonology seems in principle incapable of ruling out sentences like (73b) while allowing in (73a), regardless of what restrictions are placed on the syntax. Also, a pure syntax account like that of Progovac (1993) will be hard-pressed to explain why *part* of a copular predicate can front but the whole predicate cannot.

I should note, especially given the analysis in later sections, that we should in principle also consider the possibility of a prosodic account of any restriction we find on clitic placement. In this case it seems very unlikely, but the framework tells us what it would have to look like. If APs and other predicative phrases could front to Spec-CP, then (73b) would be derivable without any reordering in the phonology. Thus, there would have to be something prosodically ill-formed about this very string. The only candidate problems would be that the adjective is not a PWd, which we know independently is false, or that there is an I-boundary between the AP and Comp. We have not encountered any other facts that would lead us to expect an I-boundary in this position, so we conclude that a syntactic story is the right approach to pursue.

There is another class of facts that might be considered instances of obligatory IW clitic placement, and that might involve an alternative phonological repair strategy instead of PI. Sentences containing the question particle *li*, and certain other types of questions, have sometimes been analyzed as involving a dummy word that has no semantic function and is inserted purely to serve as a host for the clitics (e.g. Hock 1992, using data from Radanović-Kocić 1988). Consider the paradigm in (80).

80. a. Piše **li** on?  
write *Q* he  
'Does he write?'

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- b. \***Li** on piše?
- c. Da **li** on piše?
- d. Je **li** on piše?<sup>75</sup> (Hock 1992: 72–73)

Since the (c) and (d) sentences have the same meaning as (a), it seems that *da* and *je* are not contributing any semantic content, especially since *da* is otherwise a complementizer or means ‘yes,’ while *je* is otherwise the stem of the verb ‘to be’ or the enclitic form of its third person singular, and *je* does not agree with the subject in this construction (81) or contribute to past-tense meaning (82).

- 81. Je **li** oni pišu?  
*Q they write*  
‘Are they writing?’ (Radanović-Kocić 1988: 48)
- 82. Je/da **li će mi** doći radost?  
*Q will me come happiness*  
‘Will happiness come to me?’ (Hock 1992: 73)

Of course, more facts are needed before we can say anything conclusive. Another analysis of sentences like (80c) in the literature has been to say that *dali* is actually a single word and is the full-word corresponding to clitic *li*. This is possible, although it sheds no light on (80d), or on the fact that *da* can appear sentence-initially in questions without *li*, as in (83) and (84).

- 83. Da **me** slučajno ne pozivaš?  
*me by-any-chance not invite*  
‘Are you trying to say that you are inviting me?’ (sarcastic)  
(Progovac 1993: 5)
- 84. Da ne dolazi slučajno Marija?  
*not comes by-any-chance Mary*  
‘Is there a chance that Mary is coming?’ (Progovac 1993: 18)

(Since (84) lacks enclitics, the function of *da* in this sentence is apparently not one of phonological support.) Radanović-Kocić (1988) argues against the single-word analysis of *da li* because it can never replace *li* in any environment other than a Yes-No question that lacks verb fronting. (See her for other, in my opinion less compelling, arguments.) Hock (1992) argues against this on the grounds that *je li* would have to be considered an alternate full form of *li*, missing the fact that *da* and *je* exist independently as words.

The question remains whether *da* in this construction is actually the complementizer. The possibility that there are two different kinds of *da* is strengthened by examples like (85b) where two are present in the same clause;

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<sup>75</sup> This form may only be acceptable in more colloquial style, and may be contracted to *je l’*, according to Browne (1975b).



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this sentence looks like a candidate for a rare instance where the clitic cluster is broken up in SC. Stranger still is the status of *je* in sentence-initial position, where it is accented (Magner 1991, Magner & Matejka 1971, Radanović-Kocić 1988). Even in sentences where it does have auxiliary meaning, the full form of the verb is actually impossible in initial position, while for all other forms of the verb the full form is required and the enclitic form impossible, as shown in (86). Examples like (80d) and (86) are part of the reason why *je* seems like less of a clitic than other members of the SC clitic cluster. However, it is clearly not a uniformly full-status PWD either, or else it ought to be fully mobile in the sentence, which it is not.

85. a. Da **ti** dam knjigu?  
           *you give book*  
           ‘Should I give you the book?’
- b. Da **li** da     **ti** dam knjigu?  
               *COMP* (Browne 1974: 39)
86. Je/ Jesi/     \*Si/    \*Jest(e)   **li ga** našao?  
       *AUX/2sg-AUX/\*AUX/\*3sg-AUX Q him found*  
       ‘Did he/you/\*you/\*he find him?’ (Mišeska Tomić 1993: 25)

If we are actually dealing with something akin to *do*-support here, some questions arise. First, why does this seem to be possible only in questions? (Actually, I do not know that for certain, but every example of this sort that I have seen was a question.) Perhaps the real generalization is that dummies can only be used to support *li*, and (83) is simply showing a different function of *da*, like (84). If so, this might lead one to think that *li* is more different from the other clitics than I have been suggesting. The fact that only it is base-generated in Comp would not seem to yield this result, so perhaps the other clitics really do not share a complex syntactic head with *li*, but rather occur lower down in the tree, such that *li* cannot undergo PI for some reason and can only be “saved” by dummy-support. The particle *li* has some other peculiar properties as well. It is not obligatory in *wh*-questions, but when inserted in them it adds the meaning that the speaker is asking him/herself (Browne 1975b):

87. a. Gdje **mi je** sestra?  
           *where me AUX sister*  
           ‘Where is my sister?’
- b. Gdje **li mi je** sestra?  
               *Q*  
           ‘I wonder where my sister is?’ (Browne 1975b: 130)

Browne also claims that *li* triggers “inversion” in *yes-no* questions, such that the verb precedes the subject, but this does not happen when *da* is also present.

88. a. *Želi li Ana ostati kod roditelja?*  
*wants Q Ana stay at her-parents'*  
 'Does Ana want to stay at her parents'?'  
 b. *Da li Ana želi ostati kod roditelja?* (Browne 1975b: 107)

The syntax and semantics of SC questions seems to be quite complex, and since it is not the focus of this paper I will not try to address these peculiarities, except to say that all of the sentences in this section are derivable with my proposed analysis of clitic placement, on the assumption that *li* is always enclitic, and *da* and *je* can be PWds, appearing either in Spec-CP or sharing Comp with *li*. An alternative analysis compatible with the rest of my theory would involve insertion of *da* or *li* in the phonological component as an alternative means of repairing a clitic lacking a host. In either case, something must be said about the restricted environment of this process.

#### **6. Analysis of “fortresses” (obligatory 1C placement)**

It has been known at least since the work of Browne (1974, 1975) that some 1W placements are not as good as others. Specifically, there is a class of NPs that seem to resist 1W clitic placement within them when clause-initial, in the sense that there is much inter-speaker variation regarding how good they are (Halpern 1992), they may be worse with multiple clitics interrupting them than with a single clitic (Progovac 1993), there is claimed to be a regional difference such that they are ungrammatical in some dialects (Zec 1987, Radanović-Kocić 1988), they are claimed to be much more common in written than in spoken language and in earlier rather than current-day usage (Browne 1975b). It is beyond the scope of this paper to establish which of these characterizations may be accurate, or indeed whether all the constructions typically discussed in this way actually behave the same way. Rather, I shall simply follow Halpern in lumping them together under the rubric of “fortresses” (they resist invasion by clitics) and searching for something that they have in common that distinguishes them from uncontroversially good cases of 1W and that might account for their disfavoured or degraded status.

The set of fortress NPs can be catalogued as follows: multi-word proper names (89), conjoined NPs (90), post-head genitives (91), and post-head PPs (92). In all cases, the variant with the clitic following the entire initial NP is fine.

89. *%\*Lav je Tolstoj veliki ruski pisac.*<sup>76</sup>  
*Leo AUX Tolstoy great Russian writer*  
 'Leo Tolstoy is a great Russian writer.'

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<sup>76</sup> The annotation “%\*” on this and following sentences is taken from Halpern; I use it as an abbreviation for all the possible properties listed in the first paragraph of this section.

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90. %\*Sestra **će** i njen muž doći u utorak.  
*sister will and her husband come in Tuesday*  
 ‘My sister and her husband will come on Tuesday.’
91. %\*Prijatelji **su** moje sestre upravo stigli.  
*friends have my-GEN sister-GEN just arrived*  
 ‘My sister’s friends have just arrived.’
92. %\*Studenti **su** iz Beograda upravo stigli.  
*students AUX from Beograd just arrived*  
 ‘Students from Beograd have just arrived.’ (Halpern 1992: 94–95)

One syntactic account of these constructions in the literature is that of Progovac (1993). Recall that she assumes a purely syntactic account of clitic placement. Under such an account, clitics can only appear within an NP if the part that precedes them is syntactically extractable.<sup>77</sup> Thus, she claims this fails to be the case in (89)–(92): at least according to her own intuitions, none of these elements independently allows extraction. The data for one of the fortress types is given in (93).

93. a. [Roditelji uspešnih studenata ] **su se** razišli.  
*parents successful-GEN students-GEN AUX REFL dispersed*  
 ‘The parents of the successful students dispersed.’
- b. \*[Roditelji **su se** uspešnih studenata] razišli.
- c. ?\*Roditelji **su se** razišli uspešnih studenata.
- d. \*Ko **su se** uspešnih studenata razišli?  
*who* (Progovac 1993: 5–6)

(She must then account for why, even for her, (89)–(92) are not completely out.)<sup>78</sup> She also acknowledges that there are speakers for whom these sentences

<sup>77</sup> The restrictions on the particular kind of extraction required to induce clitic placement, i.e. movement to Spec-CP, could of course be underlyingly semantic: perhaps the head of a post-modified NP is not a possible Topic.

<sup>78</sup> She suggests what could be construed as a processing account. She claims that these sentences are not completely out because they allow an “afterthought” reading, which she states feels parallel to the following English example:

i. ??The friends have, of my sister, just arrived.

This sentence strikes me as completely awful, so it is not obvious that this accounts for the marginal status of the SC sentences. In any case, for her there is a clear contrast between examples (89)–(92), to which she gives mostly question marks, and the following related ones containing multiple clitics, which she finds to be completely out, a contrast that we would presumably not expect the grammar itself to explain. Note also that there is no worsening with multiple clitics following a pre-head adjectival possessive (v).

are fine, and is thus forced to claim that, for them, the corresponding extractions are also fine. This hypothesis turns out to be true for the one speaker that I have seen it tested on, Željko Bošković. (Interesting syntactic problems obviously arise since most theories ban extraction in at least some of these environments.) Since she sees no obvious phonological reason why fortresses should be bad, she takes these facts as an argument in favour of a pure syntax approach.

Syntactic inextractability is irrelevant under a mixed syntax-phonology approach like my own, however, since PI should be able to put clitics in these places even if no syntactic separation is possible.<sup>79</sup> Therefore, Halpern attempts to account for the degraded nature of these sentences prosodically, a line my theory forces me to follow. Specifically, it would have to be that these constructions have a different prosodic structure than good cases of interrupted cliticization, and that this difference blocks the operation of PI or subsequent cliticization. So far, the only prosodic restriction we have seen on cliticization is that it cannot happen across an I-phrase boundary; we have not seen any prosodic restrictions on PI. Therefore, the field is wide open for possible constraints, which are severely underdetermined by the facts. (I assume for purposes of this section that PI is purely a re-ordering operation that is followed by cliticization as a separate step, which leaves open a larger number of possible accounts.) Before reviewing Halpern's proposal, let us be clear on exactly what it is meant to do, something Halpern himself does not spell out. We want a constraint (or constraints, but I will limit myself to one here) that rules out the structures in (89)–(92), but less obviously, which structures must it rule in? We want to continue to allow any cases of PI that were needed before, but recall from §3.2 that in the absence of information about whether syntactic fronting has se-

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- ii. \*Sestra **će mi ga** i njen muž pokloniti.  
*sister will me it and her husband give*  
 'My sister and her husband will give it to me.'
- iii. \*Lav **mi ga je** Tolstoj poklonio.  
*Leo me it AUX Tolstoy given*  
 'Leo Tolstoy has given it to me.'
- iv. ?\*Prijatelji **su mi ga** moje sestre poklonili.  
*friends AUX me it my-GEN sister-GEN given*  
 'My sister's friends have given it to me.'
- v. Anina **mi ga je** sestra poklonila.  
*Ana's me it AUX sister given*  
 'Ana's sister has given it to me.' (Progovac 1993: 7)

<sup>79</sup> This is somewhat of an overstatement. If Progovac's predicted correlation between extractability and interruptability holds, then it is half the explanation of the facts, i.e. it could be the reason why people who allow clitics in fortresses do so (though it need not be). But we must still explain what blocks them for those who do not allow them, and this blockage of PI could hold for all speakers, being obviated by syntactic extraction for some of them—see the logic outlined in §3.2.

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semantic consequences, the set of 1W placements that we could attribute to PI as opposed to partial constituent fronting was very small. In fact, the only clear case we have seen comes from §3.1: placement after the first modifier of a multi-modifier NP object of a preposition. Thus, this represents the only structure that we definitely must differentiate from fortress structures, given our current state of knowledge. (If my proposal about predicate adjective phrases in §5 is correct, then some of them would also require PI; it should be simple enough to exclude them from fortress status, but I will not consider them further in this section.) With that in mind, let us first consider Halpern's proposal.

Halpern proposes that the left edge of the head of a branching constituent initiates a phi-phrase, and PI cannot cross a phonological phrase boundary<sup>80</sup> (cf. Taylor 1993, 1994). The only example on which he illustrates this proposal in detail is like (91) above, contrasting with (94) below. In (91), *prijateljji* is the head of an NP that branches, since it contains a following genitive NP, so the left edge of this word initiates a phi-phrase. A clitic that originates in Comp, to the left of this NP, at S-structure<sup>81</sup> would then be outside that phi-phrase after the first phase of prosodic mapping, and PI would require it to cross that phi-phrase edge if it were to invert with and cliticize to *prijateljji*, which Halpern disallows. (95) shows the output of prosodic projection, where “[“ denotes the left edge of a phi-phrase. In contrast, a good case of 1W such as (94) has the phi-boundary later, as shown in (96), so PI can apply without crossing it. (Unfortunately, (94) is derivable without PI anyway, so this example is actually irrelevant.)

94. Moja **je** sestra stigala.  
*my AUX sister arrived*  
 ‘My sister arrived.’

95. **su** [prijateljji moje [sestre stigli  
*AUX friends my-GEN sister-GEN arrived*

96. **je** moja [sestra stigala (Halpern 1992: 94–97)

It should be fairly clear how the proposal works in this particular case (I will return to one potential question), but as a general account of fortresses, Halpern's idea suffers from numerous problems. The first problem is that it is not at all clear that this proposal will extend to cover the various other types of fortresses. This would seem to require analyzing *Leo* as the head of some branching NP in (89), and *sestra* as the head of some branching NP in (90); while the entire NP subjects of these sentences clearly branch, the nouns to which the clitics attach appear not to. Of course, this might be fixed by proposing additional phrasing procedures that posit phi-boundaries under other circumstances, including these. But this leads us directly to the second problem,

<sup>80</sup> His actual statement is “A clitic must be contained in the same phi-phrase as its host,” but this is trickier to interpret; my re-wording seems to capture Halpern's intent.

<sup>81</sup> It is not clear exactly where the NP would be—I assume in Spec-IP.

namely that this proposal appears in a vacuum: without knowing the rest of the prosodic phrasing algorithm for SC, it is hard to say anything definitive about the consequences of the proposed constraint on PI. A third and related problem is that we have no independent evidence for phi-phrasing in SC: nowhere in the literature have I encountered any phonological processes that are claimed to be sensitive to a constituent of this size; in their absence, any proposal along these lines will lack independent support from facts of the language. This points to yet a fourth problem, namely that we might hope for independent support for the phrasing algorithm based on what is known about phrasing universally; unfortunately, very little is uncontroversial about the latter question, but the most prominent proposals in the literature do not allow for statements like Halpern's that appeal to the branchingness of a syntactic constituent, though they do appeal to the concept of syntactic heads.<sup>82</sup> A fifth and final problem I see with this proposal is that it does not obviously rule in the case that I noted must be ruled in, namely sequences of the form [*PP Prep Adj CL Adj N*]. Here, the preposition is the head of a branching constituent and so should project a left phi-phrase boundary, but clitics can be moved into this PP by PI. Thus, the proposal as it stands is both too weak and too strong, ruling in proper name and conjoined NP cases that are bad and ruling out PP+modifier cases that are good.

It is beyond my scope here to make a detailed counter-proposal to Halpern's; for one thing, given the number of degrees of freedom in the problem, I am loath to do so without some independent way of testing predictions about prosodic phrasing. All I would like to do here is attempt to zero in on the empirical generalizations that need to be captured. I should first note an additional criticism that has been made by Percus, namely that Halpern's proposal makes the wrong predictions about branching adjective and verb phrases, wherein the head A or V can be separated from what follows by clitics. Whether this is actually a problem again depends on syntactic and semantic facts: can the head be syntactically extracted, and does any special semantics associated with such extraction carry over to clitic-interrupted phrases? If the answer to both questions is "yes," then PI is not involved and Percus's point is moot. Lacking the necessary facts, I will not worry about these cases. The empirical domain then reduces to the four cases we wish to block ((89)–(92)) and the one we wish to include, the modified PP complement. One possibility is then to say simply that PI cannot move clitics into an NP, if we adopt the DP hypothesis and say that the modifiers of the PP complement are inside DP but outside the embedded NP. While maximally simple, this idea is unappealing in that we do not necessarily expect a constraint on a second-stage prosodic mapping operation to refer to syntactic category labels, although cases like setting off heavy NPs might require this anyway. It also seems intuitively implausible: one would think there are complex NPs in SC with pre-head material whose first word cannot be syntactically extracted but can be followed by clitics;

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<sup>82</sup> Depending on which version of phi-phrasing one adopts, there may be other problems too. For instance, according to Nespors and Vogel there is a correlation between the direction of syntactic recursion and the direction of phi-phrasing that Halpern's proposal would violate.

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unfortunately, I have not seen any such cases in the literature. A more likely generalization seems to be that PI cannot move clitics across the head noun of an NP, where branching is irrelevant, and the proper name is a special case of some sort (under a single N node, perhaps). This would at least unite (90), (91), and (92). Note also that the specific kind of modification involved is crucial in determining whether 1W placement is possible: an adjectival possessive precedes the head noun and can be split from it by clitics (97b), but a genitive (nominal) possessor follows and cannot be split off (98b).

97. a. Verina ćerka **je** student u universitet.  
*Vera(adj) daughter AUX student at university*  
'Vera's daughter is a student at the university.'
- b. Verina **je** ćerka student u universitet.
98. a. Ćerka Vere Marković **je** student u univerzitet.  
*daughter Vera-GEN Markovic-GEN AUX student at university*  
'Vera Markovic's daughter is a student at the university.'
- b. \*Ćerka **je** Vere Marković student u univerzitet.

Whatever the constraint turns out to be, it is apparently of a different status than the constraint against cliticization across an I-phrase boundary, which I claim is inviolable, since at least some speakers now can or once could violate fortresses. One might speculate that this is related to the fact that the constraint on PI is part of the second stage of prosodic mapping, since that is when PI applies, whereas the former constraint is checked after the first stage and not re-checked later (see §8 for motivation). In general, second stage phrasing phenomena seem to have a less rigid character than first stage phenomena, judging for example by the way Nespor and Vogel describe them (although they do not explicitly identify the two stages). My discussion has also skirted the fact that the prosodic status of the clitic cluster itself before PI applies is completely obscure. In particular, since it is in Comp and potential hosts (after PI) are IP-adjoined or lower, can we be certain that there is not already a phi-boundary between clitics and the beginning of the potential host? Again, the necessary facts are simply lacking, but this is a question that any prosodic account of fortresses needs to address. Another interesting empirical question that arises if this sort of account of fortresses is correct is what happens when a fortress-type NP is used as the predicate in a copular sentence: recall that NPs in that position are supposed to require 1W placement, prohibiting 1C, but fortresses have the opposite restriction, so the descriptive generalizations contradict each other. I have not seen such an example in the literature.

To the extent that we eventually find a natural prosodic constraint on PI, this indirectly supports the mixed approach to clitic placement if we can show that the corresponding syntactic constraint would be less appealing or could not be formulated at all. One intriguing fact that supports this reasoning rather directly is the following, noted by Percus: postnominal PP fortresses be-





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### 7. Analysis of delayed placement (later than 1C)

As was noted already in §1.1 and has been alluded to since, SC second position clitics are not always in the second position in the sentence, whether that is defined in terms of words or constituents. Clitics can be delayed to later positions, depending on the nature of the material that precedes them. The purpose of this section is to summarize the descriptive facts about when this is possible and provide a theoretical account of it. For expository purposes, it will be easier to first present the key points of the analysis and then use them to organize the facts.

I claim that syntax is entirely responsible for delaying clitic placement, by fronting elements to positions higher than Spec-CP in the clause. Recall that my working assumption is that clitics are in Comp; an element fronted to Spec-CP will host clitics; if Spec-CP is empty, a non-clitic element in Comp will host clitics; if such an element is also lacking, clitics will have to undergo PI to yield a well-formed sentence. Recall also that I posit that elements higher than Spec-CP are always in a separate Intonational Phrase from the clause proper, and hence can never host clitics since cliticization is blocked by I-phrase boundaries. Thus, the explanation for delayed clitic placement is straightforward if the elements preceding the host can be argued to be outside CP. On the most naïve interpretation we also expect to find a pause following the last such element, marking the I-phrase boundary, although the theory does not actually require every such boundary to trigger an audible pause. Not surprisingly, the facts turn out to be somewhat more intricate than this. For one thing, there seem to be heaviness requirements on certain kinds of elements being attached above CP, which complicates the paradigms. As noted by Browne (1975b) and Bennett (1986), longer and more complex items seem more likely to be ignored for clitic placement when initial, which in my terms means they are more likely to be in a position above Spec-CP.

Halpern's account of delayed clitic placement claims that it is always the result of a single rule of "Heavy Constituent Shift" that moves heavy elements to a position outside CP. He gives the example in (101).

101.    *Prose nedelje upravo taj čovek paket mi je poslao.*  
          *last week precisely that man parcel me AUX sent*  
          'Last week, that very man sent me a parcel.'           (Halpern 1992: 87)

Here the three-word NP subject has been moved outside CP by this procedure; if it were in Spec-CP, there would be no way to derive the surface order, on the reasonable assumption that an argument noun like *paket* cannot raise to Comp. As for the sentence-initial adverbial phrase, we might say that it too has undergone Heavy Constituent Shift, if two words suffice to make it heavy, or we could say that it was base-generated outside CP. The need for the latter possibility is shown by examples like (102) and (103):

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102. a. Noću **je** ovdje mirnije.  
*at-night AUX here more-quiet*  
 ‘At night it is more quiet here.’
- b. \*Noću | **je** ovdje mirnije.
- c. Noću | ovdje **je** mirnije. (Radanović-Kocić 1988: 106)
103. a. Sapiru | jezik **je** instrumenat...  
*Sapir language AUX instrument*  
 ‘For Sapir, language is an instrument...’
- b. Sapiru **je** jezik instrumenat... (Radanović-Kocić 1988: 107)

Here we see that a single word adjunct by itself can trigger delayed clitic placement, and yet if there is any kind of heaviness constraint on fronting, it could not apply to such a light constituent, as Hock (1993) points out. Thus, the simplest account of these facts is to say that adjuncts can be base-generated outside CP while arguments cannot,<sup>83</sup> the regular phrasing rules put a pause before the left edge of CP, and the rest of the sentence is treated like a standard clitic-second clause; this is the analysis of (102c) and (103a). (104) supports the idea that the adverbial can be outside CP, since it can precede a *wh*-word that is presumably in Spec-CP.

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<sup>83</sup> I shall only talk about fronting of argument NPs and adverbial adjuncts in what follows. I have not seen any instances where a verb is fronted to a pre-pausal position, with or without its arguments. I have also not investigated whether clausal arguments behave the same way as NP arguments for delayed clitic placement. Browne (1975a, p. 143) makes some observations that are suggestive. For one thing, clitics are not very good after sentential subjects, perhaps because such subjects are heavy.

- i. a. ?On će zakasniti. Da će on zakasniti **je** očigledno.  
*he will be-late that will he be-late AUX clear*
- b. Da će on zakasniti, očigledno **je**. (Browne 1975a: 143)
- ii. a. ??Da Ivan voli Mariju **mi je** jasno.  
*that Ivan loves Marija me AUX clear*
- b. Da Ivan voli Mariju jasno **mi je**.  
 ‘That Ivan loves Marija is clear to me.’ (Browne 1975b: 121)
- Infinitival subjects must be immediately followed by a pause in order to yield a good sentence.
- iii. a. ??Raditi u rudniku **im je** teško.  
*to-work in mine them AUX hard*
- b. Raditi u rudniku | teško **im je**.  
 ‘To work in the mine is hard for them.’ (Browne 1975b: 123)

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104. Noću, ko **bi** ovde došao?  
*at-night who would here come*  
'At night, who would come here?' (Progovac 1993: 12)

We cannot tell whether the placement of *je* after *ovdje* or *jezik* results from PI or from fronting of this word to Spec-CP. The same is true of the sentence-initial word in (102a) and (103b): here no pause follows it, so it cannot be outside CP, but it could still either be in Spec-CP or else be somewhere lower (e.g., IP-adjoined for the adverbial, Spec-IP for the noun) and undergo PI with the clitic. The reason (102b) is bad is because the clitic immediately follows a pause; I will argue in §8 that pauses of this sort, i.e. following an initial light adverbial, can only arise due to the left edge of CP during the first stage of prosodic mapping, hence it would obligatorily trigger PI, which forces the order in (102c) to be derived from an S-structure (102b). Thus, the generalization so far seem to be that adjuncts need not be heavy to move outside CP; we will now turn to more direct evidence that arguments *do* need to be heavy.

Consider the following paradigm, which contrasts delayed clitic placement with initial arguments that are syntactically branching, single-word proper names, and multi-word proper names.

105. a. Taj čovek voleo **je** Mariju.  
*that man loved AUX Mary*  
'That man loved Mary.'
- b. \*Petar voleo **je** Mariju.  
*Petar loved AUX Mary*  
('Peter loved Mary.')
- c. Petar Petrović voleo **je** Mariju.  
*Petar Petrović loved AUX Mary*
106. a. Sa tim čovekom razgovarala **je** samo Marija.  
*with that man talked AUX only Mary*  
'To that man, only Mary spoke.'
- b. \*Sa Petrom razgovarala **je** samo Marija.  
*with Petar talked AUX only Mary*  
('To Peter, only Mary spoke.')
- c. Sa Petrom Petrovićem razgovarala **je** samo Marija.  
*with Petar Petrović talked AUX only Mary*  
'To Peter Petrović, only Mary spoke.'
107. a. U Rio de Žaneiru ostali **su** dve godine.  
*in Rio de Janeiro stayed AUX two years*  
'In Rio de Janeiro, they stayed two years.'

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- b. \*U Riju ostali **su** dve godine.  
*in Rio stay AUX two years*  
(‘In Rio, they stayed two years.’) (Zec & Inkelas 1990: 373–375)

Note that the clitic always follows the main verb of the clause, which in turn follows the initial argument, thus apparently putting it after the second constituent. Recall that I assume that Spec-CP and Comp cannot be simultaneously filled in SC (except when C contains only clitics), so the structure of these sentences cannot involve the argument in Spec-CP and the main verb in C, although each of these on its own would be a valid place to find the constituent in question. (If this restriction did not hold, we would find completely general third-position clitic placement, which we do not.) Zec and Inkelas refer to the constructions in (105)–(107) as topicalization structures, although they do not say anything in greater detail about their semantics. I will refer to these as “heavy topicalization” sentences, for reasons to become obvious. Note that if my assumption so far is correct that Spec-CP is a Topic position and movement to Spec-CP carries Topic semantics, then these sentences cannot involve the same concept of Topic, because I have just argued that they cannot be derived if the initial constituent is in Spec-CP, hence the need for a distinct name.<sup>84</sup> Now note what the grammaticality contrasts show: heavy topicalization involves a prosodic heaviness requirement. In particular, a constituent must contain at least two PWds to participate in this construction. (106b) shows that two syntactic words are not sufficient; since the preposition is a proclitic, the PP contains only one PWd, despite being syntactically branching. (105c) could be taken to show that syntactic branching is not necessary for heaviness either, if two-word proper names are daughters of a single syntactic terminal. Thus, these data argue quite strongly for a definition of heaviness as *prosodic* branchingness, as Zec and Inkelas point out. I take these facts to show that Halpern was half right: *arguments* can only get attached outside CP by Heavy Constituent Shift, they cannot be base-generated there or fronted in some more general way. Thus, under my theory sentences like (106b) are bad because they fail to meet the conditions for Heavy Constituent Shift so they must involve filling Spec-CP and Comp in the same clause, which is ungrammatical. We still must explain where the verb is in the good sentences: once again, we cannot determine from these cases whether it has raised to Comp or has stayed in some lower position and undergone PI, but we predict that it *can* raise to Comp, since Spec-CP is empty. Note also that although Zec and Inkelas do not mention pauses in these sentences, I predict there must be an I-phrase boundary after the initial constituent in all the good cases, so that PI would be triggered if V-raising did not happen.

Radanović-Kocić (1988) provides data that seem to contradict the above facts. Specifically, she states that delayed placement is impossible only with single-word *subjects*; all other single-word constituent types are supposed to allow delayed placement. We have already seen this for a temporal adverb in

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<sup>84</sup> It has been claimed in the literature (e.g., Browne 1975b) that sentences with delayed clitic placement where initial material is set off by a pause encode a theme-rheme split at the pause point.

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(102c) above. It is also true for what appears to be a VP adverb (which might not be able to be base-generated outside CP):

108. a. Nežno **joj je** opipao vrat.  
*gently she AUX touch neck*  
 ‘He touched her neck gently.’
- b. Nežno | opipao **joj je** vrat. (Radanović-Kocić 1988: 107)

Much more problematically, the same is true for an object:

109. a. Lica **im** ne razaznaje.  
*face them not distinguish*  
 ‘He doesn’t distinguish their faces.’
- b. Lica | ne razaznaje **im**. (Radanović-Kocić 1988: 107)

I do not know what to make of this fact.<sup>85</sup>

We have seen that heavy arguments can front above Spec-CP. Consideration of more facts suggests that at least a subset of these *must* front above Spec-CP. Consider the following example, where (a) and (b) parallel Zec and Inkelas’s sentences above, but (c) is different.

110. a. Njegov prijatelj Petar | reklo **bi se** da je u pravu.  
*his friend Petar say would REFL that AUX in right*  
 ‘One would say that his friend Petar is right.’
- b. \*Petar | reklo **bi se** da je u pravu.
- c. \*Njegov prijatelj Petar **bi se** reklo da je u pravu. (Zec 1987: 6)

(110c) shows that after a three-word fronted object NP clitics are ungrammatical. This fact could in principle receive two explanations under my theory: either this NP is forced to be outside CP, or else it is in Spec-CP but is forced to be followed by an I-phrase break that disallows following clitics. Since we have

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<sup>85</sup> It may be related to another set of facts that she mentions in a later section. The following sentences are claimed to be good and to involve “stylistic fronting”:

- i. a. Pismo prijatelju **sem** napisala.  
*letter friend AUX write*  
 ‘I wrote a friend a letter.’
- b. Prijatelju pismo **sem** napisala. (Radanović-Kocić 1988: 123)

I have not had the opportunity to pursue this claim further. If it is true, then these sentences, containing two single-word constituents preceding the clitic, apparently require a different analysis than the “heavy topicalization” sentences discussed in the text, perhaps some sort of head movement. It is not clear whether this could explain (109b) as well.

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not yet seen any motivation for the latter idea, I will pursue the former. (We will see in the §8 that at least some heavy elements can be in Spec-CP and do trigger a following pause, but this pause does not block clitics from following.) Radanović-Kocić claims that an initial constituent containing three or more words<sup>86</sup> must be “skipped” when counting to second position, and for non-subjects even two-word constituents must be “skipped.”<sup>87</sup> This amounts to the claim that heavy elements, where what counts as heavy may depend on grammatical function, cannot surface in Spec-CP. This seems to apply uniformly to NPs containing relative clauses:

111. a. \*Moj brat [koji se zove Marko] **se** ženi.  
*my brother who REFL call Marko REFL marry*  
 ‘My brother, who is called Marko, is getting married.’
- b. Moj brat [koji se zove Marko] ženi **se**. (Browne 1986: 3)

Here are more examples that illustrate the same point:

112. a. Svoje probleme i dileme | lingvistika **će** rešavati  
*its problems and dilemmas linguistics will solve*  
 ‘Linguistics will solve its problems and dilemmas...’
- b. \*Svoje probleme i dileme **će** lingvistika rešavati
113. a. Za svečanu priliku | BBC **je** odbacio dvosmislenost.  
*on special occasion BBC AUX give-up double-talk*  
 ‘On a special occasion, the BBC has given up its (usual) double talk.’
- b. ??Za svečanu priliku **je** BBC odbacio dvosmislenost. (Radanović-Kocić 1988: 109–110)

In (112) we have a three-word object and it must front. In (113) we have a two-word adjunct that can marginally host a clitic, i.e. can marginally stay in Spec-CP. Thus, (112) confirms the claim of obligatory fronting for heavy arguments,

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<sup>86</sup> I assume that the relevant sense of “word” here is PWD.

<sup>87</sup> Browne (1975b) seems to find the case of a two-word subject fronting to be marginal. He gives the following scale of judgements for various subjects triggering delayed clitic placement:

- i. \*Ona/\*sestra/?moja sestra/moja mladja sestra/sestra i njen muž doći  
**će** u utorak.  
*\*she/ \*sister/?my sister/my younger sister/sister and her husband come*  
*will on Tuesday*  
 ‘She/(my) sister/my sister/my younger sister/(my) sister and her husband will come on Tuesday.’ (Browne 1975b: 119)

This perceived degradation seems to directly contradict Zec and Inkelas. Javarek and Sudjić (1972, p. 35) also mention the criterion of three words as usually triggering delayed clitic placement.

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and (113) suggests that there may be a (slightly weaker) requirement on heavy adjuncts as well. Radanović-Kocić proposes the generalization that two-word constituents, both subject and non-subject, have the option of hosting or not hosting clitics. However, subjects can apparently be heavier and still not require delayed clitic placement:

114. a. Jezičke razine više od rečenice vrlo **su**...  
*linguistic level higher than sentence very AUX*  
'Linguistic units higher than sentence are very...'
- b. Jezičke razine više od rečenice **su** vrlo...  
(Radanović-Kocić 1988: 109–110)

Thus, the facts for subjects seem to be particularly slippery.

One peculiar property of the delay constructions is the role of emphasis. Browne illustrates this with the following paradigms, where underlining indicates emphasis.

115. a. \*U školi učiti **će** bez knjige.  
*in school study will without book*  
'In school he'll study without a book.'
- b. U školi **će** učiti bez knjige.
- c. U školi učiti **će** bez knjige. (as opposed to *kod kuće*)
116. a. \*Zbog toga došao **sam** u Jugoslaviju.  
*because-of that come AUX to Yugoslavia*  
'Because of that I came to Yugoslavia.'
- b. Zbog toga **sam** došao u Jugoslaviju.
- c. Zbog toga došao **sam** u Jugoslaviju. (Browne 1975b: 112/132)

Unfortunately, Browne does not explicitly mention the pause facts for these examples, but I infer from his discussion that he means there to be no pauses in any of them. What we have seen above leads us to expect that the (a) sentences could be good if there were a pause after the initial adverbial, so this inference is consistent with other facts. It is perhaps significant that these examples both involve adjuncts rather than arguments, in that light adjuncts can be base-generated outside Spec-CP: perhaps emphasis is just another way of signaling that that is where they are, as an alternative to a pause. Thus, we might predict that emphasis on an initial light *argument* would not allow delayed clitic placement; I do not have the facts to test this idea. Even the adjunct facts are surprising in that we expect this kind of emphasis to be associated with a Focus position, and we have not seen any evidence that positions outside CP are focus positions in SC. The notion that semantics could be relevant is supported by another quirk mentioned by Browne, namely that some pauses are allowed only if the preced-

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ing material introduces a new topic of conversation, e.g. in (117) *my girlfriend* must be a new topic.

117. Moja djevojka | vidjela je jučer medvjeda.  
*my girlfriend seen AUX bear yesterday*  
'My girlfriend saw a bear yesterday.'  
'You know my girlfriend? She saw a bear yesterday.'  
(Browne 1975b: 120)

In summary, we seem to need the following constraints to get the distribution of delayed clitic placement, modulo some unexplained quirks relating to single-word objects: a heavy clause-initial argument must be above CP, a light clause-initial argument cannot be higher than Spec-CP, and a heavy adjunct may have to be above CP, where the boundary between heavy and light may be gradient or may depend on a subject/non-subject and or argument/adjunct distinction. There are obviously many questions to be answered about implementing these heaviness constraints. For one thing, are they constraints on a movement operation, on the contents of a particular position, or on base-generation outside CP, or some combination?<sup>88</sup> One minimal answer would be that Spec-CP cannot be heavy and raising outside of CP cannot apply to light elements. Another would be that the only way to raise out of Spec-CP is by something like Heavy Constituent Shift, and this is obligatory whenever its structural description is met. A third would be that arguments outside CP must be heavy and anything in Spec-CP must be light. These all seem to make the same empirical predictions given my assumptions, so we need an independent theory to rule out some possibilities, but I am not aware of a theory that makes predictions in this matter. Any implementation of these constraints will raise issues concerning the phonology-syntax interface: if heaviness is a phonologically-defined property, how can it be a constraint on such specific facets of syntax? This is another argument Zec and Inkelas give for a co-presence model: according to them, SC clearly shows the need for syntactic operations to have access to prosodic structure. While I am not proposing a specific solution to this problem, I do not believe that the argument goes through. In fact, Zec and Inkelas's problem can most likely be solved by making sufficient syntactic information available to the prosodic mapping component, e.g., argument/adjunct distinctions, whether a constituent is in Spec-CP versus outside CP, etc. (See Schütze et al. 1991 and Dyck et al. 1992 for discussion of this type of approach.)

Crucial to the entire account of delayed clitic placement has been the claim that we never find movement to Spec-CP and V movement to Comp in the

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<sup>88</sup> Heidi Harley (p. c.) points out that the behaviour of *wh*-phrases will be relevant, since unlike non-*wh* phrases they generally *must* be in Spec-CP. If heavy *wh*-phrases show the same distribution as light ones, a distinction between *wh*-movement and topicalization might be needed, which in turn would favour an analysis using constraints on movement. Unfortunately, I do not have any data on clitic placement with heavy *wh*-phrases.



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same clause; if true, we must ask why this should be the case.<sup>89</sup> Under an account where syntactic fronting to these positions is motivated (at least sometimes) by the need to provide hosts for clitics, the answer follows from Economy of Derivation: we do not move two things when one will suffice. If I am right that Spec-CP is a topic position, however, then this cannot be right: topics must move there and non-topics cannot move there, so at most it is head-raising to Comp that is syntactically optional and occurs just when clitics need a host (and perhaps under different conditions for syntactic reasons). Rivero (1991) proposes a variation on this account under which finite auxiliaries in Comp require “support,” presumably in a syntactic sense; Ćavar and Wilder (1993) make a similar suggestion. One potentially relevant fact is that in clauses with *wh*-fronting, clitics must always immediately follow the (first) *wh*-word: no delay is possible, i.e. we never find *WH V CL*.<sup>90</sup>

118. a. Koga **je** vidio?  
*who AUX seen*  
‘Who has he seen?’

b. \*Koga vidio **je**? (Ćavar & Wilder 1993: 12)

If a lone *wh*-word is obligatorily in Spec-CP then this is exactly the result we expect if movement to Comp is blocked when Spec-CP is filled. Ćavar and Wilder point out the same restriction on other elements they claim must be in Spec-CP, namely negative quantifier phrases and subextracted left branch constituents:

119. a. U nikakvom slučaju **bi** rekli...  
*in no case would say...*

b. \*U nikakvom slučaju rekli **bi**...

120. a. Zeleno **je** kupio auto  
*green AUX bought car*

b. \*Zeleno kupio **je** auto (Ćavar & Wilder 1993: 12)

Thus, the generalization appears to be correct, but under my assumptions it must be explained without recourse to properties of clitics.

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<sup>89</sup> Note that this is one respect in which clitic-second differs significantly from the intuitively similar V2 constraint, where (for equally mysterious reasons) both Spec-CP and Comp must be filled simultaneously.

<sup>90</sup> (118b) again shows the confound that the clitic is sentence-final, but I believe that the contrast is independently valid.

**8. Analysis of 1C clitic placement after pause**

A seldom-discussed problem for the entire approach to SC clitics proposed so far arises from the fact, noted by Bennett (1987) and Percus (1993), that clitics can sometimes appear directly after a pause, as in (121).<sup>91</sup>

121. Problemi o kojima ćemo razgovarati | **su** kompleksni.  
*problems about which will converse AUX complex*  
 ‘The problems that we shall discuss are complex.’ (Bennett 1987: 276)

This raises two crucial issues: first, does this fact undermine the heretofore unquestioned assumption that SC clitics are always *enclitic*, as opposed to *proclitic*, or indeed that they are always clitics at all, and second, does it undermine all the facts that were previously explained by saying that clitics cannot come right after a pause? I believe the answer to both questions is “no,” although the reasoning is admittedly rather programmatic at this point. Let us take the issues in turn.

First, is the clitic in (121) *proclitic* rather than *enclitic*? This is Bennett’s claim, based on the fact that Slovene, which used to have strict *enclitics* like SC, now has clitics that can attach in both directions. However, Bennett fails to mention that it is possible to have a pause *after* the clitic in (121) as well as before it, so the mere presence of pauses really tells us nothing about direction of attachment. But given this new fact, does it not seem more likely that *su* is not a clitic at all in this sentence? Željko Bošković (p. c.) has made this argument. I believe not, for the simple reason that the restricted distribution of these words in all other contexts is explained fairly well by saying that they are *enclitics*; dropping that assumption would seem to be much more problematic than trying to explain (121) while maintaining it. Furthermore, even in this very sentence the clitic is exactly where we expect it in terms of the word string, namely following the first constituent. Thus, I propose that what is to be explained about (121) is the presence of the pause; the *enclitic* is behaving in its normal fashion. Under this view, the second question raised above, namely what to do about all the other pause facts, should again be turned around: the real question is, why does the pause in (121) not have the same effect as other

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<sup>91</sup> Browne (1974) says that many speakers nowadays can use *enclitics* even after a long phrase like the NP in (121), although he does not explicitly mention the presence of a pause. Other speakers prefer the non-clitic form of the auxiliary here. Interestingly, *je* is possible in this position for some speakers when other clitics are not, which adds to the evidence that *je* is somehow “less of a clitic” than the others:

- i. a. Jedino rješenje koje se može prihvatiti jest/**je** da prodamo kuću.  
*only solution that REFL it’s-possible adopt AUX that sell house*  
 ‘The only solution that can be adopted is for us to sell the house.’
- b. ??Jedina rješenja koja se mogu prihvatiti **su** da ...  
*solutions* (Browne 1975b: 127/133)

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pauses we have seen. In this light, the first-order answer to both new questions seems obvious: this pause is of a different kind than those we have seen so far.

I propose to account for pauses like the one in (121) by a modification of the prosodic phrasing algorithm. Specifically, to this point all pauses have arisen by virtue of I-phrasing during the first stage, prosodic projection; this one arises during the second stage, readjustment. Note that it clearly has to do with the phonological properties of the sentence rather than purely its syntax, since the sentence would become bad if the initial NP were light and the pause were maintained. Thus, if there are only two stages of phrasing, projection and readjustment, this pause must result from readjustment. We must add a component to the readjustment algorithm that inserts a pause after an initial heavy element under certain conditions. I do not have enough evidence to determine whether this pause reflects an actual prosodic constituent boundary, though that seems likely; I certainly could not argue for it being, say, an I-phrase as opposed to a phi-phrase boundary, although as far as we can tell the latter does not usually trigger a pause. These details aside, the crucial aspect of this idea is that the pause is inserted during readjustment, which is also when PI can happen. This will explain why the clitics do not move rightwards away from the pause, because at the stage of the derivation where they were looking for a host to their left within the relevant prosodic domain, i.e. before readjustment, there was a valid host available, namely the last word of the initial XP. Thus, the clitics would have no reason to move, if we assume that readjustment is an all-at-once procedure rather than a stepwise one.<sup>92</sup> In this respect, this new kind of pause contrasts with the pauses that do trigger PI, since all of them arise from stage one of the mapping procedure and thus form part of the input to readjustment. Thus, considering the facts from §7 as well, there are two ways to save a sentence that begins with a heavy argument: move it out of CP, where it will automatically be set off from its clause by a pause triggered by stage one mapping, or leave it in Spec-CP and set it off by a pause in stage two mapping. If this is the right characterization, we must refine the generalization proposed in §7 to say that Spec-CP cannot be heavy unless set off by a pause.

We do need to make one more refinement in order for this story to be coherent, to clarify when clitic *attachment* happens in relation to clitic *host checking*. Under the model described in §4.3, when the prosodic phonology checked for a host for clitics and found one, it would attach the clitics right away. If that were truly the case, we would expect to find the clitics *preceding* the pause in (121) rather than following it, since they would have formed part of the initial XP phonologically before the pause was inserted. In fact, I have not seen any sentences of that form in the literature (i.e., *heavy XP CL | rest of sentence*). Therefore, what must actually be happening is that the prosodic requirements of clitics are checked as part of the readjustment phase, but clitic *attachment* itself happens later. We must then face again the problem of the actual prosodic structure of (121). There seem to be three possibilities. One is that the enclitic simply never attaches to anything: its requirements were met at the stage in the derivation where they were checked, so the clitic is “licensed,” but during

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<sup>92</sup> I am indebted to Elizabeth Cowper (p. c.) for this point.

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the clitic attachment procedure there is no host for it, so it is simply left unattached. The second possibility is like the first except that, in the attachment phase, procliticization is used as a last-resort strategy to license the clitic. The third possibility is that the clitic is really attached to the preceding NP, despite surface appearances to the contrary; that is, there is a mismatch between PWD boundaries and (say) I-phrase boundaries (a type of representation often appealed to in Optimality Theory), which on the surface would seem to violate principles of phrasing, but arose via a valid derivation. Under this last account, it is not that clitic attachment cannot cross prosodic phrase boundaries, but rather that the search for a valid host word only looks within the clitic's own I-phrase.

I do not have any evidence by which we can distinguish these three possibilities, but since they yield three different prosodic structures, we can easily see how their predictions differ. The second analysis predicts that we will find phonological processes such as High Tone Spread treating the clitic like a proclitic on the following word; the third predicts that phonological processes will treat it as an enclitic on the preceding word (but the only applicable process we have seen is High Tone Spread being blocked in the Old Štokavian dialect); the first analysis predicts that neither of these effects will obtain. Note that even if the first analysis is the right one in these terms, it does not mean that *su* in (121) is not a clitic; cliticness is crucially a phonological, not a phonetic, property, so *su* in (121) would have the same status as any surface violation of a phonological rule that resulted from the rule being inapplicable at the earlier stage of the derivation when it applied. One further point to emphasize is that this analysis predicts that the range of sentences in which enclitics can follow a pause is very restricted: this can happen only when the immediately preceding XP is heavy; abandoning the claim that these words are always enclitic would lose this apparently correct prediction.

Having seen how the overall account will work, let us return to tidy up some details of the pause-insertion process. Specifically, what is its structural description? According to Percus, these “unusual” pauses only arise following an initial constituent that is a heavy *argument*: the contrast between (122) and (123) shows that a heavy *adjunct* PP behaves differently from a similarly heavy argument PP.

122. Na taj izuzetno veliki kuhinski stol | **sam** stavio naranču.  
*on that extraordinarily big kitchen table AUX put orange*  
'On that extraordinarily big kitchen table, I put an orange.'
123. \*U tom prelepom odnrališty na Rivieri | **sam** zaprosio Mariju.  
*in that beautiful resort on Riviera AUX proposed Mary*  
'In that beautiful resort on the Riviera, I proposed to Mary.'
- (Percus 1993: 27)

It is difficult to see how to impose this syntactic distinction on a phonological phrasing rule in a non-ad-hoc way, especially since there is nothing wrong with the pause in (123), but rather it is a case of bad clitic placement that could be

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fixed by applying PI. That observation forces the conclusion that the pause in (123) must arise from the stage one mapping from syntax; this will distinguish it from the one in (122) in the desired way. Now we need a non-ad-hoc explanation of why a sentence-initial heavy adjunct must phrase separately from the rest of the clause in stage one while a sentence initial heavy argument crucially does not. We have already seen a difference in phrasing between sentence-initial arguments and adjuncts, namely that adjuncts, no matter how light, always have the option of being followed by pause, whereas arguments have this option only when they are heavy or are not in Spec-CP. Thus, the minimal change that would capture these facts would be to require that heavy adjuncts never be in Spec-CP, but must always be attached higher in the clause. This would force them always to be set off by an I-phrase boundary in stage one, forcing PI in stage two if the clitics are first within CP. This solution is rather unsatisfactory in two respects. First, it is not obvious how to implement this restriction without “look-ahead”: if the stage one mapping is purely based on syntax, heaviness could not be a factor in it, so bad cases of a heavy adjunct in Spec-CP would have to be ruled out during stage two, which forces us to make the syntactic argument/adjunct difference continue to be available until that point in the derivation. (Of course, we need some syntactic information to add the pause in (121) anyway, but granting this part of prosodic mapping the power to distinguish arguments from adjuncts is a move we should avoid if possible.) Second, there is no obvious reason why this restriction ought to hold: if heaviness does not matter for arguments in Spec-CP, why should it matter for adjuncts there?

At this point, I have nothing more enlightening to suggest. A possibility worth exploring might be that adjuncts actually can never be in Spec-CP, they must always be higher up (or perhaps lower down), but when they are light (like *noću* in (102)) they are optionally re-structured as part of the root clause I-phrase. Then the facts in (121)–(123) would follow nicely, but the fact that light adjuncts do not trigger delayed clitic placement becomes problematic: this optional restructuring sounds like it should be part of stage two, since it is based on phonological rather than syntactic properties, but as such it should not affect clitic placement, yet the fact is that it does. To make this alternative work out, one might try to appeal to smaller prosodic constituents: perhaps there is a minimum size requirement on I-phrases (e.g. that they contain more than one PWd, say) that is enforced during stage one.

The other issue that remains to be clarified is the definition of heaviness for the purpose of this process, and whether it is different from that required by the heavy topicalization structures discussed earlier. Again, I do not have all the facts, but my impression is that elements need to be heavier for this construction than for topicalization; according to Zec and Inkelas, two PWds are enough for the latter, whereas the NPs in this construction look more like the size that undergo Heavy NP Shift in English, which Zec and Inkelas analyze as requiring at least two phi-phrases. There is nothing wrong in principle with two kinds of heaviness that play different roles in the grammar. In particular, note that under my analysis it is not the heaviness of topicalized elements that triggers the pause after them; rather, heaviness (of the smaller type) is a requirement on the topicalized structure, but the pause itself is due to the CP-

boundary, whereas here, heaviness (of the larger type) itself triggers insertion of the pause.

### **9. Analysis of placement in embedded clauses**

In this section I will discuss where clitics can appear in embedded clauses. I will not have any more to say about the climbing of clitics from embedded infinitival clauses to the matrix clause, as this was discussed above in §4.2. I will also have nothing more to say about clitics in relative clauses: as far as I have seen, these are always required to follow the relative pronoun immediately; if the latter is in Spec-CP and clitics are in Comp, this result will follow directly from the analysis already proposed.<sup>93</sup> Thus, I will be dealing mostly with finite complement and adverbial clauses, though I will also touch on clitic placement in infinitivals that are not subject to clitic climbing.

A generalization that covers most of the descriptive facts is to say that clitics in embedded clauses can appear in the same positions as they do in matrix clauses (Percus 1993).<sup>94</sup> One important qualification to this statement is that most (perhaps all) embedded clauses begin with an overt complementizer.<sup>95</sup> Thus, clitics appearing after the first word of the embedded clause will immediately follow the complementizer and will not involve fronting any other constituent of the embedded clause ahead of the clitics. As alluded to in §3, however, there is an immediate complication. The set of words that we might consider complementizers is actually bifurcated into two classes: those that can serve as clitic hosts (but do not have to) and those that can never serve as clitic hosts, forcing clitics to appear later.<sup>96</sup> Thus, we find contrasts like the following:

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<sup>93</sup> Provided that relative clauses can never invoke CP-recursion and disallow adjunction to their CP, which seems reasonable.

<sup>94</sup> I have not attempted to verify the full extent of Percus's claims directly; I will mostly concentrate on problems that arise from the data that he and other people do present. Also, it seems to be true that "delayed" placement is much less common in embedded clauses than in matrix clauses, perhaps because embedded topicalization is itself relatively uncommon.

<sup>95</sup> The only exception I am aware of are the infinitival complements to nouns illustrated in §6.

<sup>96</sup> Much of the SC literature mentions this contrast, but different authors split the set of conjunctions differently. For instance, Bennett (1986) lists *kad* 'when', *da* 'that', *što* 'which' and *ako* 'if' as subordinating conjunctions and *a* 'but, and', *i* 'and, also', *jer* 'for, because', *dakle* 'so', and *prema tome* 'consequently' as linking conjunctions. Magner and Matejka (1971) say that *da*, *jer*, *kad*, and *i* are all proclitics. Browne (1975, p. 112, 117) states that the conjunctions that require clitics to follow immediately include *niti* 'neither, nor', and *nego/već* 'but', while *i*, *a*, and *ni* 'nor' cannot host enclitics; *dakle* and *prema tome* 'therefore' do not count for clitic placement, being set off by a pause at the start of a sentence; *ali*, *ili* 'or' and *jer* optionally take clitics after them; *pa* and *ali* behave

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124. a. Ako **ga** slučajno vidiš, nazovi me.  
*if him by-chance see call me*  
 'If by chance you see him, call me.'
- b. \*Ako slučajno **ga** vidiš...
125. a. Dakle, pozvali **su** mnogo prijatelja i znanaca na ručak.  
*so invited AUX many friends and acquaintances to lunch*  
 'So they have invited a lot of friends and acquaintances to lunch.'
- b. \*Dakle **su** pozvali, mnogo prijatelja i znanaca na ručak.  
(Browne 1975b: 115–117)

The first question to be answered in accounting for clitic placement in embedded clauses, then, is what the nature of the clause-introducing words is. There have been two types of accounts of this contrast in the literature, and they may be compatible: one appeals primarily to syntax, the other primarily to phonology. Under a syntactic account, the two types of clause introducers have a different structural status, usually correlated with different semantic properties. Bennett (1986) has made this proposal most explicitly. He suggests a distinction between subordinating conjunctions on the one hand and linking or co-ordinating conjunctions on the other. (Also see Hock 1992, 1993 for a related proposal.) Subordinating conjunctions are 'part of' the clause they introduce, whereas linking conjunctions appear 'between' clauses and hence are not properly part of either the preceding or the following clause. Thus, clitics cannot attach to the latter words because cliticization is clause-bounded in some sense: clitics cannot attach to a host outside the clause in which they originate (clitic climbing aside).<sup>97</sup> This proposal could be immediately translated into my framework by saying that subordinating conjunctions are in Comp while linking conjunctions are outside the lowest CP of a clause, perhaps adjoined to it or part of some higher projection (as suggested in Dyck et al. 1992).<sup>98</sup> Since we have already posited a principle that prevents cliticization across the lowest CP boundary, in the form of a phonological break at that point, the facts would be captured. The other type of account of the contrast in (124) versus (125) appeals to purely phonological properties of the linking words, saying that the conjunctions that can host clitics are PWds whereas those that cannot are themselves clitics. Un-

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differently in different meanings: for example, in the meaning 'and, and then, and so' *pa* takes clitics, but as an interjection it does not, but is set off by a pause.

<sup>97</sup> It is not entirely clear from Bennett's article whether he is making this proposal for Slovene, SC, or both, but it is worth considering in any case.

<sup>98</sup> Dyck et al. suggest that this notion is supported by the possibility of having both kinds of conjunction introducing the same clause, where the coordinator precedes the subordinator:

- i. A da **li su** to vase kceri?  
*and COMP Q AUX those your daughters*  
 'And are those your daughters?' (Dyck, Schütze & Koskinen 1992: 19)

der this approach, attachment of clitics to the latter class of words is blocked in much the same way it is blocked to prepositions, namely in the phonology. The phonological account is appealing because of the schizophrenic behaviour of the conjunctions *ali* and *pa* described in §3.1: these words host clitics if and only if they are accented. However, this facts have been disputed by Progovac; moreover, as mentioned earlier in §4.3, there is much disagreement in the literature over the accented versus unaccented nature of many of the function words of SC; in particular, Progovac claims that *da* is unaccented even when it hosts clitics.<sup>99</sup> Thus, I believe we do not understand enough at this point to use (un)accentedness as a reliable diagnostic for PWd status.

Without additional machinery, neither of these accounts will have the desired empirical coverage. The syntactic account will fail in cases where other words intervene between the complementizer and the clitics. Although many grammars and some linguistic analyses (e.g. Browne 1975b; Javarek & Sudjić 1972; Silić 1978, p. 393) claim that this is not possible, especially for the complementizer *da* ‘that,’ we will see shortly that it is in fact possible. If subordinate clauses consist of a single CP projection with the complementizer and the clitics both in Comp, there is no way to derive such word orders. Of course this syntactic problem would have to be addressed under either approach. The phonological account will additionally face a similar problem with respect to other clause types: a clause introduced by a non-PWd will always require some other word(s) to intervene between the introducer and the clitics to serve as their host. If only a single word intervenes, this could be explained by PI or its equivalent: at S-structure, the clitic has an invalid host to its left, so in the phonology it will be re-ordered with respect to the first PWd to its right. Unfortunately for this account, that is not the only possibility: a full constituent can intervene between a linking conjunction and the clitics. If the conjunction and the clitics were in the same Comp, this again ought to be impossible. It appears that what we need, then, is additional structural positions between a clause-introducing head and the clitics. Once we have that, it will turn out that there is no empirical evidence I am aware of that would distinguish syntactic versus prosodic accounts of the two classes of heads. In fact, they could both be correct: PWd status could be correlated with position inside versus outside the clause and with semantic subordination versus linking, although why that should happen to turn out would be worth investigating. There does seem to be one empirical prediction that bears on this question: if cliticization across CP is always blocked, then if linking conjunctions are clitics and are outside CP, they should have to cliti-

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We have already seen that the status of *da* in this *da li* construction is highly controversial. One would clearly want to explore whether the two kinds of conjunctions can be combined more generally.

<sup>99</sup> This would not be problematic if the combination of an enclitic plus a proclitic could constitute a valid PWd in SC. As already mentioned in connection with negative auxiliaries, if that were true many other facts of SC would lose their explanation, so I reject this possibility. It seems more likely to me that some function words can have PWd status and yet not bear an accent, while the converse is not true: only PWds can bear an accent of their own.



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cize phonologically to material from the preceding clause; if they are inside CP then they must be clitics in order to explain their non-host status, but they should cliticize to a word in their own clause. Although most descriptions refer to the words in question as proclitics, I have not investigated whether this really is always true. If it is, we can rule out the proposed structural difference between the complementizer types. Since it does not affect other problems I wish to examine, I will not commit to an analysis of the difference, simply assuming instead that, one way or another, cliticization to one class of heads will be blocked. (See Browne & Nakić 1975 for more on the SC conjunction system.)

Let us come back now to the structure of embedded clauses, in light of sentences like the following:

126. Ja mislim da u ovoj sobi l Markova žena je sredna.  
*I think that in this room Marko's wife AUX happy*  
'I think that in this room Marko's wife is happy.' (Percus 1993: 17)

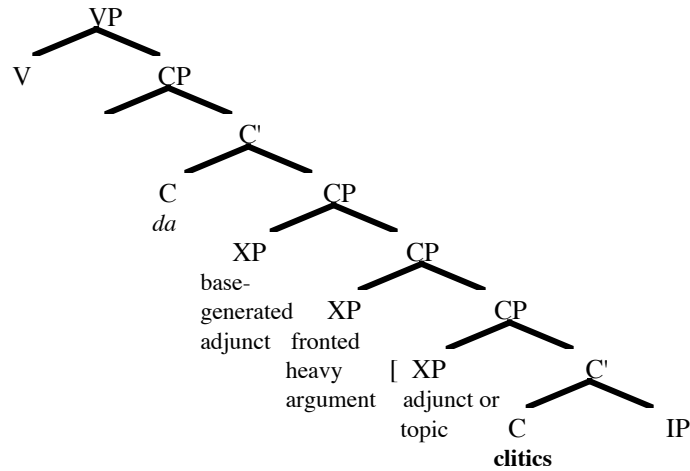
We see here that SC seems to display embedded topicalization of the sort that has been much discussed in the recent syntactic literature on CP-recursion (Authier 1992, Iatridou & Kroch 1992, Watanabe 1993), as noted by Progovac (1993). Given the fairly free constituent order of SC, an appeal to CP-recursion might not seem immediately necessary: perhaps there are multiple fronting positions available between Comp and the subject position in embedded as well as matrix clauses, e.g. IP-adjunction. Since SC does not display V2, it is harder to argue for the need for two Comp positions. However, if our analysis of clitics so far is on the right track, then an argument for CP-recursion can be made. I argued in §4.1 for clitics having to be in a head position, rather than adjoined maximal projections, and we have seen some reasons why this position is likely to be Comp. If anything, this is even more likely in embedded clauses, which presumably have fewer functional projections above subject position than matrix clauses. If one accepts this conclusion, the need for CP-recursion seems inescapable: in (126), two full constituents intervene between the complementizer and the clitic.<sup>100</sup> If phonological reordering is restricted to a distance of one PWD, then we need structural positions between the complementizer head and the clitic head. It seems reasonable to propose that each of these heads a CP, with the lower CP having a Spec position available for fronting and also allowing adjunction in a manner exactly parallel to the matrix clause, as schematized in (127) for a complement clause.<sup>101</sup>

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<sup>100</sup> I do not pursue the possibility of adapting other analyses of embedded topicalization to the present framework. Also, I do not have sufficient data to assess whether the need for CP-recursion in SC is limited to a particular type of matrix verb, as Iatridou and Kroch (1992) require.

<sup>101</sup> I have not actually argued that matrix constituents preceding the clitic host constituent are CP-adjoined, as opposed to higher in the tree, but since their behaviour is paralleled to a great extent in embedded clauses, this should probably be the null hypothesis.

127.



[ potential I-phrase boundary

Adopting this analysis of course raises additional syntactic questions to which we will eventually want answers, but these are peripheral to the concerns of this paper. For instance, I will assume without argument that complementizers are always in the higher Comp and clitics always in the lower Comp, without speculating as to why this should be so; I can find no evidence against this hypothesis. I will instead pursue the prosodic consequences, since they bear more directly on clitic placement.

The first thing to note is how the CP-recursion structure is treated by the phonology. If clitics from the lower Comp are able to attach to a complementizer host in the higher Comp, then the lower CP cannot trigger an I-phrase boundary, given my assumptions. On the other hand, from what we have seen, the higher CP could do so, and would be expected to unless we find reason to think otherwise.<sup>102</sup> It does not seem too troubling to empower prosodic phrasing with the ability to distinguish a recursive from a non-recursive CP in order to achieve this. However, complications immediately arise. In (126) we see a pause following the embedded constituent, which in a matrix clause would be triggered by the left edge of CP. At the very least, then, we must revise the phrasing algorithm to say that material that is CP-adjoined must be set off from material inside a CP, so that the complementizer head of a recursive CP will not fall under this description. That is, the higher Comp is normally part of the same I-phrase as the embedded clause, unless something has adjoined to the lower CP, in which case the adjoined material will be followed by an I-phrase break. Still more will have to be said, however, because we will now see that the possible clitic placements in embedded clauses are not identical to those in matrix clauses. While the complete details of the asymmetry are not yet known,

<sup>102</sup> If linking conjunctions turn out to be enclitic on the preceding clause, more will obviously need to be said.

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even the available facts will force us to say more about the prosodic structure of embedded clauses.

Consider the paradigm in (128).

128. a. \*Ja mislim da u ovoj sobi **je** Markova žena sredna.  
*I think that in this room AUX Marko's wife happy*
- b. Ja mislim da **je** u ovoj sobi Markova žena sredna.  
'I think that in this room Marko's wife is happy.'
- c. Ja mislim da u ovoj sobi | Markova **je** žena sredna.
- d. Ja mislim da u ovoj sobi | Markova žena **je** sredna.<sup>103</sup>  
(Percus 1993: 17)

These are the facts used by Percus (1993) to argue for a more liberal version of PI than that proposed by Halpern (1992). Specifically, Percus analyzes (128d) as involving prosodic movement of the clitic across the entire embedded subject NP, consisting of two PWds. Since he does not wish to allow CP-recursion, there is only one position ahead of the clitics to which phrases of the embedded clause can front, so since *je* is two phrases away from the complementizer, its position cannot be derived by syntactic movement. This account is unappealing not only because it greatly increases the power of phonological re-ordering (on which point see §2.3), but also because it gives different analyses to the same structure in matrix versus embedded contexts, where there is no empirical motivation for doing so: the embedded clause of (128d) could be derived without PI as a matrix clause, involving adjunction of the PP to CP and fronting of the subject NP ahead of the clitic.

Under my account (128d) is unproblematic, if we allow both adjunction to the lower CP and embedded topicalization to the lower Spec-CP; then *je* can be in the lower Comp and no prosodic rearrangement is needed for this sentence at all. (128c) is similarly straightforward, involving either fronting of *Markova* to Spec-CP or PI across it, forced by the pause following the CP-adjoined PP. The analysis of (128b) must then involve both an empty lower Spec-CP and an absence of adjunction to that CP; the clitic in the lower Comp attaches to the complementizer in the higher Comp across one CP boundary, but as discussed above, we can refine prosodic mapping to allow this.<sup>104</sup> The problem for my account comes from (128a), because it represents an unexpected asymmetry between root and embedded environments: clitics after a matrix clause-initial PP are fine, but after an embedded clause-initial PP are bad:

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<sup>103</sup> Ljiljana Progovac (p. c.) apparently finds examples like (128d) substantially worse than (128c); I have nothing to say about this difference.

<sup>104</sup> It remains to specify where exactly the PP is in (128b); in the absence of any evidence, I assume that it can adjoin to IP, or if there is a FocusP between Comp and IP it could occupy the Spec of that phrase.

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129. U ovoj sobi **je** Markova žena sredna.  
*in this room AUX Marko's wife happy*  
'In this room Marko's wife is happy.'(Percus 1993: 16)

Aside from unabashed stipulation, there is no possible syntactic account of this fact: the PP should be able to be in lower Spec-CP, just like it is in a matrix Spec-CP under my analysis; the string (128a) should result from a valid S-structure. In the absence of any syntactic problem with (128a), we must conclude that there is a prosodic problem with it. We know independently that *sobi* is a possible host word for *je* in general, so the only possibility seems to be that cliticization here would cross a prosodic boundary. This is the solution I will pursue.

If I am right that the PP can be in Spec-CP at S-structure in a sentence like (128a), then the phrasing algorithm we have posited so far would not put a pause (i.e., an I-phrase boundary) after it, because it should treat embedded CP just like matrix CP in this respect. Thus, my framework of assumptions forces the conclusion that some additional factor causes a prosodic break at this point. The difference, of course, is that this clause is a complement to the matrix verb. If a sequence V+CP is treated differently from bare CP, we could have the basis of an account of the contrast.<sup>105</sup> In fact, it has been mentioned in the prosodic phonology literature that a verb and its adjacent complement(s) tend to have special phrasing characteristics cross-linguistically (Nespor & Vogel 1986, Drescher 1993). For example, Nespor and Vogel cite the following contrast to show that long I-phrases can be split more easily before an adjunct PP than an argument PP.<sup>106</sup>

130. a. [That kind old lady always buys fresh meat] [for the stray cats that live  
in the park.]  
b. ?[That kind old lady always gives fresh meat] [to the stray cats that live  
in the park.](Nespor & Vogel 1986: 198)

On the basis of this idea, I make the following (admittedly programmatic) proposal. There are two constraints in conflict in the phrasing algorithm as applied to (128a): one constraint, discussed in §4.3, states that each clause should form a separate I-phrase, while the other states that a verb should be phrased with its complement (or perhaps more generally that a head should phrase with its sister, or with the next  $X^{\max}$  on a particular side, which I assume to be the right side in

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<sup>105</sup> By comparison, it is hard to see how any pure-syntax account of clitic placement could be sensitive to this distinction in the relevant way; to that extent, these facts constitute an additional argument for the role of phonology in clitic placement.

<sup>106</sup> On the other hand, they also state that an I-phrase can be split at an S-bar boundary if that would not break up an NP, i.e. complement clauses may be split off, but not relative clauses. I must maintain that this is impossible in the class of cases I am dealing with here.

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SC). I will assume for expository purposes that the latter constraint applies to phi-phrasing, i.e. that phi-phrases are the constituents defined by left/right edge of  $X^0/X^{\max}$  (cf. Selkirk 1986). There is one more constraint at play, namely the Strict Layer Hypothesis, which states that I-phrase boundaries must coincide with phi-phrase boundaries.

We now have the following situation: according to the rules for phi-formation, there should be a phi-phrase encompassing (at least) the string *mislim da u ovoj sobi* in (128a), because (I assume) phi-phrasing is sensitive to the right edge of  $X^{\max}$  in SC, and (for whatever reason) pronominal adjectives do not count as the relevant kind of  $X^{\max}$ . According to the rules of I-phrase formation, on the other hand, there should be an I-boundary between *mislim* and *da*, since this is a clause boundary. However, the Strict Layer Hypothesis requires that an I-boundary align with a phi-boundary, and there is no phi-boundary between *mislim* and *da*, as just discussed. Therefore, one of these constraints must be violated, and to get the facts right, it must be that the I-boundary rule is bent, shifting the I-boundary to the right to align with the phi-boundary. If all this is true, then the ungrammaticality of (128a) follows immediately: the enclitic is in a position immediately following an I-boundary, where we know independently that enclitics cannot occur. Support for this idea comes from the presence of an audible pause after *sobu* in (128c, d), which have the same word order except for the clitic placement.<sup>107</sup> (In fact, I predict that the pause in these sentences is obligatory, unlike pauses following matrix initial PPs; I do not have any data on that point.)

Let me point out some relevant details surrounding this proposal. First of all, one might think that if mismatches between different levels in the prosodic hierarchy arise, they should be resolved during the repair phase of prosodic mapping rather than the initial syntax-based phase. I cannot allow that approach, precisely because (as seen in §8) clitic placement is not sensitive to I-boundaries that are only introduced during the repair phase. Thus, it must be that the I-boundary is inserted after the PP during phase one of the mapping. This is not necessarily a problem, given that the factors involved in its placement were purely syntactic, viz. the boundary locations derived on the basis of syntactic category edges. It does, however, raise the question of how prosodic mapping works: top-down versus bottom-up. If mapping were top-down, i.e. I-phrases formed first, then split into phi-phrases, etc., we would not expect the result we actually find. Thus, if these are the only choices, mapping must work bottom-up, at least between the phi and I levels: phi-phrases are formed, then they are grouped into I-phrases while following independent I-phrasing principles as closely as possible. This obviously cannot be the whole story either, since the types of elements typically set off in their own I-phrases, e.g. parentheticals, are never subject to such adjustments, as far as I am aware. Perhaps a more useful way to look at the algorithm would be in Optimality-Theoretic terms: certain I-phrasing constraints are ranked higher than the phi-phrasing constraints, which in turn are ranked higher than other I-phrasing

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<sup>107</sup> Percus (1993) does not state whether (128b) also contains a pause in this position; if it does not, more will have to be said.

## Schütze

constraints; Strict Layer requirements themselves might also be violable and must be fit into the picture. It is also crucial to my account that there not be any options in the first phase of the phrasing algorithm that would allow some other prosodic structure wherein there is no I-break after the PP: to block the sentence, this break must be obligatory. Obviously many more phenomena will have to be studied in order to reach any firm answers to these questions. However, it is encouraging to note that a very similar phrasing pattern is found in Chi Mwi:ni, such that the subject of a complement clause phrases with the matrix verb and the complementizer.

As has been our experience throughout this investigation, the further one looks, the more complex the facts seem to become. Thus, we can see immediately how the contrast between matrix and complement clauses is derived, since there is no reason for an I-boundary to appear after a sentence-initial PP in Spec-CP. But with other kinds of embedded clauses we do expect such a boundary, and yet clitic placements parallel to (128a) are fine:<sup>108</sup>

131. a. Raduj se [jer **ti je** došao brat.]  
*rejoice REFL because you AUX come brother*  
'Rejoice because your brother has come.'
- b. Raduj se [jer brat **ti je** došao.] (Radanović-Kocić 1988: 101)
132. a. Mi smo ustali ali Petrova žena **je** već otišla.  
*we AUX tired but Peter's wife AUX already left*
- b. Mi smo ustali ali Petrova **je** žena već otišla.
- c. Mi smo ustali ali je Petrova žena već otišla. (Percus 1993: 21)

Based just on these examples, there are numerous possible explanations. Perhaps the matrix clause in (131) is so short (one PWD) that it cannot be an I-phrase on its own, so the whole sentence is a single I-phrase and no problem of splitting it can arise. That solution is unappealing because it relies on phonological weight and thus should be part of phase two, in which case an I-boundary could have affected clitic placement after phase one. The more promising line to take is that the contrast between complement clause and adverbial clause is relevant, although the details remain obscure. It could be that adverbial clauses are in a class with parentheticals in that they are always set off by an I-boundary, ignoring phi-phrasing requirements, so that the break in (131) would be between *se* and *jer*. Alternatively, it could be that the subordinate clause is not a sister to the V and the phi-phrasing rule is sensitive to sisterhood, or more specifically to argumenthood. Then we would say that although the next lexical  $X^{\max}$  to the

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<sup>108</sup> Progovac (p. c.) informs me that sentences more closely parallel to (128a) but with *jer* as the complementizer pattern like (131), i.e. allow clitics after an initial PP; I do not have the actual examples. Also, the fact that *jer* and *ali* may only optionally be clitic hosts, sometimes being clitics themselves, does not seem to interfere with the relevance of (131b) and (132a–b).

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right of the matrix verb is *brat*, the need for an I-boundary at the start of the embedded clause can override that placement when the  $X^{\max}$  is not contained in an argument of the verb. Whatever the answer, there seem to be enough distinguishing characteristics to allow us to maintain the contrast between (131) and (128). It is worth dismissing one other possibility, however. Note that the clitic host in (131b) is a single-word constituent, while in (128a) it is a PP containing two prosodic words. One might speculate that the heaviness of the preposed phrase thus has a role to play. However, Browne (1975b) presents an example that shows this to be false:

133. a. \*Sada mislim da u septembru **ću se** oženiti.  
*now think that in September AUX REFL marry*
- b. Sada mislim da **ću se** oženiti u septembru.  
 ‘Now I think I’ll get married in September.’ (Browne 1975b: 111)

Here the clitics are bad even when the constituent trying to host them is a single PWd; note that this example again involves a complement clause, just like (128a). Other examples from Browne show that it is not PP versus NP that matters either.

134. a. \*Mama odgovara da one **su** u ormaru.  
*Mama answers that they AUX in wardrobe*
- b. Mama odgovara da **su** one u ormaru.  
 ‘Mama answers that they are in the wardrobe.’ (Browne 1975b: 114)
135. a. \*Činilo mi se da fotografije **su** narčito lijepe.  
*seem me REFL that photographs AUX specially beautiful*
- b. Činilo mi se da **su** fotografije narčito lijepe.  
 ‘It seemed to me that the photographs were specially beautiful.’  
 (Browne 1975b: 115)

Unfortunately, such cases with a single-word clitic host following a complementizer may not be uniformly bad: Progovac gives the following marginal example.

136. ?Marina misli [da sutra **je** ključni dan.]  
*Marina thinks that tomorrow AUX key day*  
 ‘Marina believe that tomorrow is the decisive day.’ (Progovac 1993: 16)

Note that this once again is a complement clause. Beyond the simple possibility of individual variation, two factors could be at work here. For one thing, (136) involves a bare adverb, whereas the bad examples seen so far all involved NPs either by themselves or as PP objects. For another, (136) involves *je*, which we have seen can be grammatical for certain speakers in places where other clitics cannot. Either of these factors could be responsible for the marginal possibility of (136); the question awaits more systematic data collection.

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Interestingly, the same ban on late placement applies when the would-be host word is a head in Comp rather than an XP in Spec-CP:

137. a. Čitao **sam** knjigu.  
*read AUX book*  
'I have read the book.'
- b. \*Rekao mi je da čitao **sam** knjigu.  
*told me AUX that read AUX book*  
'He told me that I read the book.'
- (Rivero 1991: 333)

Rivero (1991) takes this contrast to show that long head movement is blocked in embedded clauses, but this fact might also fit into the prosodic story I have proposed. The only trick is that the alleged pause in (137b) would have to come after the embedded participle, which is not an XP, so we could not straightforwardly generate a phi-phrase boundary here. There is perhaps a more serious problem as well: if the participle and the clitic are under the same Comp node at S-structure, it is not obvious that the phrasing algorithm should be able to split them at all. Therefore, I will leave the analysis of this special case for future work.

### **10. Implications and Conclusions**

In this section I will briefly discuss how the analysis of SC clitic placement proposed in this paper bears on some theoretical issues in the treatment of clitics and the interactions among components of the grammar that are involved, and what avenues of future research are suggested by it. Obviously, we need much more systematically collected data, controlled for dialect differences, in order to make further progress.

At the most general level, Halpern's (1992) framework for the treatment of clitic placement in a wide variety of languages receives considerable support. I have shown that his proposals can be extended to cover a substantially wider range of facts of SC than he discussed, without altering any of his fundamental claims or indeed many of the specifics of his theory, with the exception of the syntactic status of clitics themselves and the treatment of ordering among clitics in a cluster. None of the other theories of SC clitics surveyed in §2 could do as well. Thus, for many implications of the present work the reader can simply be referred to Halpern.

On the question of the syntactic status of clitics as heads versus maximal projections, there is obviously much cross-linguistic work to be done on this typology, and recent developments in syntactic theory are opening new possibilities (see §4.1). I believe the reasons for treating SC clitics as heads, at least in their S-structure landing-site, are strong but not overwhelming, so considerations from universals could yet tip the scales back the other way. There is also much more work to be done on the syntax of "free word-order" in



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Slavic in general before the exact place of clitics can be ascertained. I do not claim any strong implications from this part of the analysis.

I have given the morphological component a greater role to play than most other approaches, specifically in clitic ordering but also in establishing a clitic cluster that will behave as a unit in the phonology (also see Halpern's discussion of the nature of clusters). This is in keeping with the increased attention being paid to the theory of morphology in generative grammar of late, but is also consistent with traditional ideas about the role of morphology in affixation. It is an open question whether ordering among second-position clitics in other languages might be attributable to syntax alone; I have attempted to show the kinds of facts that bear on this distinction. It seems less likely that the phonology alone would be implicated, but this possibility should not be ruled out *a priori*. It is also worth considering whether strong phonological evidence can be found in other languages for the status of clitic clusters: are there any cases where it does look like there is an additional recursive PWD node associated with each clitic attachment? If not, one might speculate that some sort of Economy consideration is at work: when several dependent morphemes have the same host requirements, the grammar prefers to unify them into a single element for the phonology.

As for the (prosodic) phonology itself, I hope to have added support to some ideas that have already appeared in the literature by showing that they provide important parts of the explanation of SC clitic placement. First, the notion that clitics can be re-ordered with respect to an adjacent word in the way proposed by Halpern is key to understanding constraints on clitic placement. We have seen considerable evidence that this is a phonological, rather than a morphological, process. Thus, morphology and phonology, in addition to syntax proper, can rearrange morphemes, each subject to its own set of constraints. One would obviously like to study other instances of movement satisfying prosodic requirements to see what generalizations can be made about it. Second, the idea of a two-stage mapping from syntax to prosodic structure has been a key part of the explanation of several *prima facie* quirky distributional facts. It will be interesting to see what light this view of phrasing can shed on other problems in phrasal phonology. In fact, perhaps the most important implication of this study bears on the nature of the phonology-syntax interface more generally. The facts of SC were used by Zec and Inkelas (1990) to support their view of this interface as a co-present, non-derivational one, as discussed in §2.3. I have shown that the facts do not warrant this type of model: we can explain both the 1W/1C alternations and (not unrelated) heaviness constraints on "topicalization" in a purely derivational model wherein the syntax has no access to phonological information (even the distinction between clitics and non-clitics seems to be as much a syntactic as a phonological one, especially under recent theories like that of Cardinaletti and Starke (1994)), and the phonology has only a constrained form of access to the output of the syntactic component. Processes of prosodic constituent construction have access to certain features of the S-structure tree, but once they are complete, no further access to the syntax is needed. There is also no need for the syntax to "look ahead" to anticipate phonological requirements of clitics: syntactic movements happen or do not

happen for syntactic reasons, and if the result is prosodically ill-formed it is either repaired in the phonology, or if that is not possible it is simply filtered out. While one can debate whether a co-presence model is or is not less restrictive than a derivational model, the conclusion of this study is that at the very least, SC clitic placement provides no reasons to favour a co-presence approach.<sup>109</sup>

Serbo-Croatian second position clitic placement is evidently a very complex phenomenon involving sometimes opaque interactions between three modules of the grammar. We certainly have some distance to go before a full understanding will be reached. In this paper I have striven to lay out the facts in a way that elucidates the analytical problems and theoretical issues they raise, to clarify the argumentation surrounding various possible accounts, and to provide some suggestions of the directions in which solutions may be found.

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<sup>109</sup> See Schütze 1993 for some discussion of the relative merits of Optimality Theory versus rule-based phonology in accounting for some basic facts of SC clitic placement.

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