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Clitics, Verb (Non-)Movement, and Optimality in Bulgarian

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ABSTRACT

This paper addresses the issue of whether functional categories head separate projections. In particular, Pollock (1989) claims that auxiliaries head functional projections. I argue here that Bulgarian clitic auxiliaries do not head separate syntactic projections. I further argue that the respective order of Bulgarian clitics and verbs is not the result of syntactic movement (e.g. Long Head Movement; Rivero, 1994). Nor does it result from a post-syntactic re-ordering at PF (e.g. Prosodic Inversion; Halpern, 1995). I develop an alternative analysis that makes syntactic movement or PF re-ordering completely unnecessary. The new analysis is couched in Optimality Theoretic terms and builds on the non-syntactic view of clitics advocated by Klavans (1985) and Anderson (1992). The analysis incorporates linear order constraints proposed in Prince and Smolensky (1993) and Anderson (1995); it demonstrates how the simple OT mechanism of ranking violable constraints can yield the complex distribution of the interrogative particle *li* with a minimum number of (independently needed) assumptions. The Optimality Theoretic account is parsimonious in that it posits minimal trees, minimal movement, and global evaluations of syntactic/PF structures. The constraints that do most of the work are interface constraints (many of which are independently needed in more traditional syntactic accounts). To the extent that this parsimonious analysis is successful at handling the facts previously accounted for in terms of extended trees, it provides one substantial argument against the Pollockian view that functional categories always head syntactic projections.

CLITICS, VERB (NON)-MOVEMENT, AND OPTIMALITY IN BULGARIAN*

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I. ISSUES AND CLAIMS

This paper addresses the issue of whether functional categories head separate syntactic projections or not. Much work in generative syntax assumes that they do, following Pollock (1989). Among other things, this assumption has led to a non-minimal view of tree structure, e.g. gigantic trees, proliferation of projection labels, and abundant syntactic movement. I argue here that in at least some important cases, functional categories do not head syntactic projections, based on a case study of Bulgarian clitics.

According to Rivero (1994a), Bulgarian is one of the many Slavic languages which shows Long Head Movement (henceforth LHM): movement in the syntax of a verbal head across another head to a clause-initial position. This kind of movement deserves particular attention because, among other things, it violates a basic principle of Government-Binding Theory, the Head Movement Constraint (Travis, 1984). Moreover, under current views of economy shared by both the Minimalist Program (Chomsky, 1991, 1992, 1995) and Optimality Theory (Prince and Smolensky, 1993; Grimshaw, 1995; Legendre et al 1993, 1995, in press), movement is a costly operation which has to be motivated. In Rivero's account, LHM is motivated by a ban against clitics in initial position of a clause, a constraint I will refer to as the Tobler-Mussafia (TM) Law, as it is known in Medieval Romance studies. The pattern is exemplified in (1). Throughout the paper, clitics are in italics.

(1) a. Az *sŭm mu go* dal.
I have him-dat it-acc given
'I have given it to him'.

b. Dal *sŭm mu go*.
'(I) have given it to him'.

Bulgarian is a pro-drop language. In the presence of an overt subject, auxiliary and pronominal clitics follow the subject and precede the non-finite verb (1a). In the absence of an overt subject the non-finite verb appears in initial position and clitics follow (1b). Rivero (1994a) proposes that the non-finite verb *dal* in (1b) moves across the auxiliary head *sŭm* to a C^o position. This is an instance of last resort movement which saves an otherwise ungrammatical structure. In a series of papers, Rivero extends this analysis to a wide variety of languages, including other South Slavic languages (Serbo-Croatian), West Slavic (Slovak, Czech), Romance (Old Spanish), and Celtic (Breton).

In Bulgarian, Rivero's analysis is empirically undermined in several ways. A first complication is that some clitics escape the TM Law. This is for example the case of the future particle *šte*:

(2) *Šte mu go* dadete.
fut him-dat it-acc give
'(You) will give it to him'.

The behavior of *šte* forces Rivero to analyze *šte* as a non-clitic modal and to stipulate that the modal particle constitutes a barrier for LHM.

A second complication is the distribution of the interrogative particle *li* which marks yes-no questions. *Li* observes the TM Law but is otherwise completely movable.

(3) a. Vizdal *li go e*?
seen Q him-acc has
'Has (he) seen him?'

b. *Šte go* vižda*š li*?
fut him-acc see Q
'Will (you) see him?'

c. *Ne šte li go* viždaš?
neg fut Q him-acc see
'Will (you) not see him?'

In (3a-b), *li* is postverbal; in (3c), it is pre-verbal. In (3a), *li* precedes all other clitics; in (3b), *li* is the last clitic in the cluster which is interrupted by the verb; in (3c), *li* is the penultimate clitic. Rivero (1993) claims that *li* is generated in C^o. Its status as a bound morpheme forces incorporation of the verb to C, with other clitics remaining in IP in (3a). In (3b,c) however, the modal particle and the negation each constitute a barrier to movement of V to C. Hence, *li* must be lowered, right-adjoining to V in (3b) or left-adjoining in (3c). In Rivero's 1993 comparative analysis of Bulgarian and Serbo-Croatian, *li* lowering is claimed to be idiosyncratic to Bulgarian.

A third complication which Rivero's analysis does not deal with is the following. In the presence of the negative particle *ne*, the placement of *li* is rigid: it occurs strictly pre-verbally in third position following the element which follows *ne*:

(4) a. *Ne mu li* izpratix knigata?
'Didn't (I) send him the book?'
b. *Ne si li mu ja* dal knigata?
'Haven't (you) given him the book?'
c. *Ne šte li go* viždaš?
'Will (you) not see him?'
d. *Ne* znaeš *li*?
'Don't (you) know?'

One obvious generalization emerges from the data introduced so far. They all involve clitics, a category of elements whose analysis remains controversial. In the tradition of Pollock (1989) and others, Rivero does not distinguish clitic auxiliaries from non-clitic ones in the syntax: the present perfect auxiliary *sŭm* heads an AuxP just like the past perfect auxiliary *bjax* despite the fact that the former is a clitic while the latter is not (Hauge, 1976). Rivero does not discuss any evidence for clitichood. Rather, she distinguishes functional auxiliaries like *sŭm* which license LHM from lexical auxiliaries like *šte* which do not license LHM. This distinction is problematic because some lexical auxiliaries, including *šte*, optionally allow LHM (Embick and Izvorski, 1994). This is shown in (5).

(5) a. *Šte e* izpil konjaka.
will is drunk the cognac
'(He) will have drunk the cognac.'
b. Izpil *šte e* konjaka.

Furthermore, LHM in (5b) is completely unmotivated and this remains an unresolved problem in Rivero's analysis. As Embick and Izvorski (1994) note, LHM is predicted to be obligatory because it is construed as a last resort movement. In (5), it is only optional and constitutes a marked option according to my informants.

In this paper, I propose to reconsider the Bulgarian facts discussed by Rivero by focussing on clitics rather than movement. My analysis differs from Rivero's in two fundamental ways: one, I follow Anderson (1992, 1995) in claiming that clitics are introduced at PF rather than in the syntax. Two, constraints are ranked and can be violated, as proposed in Optimality Theory (Prince and Smolensky, 1993). These two assumptions lead to a comparatively simple account of Bulgarian which can be summarized as follows: roughly speaking, the distribution of clitics follows from the competition between constraints which favor placing clitics close to the left edge of the clause and constraints which favor placing clitics away from the left edge of the clause. The outcome of every competition depends on which constraints are at work in any given instance (i.e. which functional features are being expressed in the clause). Thus, the outcome is computed for each possible set of features. Crucially, a single ranking of constraints will be shown to be responsible for the variety of empirical facts introduced above.

The paper is structured as follows. Section 2 presents a critique of two other analyses: Halpern (1995) and Embick and Izvorski (1994). It leads to the conclusion that the common treatment of auxiliary clitics as heads

of syntactic phrases is at the root of the problems that are exposed. Section 3 focusses on an alternative view of clitics which is developed in Klavans (1985) and Anderson (1992). Theoretical and empirical considerations are laid out in support of the conclusion that clitics are not present in the syntax. The case of the future particle *šte* and the negative particle *ne* is examined. It is argued that both are clitics; their distinctive property arises from the fact that they violate a constraint satisfied by other Bulgarian clitics, the TM Law. An OT analysis of Bulgarian which incorporates this distinction is developed in Section 3. Section 4 reconsiders the issue of optional LHM in Bulgarian. It is argued that participle fronting is not optional. An OT analysis is offered which exploits the OT notion of input by proposing that the two alternative structures in (5) correspond to two different inputs. Section 6 summarizes the results.

2. Other Accounts

2.1 Prosodic Inversion

An alternative proposal to Rivero's LHM is made in Halpern (1995) which relies on a PF operation called Prosodic Inversion (henceforth PI). Enclitics have phonological requirements that can be met by moving the clitic (generated in the leftmost position in their syntactic domain) to the right the minimum distance necessary to allow it to satisfy its phonological requirements. The primary motivation for PI is second position clitics. In particular, PI is invoked for one of the two second positions in Serbo-Croatian, the one after the first (phonological) word -- the other position after the first (syntactic) phrase, is handled by positing syntactic movement of a phrase to be adjoined to the left of the relevant domain. PI is also invoked for Bulgarian for the placement of *li* which Halpern erroneously characterizes as a second position clitic (see examples (3)-(4)); Halpern extends PI to verbal clitics in lieu of Rivero's LHM analysis.

In my view, PI suffers from serious theoretical deficiencies. First, PI is completely descriptive or 'made to fit': PI applies only in some languages to clitics that are in first position at the end of the syntax. Second, the power of the mechanism is potentially considerable (as noted also in Anderson, 1995). Nothing prevents a version of PI that operates across two prosodic words or a prosodic phrase; besides, PI can be stipulated to operate in one language and not in another without any further consequences. Third, PI is a last-resort operation (just like LHM); as such it should never be an optional process, but it is in languages as diverse as Serbo-Croatian, Luiseño, and Warlpiri; Halpern even emphasizes the possibility of free variation among the two alternative placements (after the first word or first phrase) in these languages. Fourth, PI relies on vacuous movement in the syntax (as pointed out by Anderson (1995)): PI rightwardly moves clitics that have been generated in leftmost position in the syntax though they never surface in that position. Finally, positing some crucial invisible structure raises a serious learnability issue. It is unclear what kind of evidence would lead a child learning Bulgarian to posit structure for which there is no positive evidence.

PI also encounters empirical problems in Bulgarian. Contrary to what PI predicts, the phonological dependency of auxiliary and pronominal clitics may be satisfied by elements that are not prosodic words, including *šte* and *ne* (see examples in (2) and (4)). Moreover, a close examination of PI with the interrogative particle *li* reveals a number of undesirable properties. Consider the question of how (6) is derived by PI.

(6) Izpratix *li mu* kniga?
'Did I send him a book?'

If both clitics are generated leftmost in the syntax (with *li* in C and *mu* adjoined to the highest projection, as is widely accepted among Slavicists) nothing -- short of an ordering stipulation - seems to prevent the following derivation: first PI of *li* placing it after the verb, then PI of *mu* placing it between the verb and *li*, with the ungrammatical output: **izpratix mu li kniga?* One alternative is pursued by Izvorski, King, and Rudin (1996). They invoke right adjunction to C of a complex verbal head (including clitics) in the syntax, prior to applying PI at PF: this syntactic operation puts the verb and its (auxiliary or pronominal) clitics in place; then *li* moves to the right of the verb at PF. In negated clauses or clauses containing a modal, the complex verbal head raises to C via intervening functional projections picking up the negative (and/or future) particle on the way. If one compares the respective order of clitics (other than *li*) and V in the absence vs. the presence of *ne* -- V clitic clitic vs. *ne*

clitic clitic V -- one is forced to conclude that the complex verbal head formation involves distinct directions of adjunction in the two cases. Hence, an additional stipulation which is not lexical in character has to be made (*ne* heads a NegP projection and the direction of the adjunction operation depends on the presence of this projection). PI of *li* is offered as a simple operation and alternative solution to Rivero's 1993 li-lowering analysis. However, right-adjunction, disallowed on general conceptual grounds in Kayne (1994), has to occur first to make PI possible as a simple operation. Alternatively, ordering stipulations seem to be necessary to prevent ungrammatical outputs.

2.2. Morphological Merger

Working within the same framework of assumptions as Rivero (1994a), Embick and Izvorski (1994) focus on the predictions made by her LHM analysis.[1] They discuss three problems briefly summarized here. First, LHM does not always show locality effects, contrary to what an ECP-based analysis predicts. Second, LHM, as an instance of V to C movement, should be restricted to matrix clauses, which it is not in Bulgarian (an example is given in (47b)). Third, the status of LHM as a last resort operation predicts that it should always be obligatory; yet it is optional with some functional and lexical auxiliaries (see (5)). Embick and Izvorski's counterproposal to Rivero's LHM analysis involves distinguishing obligatory from optional participle fronting in Bulgarian. They only offer a counterproposal for the obligatory cases. For them, obligatory fronting results from Morphological Merger (MM, Marantz, 1988), which consists of affixing any stranded elements (in clause initial position) to the lexical head to its right:

(7) *E* zaspal > Zaspal *e* '(He) has fallen asleep'

They argue in favor of MM over PI because, as mentioned earlier, the phonological dependency of clitics need not be satisfied by a prosodic word. MM, unlike PI, does not rely on the notion prosodic word.[2]

As Embick and Izvorski observe, a problem arises because adjacency of the auxiliary and the participle obtains in non-initial contexts where MM does not apply. For example, Bulgarian does not allow Subject-Auxiliary inversion as shown in (8b):

(8) a. Koga *e* pil Ivan vino?
'When did Ivan drink the wine?'
b. *Koga *e* Ivan pil vino?

Inversion occurs in wh-questions but the subject must follow the past participle. To handle this situation, Embick and Izvorski invoke Short Participle Movement (SPM) which moves the participle to a head position just below the head occupied by the auxiliary *e*. But they offer no account of what drives this new kind of movement. Optional participle fronting exemplified in (5) remains unaccounted for. Overall, their analysis makes a contribution in that they expose a number of problems with Rivero's account. However, they are unable to provide a satisfactory counteranalysis because they, like Rivero, assume that auxiliary clitics head syntactic phrases. This assumption, and the fact that MM operates in a very small syntactic domain, force them to invoke ad-hoc types of syntactic movement.

2.3. Critical Assessment

An examination of three existing proposals working within the same general framework of assumptions about clitics reveals similar problems. If clitics are generated in the syntax, then repair strategies are needed to produce grammatical outputs. Repair can take place in the syntax (Rivero) or at PF (PI, Halpern; MM, Embick and Izvorski), always at the cost of invoking additional mechanisms which vary depending on where repair occurs. Yet, repair in the syntax leaves the position of *li* and the optionality of repair with some auxiliaries unexplained. Repair at PF faces the optionality problem as well. The results, I believe, expose the common weak link of all three analyses: the common treatment of clitics in the syntax.

This is interesting because there is in fact no agreement in these analyses on what the syntactic positions of various clitics should be. To give a few examples, all clitics but *li* are adjoined to VP in Halpern (1995). In Rivero (1993, 1994) *li* is in C, *sŭm* is in Aux; pronominal clitics are in WackernagelP in Rivero (1994b).

Izvorski (1994) argues that *li* is not in C but heads a separate phrase FocP. [3] Theoretical problems immediately arise under any of these assumptions: e.g. if *sŭm* heads AuxP, the fronting of a participle across Aux violates the Head Movement Constraint (HMC, Travis, 1984), causing a flurry of alternative proposals to repair the damage (Lema and Rivero, 1989; Rivero, 1994a; Roberts, 1994, Wilder and Ćavar, 1994). Adjunction of clitics poses another kind of problem: Rivero (1993) as well as Izvorski, King, and Rudin (1996) rely on right adjunction which is explicitly disallowed in a restrictive theory of phrase structure such as Kayne (1994); Halpern (1995) relies on adjunction of a head to a maximal projection in violation of the Structure Preserving Hypothesis. Finally, Rivero's 1993 analysis of *li* lowering appeals to a type of movement generally banned in syntax. The very fact that there is no agreement on clitic positions in the syntax is, in my opinion, further evidence that the assumption that they are in the syntax at all is on shaky grounds. I now turn to an alternative proposal, originally made in Klavans (1985) and Anderson (1992, 1993, 1995): clitics are not syntactic categories; rather they are inserted at PF as the expression of the properties of a syntactic phrase.

3. The Status of Clitics

3.1 General Issues

At the most general level, the view that clitics occupy specific slots in the syntax is at odds with a number of properties that distinguish clitics from standard NPs. First, clitics occur in places where standard NPs do not, hence the need to create additional positions for clitics. To give only two examples, Rivero (1994b) posit a WackernagelP (WP) for some languages (e.g. Serbo-Croatian) and a Tobler-MussafiaP (TMP) for others (e.g. Bulgarian); Dimitrova-Vulchanova (1993) proposes a clause initial position she calls FRONT for both languages. Among other things, this leads to the generation of trees which are anything but minimal. [4]

Second, clitics come in clusters involving different grammatical categories (verbal, nominal, and other (e.g. *li*)); their internal order is typically idiosyncratic to particular languages or language families. Consider a sample of clitic clustering within Slavic in (9).

(9) Clitic orders in Slavic

Order	I	II	III	IV	V	VI
Czech (WS)	Q	Perf Conditional	Reflexive	Dative	Accusative	
Macedonian	Modal	$Perf_{1,2}$	Dative	Accusative	$Perf_3$	
Serbo-Cr.	Q	$Perf_{1,2}$ Conditional Future	Dative	Accusative	Reflexive	$Perf_3$
Slovene	$Perf_{1,2}$ Conditional	Reflexive	Dative	Accusative	$Perf_3$ Future	
Bulgarian	Future	$Perf_{1,2}$	Dative	Accusative	$Perf_3$	

Two generalizations clearly emerge: a) Dative precedes Accusative in all Slavic languages b) first and second person auxiliary 'be' precede pronominal clitics, third person 'be' follows pronominal clitics, in all South-Slavic languages. Some idiosyncratic features emerge as well, including the placement of the future auxiliary in South-Slavic (I, II, or V) and the placement of the reflexive clitic (II, III, or V). Across language families we observe

that the cluster-internal order of clitics, besides being fixed within a language (family), is largely arbitrary; compare (9) with (10).

(10) Clitic order outside Slavic

Order	I	II	III	IV
French	1,2 Accusative /Dative	3 Accusative	3 Dative	
Lummi	Accusative	Q/modal	Tense	Nominative
Warlpiri	Illocutionary particle	Aspect	Nominative	Accusative /Dative

For example, we can observe the reverse of the Slavic order in (10): i.e, 3rd person accusative precedes third person dative in French, Q/modal follows accusative in Lummi; Lummi places accusative before nominative while Walpiri places nominative before accusative. This kind of cross-linguistic variation is a hallmark of affixation.

Finally, in languages with relatively free word order like Bulgarian, the rigidity of clitic placement (except for *li*) is in stark contrast with the general freedom in constituent ordering. This freedom is however far from arbitrary, as demonstrated most recently for Russian in King (1995), Italian in Samek-Lodovici (1996), and German and Korean (Choi, 1996). These authors convincingly and elaborately demonstrate that variation in word order is discourse-based. These distinctive properties of clitics constitute one important piece of evidence in favor of treating clitics differently from standard syntactic constituents.

I follow Klavans (1985) and Anderson (1992, 1993, 1995) in hypothesizing that clitics are phrasal affixes or phonological material inserted directly in the phonological component as the expression of the properties of a phrase. They are not inserted and moved around in the syntax. As affixes, they are only sensitive to morpho-syntactic and prosodic alignment constraints (the nature of which will be discussed in Section 4.3).[5]
Under this view, functional categories are featural information attached to particular nodes in the tree. These features express properties of the clause and may include sentential negation, illocutionary force, degree of assertion, aspect, subcategorizing for an object, etc. These features may be instantiated as heads of separate syntactic projections, or they may be realized at PF at the edge of a phrase (phrasal affixation) or a word (word-level affixation). Cross-linguistically, a certain amount of arbitrariness exists in the distribution of functional categories as syntactic heads of phrases vs. affixes. The lexicon determines the options available to a given language. A partial lexicon of three Slavic languages is illustrated in (11).

(11) Sample of Slavic lexicon

Bulgarian (SS)		Serbo-Croatian (SS)		Slovak (WS)	
sŭm 'perf$_1$'	clitic	*sam* 'perf$_1$' *jèsam* 'perf$_1$'	clitic head	*som* 'perf$_1$'	clitic
šte 'will'	clitic	*ću* 'will' *hòću* 'will'	clitic head	*by* 'condit.'	clitic
dali 'Q comp' *li* 'Q particle'	head clitic	*li* 'Q particle'	clitic	*či* 'Q comp'	head

3.2 BULGARIAN CLITICS

An analysis which relies on treating clitics differently from other syntactic categories must first determine which elements are clitics. This is the purpose of this section. With many others, I take the position of classical grammarians like Wackernagel in construing clitics as phonologically dependent elements. Clitics are prosodically deficient and must be parsed into a prosodic phrase headed by a prosodic word. This is the sense in which they typically latch onto a verb. Their inherent stresslessness characterizes (at least) the following Bulgarian elements as clitics:

(12) Bulgarian clitics:
- Pronominal clitics (*mu, go*, etc.)
- Present perfect auxiliary (*sŭm*, etc.)
- Interrogative particle (*li*)
- Future auxiliary (*šte*)
- Sentential negation particle (*ne*)

Classifying the first three as clitics is hardly controversial. Their phonological dependency is enhanced by the fact that they cannot be separed from their host V by a VP adverb.[6]

(13) a. *Ivana *e* naburzo pročela knigite. (Krapova, 1995)
'Ivana has quickly read the books.'
b. *Studentite *sa* vsički pročeli knigite.
'The students have all read the books.'

The adverb must precede the clitic auxiliary *e* or appear in clause final position, the latter being the preferred option for my main informant.

(14) a. Ivana naburzo *e* pročela knigite.
b. Ivana *e* pročela knignite naburzo.
'Ivana has quickly read the books.'

In contrast, a manner adverb can intervene between a non-clitic auxiliary (past perfect) and V, as shown in (15):

(15) a. Ivana beše naburzo pročela knigite. (Krapova, 1995)
b. Ivana beše pročela knigite naburzo.
'Ivana had quickly read the books.'

The adverb evidence is particularly important for auxiliary clitics since they are the ones that under a syntactic approach head a separate verbal projection. Thus, under the syntactic approach, there is no structural contrast between (13a) and (15a). The prohibition against adverbs is unexpected; ruling out (13a,b) requires an additional mechanism, presumably appealing to the phonological dependency of *e*. The point here is that a purely syntactic analysis of Bulgarian clitics is inadequate; some facts cannot be explained without appealing to PF properties

of clitics.

The affixal view of clitics also explains a property of *li* which distinguishes it from the interrogative complementizer *dali* 'whether': unlike *dali,* which can be used only to question a clause, *li* can question single constituents in isolation (Rudin, 1985:65).

(16) a. Az *li*? Kŭštata *li*? Dnes *li*? Na masata *li*?
b. *Dali az? *Dali kŭštata? *Dali dnes? *Dali na masata?
'me?' 'the house?' 'today?' 'on the table?'

The status of *šte* is a different story. *Šte* is taken to be a clitic by some (Hauge, 1976; de Bray, 1980; Scatton, 1983) and a non-clitic by others (Dimitrova-Vulchanova, 1993; Rivero, 1994a). The controversial status of *šte* derives from the fact that it exhibits all properties of Bulgarian clitics (a-c) but one (d): a) it is auxiliary-like; b) it is strictly ordered with respect to the clitic cluster; c) it does not carry stress; d) but it can appear in initial position, and often does. Treating *šte* as a clitic implies that the TM Law is violated by *šte*; its treatment as a non-clitic is necessary in any theory in which the TM Law is an inviolable constraint. In Section 4, I will show that *šte* violates the TM Law to satisfy a higher ranked constraint. Hence the exceptional behavior of *šte* provides an argument in favor of violable constraints. The clitic status of *šte* is confirmed by the fact that *šte*, like other clitics, cannot be separated from the verb by a VP adverb (Krapova, 1995).

(17) a. Ivan burzo *šte* pročete knigata.
'Ivan will quickly read the book.'
b. *Ivan *šte* burzo pročete knigata.
c. Ivan burzo pročete knigata.
'Ivan quickly read the book.'
d. Ivana beše naburzo pročela knigite.
'Ivana had quickly read the books.'

The contrast in (17) remains unexplained under Rivero's view that *šte* heads a modal phrase. In light of (17c) and (17d), which respectively involve a simple tensed verb and a non-clitic auxiliary, one would have to stipulate that manner adverbs must precede *šte* or invoke adverb movement (which is antithetic to the functional projection approach that Rivero subscribes to). In contrast, the pattern follows here from the fact that *šte* is inserted at PF at the left edge of V′ (and the common assumption that adverbs are outside of V′).

There is still further evidence for the non-head status of *šte*. Bulgarian epistemic modal auxilaries are expressed via a fully inflected infinitival clause introduced by *da*, analyzed alongside *šte* as head of a Modal Phrase in Rivero (1994a).

(18) a. Ivan da *ne* xodi tam! (Dimitrova-Vulchanova, 1993)
'Ivan should not go there'.
b. *Ne šte sŭm mu go* dal. (Hauge, 1976)
'I will not give it to him'
c. *Ne sŭm ja* čel tazi kniga. (Dimitrova-Vulchanova, 1993)
'I have not read this book'.

Note the relative order of *ne* and the modal element: *da* precedes *ne* while *šte* follows *ne*. This is completely unexpected if *da* and *šte* are both exponents of a Modal node. If *šte* is a clitic (and *da* a head), then *šte* simply follows the general clitic rule of following *ne*.[7] The point here is that *da* and *šte* cannot be both syntactic heads of the same type; the present analysis which treats clitics as PF material and heads as syntactic material can readily make distinctions that cannot be made as simply in a system where clitics are syntactic heads.

The status of *ne* is controversial as well in light of the increasing literature relying on generating negative elements as heads of NegP. In Rivero's analysis, *ne* must be a head for the same reason that *šte* must be a head: both disallow LHM, hence both must be barriers.[8] Sentential *ne* is unstressed in Bulgarian; yet it must immediately be followed by a stressed element (Hauge, 1976). The hypothesis that Bulgarian *ne* is a clitic receives confirmation from adverb placement: *ne* cannot be separated from the verb it modifies or any clitic by a manner adverb:

(19) a. *Ivana *ne* burzo beše pročela knigite.
'Ivana had not quickly read the books.'
b. *Ivan *ne* burzo *šte* pročete knigata.
'Ivan will not quickly read the book.'

Like *šte*, and unlike other clitics, *ne* violates the TM Law. When it co-occurs with *šte*, *ne* must precede *šte*. This is similar in my view to the clustering properties of other Bulgarian clitics: for example, dative must follow the first and second person singular forms of the present perfect auxiliary but precede the third person singular form of the same auxiliary. Further evidence of the clitic status of *ne* will be presented in Section 4.3 because it is best understood in the context of the OT analysis itself.

4. An Optimality Theoretic Account

4.1. Basics of OT

The basic claims of Optimality Theory (Prince and Smolensky, 1993) are these. First, all constraints are universal. Second, constraints can be violated in well-formed sentences. This is possible because constraints are ranked with respect to one another. A lower-ranked constraint will be violated so that a higher-ranked one may be satisfied. A constraint violated by a grammatical sentence may be fatal to an ungrammatical one. Third, the relative ranking of constraints is determined on a language-particular basis. Thus a grammar is a particular ranking of universal constraints.

4.2. Minimal Structure

In this paper, I adopt a minimal view of X′ structure and extended projections (Grimshaw, 1991, 1996). Under this view, structure can only be added to satisfy higher ranked constraints (which would be violated otherwise) at the cost of violating a lower ranked constraint against building structure (*Structure). The properties of a projection are determined by whatever heads it. Minimal clauses are hence basic VPs. All extended projections of V are also labeled VP. I also depart from Pollock (1989) and his followers in assuming that word-level inflection belongs to the domain of morphology rather than syntax. For example, tense does not universally head a separate projection. In languages where it is realized as a suffix, tense receives essentially the same treatment as clitics; tense is a feature of V which is realized at PF at the right edge of its syntactic domain, V^o.

4.3 The Constraints

The constraints that form the backbone of the present analysis belong to several domains of the grammar. The constraints that play a central role in the distribution of clitics are PF constraints. If clitics are phrasal affixes, then they naturally obey PF constraints having to do with their linear ordering. One set of PF constraints consists of a family of gradient constraints which favor aligning the phonological realization of functional features at the left edge of a syntactic constituent as well as an OT version of the TM Law. Prince and Smolensky (1993:35, 40) define the notion prefix and suffix as morphemes respectively subject to Edgemost(Left) and Edgemost (Right) constraints which align a morpheme edge with a word edge. In the context of a discussion of Hindi penultimate stress, they demonstrate how the notion of second position from a right edge follows from the interaction of a gradient alignment constraint like Edgemost with a non-gradient Nonfinality constraint: if Nonfinality outranks Edgemost, a candidate with penultimate stress will violate Edgemost once to avoid violating Nonfinality. A candidate with antepenultimate stress will violate Edgemost twice and hence be sub-optimal. Anderson (1995) uses these kinds of constraints to sketch out an account of second-position clitics in Slavic. One challenge is to identify the syntactic domain of Anderson's constraints. Another is to identify the nature of all relevant constraints. A third one is to show how all constraints interact with one another and yield the particular clitic patterns in Bulgarian.

(20) Morpho-syntactic alignment constraints

EDGEMOST(F, Left) = E(F): Align the phonological realization of a phrasal feature F with the left edge of the syntactic constituent F is associated to.

*INITIAL(F) = *IN(F): Phrasal features are not realized in clause-initial position.

The family of EDGEMOST constraints is universal; for each value of [F], there is an instantiation of this constraint: E(FUTURE), E(ACCUSATIVE), etc. It is the particular instantiations of E(F) which are re-ranked cross-linguistically. The sense in which these constraints are morpho-syntactic is simply this: they characterize the mapping between a PF property (phonological realization of a feature) and a syntactic constituent. E(F) is violated whenever [F] is not realized at the left edge of the relevant constituent.*IN(F) is violated whenever a clitic instantiating [F] occurs in clause initial position.

A second set of constraints expresses the well-known fact that affixes can be sensitive to prosody (McCarthy and Prince, 1993a,b). These constraints include pure prosodic constraints (21) as well as an alignment constraint (22). The alignment constraint characterizes the prosodic domain at the edge of which the clitic must be realized.

(21) Prosodic constraints

PARSE(CL, PRPHR): a clitic cl is parsed directly into a Prosodic Phrase (not Prosodic Word; therefore unstressed)

PROJECT (X, PRWD): X projects its own Prosodic Word; X = V, *ne*

**NE:* *ne* is not stressed (upper case = stressed).

(22) Morpho-prosodic alignment constraint

PRWD^{O}][*LI*: Align the left edge of *li* with the right edge of a Prosodic Word.

The PF constraints will be shown to interact with other constraints, most of which are borrowed from unrelated previous work in OT syntax.

(23) Structural constraints:

OPERATOR IN SPECIFIER (OPSPEC): Operators are in specifier position. (Grimshaw, 1995)

OBLIGATORY HEADS (OBHD): A projection has a head. (Grimshaw, 1995)

These constraints are violated respectively by operators in complement positions and projections with empty heads. Both overt material and traces satisfy OBHD.

(24) Scope constraints:

FOCSCOPE: A focus of a clause has scope over the part that is presupposed.

FOCSCOPE forces movement of foci to a prominent syntactic position in the clause.

(25) Economy constraints

*t: No traces (Legendre et al, 1995, 'STAY', Grimshaw, 1995)

*t penalizes movement. It works hand-in-hand with minimal structure to yield minimal trees.

A central metaconstraint OT imposes on grammars is that they must contain faithfulness constraints which require feature matching between input and output (Prince and Smolensky, 1993).

(26) Faithfulness constraints

PARSE[F]: Outputs contain all input features (Legendre et al, 1995, in press)

Another way in which OT is constrained is in its unique treatment of typological differences. Constraints are universal; they are predicted to be re-rankable across languages (this aspect of OT will only be briefly illustrated in this paper). Substantial illustrations of constraint re-ranking include Baković (1995), Legendre et al. (1993, 1995, in press), and Samek-Lodovici, 1996. The relative ranking of constraints is determined on a language-particular basis.

Given a set of constraints, the selection of the optimal output proceeds as follows. For every input consisting of a skeletal structure containing predicate-argument structure and scope information, the function *Gen* (Prince and Smolensky, 1993) generates a universal set of candidate outputs in accordance with X′ Theory. The evaluation proceeds by comparing the constraint violations incurred by pairs of candidates, i.e. the optimal candidate paired with a non-optimal one. In OT, the optimal output is grammatical; it is the output which survives

the competition, i.e. the candidate which best satisfies the highest-ranking constraint on which the competitors differ. All non-optimal outputs are ungrammatical.

In the present analysis, candidates combine X′ structure with PF structure in one global structure to be evaluated against the constraints listed above. The candidate set itself is a trimmed down version of the universal set resulting from two constraints which are not mentioned in individual tableaux. One is some version of the meta constraint *STRUCTURE which eliminates candidates with additional (but unnecessary) syntactic projections that offer no better satisfaction of any of the above-listed constraints; the other is a constraint which requires all clitics to be realized in the projection that houses the *overt* verbal head. The exact formulation of this constraint remains elusive but its effect is quite clear.[9] The present paper focuses on the linear ordering of clitics via conflicting constraints which decide where the realization of particular features appear on the overt verbal head.

4.3. SIMPLE CASES

The simplest patterns in Bulgarian are Rivero's LHM cases examplified in (27).

(27) Pročel *sŭm* knigata.
'(I) have read the book'.

In the proposal made here, there is no movement of V to C. Rather, both the verb and the direct object are in the VP they are generated in. The clitic *sŭm* is constrained by two well-formedness requirements at PF. One, E(F) requires the phonological realization of features like [present perfect] to be aligned at the left most edge of the syntactic constituent it is associated to. The other, *IN(F), requires the clitic not to be clause initial. These two constraints are obviously in conflict, given that there is only one syntactic constituent. *Sŭm* cannot be both at the left edge of that constituent and be non-initial. The conflict is resolved via the ranking of the two constraints. Ranking *IN(F) higher than E($\text{PERF}_{1,2}$) means that it more important for the clitic *sŭm* (second person singular form of 'be') to not be in clause initial position than to satisfy its left edge requirement. This is illustrated in T1.

T1. Interaction of two conflicting linear order constraints

Pročel sŭm knigata '(I) have read the book'	*IN(F)	E($\text{PERF}_{1,2}$)
a. [$_{V'}$ *sŭm* pročel knigata] [perf$_1$]	*!	
b. ☞ [$_{V'}$ pročel *sŭm* knigata]		⊛
c. [$_{V'}$ pročel knigata *sŭm*]		**!

The input consists of the verb, its argument structure, and the feature [present perfect]. The input features realized as clitics are indicated below the first candidate in each tableau. The grammatical output b is marked optimal (☞); by convention, constraint ranking is indicated by leftmost constraints outranking rightmost ones. Violations of constraints are recorded as * in individual cells; *! are fatal violations for sub-optimal candidates while ⊛ are violations incurred by optimal candidates. T1 illustrates a competition between a non-gradient-constraint, *IN(F) and a gradient one, E(PERF1,2). The optimal candidate (i.e. grammatical structure) is b; it violates E($\text{PERF}_{1,2}$) once. Sub-optimal candidates fare worse. Candidate c violates E($\text{PERF}_{1,2}$) twice; this illustrates the effect of gradient constraints. Candidate a violates *IN(F). Hence, *IN(F) must outrank E($\text{PERF}_{1,2}$).

It is easy to see how re-ranking of these two constraints will produce a different clitic pattern. If E(F) outranks *IN(F), clitics will freely appear in initial position. This is the case in two other Balkan languages, Macedonian and Romanian (both show clitic doubling in the presence of a definite direct object).

(28) a. Macedonian
Mi ja dadoa smetkata.
Dat Acc gave bill
'(He) gave me the bill.'
b. Romanian
L-am văzut pe el.
'(I) saw him.'

In T1, the syntactic domain at the left edge of which clitics like *sŭm* are phonologically realized is indicated as V′ rather than VP. As is well known, clitics cross-linguistically attach to verbs, reflecting the fact that clitics encode functional properties of clauses and that verbs are heads of clauses. The relevant syntactic domain of phonological realization appears to be V′, as shown by the fact that a discourse-neutral subject must precede the negative particle *ne*, which itself is the leftmost clitic in the cluster.

(29) Az *ne* kupih knigata.
'I didn't buy the book.'

Under the Minimal Structure hypothesis (and the VP-internal subject hypothesis), the subject pronoun *az* is in specVP and clitics are at the left edge of V′.[10] Consider the other linear order constraint, *IN(F). The domain of reference for this constraint cannot be V'because it would not prevent clitics from occurring in clause initial position in the presence of an overt subject which occurs to the left of V′. Its domain therefore must be the clause.

As we have seen, the distinguishing property of the future auxiliary *šte* is that it may occur in initial position. Hence *šte* violates the TM Law if it is construed as an inviolable principle. This problem is generally resolved by claiming that *šte* is not a clitic. If so, its many clitic-like properties remain unaccounted for. From an OT perspective, TM Law violability is not a problem; it is the norm. The question becomes: why does *šte* violate this law? Answer: it does so in order to satisfy the other linear order constraint all clitics are sensitive to, E(F). What this means is that the family of E(F) constraints is broken up by the constraint *IN(F): E(FUT) >> *IN(F) >> E(other instantiations of F). This is shown in T2.

T2. E(FUT) >> *IN(F) >> E($\text{PERF}_{1,2}$)

Ste sŭm pročel knigata '(I) will read the book'	E(FUT)	*IN(F)	E($\text{PERF}_{1,2}$)
a. ☞ [$_{V'}$ *šte sŭm* pročel knigata] [fut] [perf_1]		⊛	⊛
b. [$_{V'}$ pročel *šte sŭm* knigata]	*!		**
c. [$_{V'}$ *sŭm šte* pročel knigata]	*!	*	
d. [$_{V'}$ *šte* pročel *sŭm* knigata]		*	**!

For candidate a to be optimal, the constraints it violates must be outranked by the constraint violated by sub-optimal candidates like b and c. Hence E(FUT) >> *IN(F). Candidate d loses to a because of a double violation of the lowest-ranked gradient constraint. This illustrates an important property of lower-ranked constraints: they are active rather than turned off.

Under the present analysis, the word orders represented by the optimal candidates in T1 and T2 do not derive from LHM of a non-finite V, contra Rivero (1994a). There is simply no syntactic movement, hence no issue of ECP violation nor issue of which projections count as barriers. The two linear order constraints apply to all clitics but different clitics violate different feature-specific instantiations of E(F) which can be re-ranked. *Šte* is a first position clitic because of the ranking: E(FUT) >> *IN(F); auxiliary and pronominal clitics are second

position clitics because *IN(F) >> {E(PERF$_{1,2}$), E(DAT)}, etc. The outcome is the unique result of a very general mechanism, i.e. constraint ranking.

The E(F) family of constraints makes a prediction. A classic conflict will arise if more than one second position clitic is present. Obviously, only one of them can be in true second position; this will be the one whose E(F) constraint is highest in the sub-ranking of E(F) constraints governing second position clitics: E(PERF$_{1,2}$) >>E(DAT) >> E(ACC) >> E(PERF$_3$). Ignoring first position clitics for the moment, *sŭm* will be the first of the sequence; other clitics will follow and form a cluster with fixed internal order, as shown in (30).

(30) a. Dal *sŭm mu go*.
given be$_1$ dat acc
'(I) have given it to him.'
b. Dal *mu go e*.
given dat acc be$_3$
'(He) has given it to him.'

We thus derive a basic property of clitic systems -- their clustering in a fixed template -- from completely general properties of the theory.[11] If other constraints intervene, deviations from the fixed schema ensue. This is the case for the interrogative particle *li* which is analyzed in Section 4.4.

Note that this approach also straightforwardly handles what is considered an anomaly under other approaches: the distribution of the present perfect auxiliary depends on its person; first and second person singular 'be' precede dative and accusative clitics, while third person singular 'be' follows accusative clitics. Under an analysis of 'be' as heading an AuxP projection, it is completely unexpected to have this kind of exception; an additional mechanism distinct from PI has to be invoked that moves the auxiliary across several clitics in the syntax or at PF. The behavior of third person 'be' is not idiosyncratic to Bulgarian however. It is widespread in South Slavic. Moreover, the feature [third person] is universally tied to distinct morpho-syntactic properties (e.g. clitic clustering in Romance, split morphological case systems based on person hierarchies, etc.). Under a morphological approach like the one advocated here, this kind of idiosyncracy is expected, reflecting the relative universal flexibility of affix ordering.

As noted in Rivero (1994a), verb fronting never occurs in the presence of negative *ne* in Bulgarian.

(31) a. *Ne sŭm* pročel knigata.
'(I) haven't read the book.'
b. *Pročel *ne sŭm* knigata.

This is, I propose, simply because the presence of *ne* ensures that auxiliary (and pronominal) clitics satisfy*IN(F). *Ne* realizes [neg]. As a clitic, *ne* is sensitive to an E constraint which outranks *IN(F).

T3. E(NEG) >> *IN(F)

Ne sŭm pročel knigata '(I) have not read the book'	E(NEG)	*IN(F)	E(PERF$_{1,2}$)
a. ☞ [$_{V'}$ *ne sŭm* pročel knigata] [neg] [perf$_1$]		⊛	⊛
b. [$_{V'}$ pročel *ne sŭm* knigata]	*!		**

In candidate a, *ne* violates *IN(F) in order to satisfy higher-ranked E(NEG). At the same time, *sŭm* satisfies *IN(F) because *ne* precedes it. Fronting the participle, as in candidate b, allows *IN(F) to be satisfied by both clitics but it causes a worse violation, E(NEG). Hence b is sub-optimal. Note that the interplay of alignment constraints with *IN(F) is the one and only explanation in the present analysis of both negative and non-negative structures, with or without future *šte*. In contrast, Rivero's LHM account exploits economy in non-negative cases, barriers in negative cases, and an additional assumption in *šte* cases (functional vs. lexical categories).

Independent evidence that *ne* is a clitic is provided by wh-questions.

(32) a. Kakvo *ne e* kupil Boris?
'What hasn't Boris bought?'
b. Kakvo *e* kupil Boris?
'What has Boris bought?'

Assuming wh-questions like (32) involve wh-movement to a higher specifier position (e.g. SpecCP) the post-verbal position of the subject is an indication that V has moved to a higher head. Under Rivero's analysis, the verb cannot move up across *ne*; an additional type of short movement of V would have to be posited to account for the post-verbal position of the subject Boris. Under the present OT analysis, *ne* as the head of NegP would not block V movement. However, the fact that *ne* and the clitic *e* both precede the verb argues that *ne* does not head a NegP projection: if it did, we would expect the verb to appear immediately following the wh-phrase *kakvo* before *ne*. As we have seen, the auxiliary *e* is optimally inserted in second position (by violating E(F) to satisfy *IN(F)). *Ne* precedes *e* simply because E(NEG) outranks *IN(F). Confirmation comes from examples like (18b,c) above, in which *ne* occurs in initial position, even preceding *šte*. Thus E(NEG) >> E(FUT) >> *IN(F). *Ne*, however, violates its left edge requirement to allow the wh-phrase to be in a scopal position. According to Grimshaw (1995), wh-phrases move to a higher specifier position to satisfy a constraint on syntactic operators called OPERATOR IN SPECIFIER (OPSPEC), and subject-auxiliary inversion occurs to satisfy a structural constraint she calls OBLIGATORY HEADS (OBHD). OBHD ensures endocentricity of syntactic phrases.

T4. Interaction of E constraints with OPSPEC and OBHD

Kakvo ne e kupil Boris? 'What hasn't Boris bought?'	OPSPEC	OBHD	*t	E(NEG)	*IN(F)	E($PERF_3$)
a. ☞ [$_{VP}$ kakvo [$_{V'}$ *ne e* kupil [$_{VP}$ Boris t t]]] [neg][$perf_3$]			⊛ ⊛			⊛
b. [$_{VP}$ kakvo [$_{VP}$ Boris *ne e* kupil t]]		*!	*	*		*
c. [$_{VP}$ [$_{V'}$ *ne e* kupil [$_{VP}$ Boris t kakvo]]]	*!		*		*	*
d. [$_{VP}$ kakvo [$_{V'}$ *ne* kupil *e* [$_{VP}$ Boris t t]]]			**			**!

T4 assumes that the lowest VP-internal word order is Subject-Verb-Object. This word order corresponds to a discourse neutral interpretation of the subject. Other word orders in simple Bulgarian clauses are possible but they reflect special discourse status (and different inputs, as argued in Section 5). Candidate b loses to a because it violates OBHD and E(NEG). Candidate c is eliminated because it violates OPSPEC and *IN(F). Candidate d illustrates again the importance of constraints that are relatively low ranked but active: E($PERF_3$).

Let's summarize what we have so far. Viewed from an OT perspective, the distribution of Bulgarian clitics (other than *li* to which we turn next) is a simple matter of ranking a constraint against placing clitics in clause initial position within the hierarchy of constraints favoring placing clitics at the left edge of the syntactic constituent they are associated to. It is strictly a PF matter of linear word order. Re-ranking effects occur in other languages, as briefly illustrated. Finally, these PF constraints interact with structural constraints, as in wh-questions. A possible ranking in Bulgarian is: {OPSPEC, OBHD} >> E(NEG) >> E(FUT) >> *IN(F) >> E($PERF_{1,2}$) >> E(DAT) >> E(ACC) >> E($PERF_3$). *t is unranked with respect to the PF constraints; however it must be outranked by {OPSPEC, OBHD}.

4.4.THE INTERROGATIVE PARTICLE *li*

The more challenging Bulgarian clitic is the interrogative particle *li*. This is because *li* enjoys more freedom in placement than any other clitic. The relevant data are repeated below.

(33) a. Vizdal *li go e*?
'Has (he) seen him?'
b. *Ste go* viždaš *li*?
'Will (you) see him?'
c. *Ne šte li go* viždaš?
'Will (you) not see him?'

In Section 4.3, I argued that auxiliary and pronominal clitics do not motivate V movement; rather they are inserted in non-initial position directly into V'at PF because of the high-ranked constraint *IN(F). The question of V movement resurfaces with *li* first because *li* sometimes follows V; second, (33a-c) are yes-no questions which in many languages involve subject-auxiliary inversion or V fronting. The first issue to address then is whether *li* structures involve V movement.[12]

In the present context, OPSPEC operates on all features which have scopal properties, including the null operator of yes-no questions. In Bulgarian, when *li* modifies V, it is the whole proposition that is being questioned (Rudin, 1985). There is in fact evidence for V movement in questions independently of the occurrence of *li*. First, consider matrix and embedded wh-questions:

(34) a. Kakvo *e* čel Ivan?
'What has Ivan read?'
b. Pitam *se* kakvo *e* čel Ivan.
'I wonder what Ivan has read.'

Both matrix and embedded wh-questions show subjects in post-verbal position, an indication what the verb has moved to C (under standard assumptions).[13] Following Grimshaw (1995), V movement is motivated by OBHD. There are two ways of asking yes-no questions in Bulgarian: one already exemplified involves the particle *li*, the other involves the complementizer *dali*.[14] What is of particular interest here is the difference in V placement between the two types of yes-no questions.

(35) a. Dali Ivan *e* otišŭl?
b. Otišŭl *li e* Ivan?
'Has Ivan left?'

Both (35a-b) contain a null operator in the highest specifier position. In both sentences, the subject *Ivan* receives a discourse-neutral interpretation. Assuming *dali* is in the highest head position (Rudin, 1985), the fact that the subject precedes V in (35a) has a straightforward explanation: both the subject and V remain in the lower VP because OBHD is satisfied by *dali*. In the *li* question however, V has to move to prevent a costly violation of OBHD. This analysis receives confirmation from embedded yes-no questions and 'that' clauses: these show no V movement either.

(36) a. *Ne* znam dali Ivan *e* otišŭl.
'(I) don't know if Ivan has left.'
b. *Ne* znam če Ivan *e* otišŭl.
'(I) don't know that Ivan has left.'

This is because OBHD is satisfied by either complementizer, making V movement completely unnecessary. The conclusion of this short discussion is that *li* questions do involve V movement to a higher head position.

Hauge (1976:20) is, to the best of my knowledge, the first to have uncovered the basic generalization underlying the placement of Bulgarian *li*: "*li* is placed immediately to the right of the first stressed element within the verb constituent". As already mentioned in Section 3.2, the element immediately to the right of sentential *ne* must be stressed. Hence, *li* will never directly follow *ne* but rather will follow a verb or a clitic that follows *ne*. In the examples below, stress is represented by upper-case letters.

(37) a. *Ne MU li* izpratix knigata?
'Didn't (I) send him the book?'
b. *Ne SI li mu ja* dal knigata?
'Haven't (you) given him the book?'
c. *Ne ŠTE li go* vižda**š**?
'Will (you) not see him?'
d. *Ne* ZNAEŠ *li*?
'Don't (you) know?'

In addition to the discourse neutral examples in (37), *li* can be found in two other contexts (Rudin, 1985): it can modify a contrastively focused XP and provide a cleft-like interpretation as in (38) or be attached to the end of a sentence and provide an echo question interpretation, as in (39):

(38) a. Vie *li* namerihte kŭštata?
'Was it you who found the house?'
b. Dnes *li* namerihte kŭštata?
'Was it today that (you) found the house?'

(39) a. Da hodim s tramvaj *li*?
'(You want) to go by tram?'
b. Tozi, kojto sedi na pejkata *li*?
'That one sitting on the bench?'

In (38)-(39), *li* follows an XP with (emphatic) stress, which confirms Hauge's basic observation (but his particular wording of it does not cover the cases in (38)-(39)). This generalization is evidence that a purely syntactic account of *li* like Rivero (1993) is fundamentally misguided.[15] Hauge's generalization can be straightforwardly expressed in terms of morpho-prosodic well-formedness constraints. At PF, V projects its own Prosodic Word (PROJECT(X, PRWD) (this projection is represented by an upper case syllable in T5) .[16] Suppose that *li* is special among Bulgarian clitics because it is sensitive to a morpho-prosodic constraint which aligns the left edge of the morpheme *li* to the right edge of a Prosodic Word: PRWD^{O}][*LI*. I assume that the Prosodic Word contains the main word-level stress.

T5. Interaction of PRWD^{O}][*LI* with other constraints

Izpratix li mu knigata? 'Did (I) send him the book?'	OBHD	*t	PRWD^{O}][*LI*	*IN(F)	E(Q)	E(DAT)
a. ☞[$_{VP}$ Op [$_{V'}$ izPRAtix *li mu* [$_{VP}$ t knigata]]] [Q][dat]		⊛			⊛	⊛⊛
b. [$_{VP}$ Op [$_{VP}$ [$_{V'}$ izPRAtix *li mu* knigata]]]	*!				*	**
c. [$_{VP}$ Op [$_{V'}$ izPRAtix *mu li* [$_{VP}$ t knigata]]]		*	*!		**	*
d. [$_{VP}$ Op [$_{V'}$ *li mu* izPRAtix [$_{VP}$ t knigata]]]		*	*!	*		*

V projects its own Prosodic Word (PrWd; head of a Prosodic Phrase). The only way for *li* to have its left edge aligned with the right edge of a PrWd is to immediately follow V, as in candidates a and b. This entails violating E(Q) which must be lower ranked than PRWD^{O}][*LI*. Candidate c violates PRWD^{O}][*LI* because *li* is aligned with the Prosodic Phrase that includes the clitic *mu* rather than the PrWd alone. Candidate d also violates the non-initial requirement on clitics. Finally candidate b loses to a because it violates high-ranked OBHD.

The real test of this proposal of course comes from cases where *li* occurs in positions other than second

position or other than postverbal. In the presence of the future auxiliary *šte* and a pronominal clitic, *li* occurs postverbally while pronominal clitics precede the verb.

T6. Interaction of [Q] with other features

*Šte go vižda*š *li?* 'Will (you-pl.) see him?'	PRWD^{O}][*LI*	E(FUT)	*IN(F)	E(Q)	E(ACC)
a. ☞ [$_{VP}$ Op [$_{V'}$ *šte go* VIŽdaš *li* [$_{VP}$ t]]] [fut] [acc] [Q]			⊛	⊛⊛⊛	⊛
b. [$_{VP}$ Op [$_{V'}$ VIŽdaš *li šte go* [$_{VP}$ t]]]		**!		*	***
c. [$_{VP}$ Op [$_{V'}$ VIŽdaš *šte go li* [$_{VP}$ t]]]	*!	*		***	**
d. [$_{VP}$ Op [$_{V'}$ *šte li go* VIŽdaš [$_{VP}$ t]]]	*!		*	*	**
e. [$_{VP}$ Op [$_{V'}$ *šte go li* VIŽdaš [$_{VP}$ t]]]	*!		*	**	*
f. [$_{VP}$ Op [$_{V'}$ *li šte go* VIŽdaš [$_{VP}$ t]]]	*!	*	*		**

All candidates in T6 violate *t and satisfy OBHD (hence these constraints are omitted). Candidate a is optimal despite the fact that it violates *IN(F) because its competitors fare worse; they either violate E(FUT) which outranks *IN(F) (from T2) and/or they violate PRWD^{O}][*LI* in addition to violating *IN(F). The crucial point here is that a *single* ranking of constraints is responsible for two different patterns (T5 and T6). The difference is attributed to the constraint E(FUT). In T6, its violation rules out the candidate which wins in T5 (b in T6 vs. a in T5). Placing *šte* before V and *li* immediately after V is the only way to simultaneously satisfy two high-ranked constraints: PRWD^{O}][*LI* and E(FUT). This occurs at the cost of violating E(Q) three times (candidate a).

Thus, the explanation for the non-second position of *li* in *šte* sentences rests on two claims: one, *šte* is a clitic; two, the morpho-syntactic constraints governing the distribution of clitics are violable and ranked in the order proposed: E(FUT) >> *IN(F) >> E(Q) >> E(ACC).

Contrary to T5, T6 provides crucial evidence for the partial ranking of PRWD^{O}][*LI* and *IN(F). For candidate a to win, PRWD^{O}][*LI* must outrank *IN(F). Otherwise, candidate d would win.

It may not be clear why there is a fundamental difference between positing a PF constraint like PRWD^{O}][*LI* and positing PI which moves *li* one word away to the right. The differences are these. First, PRWD^{O}][*LI* is an alignment constraint similar to the E(F) family of constraints: what differentiates them is the domain with respect to which the mapping operates: a prosodic category for *li* in addition to a syntactic one for all clitics. Alignment constraints are the main staple of morpho-prosody (McCarthy and Prince, 1993a,b). In contrast, PI is invoked as an idiosyncratic PF mechanism to repair an otherwise purely syntactic analysis of clitics; PI is not a standard phonological process. Second, PRWD^{O}][*LI* is a re-rankable constraint. This predicts that other languages with the same particle might exhibit different patterns. However, I leave this comparative issue in Macedonian and Serbo-Croatian for future study because it would take us too far (it involves studying the interaction of PRWD^{O}][*LI* with several other constraints before reaching conclusions about ranking). But there is a difference between saying that principle X applies in language L1 but not language L2 and saying that principle X applies in all languages, subject to re-ranking. As we have seen in T4, low-ranked constraints are often active rather than inert.

We now return to the prosodic properties of sentential *ne*. Hauge (1976:18) characterizes *ne* in derivational terms: "it always moves its stress over to the following word". From the perspective of a static system of well-formedness constraint such as OT, this generalization can be seen as resulting from the interaction of the following prosodic constraints. Like V, *ne* is subject to a prosodic constraint PROJECT (X, PRWD) requiring it to

project its own PrWd. But like other clitics, *ne* resists stress: **NE*. All clitics are subject to a constraint PARSE(CL, PRPH) which requires them to be parsed directly into a Prosodic Phrase.The basic pattern of interaction of these constraints is illustrated in T7.

T7. Interaction of prosodic constraints

	**NE*	PRWD][*LI*	PROJECT (X, PRWD)	PARSE (CL, PRPHR)	E(Q)
a. ☞ [$_{PrWd}$ ***ne ŠTE***] ***li*** [$_{PrWd}$ V]				⊛⊛	⊛⊛
b. [$_{PrWd}$ ***ne ŠTE***] [$_{PrWd}$ V] ***li***				**	***!
c. [$_{PrWd}$ ***NE***] ***li*** *šte*[$_{PrWd}$ V]	*!			*	*
d. ***ne*** *šte* ***li*** [$_{PrWd}$ V]		*!	*		**
e. *šte* [$_{PrWd}$ ***ne*** V] ***li***			*!		***
f. [$_{PrWd}$ ***ne LI***] *šte* [$_{PrWd}$ V]		*!		**	*
a′. [$_{PrWd}$ *ŠTE*] ***li*** [$_{PrWd}$ V]				*!	*
b′. ☞ *šte* [$_{PrWd}$ V] ***li***					⊛⊛

Both *ne* and V should project their own PrWd. Candidates in which *ne* does not project its own PrWd fare worse (candidates d and e). Among the candidates in which *ne* projects its own PrWd, c is sub-optimal because it violates **NE*; f is sub-optimal because *li* is inside rather than outside *ne*'s PrWd. The closest competition is between candidates a and b: b loses because of an additional violation of the lowest ranked constraint, E(Q). Thus, the best way to satisfy all constraints in the presence of *ne* is to have *li* follow immediately the first PrWd, thus ensuring the minimum amount of violations of the E(Q) constraint. In the absence of *ne*, as shown below the double line, there is only one PrWd, the one projected by V. *Li* immediately follows it. T7 yields the following partial ranking: {**NE*, PRWD][*LI*, PROJECT(X, PrWd)} >> PARSE(cl, PrPhr).

A Bulgarian example which implements the interaction displayed in T7 is given in T8.

T8. Interaction of [neg] and [Q] (henceforth: *ne MU* = [$_{PrWd}$ *ne MU*])

Ne mu li izpratix knigata? 'Didn't (I) send him the book?'	**NE*	PRWD][*LI*	PROJECT (X, PRWD)	PARSE (CL, PRPHR)	E(Q)	E(DAT)
a. ☞ [$_{VP}$ Op [$_{V'}$ *ne MU li* izPRAtix [$_{VP}$ t knigata]]] [neg][dat][Q]				⊛⊛	⊛⊛	⊛
b. [$_{VP}$ Op [$_{V'}$ *ne MU* izPRAtix *li* [$_{VP}$ t knigata]]]				**	***!	*
c. [$_{VP}$ Op [$_{V'}$ *ne LI mu* izPRAtix [$_{VP}$ t knigata]]]		*!		**	*	**
d. [$_{VP}$ Op [$_{V'}$ *ne mu* izPRAtix *li* [$_{VP}$ t knigata]]]			*!		***	*

The last pattern with *li* to be discussed is the one which includes both *ne* and the future auxiliary *šte*. Hauge (1976) characterizes the result as "bookish but grammatical."

T9. Complex interaction of features

Ne šte li ste mu go dali? 'Won't (you-pl) have given it to him?'	PRWD][*LI*	PROJECT (X, PRWD)	PARSE (CL, PRPHR)	E(FUT)	E(Q)	E($PERF_{1,2}$)	E(DAT)	E(ACC)
a. ☞ [$_{VP}$ Op [$_{V'}$ *ne ŠTE li ste mu go* DAli [$_{VP}$ t]]] [neg][fut][Q] [$perf_{2pl}$] [dat] [acc]								
				⊛	⊛⊛	⊛⊛⊛	⊛⊛⊛⊛	⊛⊛⊛⊛⊛
b. [$_{VP}$ Op [$_{V'}$ *ne ŠTE ste mu go* DAli *li* [$_{VP}$ t]]]								
				*	***! ***	**	***	****

The only way for *li* to satisfy PRWD][*LI* is to occur after *ŠTE* or *DAli*. If *li* occurs after *DAli* (candidate b), it is so far from the leftmost edge of the V′ constituent that it incurs six violations of the E(Q) constraint. Its occurrence after *ŠTE*, on the other hand, incurs only two violations of the same constraint. Hence a is optimal. T9 confirms the role of the morpho-syntactic alignment constraint E(Q) as crucial to the placement of *li* in the presence of *ne*.

What distinguishes *li* from other Bulgarian clitics is that *li* is more constrained than auxiliary and pronominal clitics: in addition to *IN(F) and E(F), it is also subject to $PRWD^{O}$][*LI*. This may look paradoxical since *li* has been characterized as enjoying more freedom in its distribution. From an OT perspective, more constraints affect *li* than auxiliary and pronominal clitics. This leads to more conflicts among constraints which are resolved in different ways depending on exactly which constraints interact, hence a more complex distribution. .The present analysis of *li* underscores the importance of competition among violable constraints of different sorts. All placements of *li* are derived from one single ranking of constraints which play out differently depending on which elements co-occur with *li*.

The present analysis, based on the co-occurrence of multiple clitics, makes a prediction about the optimal output when only two clitics are present: *ne* and *li*. *Ne* will not project its own PrWd; as a result, *li* is predicted to follow V. T10 makes explicit how this prediction arises.

T10. *Ne* and *li* in the absence of other clitics

	**NE*	PRWD][*LI*	PROJECT (X, PRWD)	PARSE (CL, PRPHR)	E(Q)
a. [$_{PrWd}$ ***ne*** V] ***li***			*	*!	**
b. [$_{PrWd}$ ***NE***] [$_{PrWd}$ V] ***li***	*!			*	**!
c. ☞ ***ne*** [$_{PrWd}$ V] ***li***			⊛		⊛⊛
d. [$_{PrWd}$ ***NE***] **li** [$_{PrWd}$ V]	*!			*	*
e. [$_{PrWd}$ ***ne LI***] [$_{PrWd}$ V]		*!		**	*

Ne's projecting its own PrWd automatically entails violating **NE* (candidates b and d) or PRWD][*LI* (candidate e). As a consequence, *ne* either shares V's PrWd (candidate a) or *ne* is parsed into the Prosodic Phrase headed by V (candidate c). The former entails an additional violation of PARSE(CL, PRPHR) which favors the latter (candidate c) as optimal. According to this analysis, *li* occurs in post-verbal position, which is the correct result:

(40) *Ne* znaeš *li*?
'Don't (you) know?'

T10 yields the following partial rankings: PRWD][*LI* >> PROJECT (X, PRWD); **NE* >> PROJECT (X, PRWD).

To summarize, the present analysis demonstrates that LHM is not needed to account for the respective placement of clitics and non-finite verbs in Bulgarian. In fact, a much simpler account is obtained because it relies exclusively on the interface between syntax and phonology. First, the PF constraints used in the present account are well motivated in the domain of morpho-phonology. Second, we need to keep in mind that some PF constraints or mechanisms have to be invoked *anyway* in a syntactic account (as recent attempts such as Izvorski, King, and Rudin (1996) demonstrate). Non-OT analyses which do not rely on generating functional projections for every morpheme of a language need both an additional mechanism to account for the properties of *li* and some kind of post-syntactic filter to account for clitic clustering properties (as in Perlmutter, 1971; Bonet, 1991). In contrast, clitic clustering properties form the basis of the present analysis; everything else more or less follows from this. The comparative simplicity of the present account is the direct result of the unique way in which OT formally deals with constraint interaction.[17]

In Section 5, we turn to yet another problem for LHM, namely the existence of so-called optional LHM in Bulgarian. It is argued that the effect in question is not optional but discourse driven. An OT analysis is offered which extends views about inputs introduced in ealier work (Legendre et al, 1995; in press).

5. 'OPTIONALITY' OF PARTICIPLE FRONTING

As Embick and Izvorski (1994) have pointed out, Rivero's view that LHM is a last resort operation runs into problems because in some cases, participle fronting appears to be optional rather than obligatory. Optional participle fronting is found with non-present forms of 'be' (41), in the Renarrated Mood (42), and also with the future clitic *šte* (43).

(41) a. Bjax pročel knigata. (Rivero, 1994)
b. Pročel bjax knigata.
'(I) had read the book.'

(42) a. Bili *sa* rešili zadačata. (Embick and Izvorski, 1994)
b. Rešili *sa* bili zadačata.
'(They) (allegedly) have solved the problem.'

(43) a. *Šte e* izpil konjaka. (Embick and Izvorski, 1994)
b. Izpil *šte e* konjaka.
'(He) will have drunk the cognac.'

It is clear that participle fronting here is not motivated by the need to provide support to an enclitic. First, non-present forms of 'be' are not clitics: (a) they head phonological words (Hauge, 1976) and (b) unlike clitic present forms like *e, sa*, etc., non-present forms can be separated from the lexical verb by a VP adverb (Krapova, 1995):

(44) a. *Ivana *e* naburzo pročela knigite.
'Ivana has quickly read the books.'
b. Ivana beše naburzo pročela knigite.
'Ivana had quickly read the books.'

Second, *šte*, despite being a clitic, can appear in initial position. Economy considerations in general forbid fronting. This is clearest when one considers that whereever fronting is unnecessary, it is ungrammatical:

(45) a. *Šte si* bila pročela knigata.
You will have read the book.
b. *Bila *šte si* pročela knigata.

T10. Unnecessary fronting

Šte si bila pročela knigata '(You) will have read the book'	E(FUT)	*IN(F)	E($PERF_{1,2}$)
a. ☞[$_{VP}$ [$_{V'}$ *šte si* bila [$_{VP}$ [$_{V'}$pročela knigata]] [fut] [$perf_2$]		⊛	⊛
b. [$_{VP}$ [$_{V'}$ bila *šte si* [$_{VP}$ [$_{V'}$pročela knigata]]	*!		**

In candidate a, *si* satisfies *IN(F) and *šte* violates it in order to satisfy a higher ranked constraint E(FUT). Placing *bila* in initial position as in candidate b leads to a costlier violation of E(FUT). Hence, candidate a is optimal while b is suboptimal. It is not the case that *bila* cannot appear in first position; in fact it does whereever it is needed to ensure that an auxiliary clitic satifies *IN(F): in the absence of *šte*.

(46) a. Bila *si* pročela knigata.
b. **Si* bila pročela knigata.
'(You) (allegedly) have read the book.

T11. Required verb in clause initial position

Bila si pročela knigata '(You) (allegedly) have read the book'	*IN(F)	E($PERF_{1,2}$)
a. ☞ [$_{V'}$ bila *si* [$_{VP}$ pročela knigata]] [$perf_2$]		⊛
b. [$_{V'}$ *si* bila [$_{VP}$ pročela knigata]]	*!	

Together, T10 and T11 illustrate the fundamental OT claim that the optimality of a particular candidate is the product of both a particular candidate set and a particular set of constraints. (46a) is not evaluated against (45a) because they belong to different inputs (the feature [future] is present in T10 but absent in T11). In the absence

of *šte*, the constraint E(FUT) is irrelevant and optimality is recomputed to fit the present set. If the conclusion that participle fronting occurs only where necessary is correct, then the cases of so-called optional fronting in (41)-(43) must be necessary. They are, and referring to this fronting as 'optional' is misleading. This is because in each pair, a and b have a different discourse status: a is neutral while b is marked.[18] Several informants report that the fronted structure carries special emphasis on the accomplishment of the event by a certain time (in some cases contrary to the hearer's expectation). The temporal dimension may be understood from the context or made explicit (not suprisingly, informants tended to prefer fronted structures with explicit mention of a time reference and/or adding the time adverb 'already' in the context of isolated elicitations). Note that the verb (in bold) is fronted in the embedded clause in (47b), even in the presence of the (obligatory) complementizer *če*.

(47) a. **Pročel** bjax veče knigata, kogato me izpitaxa.
'I had already read the book when I was examined.
b. *Ne* razbiraš *li*, če **zaminali** bjaxa prednija den?
'Can't you get it that they had left the previous day?'

Question-Answer pairs like (48)-(48) show that fronting is used to convey new information about the event which receives additional emphasis:

(48) Question: Kakvo praveše Ivan kogato *go* izvikax me?
'What was Ivan doing when (we) called him?'
Answer: **Izpil** beše veče birata.
'(He) had already drunk the beer.'

(49) Question: Kakvo bi stanalo ako sčupim vitrinata?
'What would happen if (we) smashed the store window?'
Answer: **Arestuvani** bixte bili ot policiata.
'(You) would be arrested by the police.'

In the context of this paper I shall subsume this discourse effect under focus -- note that this type of focus may additionally be contrastive as the comment above regarding the hearer's expectation suggests. Syntactically,verb focus involves movement to the head of a new VP projection; this movement clearly bypasses an existing verbal head. This shows that whatever constraint is responsible for its movement is higher ranked than the economy of movement constraint *t and whatever constraint licenses the trace in VP.[19] I propose that the constraint responsible for the movement of focused elements is a constraint called FOCSCOPE. It incorporates Jackendoff's division of clauses into focus -- the information assumed by the speaker not to be shared by the hearer -- and presupposition -- the information assumed by the speaker to be shared by the hearer (Jackendoff, 1972; King, 1995). FOCSCOPE requires the focus to have scope over the presupposition. FOCSCOPE is satisfied when the focus is in a syntactically prominent position: the specifier of the highest phrase for focused XPs, the head of the highest phrase for focused Xs.

Consider T12. The input contains the feature [foc]. A basic principle of OT which I have been assuming (without being explicit about it) in all previous tableaux is faithfulness between input and output. Formulated as a family of PARSE constraints (Prince and Smolensky, 1993), this principle requires that all features present in the input are present in the output. If unviolated, it guarantees that outputs differ minimally from inputs; in other words, the semantics of inputs and outputs remain the same. *Gen* provides a projection as a prerequisite for the parsing of [foc].

T12. Interaction of FOCSCOPE and PARSE[F]

Pročel bjax knigata '(I) had read the book'	FOCSCOPE	PARSE[F]	*t
a. ☞ [$_{VP}$ pročel [$_{VP}$ bjax [$_{VP}$ t knigata]]] [foc]			⊛
b. [$_{VP}$ bjax [$_{VP}$ pročel knigata]]] [foc]	*!		
c. [$_{VP}$ bjax [$_{VP}$ pročel knigata]]		*!	

The feature [foc] is parsed in candidates a and b. The absence of movement in b results in a costly violation of FOCSCOPE. Candidate c represents a failure to parse [foc]. This means that c is not faithful to the input: it has a discourse-neutral interpretation. PARSE[F] dominates *t, hence c is suboptimal. T12 yields the following ranking: {FOCSCOPE, PARSE[F]} >> *t. Faithfulness constraints like PARSE[F][20] are an important aspect of OT's approach to constraining grammars: outputs cannot wildly differ from inputs. Note, however, that PARSE[F] constraints can be violated when there is no grammatical output for a given input (see Legendre et al, 1995, in press, for a demonstration).

6. CONCLUSION

To conclude, I have argued in this paper that the respective order of Bulgarian clitics and verbs is not the result of syntactic movement. Nor does it result from a post-syntactic re-ordering at PF. I have shown that both of these proposals present substantial empirical problems in Bulgarian as well as theoretical problems. I have developed an alternative analysis that makes syntactic movement or PF re-ordering completely unnecessary. The new analysis is couched in Optimality Theoretic terms and builds on the non-syntactic view of clitic advocated by Klavans (1985) and Anderson (1992). The analysis incorporates linear order constraints proposed in Prince and Smolensky (1993) and Anderson (1995); it demonstrates how the simple OT mechanism of ranking violable constraints can yield the complex results of *li* placement in Bulgarian with a minimum number of (independently needed) assumptions.

The following partial rankings have been motivated for Bulgarian:

E(NEG) >> E(FUT) >> *IN(F) >> E(Q) >> E(PERF$_{1,2}$) >> E(DAT) >> E(ACC) >> E(PERF$_3$)
{FOCSCOPE, PARSE[F]} >> *t
{OPSPEC, OBHD} >> *t
PRWD^O][*LI* >> *IN(F)
PRWD^O][*LI* >> E(Q)
PRWD^O][*LI* >> PROJECT(X,PRWD)
PRWD^O][*LI* >> PARSE(CL, PRPH)
**NE* >> PROJECT(X,PRWD) >> PARSE(CL, PRPH)

These partial rankings are compatible with a number of global rankings for Bulgarian, including the following: FOCSCOPE >> PARSE[F] >> OPSPEC >> OBHD >> *t >> **NE* >> PRWD^O][LI >> PROJECT(X,PRWD) >> PARSE(CL, PRPH) >> E(NEG) >> E(FUT) >> *IN(F) >> E(Q) >> E(PERF$_{1,2}$) >> E(DAT) >> E(ACC) >> E(PERF$_3$).

The results obtained here call for reanalysis of other languages previously argued to have LHM. One prediction made by the OT framework is that these languages may exhibit more or less extensive re-ranking of the constraints that have been motivated on the basis of Bulgarian. The results obtained here also demonstrate that functional projections are not needed to account for the relative order of lexical and functional categories in Bulgarian. The Optimality Theoretic account is parsimonious in that it posits minimal trees, minimal movement,

and global evaluations of syntactic/PF structures. The constraints that do most of the work are interface constraints (many of which are independently needed in more traditional syntactic accounts). To the extent that this parsimonious analysis is successful at handling the facts previously accounted for in terms of extended trees, it provides one substantial argument against the Pollockian view that functional categories always head syntactic projections.

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NOTES

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1. Arguments against LHM in other Slavic languages from a non-OT perspective can be found in Bošković (1995) and Szczegielniak (1996).

2. In a recent paper, Izvorski, King, and Rudin (1996) nonetheless appeal to Halpern's PI in their reanalysis of Bulgarian *li*; this is because the placement of *li* depends on stress assignment (as shown in Hauge, 1976; see Section 4.4 for more discussion).

3.Izvorski's *li*-in-F analysis predicts the possible co-occurrence of *li* with a non-interrogative complementizer. Rudin (1985) points out, however, that *li* cannot occur in the same clause as complementizers such as *če* 'that' and *deto* 'relative clause that'.

4. Clitics also differ fron standard NPs in that clitics do not take specifiers nor complements. They cannot be modified, nor can they be conjoined. In some languages (including such Balkan languages as Macedonian and Romanian), clitics productively co-occur with overt NPs.

5. Anderson (1992, 1995) provides two kinds of evidence in support of the claim that clitics are phrasal affixes. First, cross-linguistically, clitic systems and systems of word formation show many parallels. And second, second position clitics that appear after the first phonological word (e.g. Serbo-Croatian) and thus interrupt syntactic phrases cannot be handled in purely syntactic terms. See references for details.

6. Krapova (1995) notes the existence of a small class of adverbs which can intervene between clitics and the verb. A parallel situation is found in Romanian (Rivero, 1994a). Arguably, these adverbs are themselves clitics.

7.Alternatively, modal *da* is a clitic (Hauge, 1976) and its position is governed by a linear order constraint which outranks that of *ne*. See Section 4.3 for further discussion of this family of constraints.

8. There is in fact a difference between *ne* and *šte*. Contrary to what Rivero assumes, fronting of the past participle across *šte* (but not *ne*) is optional, as reported in Embick and Izvorski (1994); see example (5). An analysis is proposed in Section 5.

9. Hauge (1976) notes that in structures with two stressed verbs (a non-clitic auxiliary and a lexical verb), clitics may appear between the two verbal heads or may precede the auxiliary (as long as they satisfy the TM Law):

(i) *Az bjax mu go dal*
ii) *Az mu go bjax dal*
'I had given it to him'

My main informant reports that these are in free variation, suggesting that the constraint is not about hierarchical structure but about overtness.

10. The view that clitics are realized at the edge of V′ makes a prediction about clitic placement in SOV languages: they should precede the direct object. Alternatively, what we call clitics may turn out to be word-level

affixes.

11. Pollock's 1989 approach assumes fixed positions for auxiliary and negative clitics as well but movement in the syntax (including right and left adjunction) and movement in PF must be posited to derive the global clustering properties of clitics.

12. I am assuming that operators may occur in any extended projection of V (except in the lowest specVP which is an A position).

13. Kraskow (1992) interprets the pattern differently. She suggests that V is in a position lower than V because there is no matrix/embedded asymmetry in wh-questions. Under her assumption, C contains a [+wh] feature; V cannot move to C.

14. Asking a yes-no question with the complentizer *dali* adds a nuance of 'wondering out loud' (Rudin, 1985). Hence the structures with *li* and *dali* do not compete in one evaluation. They correspond to different inputs and tableaux.

15. It is this generalization which leads Izvorski, King, and Rudin (1996) to propose an alternative analysis to Rivero's *li* lowering, using Halpern's PI. Their proposal has been discussed in Section 2.

16. These constraints are independent of the present OT account in the sense that regardless of the analysis of clitics, they, like any other material, must be prosodically parsed in the phonology. These considerations are usually not made explicit in syntactic accounts.

17.Billings (1995) sketches out an analysis of second position clitics which shares some features with the present analysis. He concerns himself exclusively with the prosodic properties of second-position clitics and derives second-position effects from a prosodically based clausal alignment constraint, and a constraint which aligns items marked as suffix with the right edge of a prosodic word. He makes many assumptions which differentiate the two accounts. Among those, he assumes that prosodically deficient elements are marked as either suffixes or prefixes in the lexicon. He also uses (a gradient version of) Grimshaw's OPSPEC to place certain clitics in clause-initial position and thus limits his discussion to clitics with focus like properties. It is unclear how his analysis would extend to the other Slavic clitics on which the present account is based.

18. Embick and Izvorski (1994) also note the difference in discourse status but fail to provide an analysis. Lambova (1996) proposes to handle optional fronting in terms of post-syntactic stylistic inversion applying to both clitic and non-clitic auxiliaries. She also assumes PI, hence her analysis relies on two separate PF mechanisms.

19. In Legendre et al (1995, in press), wh-traces are constrained by Gov(t): t must be head-governed by a category non-distinct from [+V]. I am assuming, without further discussion here, that this constraint operates on v-traces as well.

20. Another faithfulness constraint introduced in Prince and Smolensky (1993) is FILL, a constraint which is violated when material not present in the input is included in the output. In syntax, FILL is violated by expletive and resumptive elements (Legendre et al., 1993, 1995, in press).