Phonological Movement in Serbian

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ABSTRACT. I investigate the proposal of phonological movement (Agbayani & Golston, 2010; Henderer, 2009; Teliga, 2011) to the Serbian language by applying methods used in previous research and adapting them to my study. I propose that movements in Serbian that violate syntactic constraints can be explained phonologically, abiding by prosodic constituency and phonological constraints. This paper aims at making a point to how phonological movement is accounted for in Serbian.

Keywords: Serbian, phonological movement, discontinuous constituents, hyperbaton, left branch extraction.

1. INTRODUCTION. The Serbian language is a South Slavic (Western) language that was part of the Serbo-Croatian mega language. It now has been divided into Serbian, Croatian, Bosnian, and Montenegrin. The dialects are mutually intelligible, however for this paper I will simply refer to Serbian. Serbian features a heavy morphological system, making use of case by allowing for a relatively unfixed word order. This is shown in a sentence comprising of a subject, verb, and object where all six constituents are grammatical in Serbian: SVO, SOV, VOS, VSO, OVS, OSV.

(1) XP-Scrambling

(a.) Djordje vidi kuću — SVO
George$_{mns}$ sees$_{3s}$ house$_{fas}$
'George sees (the) house'

(b.) Djordje kuću vidi — SOV
George$_{mns}$ house$_{fas}$ sees$_{3s}$

(c.) Vidi kuću Djordje — VOS
Sees$_{3s}$ house$_{fas}$ George$_{mns}$

(d.) Vidi Djordje kuću — VSO
Sees$_{3s}$ George$_{mns}$ house$_{fas}$

(e.) Kuću vidi Djordje — OVS
House$_{fas}$ sees$_{3s}$ George$_{mns}$

(f.) Kuću Djordje vidi — OSV
House$_{fas}$ George$_{mns}$ sees$_{3s}$

In addition to the relatively free movement of syntactic constituents, there is also evidence that shows movement of portions of syntactic constituents. This evidence forms the

basis for believing that movement in Serbian is phonological. Serbian allows for discontinuous constituents by the split of NPs as shown below. By allowing this type of split, syntactic constituency is violated.

(2) Discontinuous Constituents

(a.) *Veoma* je bio *dobar diplomata*
Very aux was good diplomat
'He was a very good diplomat'

(b.) *Lepe* je video *devojke*
Beautiful aux saw girls
'He saw beautiful girls'

mvmt of a constituent

(c.) *U veliku* udje *sobu*
In big entered room
'He/she entered a big room'

The discontinuous constituents in (2a.) and (2b.) involve left branch extraction where *veoma* is separated from its complement *dobar diplomata.* In (2b.) *lepe* is moved from the NP to the front of the phrase stranding its complement *devojke*. In (2c.) the non-constituent *u veliku* is also fronted separating it from the noun *sobu.* These splits are commonly found in Serbian and cause a problem for syntactic explanations since they involve non-constituent movement. Similar split movements occur in other languages such as Classical Greek, Russian, and Ukrainian.

Agbayani and Golston (2010) (A&G henceforth) propose that movement in Classical Greek (CG) is purely phonological. Their study shows movement of non-syntactic constituents which violate various syntactic constraints. However, the language abides by phonological constraints as well as showing that the moving parts are prosodic constituents. There are other recent studies that follow A&G's lead to apply their findings of phonological movement to colloquial Russian (Henderer, 2009) and Ukrainian (Teliga, 2010). In this paper I propose that

phonological movement can explain certain syntactic violations that occur in Serbian as well. These syntactic violations include movement of non-constituents including left branch extraction, fronting of focused material to extremely local positions, violations of the adjunct condition, and violations of the coordinate structure constraint.

Although Serbian violates many syntactic constraints it is not as free as Classical Greek, Russian, or Ukrainian are proposed to be. Movements in these languages are proposed to be purely phonological. In this paper, Serbian is compared with Classical Greek, Russian, and Ukrainian, closely following the format of these studies. The focus of this paper is to investigate to what extent syntax accounts for movement in Serbian and to establish the point where phonology takes over.

1.1. HYPERBATON. Hyperbaton is where the normal order of words is not used; however the clause remains grammatical and understandable. Hyperbaton found in languages such as Classical Greek (A&G, 2010), Ukrainian (Teliga, 2011) and Russian (Henderer, 2009) show insensitivity to syntactic constraints all the while demonstrating sensitivity to prosodic constraints. What has been proposed in previous articles is that phonological constituents rather than syntactic ones are what are being moved. In this paper there are two forms of scrambling to be examined: XP-scrambling, where whole phonological phrases are freely moveable, and split scrambling, where individual prosodic words can be extracted (Teliga, 2011).

Shown below in (3a.), the prosodic phrase movement of the XPs moves the structural order from what is normally SVO to OSV. In (3b.), split scrambling occurs where the PP *u veliku sobu* is split leaving the object of the preposition stranded by the preposition and adjective.

(3) <u>XP vs. Split scrambling</u>

(a.) (Visoke devojke)$_{\phi}$ je on video
tall girls clitic he saw
'He saw tall girls'

(b.) (U veliku$_{\omega}$)$_{\omega}$ on udje sobu (Bošković, 2005)
in big he entered room
'He entered the big room'

1.2. METHODOLOGY. Data was collected from examples used in previous linguistic publications regarding Serbian, fabricated utterances, and by searching Serbian newspapers. All the data that is present in this paper is grammatical (or non-grammatical and noted so) according to a panel of native Serbian speakers from various parts of Serbia including the Vojvodina region and capital city of Belgrade. Internet searches for strings of syntactic constituents lead to the fabrication of split and XP-scrambled proposals to be tested by the native Serbian speakers. The Internet search engine "Google" was used as an online corpus of the language because the Serbian national corpus is not currently available. Once the corpus is made available it will be an excellent resource to search for productive cases of split-scrambling since native speakers seem to revert to prescriptive grammar in their grammaticality tests.

1.3. PHONOLOGICAL GENERALIZATIONS. The two parts of the prosodic hierarchy we are mainly concerned with for this paper are the prosodic word level (ω) and the phonological phrase level (ϕ). These are the levels that allow for hyperbaton.

The right edge of every lexical X^0 marks the right edge of a ω. (Werle, 2009, Selkirk 1986, 1995)

[vozim$_{v}$ [u$_{p}$ [veliki$_{a}$ grad$_{n}$]]]
[drive$_{1.sg}$ [in [big city]]]
……)ω ……..…)ω …….)ω

The right edge of every lexical XP marks the right edge of a ϕ. (Werle, 2009, Selkirk 1986, 1995)

[vozim [u [veliki$_{ap}$ grad]$_{np}$]]$_{vp}$
[drive$_{1.sg}$ [in [big city]]]
……)ϕ ……)ϕ

As shown above, syntactic and phonological constituents do not always line up. This forms the basis of our argument as to how phonology may be able to explain movement of individual parts of syntactic constituents in Serbian. It is widely accepted that a syntactic constituent, such as *u veliki grad*, can undergo movement to various positions within a clause but this paper proposes that movement of phonological constituents can move as well. In (4a.), the prosodic word "u veliki" is insensitive to the borders of syntactic constituency consisting of only a preposition and an adjective, yet is fronted in *u veliki vozim grad*.

(4) Phonological constituency movement

(a.) [vozim$_{v}$ [u$_{p}$ [veliki$_{a}$ grad$_{n}$]]]
(vozim) (**u veliki**) (grad)
(**u veliki**) (vozim) (grad)

2. DATA AND GENERALIZATIONS. Similar to the two comparative languages of this study, Russian and Ukrainian, Serbian is an SVO language. The base order of Serbian XP's is head-initial shown in (5).

(5) Head-Initial Order of XP's (DP, NP, AP, PP, VP, CP)

(a.) Ta lepa devojka
That pretty girl
'That pretty girl'

(b.) Čašu vode
Glass water
'A glass of water'

(c.) Veoma prijatna osoba
Very pleasant person
'Very pleasant person'

(d.) U velikoj kući
In big house
'In a big house'

(e.) Čitati knjigu
To read book
'To read a book'

(f.) Da on zna
That he knows
'That he knows'

Serbian allows for lexical heads to undergo left branch extraction in which the head is moved to a clause initial position as shown in (6a.). The movement can also be very local, moving the head from its original position just one word to the left (6b.).

(6) Head movement involving left branch extraction

(a.) *Mnogo* ja tebe *volim*
Much I you love
'I love you (very) much'

this isn't 'local movement'

(b.) *Baš* sam *gladan*
Quite aux hungry
'I am quite hungry'

XP head-final cases are also found in Serbian. Head-final cases such as the ones in (7) are quite common. These head final cases are evidence that very local movement occurs in the language.

(7) Head-final XP's

(a.) Osoba ta
Person that
'That person'

(b.) Brate moj
Brother my
'My brother'

(c.) Srećan jako
happy very
'Very happy'

(d.) Pismo pišem
Letter write$_{1sg}$
'I write a letter'

2.1. LEFT BRANCH EXTRACTION. Bošković (2005) attempts to account for left branch extraction (LBE) in Serbian citing syntactic movement due to the lack of a DP structure for languages that allow syntactic movement. To an extent, Bošković's analysis of LBE is agreeable. Take (8a.) and (8b.) for example. In these sentences, the NP is split by the fronting of the AP of each constituent. Bošković (2005) explains this by claiming that in languages

where there is no DP layer[1], NP dominates AP. This creates a structure such as (8c.) where AP and the N head are sisters allowing for the extraction of the AP to the Spec of CP. Bošković (2005) labels this movement AP left branch extraction since the AP is what is being moved. By accepting Bošković's proposal for the possibility of AP LBE due to a lack of a DP layer, syntax can account for this movement.

(8) Left branch extraction

(a.) Crveno je on kupio auto
red clitic he bought auto
'He bought a red car'

(b.) Visoke je on video devojke
tall clitic he saw girls
'He saw tall girls'

(c.) $[_{NP}$ AP N]

Though syntax can account for AP LBE, another form of LBE occurs in Serbian. Extraordinary left branch extraction is a separate case in which a preposition is extracted along with an adjective (Bošković 2005). An example of this movement is shown in (9a.) where the preposition and adjective *u veliku* are fronted, stranding the noun *kuću*. Extraordinary left branch extraction remains to be unexplained syntactically after attempts at doing so have come up short.[2] By appealing to phonology an important observation can be made from (9) below. In (9a.) and (9b.) the prepositions are adjacent to the adjective and are grammatical. Interestingly, *u veliku* forms a prosodic word (9c.) and is also the material that has been fronted. This movement breaks syntactic constituency yet obeys phonological constituency.

[1] In contrast, a language with a DP layer has a structure where AP dominates NP, in which N creates a minimality barrier blocking LBE according to Bošković (2005).
[2] See Bošković (2005) for a detailed analysis of previous proposals that aim to explain extraordinary LBE.

(9) Extraordinary left branch extraction

(a.) *U veliku* udje *kuću*
In big entered house
'He/She entered a big house'

(b.) *Do velike* je *pobede* stigla Wolfsburgova
To big aux win arrived Wolfsburg
'Wolfsburg arrived to a big win'

(c.) $((\text{Crveno})_{\omega})_{\phi}((\text{je kupio}_{\omega})_{\omega}(\text{auto})_{\omega})_{\phi}$

Extraordinary LBE in Serbian is not completely agreed upon. In Bošković (2005), he states that "double AP LBE" is not allowed in Serbian. Double AP LBE is when two adjectives are present in the sentence as (10a.) shows. Disallowance of left branch extraction when multiple APs are present would cause a problem for the phonological movement proposal (at least for moving prosodic words) since phonology merely acknowledges multiple APs as multiple prosodic words. Nevertheless, later in Bošković (2005) he claims that multiple AP LBE "improves significantly" if the fronted AP is contrastively focused. Bošković uses the example in (10c.) to show this context.

(10) Double AP left branch extraction

(a.) On je video visoke, lepe devojke
He clitic saw tall beautiful girls
'He saw tall, beautiful girls'

(b.) ?Visoke je on video lepe devojke
Tall clitic he saw beautiful girls
'He saw tall, beautiful girls'

(c.) A: I think that Marko said he saw ugly tall girls. (Bošković, 2005)
B: Ma, ne, lijepe je on video visoke djevojke, ne ružne.
no beautiful aux he seen tall girls not ugly

2.2. PREPOSITIONAL PHRASES. As shown for extraordinary left branch extraction, prepositions combine with an adjective in order to move, but the question is why can't these prepositions show up away from the adjective? In her study of Russian scrambling, Henderer (2009) specifically noted PP's. She explains that PP's in Russian can split only under the following two conditions: (i) a preposition cannot be stranded by itself and (ii) no part of the prepositional object can precede the preposition (Henderer 2009 as cited by Sekerina 1997; Franks & Progovac 1994; Bašic 2004; Boškovic 2005; Pereltsvaig 2007). In the cases shown below, this observation holds true for Serbian as well. In (11) there are two acceptable variants shown (11a.-b.). In the acceptable versions of this PP both conditions are followed as the preposition is never stranded nor does any portion of the object, in this case *plaži*, precede the preposition. However, as shown in (11c.) and (11d.), violating either of these criteria results in unacceptability.

(11) Prepositional phrases split

(a.) Bila je *na lepoj plaži*
Was is on nice beach
'She was on a nice beach'

(b.) *Na lepoj* je *plaži* bila
On nice is beach was

(c.) *Lepoj na plaži je bila
Nice on beach is was

(d.) *Na je bila lepoj plaži
On is was nice beach

Henderer (2009) also proposes that movement of polysyllabic prepositions further attests to phonological movement. In her analysis of Russian, polysyllabic prepositions are not subject to the conditions above and can be moved left from their original position if focused. These polysyllabic prepositions also occur in Serbian. Shown below in (12a.) is an example of a polysyllabic preposition moving one position to the left, stranding the preposition and breaking syntactic constituency. In (12b.) the polysyllabic preposition *tokom* also moves one position to the left, as is the case in Russian.

(12) Sole movement of polysyllabic preposition

(a.) Vazno idti *navstreču* soznatel'no *etomu strahu* (Russian)
Important to go toward consciously this fear
'It is important to consciously go toward this fear'
(RNC 1974 as cited by Henderer, 2009)

(b.) Vin *vsupereč* vystupyv *zaborony* (Ukrainian)
he against acted prohibition
'He protested against the prohibition'

(b.) *Tokom* sam *godina* počela shvačati (Serbian)
During am years began to.understand
'During the years I came to understand'

Teliga (2010) claims that polysyllabic prepositions in Ukrainian are prosodic words making them eligible for phonological movement without needing to be accompanied by anything else. By assuming this same idea for polysyllabic prepositions in Serbian the case for phonological movement in the language strengthens.

In addition to allowing the movement of syntactic non-constituents via extraordinary left branch extraction and prepositional splitting, Serbian also allows for movement out of adjuncts. This violates the ADJUNCT CONDITION (Huang 1992, Chomsky 1986, Takahashi 1993,

as cited by A&G 2010), which does not allow movement out of an adjunct. In (13a.) the adjunct is split and a portion of it, *iz istog*, is fronted. In (13b.) *u veliku* is extracted from *u dnevnu sobu.*

(13) Adjunct Condition Violation

(a.) *Iz istog* je *sela*
From same is village
'Is from the same village'

(b.) *U dnevnu* je *sobu* ušao (Bošković, 2005)
In daily aux room entered
'He/she entered the living room'

The subject condition is violated in Serbian as well by the splitting of a subject. In (14) each subject has been split, at minimum, by the clitic *je*. In (14a.) *mnogo godina* is split by the clitic and verb. The sentence in (14b.) shows *robna kuca* being split by the clitic *je* as well. The subject in (14c.) is split by two clitics, the *je* and a pronoun clitic *on*.

(14) Disobedience to the subject condition

(a.) Mnogo je prošlo godina od mog prvog koncerta
Many aux passed godina of my first concert
'Many years have passed since my first concert'

(b.) Robna je kuća otvorila liste čekanja
Department aux house opened list waiting
'The department store opened the waiting list'

(c.) Čiju je on knjigu preveo? (Bašić, 2004)
Whose aux he book translated
'Whose book did he translate?'

Similar to Ukrainian and Russian, DP possessors in Serbian can be extracted and fronted. In (15a.), the DP possessor *njegov* is moved to the left of its original position.

(15) Extracted DP Possessor

(a.) *Njegov* je *telefon* mozda prepun
His_{acc} aux $telefon_{acc}$ maybe filled
'Maybe his phone is filled'

Proper name splitting in Serbian is a delicate area. Due to the heavy case system used in Serbian, some speakers have accepted proper name splitting while others do not agree to it. Below is an example from Bošković's (2009) paper regarding splitting the name "Leo Tolstoy" in Serbian. Do note that the reason for the acceptance of the split is because of agreement in case between the parts of the name (Bošković, 2009). In (16a.) both *Lav* and *Tolstoj* feature the genitive case (masculine genitive case marker –a) and (16b.) uses the locative case marking on both *Velika* and *Britanija* (causing the ending –oj and –i, respectively).

(16) Splitting of a Proper Name

(a.) Lava čitam Tolstoja (Bošković, 2009)
Leo_{gen} $read_{1.sg}$ $Tolstoy_{gen}$
'I read Leo Tolstoy'

(b.) U Velikoj je Britaniji odlučila
In $Great_{loc}$ aux $Britain_{loc}$ decided
'She decided in Great Britain'

The allowance of fronted reflexives and fronted reciprocals further supports the proposal for phonological movement in Serbian. In (17) and (18), the reflexive anaphors are present before the antecedents. In (17) *sebi* ('self') is clause initial while in (18) the reciprocal appears in a medial position yet still before the antecedent *Maja i Ivan.*

(17) Fronted reflexives

(a.) Sebi sam dao sve tri
Self aux gave all three
'I gave myself all three'

(b.) Sebi je dokazao da može
Self aux proved that can
'He proved to himself that he could'

(18) Fronted reciprocal

(a.) Baš vole jedno drugo Maja i Ivan
Quite love one another Maya and Ivan
'Maya and Ivan love each other a lot'

The insensitivity of the Coordination Structure Constraint (CSC) is shown in example (19a.) and (19b.). In (19a.) *dečka* has been extracted from the constituent *dečka i devojku.* The extracted material has been fronted although that is not a requirement of this extraction. In (19b.), *lepim* has been extracted from the constituent *lepim devojkama.* In order to stay in compliance with the criteria presented concerning prepositions, *sa* must attach to something and the extracted adjective *lepim* fills that role.

(19) Insensitivity of the Coordination Structure Constraint

(a.) Dečka oni gledaju i devojku
Boy they watch and girl
'They watch the boy and the girl'

(b.) Sa lepim pričam devojkama i visokim dečkom
With pretty talk girls and tall boy
'I talk with pretty girls and a tall boy'

(c.) *Sa visokim pričam lepim devojkama i dečkom
With tall talk pretty girls and boy
'I talk with pretty girls and a tall boy'

2.3. POSTPOSITIVE CLITICS. Clitics in Serbian show up in many positions throughout various utterances. Two very notable clitics in Serbian that have been researched are the question particle *li* and the clitic *je* (Bogel, T., Butt, M., Kaplan, R.M., King, T.H., Maxwell, J. T. III, 2010). In (20a.) - (20d.) the question clitic *li* shows up in various positions: second word position and even fourth word position in the examples below. The one position where neither the question clitic nor the other clitics will show up in is the linear first position. The *li* clitic only shows up in questions and even requires the addition of a dummy word *da* in order to show up postpositively. There is also the case where the question clitic immediately follows the verb, again in a postpositive position. In these instances, the dummy word *da* is no longer required to accompany *li* as shown in (20b.) - (20d.). Although the first position is fulfilled by material of various syntactic categories, phonologically each of this first position words are prosodic words.

(20) Postpositive Question Clitics

(a.) (Da li)$_{\omega}$ je on iskren?
X clitic is he honest
'Is he honest?'

(b.) (Jesi)$_{\omega}$ li zaljubljen?
You are clitic in love
'Are you in love?'

(c.) (Sećaš)$_{\omega}$ li se mene?
Remember clitic refl me?
'Do you remember me?'

(d.) Pitam se (da li)$_{\omega}$ postoji pravda?
Ask refl. X clitic exists justice
'I wonder if justice exists?'

Exemplified in (21a.) is an ungrammatical version of (21b.) where the question clitic is in first position. Interestingly, when adding the clitic je, the question clitic will adjoin to it to create the question word *jeli*, which is often used informally.

(21) Postpositive Question Clitics Placement

(a.) *Li hoće neko da mi uradi logo?

(b.) (Jeli)$_{\omega}$ hoće neko da mi uradi logo?
Clitic want somebody that me do logo
'Does somebody want to make me a logo?'

Furthermore, in (22a.) when the indirect pronoun is pronounced at full-length njoj (in place of the shortened *joj*) it can show up clause initially. This fronting of the clitic is not allowed when the shortened pronoun is present clause initially as in (22b.).

(22) Full-length pronouns

(a.) Njoj ga je čovek poklonio
Her it clitic man gifted

(b.) *Joj ga je čovek poklonio

2.4. LIMITATIONS OF PHONOLOGICAL MOVEMENT IN SERBIAN. In recent proposals for phonological movement (A&G, 2010, Henderer, 2009, Teliga, 2011) the languages examined show violations of freezing islands. Although Serbian exhibits many of the same syntactic violations as these other languages, it does not violate freezing islands. In (23), this obedience to syntax is shown by the ungrammaticality of (23a.) and (23b.), while (23c.) does not violate freezing islands and is acceptable.

(23) Sensitivity of Freezing Islands

(a.) *Novi sam veliki kupio auto
new aux big bought car
'I bought a big, red car'

(b.) *Crveni sam veliki kupio auto
red aux big bought car
'I bought a big, red car'

(c.) Novi, veliki auto sam kupio
New, big car aux bought
'I bought a new, big car'

In proposing phonological movement for Ukrainian, Teliga (2011) explains that the language disobeys Wh-islands. She uses the sentence in (24a.) to exhibit that Ukrainian allows for *synja* to be moved over the Wh-island *de*. Serbian obeys Wh-islands not allowing this movement (24b.).

(24) Wh-island splits

(a.) *Synja* ne znaes de *moja suknja*? Ukrainian (Teliga, 2011)
blue not know where my dress
'Don't you know where my blue dress is?'

(b.) **Crna* ne znas gde *moja kosulja*? Serbian
Black not know where my dress

(c.) Da ne znas gde *moja crna kosulja*? Serbian
aux not know where my black shirt
'Don't you know where my black shirt is?'

As discussed in section 2.2, prepositions follow certain guidelines for movement (they cannot be stranded and no part of their complement can appear before them). However, as presented by A&G (2010), prepositions in Classical Greek can appear in a position after parts of its complement (25a.) while prepositions in Serbian cannot. Furthermore, prepositions in CG can be stranded, allowing the extraction of an adjective or the movement of a preposition and noun, both which are not allowed in Serbian.

(25) Preposition movement

(a.) *Astron* de *peri panton*
stars indeed about all
'About all stars'

(b.) **Kuću* sam ušao *u veliku*
house aux entered in big

(c.) *Automatou* peri *biou*
spontaneous about life
'About spontaneous life'

(d.) **Lepim* o *stvarima*
nice about things

(e.) *Ep' andras* strateuomet^{h}a *agat^{h}ous*
against men fight noble
'We are fighting against noble men'

(f.) **U sobu* on udje *veliku*
In room he entered big

3. INTERFACE. A&G (2010) claim that in Classical Greek syntax accounts for sisterhood but has no say in the linear order, linear order being dependent on solely phonology. In order to make this interaction/division obvious A&G propose a syntax/phonology interface which accounts for hyperbaton in their study of CG (A&G, 2010). This interface can be used to explain how linear order in Serbian is determined for the cases which are proposed to be phonological rather than syntactic. The model features a three-step system where syntactic and prosodic constraints are mediated by an interface step.

Syntax/phonology interface model (adapted from A&G, 2010)

Syntax	$[_{VP}[_{V}$vidi], $[_{NP}$kuću]	(immediate dominance)
⇓		
Interface	$((\text{vidi}_{\omega})\ (\text{kuću}_{\omega})_{\phi})_{\phi}$	(linear precedence)
⇓		
Phonology	$((\text{kuću}_{\omega})_{\phi}\ (\text{vidi}_{\omega}))_{\phi}$	(hyperbaton)

In the interface, it is shown that *vidi* and *kuću* are syntactic sisters within a VP. Where syntax does not have jurisdiction is the order in which these sisters appear. The interface step now becomes an intermediate step where syntactic relations are switched to prosodic constituency. At the point of interface, right to left order must be determined and phonological alignment constraints as well as prosodic hierarchy must be accounted for.

The interface step is quite important but the question still remains as to what determines word order. A&G (2010) claim that the syntax takes care of creating dominance and sisterhood then feeds the interface stage. In the interface stage prosodic constituency is created and linear-precedence relations are determined. The conjecture of the interface step is that linear-precedence is based on the interaction of constraints. A&G (2010) do this by following Selkirk (1995) in the assumption that both LAYEREDNESS and HEADEDNESS are universally undominated and cannot be violated in either the syntax or the phonology. This order and parsing comes out of the interface stage to the phonology and then "hyperbaton occurs if lexical or pragmatic considerations force phonological movement." (A&G, 2010)

(26) Universally undominated constraints

LAYEREDNESS: No C_i dominates a C_j, $j > i$ (e.g. no σ dominates a foot).

HEADEDNESS: Any C_i must dominate a $C_i + 1$ (e.g. a ω must dominate a foot).

The constraints listed below are what are crucial to determining word order for lexical XP's (Selkirk, 1995). By following these phonological constraints we are able to use a tableaux (see below) to derive a linear order phonologically.

(27) Phonological Constraints

ALIGNR(X^0,ω): The right edge of every lexical X^0 is aligned with that of a ω.

ALIGNR(ω,X^0): The right edge of every ω is aligned with that of a lexical X^0.

ALIGNR(XP,ϕ): The right edge of every lexical XP is aligned with that of a ϕ.

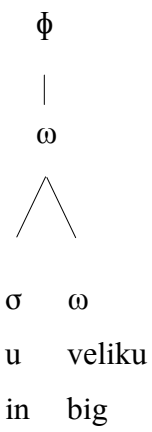
In the tableaux in (28), (a.) is chosen to be the optimal candidate, as it does not violate any of the constraints listed. In (a.) and (b.) both lexical heads *vidi* and *kuću* are right aligned with a prosodic word boundary. However, (c.) and (d.) are not and thus are eliminated immediately. ALIGNR(ω,X^0) does not have any effect but ALIGNR(XP,ϕ) determines the left-right order selecting the head-initial (a.) as the optimal candidate.

(28) Lexical XP: vidi kuću 'sees a house'

[$vidi_V$, $kuću_{NP}$] $_{VP}$	ALIGNR(X^0,ω)	ALIGNR(ω,X^0)	ALIGNR(XP,ϕ)
☞ a. $(vidi_{\omega}kuću_{\omega})_{\phi}$			
b. $(kuću_{\omega}vidi_{\omega})_{\phi}$			*!
c. $(vidi_{\omega}kuću_{\sigma})_{\phi}$	*!		
d. $(kuću_{\sigma}vidi_{\omega})_{\phi}$	*!		*

As A&G (2010) claim for CG, following Selkirk 1995, functional heads are treated as affixal clitics. This means that functional heads are both sisters and daughters to prosodic words, able be attached to an adjacent lexical head to create one prosodic word.

(29) Affixal Clitics (Selkirk 1995 as cited by A&G, 2010)



Since phonology has no idea what linear order the syntax inputs into the interface, what is to stop the phonology from creating a radically different linear order than what the syntax originally input into the interface? A&G (2010) propose three faithfulness constraints that are aimed at keeping the output of the phonology similar to the input (which is the syntactic linear input with prosodic constituency).

(30) Faithfulness Constraints

STAYω: No daughter of ω moves.

STAYϕ: No daughter of ϕ moves.

STAYι: No daughter of ι moves.

In order to see the faithfulness constraints at work and their ability to bar phonological movement, they are implemented into (31) for the prepositional phrase *u veliku sobu*.

(31) (u veliku)$_{\omega}$ (sobu)$_{\omega}$)$_{\phi}$
in big room
'In a big room'

(u veliku)$_{\omega}$ (sobu)$_{\omega}$)$_{\phi}$	STAYω	STAYϕ
☞ a. (u veliku)$_{\omega}$ (sobu)$_{\omega}$)$_{\phi}$		
b. (sobu)$_{\omega}$ (u veliku$_{\omega}$)$_{\omega}$)$_{\phi}$		*!
c. (veliku)$_{\omega}$ (u$_{\sigma}$(sobu)$_{\omega}$)$_{\phi}$	*!	

The faithfulness constraints restrict phonological movement as shown in the tableaux above. The violation of STAYω immediately eliminates (c.) from further contention and (b.) is eliminated next due to its violation of STAYϕ. The output of the interface stage is upheld by the selection of (a.) as the optimal candidate because all faithfulness constraints are obeyed.

3.1. SPLIT SCRAMBLING. In order to justify the movement of prosodic words and phrases it is necessary to create two constraints (A&G, 2010):

(32) Constraints that require movement

PROML: Prominent material occurs to the left of its interface position.

ιPROM: Maximally prominent material is initial in ι.

Here, the constraints are applied to Serbian to account for its own scrambling. The tableaux in (33) shows that (a.) minimally violates STAYϕ by moving *kuću* one space left. Candidate (b.) fatally violates PROML by not moving at all (lack of prominent material movement) while candidate (c.) moves *kuću* two spaces to the left thus in fatal, double-violation of STAYϕ.

(33) SOV

Djordje kuću vidi

George$_{mns}$ house$_{fas}$ sees$_{3s}$

'George sees the house'

$(((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega}$ $(kuću)_{\omega})_{\phi})_{\iota}$	STAYΩ	PROML	STAYϕ
☞ a. $((Djordje)_{\omega})_{\phi}$ $((kuću)_{\omega}$ $(vidi)_{\omega})_{\phi})_{\iota}$			*
b. $(((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega}$ $(kuću)_{\omega})_{\phi})_{\iota}$		*!	
c. $((kuću)_{\omega})_{\phi}$ $((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega})_{\phi})_{\iota}$			*!*

OSV order is derived when the direct object is fronted all the way to the left edge of the intonational phrase as maximally prominent material. The prominent material *kuću* in (33) is fronted all the way left in (a.) only minimally violating the STAYϕ constraint. Candidates (b.) and (c.) both violate ιPROM by not having *kuću* all the way to the left side of the intonational phrase.

(34) OSV

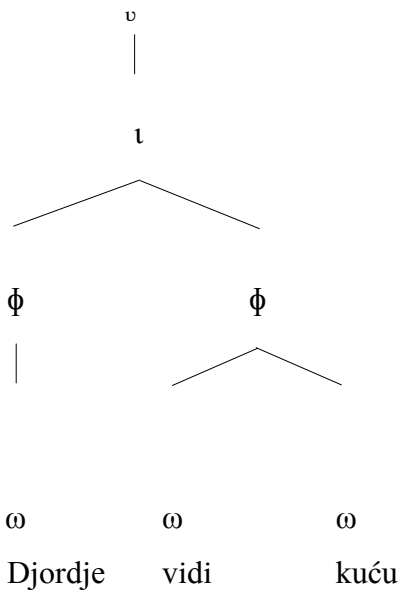
Kuću Djordje vidi

House$_{fas}$ George$_{mns}$ sees$_{3s}$

$(((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega}$ $(kuću)_{\omega})_{\phi})_{\iota}$	STAYΩ	ιPROM	STAYϕ
☞ a. $(((kuću)_{\omega})_{\phi}$ $((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega})_{\phi})_{\iota}$			*
b. $(((Djordje)_{\omega})_{\phi}$ $((kuću)_{\omega}$ $(vidi)_{\omega})_{\phi})_{\iota}$		*!	*
c. $(((Djordje)_{\omega})_{\phi}$ $((vidi)_{\omega}$ $(kuću)_{\omega})_{\phi})_{\iota}$		*!*	

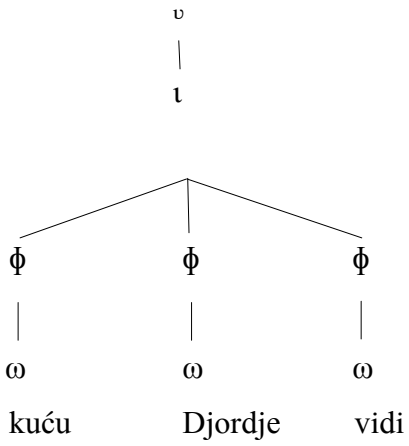
Due to hyperbaton, prosodic constituents are rearranged as can be seen in the above tableaux in (a.). Instead of having only two ϕ, movement forces the formation of three ϕ. This is seen more easily in the prosodic trees shown below. In (35) it is shown that there are only two ϕ present as *vidi* and *kuću* form a ϕ together.

(35) Prosodic Structure SVO Order



The OSV order shown in (36) creates three ϕ. Each lexical head in this clause projects a ϕ instead of only creating one ϕ with the verb and its object such as in (35).

(36) Prosodic Structure OSV Order



3.2. XP-SCRAMBLING. In her analysis of Ukrainian, Teliga (2011) notes that there are two forms of phonological movement: split scrambling and XP-scrambling. Split scrambling in Serbian is where individual prosodic words are moved from the original position that the

interface input into phonology. XP-scrambling on the other hand is the movement of an entire phonological phrase. Take (37) for example where VOS order is derived in order to show that the whole ϕ of the VP is maximally fronted.

(37) Vidi kuću Djordje
sees$_{3s}$ house$_{fas}$ George$_{mns}$
'George sees (the) house'

$(((\text{Djordje})_{\omega})_{\phi}$ $((\underline{\text{vidi}})_{\omega}$ $(\underline{\text{kuću}})_{\omega})_{\phi})_{t}$	PromL	Stayϕ	Stayω
☞ a. $(((\underline{\text{vidi}})_{\omega}(\underline{\text{kuću}})_{\omega})_{\phi}$ $((\text{Djordje})_{\omega})_{\phi})_{t}$		*	****
b. $(((\text{kuću})_{\omega})_{\phi}$ $((\text{Djordje})_{\omega})_{\phi}$ $((\text{vidi})_{\omega})_{\phi})_{t}$	*!*	*	**
c. $(((\text{Djordje})_{\omega})_{\phi}$ $((\underline{\text{vidi}})_{\omega}$ $(\underline{\text{kuću}})_{\omega})_{\phi})_{t}$	***!*		

The underlined material is the VP and shows that in (37), candidate (c.) stays in situ, which fatally violates PROML. Candidate (b.) fatally violates PROML as well and loses further consideration while (a.) minimally violates STAYϕ and lower ranked STAYω in order to front the prominent material of the VP in this case, and thus is deemed optimal.

3.3. PHONOLOGICAL POSTPOSITIVE CLITICS. Clitics provide yet more support to the proposal of phonological movement in Serbian. The postpositive positions that the clitics show up in are accounted for in a similar fashion as the split PP's from section 2.2. These clitics are not large enough to be their own prosodic word therefore they must latch onto an adjacent prosodic word to create a large prosodic word. However, this alone is not sufficient enough to account for the postpositive placement of clitics. By adopting A&G's (2010) proposed phonological constraint of POSTPOS, which states that no postpositive is phrase initial in its ϕ, clitics are not allowed to show up clause initially. This constraint is used in the tableaux where we analyze the linear order of (39).

(38) POSTPOS: No postpositive is initial in its ϕ

(39) Jesi li zaljubljen?
You are clitic in love
'Are you in love?'

$(((li_{\sigma}\ jesi_{\omega})_{\omega}\ (zaljubljen)_{\omega})_{\phi})_{\iota}$	POSTPOS	STAYω
☞ a. $(((Jesi_{\omega}\ li_{\sigma})_{\omega}\ (zaljubljen)_{\omega})_{\phi})_{\iota}$		*
b. $(((zaljubljen)_{\omega}\ (jesi_{\omega}\ li_{\sigma})_{\omega})_{\phi})_{\iota}$		*!*
c. $(((li_{\sigma}\ jesi_{\omega})_{\omega}\ (zaljubljen)_{\omega})_{\phi})_{\iota}$	*!	

In (39) candidates (a.) and (b.) both obey POSTPOS by having material to the left of *li*. Candidate (c.) is immediately eliminated due to violation of POSTPOS. The fronted material, *jesi*, that is to the left of *li* in (a.) violates STAYω, which is the minimal fronting necessary in order to obey the higher ranked POSTPOS. Although fronting of material is necessary to obey POSTPOS, (b.) fatally violates STAYω by moving zaljubljen across two elements making (a.) the optimal candidate.

4. CONCLUSION. The goal of this paper was to show the extent to which Serbian shows obedience to syntax and also how phonology can account for cases where movement creates syntactic violations. Many violations of syntax are examined and it is shown that phonology can account for these violations through prosodic constraints and phonological constituency.

In comparison to other recent studies that propose phonological movement (A&G 2010, Henderer 2009, Teliga 2011) Serbian does not rely purely on phonology or syntax for movement. In Classical Greek, Russian, and Ukrainian movement is proposed to be purely phonological, however as shown in this paper, Serbian does not allow for all the same syntactic violations as these languages do. Cases in which Serbian violates syntactic constraints show obedience to phonological constituency such as the movement of prosodic words and obedience to constraints such as POSTPOS. In other cases where a purely phonological moving language would allow a syntactic violation (freezing island violation), Serbian obeys syntax.

A&G (2010) propose that two conditions be met to establish that movement is phonological. First, the movement must be insensitive to syntactic constraints and ignore semantic conditions that rely on syntactic relations and second, it must be sensitive to

phonology, including phonological constituency and prosodic constraints. Through the data presented in this paper it is shown that Serbian obeys both of these criteria, yet not to the same extent as the comparative languages of this study.

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