Slavonic free word order*

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1 What is free word order?

What is word order in the first place? The most straightforward and naive understanding of the term is as the variation in the form of a sentence by permutation of the order of word tokens without repetition, without omission, and without any changes in the form of the words. Word order freedom in Slavonic languages has occasionally been characterized in these terms. For instance, Daneš (1967) points out, citing Jakobson (1963), that a Russian sentence like (1) can occur in all the six logically possible permutations of the order of the three words it consists of.

(1) *Russian*
Lenin citiruet Marksa.
Lenin.NOM cites Marx.ACC
'Lenin cites Marx.'

However, this has always been more of a teaser than a serious definition of free word order. All interesting linguistic generalizations about word order are formulated not in terms of the order of words, but in terms of the order of syntactic constituents (with few exceptions).

Moreover, syntactic constituency can play two roles in constraining word order possibilities. First, our generalizations usually concern the relative order of whole constituents. For example, Greenberg's (1963) well-known word order classes SVO, SOV, VSO, etc., imply that we are talking about the position of the subject constituent as a whole and the object constituent as a whole with respect to the verb, however complex the internal structure of those constituents might be. Second, syntactic constituency plays a role as a constraint on the domains within which word order variation takes place. When we are talking about the relative order of subject, verb and object, we primarily mean the order of these elements within a clause (IP or CP). When we are talking about the order of determiner, adjective and noun, we mean the order within the NP/DP made up of these elements. Even though there is a general tendency to respect the boundaries of such domains, word order permutations in Slavonic languages do not always do so. Cases where a constituent of a clause is placed outside the boundaries of that clause are usually referred to as long-distance scrambling (see e.g. Bailyn 2003b), whereas major phrases (DP or PP) that are linearly split up are called split constituents (see e.g. Féry et al. 2007; Goncharov 2015).

Finally, one should mention a group of phenomena that less obviously fall under the label of word order, as they go beyond plain reordering of word tokens. These are cases where reordering is accom-

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panied by repetition of a word or phrase, and often also by a change in the surface realization of that word or phrase. This group includes, for instance, predicate fronting with doubling (see e.g. Aboh & Dyakonova 2009) and various kinds of resumptive dislocation and clitic doubling (see e.g. Krapova & Cinque 2008). Whether or not such phenomena are viewed as instances of word order alternation, they are often driven by the same factors as the more canonical cases.

But what is *free* word order? Or what is rigid, i.e. not free, word order, for that matter? And why do we always put scare quotes around the word 'free'?

The very notion of free word order is a somewhat anecdotal reflection of the historical development of the field. It originates from an expectation that the order of constituents be determined by their grammatical function in the sentence (subject, object, predicate). If it is and that is the end of the story, then that language has rigid word order. The reason why Slavonic languages have earned the reputation of free word order languages is because they do not fulfill this expectation. The subject may be placed before or after the verb, before or after the object, etc. However, as has been pointed out in the literature multiple times, this does not mean that the order is arbitrary (therefore the scare quotes), but that it more strongly depends on other factors. The crucial question is then what those factors are.

In section 3 we try to give a theoretically unprejudiced overview of the relevant factors, including information structure, prosody, referentiality, quantifier scope, as well as grammatical function, on equal footing. Surely, one of those factors has a special status—the information structure of the sentence. The notion is based on the intuition that speakers start their utterances with (i) what is established and proceed to (ii) what is new. Various information-structural categories have been posited over the years and they typically come in pairwise opposition, where the first member of the pair corresponds to (i) and the second to (ii): point of departure–goal of discourse (Weil 1844/1887), psychological subject–psychological predicate (von der Gabelentz 1869; Paul 1880), theme–rheme (Ammann 1925–28; Bogusławski 1977), topic–focus (Sgall et al. 1973), topic–comment (Chao 1958; Hockett 1958; Reinhart 1981a; Büring 2016), background–focus (Chomsky 1971; Jackendoff 1972; Rooth 1985), given–new (Halliday 1967; Chafe 1976; Prince 1981; Rochemont 2016), presupposed–non-presupposed (Diesing 1992; Kučerová 2012; Titov 2017), less dynamic–more dynamic (Firbas 1971), more accessible/salient–less accessible/salient (Slioussar 2007).[1] Information structure is special, because it is the effort of explaining the apparent word order freedom in Slavonic languages that brought the notion of information structure into linguistics. It is the most clear case where research on Slavonic languages has had considerable impact on general linguistics. We therefore devote a special section (section 2) to this historical development. Since the notion of 'free word order' is, as a matter of fact, often identified with information-structure-driven word order, it is useful to return to a broader perspective in section 3 considering other potentially relevant factors.

It happens so that the bulk of research on 'free' word order in Slavonic languages has concentrated on the relative order of the verb and its arguments, which will also be the focus of the present chapter, even though information structure and other 'non-grammatical' factors can also affect the placement of adjuncts (see e.g. Uhlířová 1974; Rysová 2014) and even subconstituents of nominal and prepositional phrases, especially when it involves splitting (Féry et al. 2007). On the other hand, not all aspects of Slavonic word order are equally free. For instance, West and South Slavonic languages have systems of auxiliary and pronominal clitics whose position in a clause and relative order with respect to one another is strictly determined by morphosyntax. Therefore, our discussion will be confined to cases where the verb and its arguments are not expressed by clitics (but see Franks & King 2000 and chapter 6.5, this volume). More comprehensive overviews of Slavonic word order phenomena than the one provided in this chapter have been given by Siewierska & Uhlířová (1998) and Kosta & Schürcks (2009).

In section 4 we present the state of the art in theoretical word order research, whereas section 5 surveys recent developments in word order research methodology.

[1]The terminological as well as substance-related landscape is extremely complex. The terms are defined differently by different authors, the definitions often rely on framework-specific notions, and many approaches assume multiple oppositions that are, at least partly, mutually independent. What contributes to the confusion is that many influential proposals lack clarity and explicitness (cf. Rochemont's 1986: p. 184, n. 41 reflection on Firbas's 1964; 1966 notion of communicative dynamism). What we can recommend is Krifka's (2008) paper, which operates with multiple elementary oppositions.

Finally, we should point out that we only cover issues related to 'free' word order and word order alternations. We do not discuss word order phenomena that are purely grammatically determined and therefore have an 'obligatory' character. This includes issues such as the position of interrogative and relative pronouns, the placement and relative ordering of verbal or pronominal clitics, or the ordering of NP-internal constituents. Some of these issues are discussed in other chapters of this book, see esp. Šarić & Alvestad (to appear) (for NP-internal ordering) and Zimmerling (to appear) (for clitic placement).

2 'Free' word order: *The* issue in Slavonic linguistics

Research on Slavonic 'free' word order has played, without exaggeration, an exceptional role in the development of the concept of information structure both in Slavonic and in general linguistics. It all started in the first half of the 20th century with the contrastive consideration of Czech and English sentence structure by Vilém Mathesius (1924, 1929, 1932, 1939, 1941), which resulted in the development of the notion of *aktuální členění větné* 'actual division of the sentence', more broadly familiar as 'functional sentence perspective' (Mathesius 1939; Dušková 2003p. 48). Mathesius originally made a distinction between *východiště*, lit. 'point of departure' of an utterance, on the one hand, and its *jádro*, lit. 'core, nucleus', on the other.[2] The point of departure was defined as something known or obvious in a given situation and taken for granted by the speaker, whereas the nucleus was understood to convey new information. Mathesius made a distinction between the point of departure (which corresponds most closely to our presentday notion of given, cf. Krifka 2008) and theme (Cz. *téma*)—what the sentence is about—which often are but need not be realized by the same entity. In his later writings the notion of point of departure becomes less important, giving way to *základ*, lit. 'base' of an utterance, which he uses more or less interchangeably with theme (Daneš 1964a).

The main generalization about Czech word order concerned the tendency for the base to precede the nucleus. At least, this is what Mathesius described as the 'objective', non-emphatic word order. An illustration given by Mathesius (1941): If the Count is the base, i.e. was talked about in the previous context, and the wedding is the nucleus, i.e. the new information, then (2a) realizes the objective word order. In contrast, (2b) shows the objective word order in a context where the wedding is the base, and the Count is the nucleus.

(2) *Czech* (Mathesius 1941:174)

a. Pan hrabě k nim přišel na svatbu [a povídal…]
sir count to them came to wedding and said

b. Na svatbu k nim přišel pan hrabě [a povídal…]
to wedding to them came sir count and said
'The Count came to their wedding [and said…]'

The word order where the utterance starts with the nucleus and the base follows it was characterized by Mathesius as 'subjective' and illustrated by the sentence (3), on the assumption that the Count is the nucleus, and the wedding is the base.

(3) *Czech*
Sám pan HRABĚ k nim přišel na svatbu.
himself sir count to them came to wedding
'The Count HIMSELF came to their wedding.'

Since English word order is more strongly determined by the grammatical function of constituents, the role played by information structure is less obvious. However, Mathesius argued that in English the subject is strongly associated with the base/theme of the sentence, and that a whole range of constructions, including the passive voice, is used to ensure that the base/theme end up in the subject position. In other

[2]This terminology was partly adopted from Weil (1844/1887). Mathesius (1939) also explicitly rejects the terms psychological subject/predicate.

words, English is not different from Czech in trying to realize the base before the nucleus, but has a different set of syntactic means at its disposal for that purpose.

The ideas of Vilém Mathesius were further developed by his direct followers in Czechoslovakia, most notably František Daneš and Jan Firbas. The more widely familiar terminology of theme (for topic) and rheme (for focus), originating from Ammann (1925–28), became established in their work. They contributed to further clarifying these notions and drawing relevant distinctions between strongly related notions of e.g. theme and given information (Daneš 1964a; Firbas 1964, 1965). The well-known question test, which identifies the rheme/focus of a sentence as the constituent corresponding to the *wh*-phrase of a matching question, was developed by Daneš (1970, 1974, 1986). The approach was successfully applied to the further study of Slavonic word order and intonation (Daneš 1957, 1959, 1967). In particular, Adamec (1966) offered a systematic account of word order in Russian in this framework.

Even though Mathesius and his followers were neither the first to propose a notion of information structure (von der Gabelentz 1869; Weil 1844, 1887; Paul 1880) nor to describe Slavonic word order (Berneker 1900), their contribution had initially by far the greatest impact in linguistics. The history of the Prague School and its influence on linguistic thinking world-wide is documented in a number of publications, including Adjémian (1978), Hajičová (1994), Luelsdorff (1994), Newmeyer (2001), Vachek (2002), Čermák & Hajičová (2003). It was particularly the work of Daneš and Firbas that drew the attention of US American functionalists such as Bolinger (1965, 1968) and Chafe (1970) to the phenomenon of information structure in the 1960s (cf. the account of Newmeyer 2001). The term information structure was introduced by Halliday (1967) to denote what Daneš (1964b) referred to as the 'organization of utterance' and was considered to be an additional level of syntactic structure. If the functionalists largely turned away from the Prague School in the later 1970s and the 80s, more formally oriented linguists kept crediting Daneš and Firbas in studies of information structure, which continued establishing itself as a true component of grammar. Through the work of Erteschik-Shir (1973, 1981, 1986, 1997), Reinhart (1981b), Rochemont (1986), and Lambrecht (1994) information structure entered formal semantics. What semanticists took from the Prague school classics were primarily the categorical notions of topic (theme) and focus (rheme), and not, for instance, the concept of communicative dynamism proposed later by Firbas (1964, 1971, 1974, 1984) and developed by Sgall et al. (1986), among others. Communicative dynamism (CD) was supposed to reflect the degree to which an element 'pushes the communication forward', theme being the entity with the lowest and rheme with the highest degree of CD. The word order in 'free' word order languages like Czech was then the result of linearization proceeding step by step from lower to higher degrees of CD. In this respect the notion of CD was tailored specifically to deal with the phenomenon of free word order, and was less obviously motivated in other domains, such as intonation and morphology, as well as truth-conditional effects of information structure that stayed in semanticits' focus of attention for a long time (Rooth 1985, 1992). All in all, the switch from categorical to gradual in the Prague school conception of information structure was met with great scepticism.

The Prague School approach to information structure remained influential in Soviet and Russian linguistics throughout the last quarter of the 20th century (see e.g. Kovtunova 1976; Paducheva 1985; Kodzasov 1996; Yanko 2001) and experienced a new revival of interest in the West in the 1990s, especially through the work of Barbara Partee (see e.g. Hajičová et al. 1998) and Mark Steedman (2000), see also Kruijff-Korbayová & Steedman (2003). The 'new mainstream' in information structure research that has formed in the last two decades may not seem directly connected to the Prague School tradition. The recent Handbook of Information Structure (Féry & Ishihara 2016) credits Vilém Mathesius as 'the father of modern IS [information structure]' (p. 3), but only 10 out of 40 chapters of the Handbook briefly mention the work of Prague School linguists and at most four of them contain any discussion of the actual content of that work. The system of information-structural concepts developed by Krifka (2008), which the Handbook is committed to, is based largely on Chafe (1976)—the work in which Chafe parts ways with Prague School functionalists. However, Krifka adopts the notion of topic from Reinhart (1981b), which in turn is more or less directly based on the Prague School notion of theme. Moreover, Krifka (2008) follows Rooth (1992) in defining focus as something that 'indicates the presence of alternatives that are relevant for the interpretation of linguistic expressions' (p. 247) and thereby establishes

a close relationship between focus and questions, which also denote sets of alternatives according to Hamblin (1973). Even if the notion of alternatives was not as present in early Prague School work as it became later, the relationship between focus and questions was noted early on and was implemented at the methodological level in the 'question test' by Daneš (1970, 1974, 1986).

In sum, the phenomenon of free word order in Czech and other Slavonic languages brought information structure into linguistics. It made the Prague school linguists—most notably Mathesius, Daneš, and Firbas—develop the concepts that are nowadays most broadly familiar as topic and focus. This theoretical tradition started a huge wave of interest in information structure, which made its way into all levels of grammar and is now seen as an integral part of linguistic theory. Even though the contribution of the Prague School to the development of the basic notions of information structure used nowadays is not often acknowledged explicitly, it is implicitly present through indirect influences.

3 Factors influencing word order

As was pointed out in section 1, the distinction between 'rigid' and 'free' word order is essentially a matter of how many and which factors affect it. Rigid word order is determined by a single factor, namely the grammatical function of the constituents. Slavonic 'free' word order depends on multiple factors. In what follows, we briefly go through the factors that have been observed to have an impact on it.

3.1 Basic word order: Syntactic function and case

Even though the grammatical function does not determine the position of the arguments with respect to the verb and each other, according to a standard assumption, it does determine what is called the basic or canonical word order (also called 'systemic word order' in Sgall et al. 1980). Slavonic languages are considered to belong to the category of SVO languages (Dryer 2013), with the exception of Sorbian (esp. Upper Sorbian), which is categorized as SOV, under the influence of German (Michałk 1962; Breu & Scholze 2006). Other word orders are viewed as 'alternations' of / 'deviations' from this basic order.

The basic word order is standardly identified with the most frequent order in language use or in the language system, or as the most unmarked order (Hawkins 1983). Marked word order is one that is associated with a special type of meaning or restricted use. For instance, (4a) allows for a broader range of information structures (direct object focus, VP focus or broad focus) and a broader range of contexts in which it can be used (e.g. as an answer to the questions 'Who does the mother love?', 'What about the mother?' or 'Why are you so happy?'), including the null context, whereas (4b) only allows for narrow focus on the subject and could not be felicitously uttered out of the blue. This suggests that the basic order is NOM $\prec$ ACC, or SUBJECT $\prec$ OBJECT, as in (4a).

(4) *Czech*

a. Matka miluje dceru. — SVO; focus underspecified
mother.NOM love.3SG daughter.ACC
'The mother loves her daugther.'

b. Dceru miluje matka. — OVS; focus on subject
daughter.ACC love.3SG mother.NOM
'The mother loves her daugther.'

Most revealing are cases of nominative/accusative case syncretism. Where case does not distinguish between the syntactic functions, only the basic order SUBJECT $\prec$ OBJECT turns out to be possible:

(5) *Russian* (Jakobson 1984; originally published as Jakobson 1958)
Mat' ljubit doč'.
mother.NOM/ACC love.3SG daughter.NOM/ACC
✓ 'The mother loves her daughter.' — SVO

✗ ‘The daughter loves her mother.’ OVS

(6) *Polish* (Siewierska & Uhlířová 1998:108)
Byt określa świadomość.
existence.NOM/ACC determine.3SG awareness.NOM/ACC
✓ ‘Existence determines awareness.’ SVO
✗ ‘Awareneess determines existence.’ OVS

As shown by Titov (2012), the same holds for two dative arguments:

(7) *Russian* (Titov 2012:26)
Maše ne pomoč’ Ivanu.
Maša.DAT NEG help.INF Ivan.DAT
✓ ‘Maša can’t help Ivan.’ SVO
✗ ‘Ivan can’t help Maša.’ OVS

The relative order of two objects is a more complicated and controversial matter. Recent studies on Russian have argued for the basic order being DIRECT OBJECT $\prec$ INDIRECT OBJECT. Yet, the Czech data in (8), using the same methodology as above, this time with syncretic accusative/dative, exhibit no clear preference. In other words, both DO $\prec$ IO and IO $\prec$ DO orders are equally available (keeping information structure constant).

(8) *Czech*
Ukázal jsem Marii Julii. broad focus
showed be.AUX.1SG Marie.ACC/DAT Julie.ACC/DAT
✓ ‘I showed Marie to Julie.’ SVDOIO
✓ ‘I showed Julie to Marie.’ SVIODO

3.2 Information structure

Information structure is arguably the best-studied factor influencing word order alternations.[3] In section 2, we gave a first illustration of its effect from the original work of Vilém Mathesius (1939), cf. (2a), (2b), and (3). Nowadays it is more common to describe information structure along a number of a priori independent dimensions, such as topic–comment, background–focus, given–new—the three basic oppositions assumed by Krifka (2008)—rather than trying to reduce it to a single all-encompassing structure.[4] Example (9) illustrates the joint effect of all three dimensions:

(9) *Czech*
A: Zůstaňme ještě u Čaputové. Kdo napomohl jejímu vzestupu?
stay.IMP.1PL still at Čaputová who helped her rise
‘Let’s discuss Čaputová some more. Who helped her rise?’
B: Čaputovou podporuje například prezident Kiska. OVS
Čaputová.ACC supports for.example president Kiska.NOM
‘Čaputová is, for instance, supported by president Kiska.’

The non-canonical OVS order in B’s utterance is very natural, as it realizes the preferred order with respect to all the three information-structural oppositions, in particular:

- topic $\prec$ comment ordering,
where topic is what the utterance is about (*Čaputovou*) and comment is what is being said about topic (*podporuje například prezident Kiska*),

[3] For the state of the art on information structure, see Féry & Ishihara (2016) and the contributions therein, in particular Jasinskaja (2016) on information structure in Slavonic languages.

[4] But see Wagner (2012) for a recent attempt at unifying givenness with background.

- background $\prec$ focus ordering,
  where focus corresponds to the (short) answer to the preceding wh-question (*(například) prezident Kiska*) and background is the rest, i.e., what can be elided in the answer (*Čaputovou podporuje*); and finally

- given $\prec$ new ordering,
  where the given part of an utterance has been mentioned in (or can be easily inferred from) previous discourse (*Čaputovou (podporuje)*) and the new part is simply not given in that sense (*například prezident Kiska*).[5]

The example also suggests that information-structural categories such as topic, givenness, or background on the one hand, and comment, newness, and focus on the other, can overlap and consequently receive the same formal expression.

It should be noted, however, that the information-structural word order patterns listed above are only rarely (if ever) obligatory and should be perceived as a tendency rather than a rule. Focused/new material can appear before backgrounded/given material, as is the case with Mathesius' 'subjective' word order, illustrated in (3) in section 2.

3.3 Prosody

The so called nuclear stress rule (NSR; Chomsky & Halle 1968) is a prosodic rule with the deepest impact on word order. The rule states that sentence stress, conceived of as the most prominent stress in a clause, be placed on the rightmost constituent of the clause. For Czech, this rule was formulated by Daneš (1957). In ordinary clauses with transitive predication sentence stress (marked by small caps) falls on the object—the rightmost constituent, as illustrated in (10a). Yet, if the object is an expression unable to carry (phrase-level) stress, such as an indefinite pronoun, as in (10b), the word order is modified to SOV, so nuclear stress can be realized in sentence-final position.[6]

(10) a. Jitka spatřila MIRKA. SVO
Jitka.NOM spotted Mirek.ACC
'Jitka spotted Mirek.'

b. Jitka někoho SPATŘILA. SOV
Jitka.NOM somebody.ACC spotted
'Jitka spotted somebody.'

Prosody, and particularly the NSR, in combination with prosodic properties of particular expressions, can thus motivate deviations from the canonical SVO order.

3.4 Referentiality

For a long time, it has been acknowledged that referentiality can motivate word order alternations (Krámský 1972; Chvany 1973; Szwedek 1974; Hlavsa 1975). This concerns subject–predicate ordering in intransitive predications, see (11), but also relative argument ordering in transitive predications, see (12), or ditransitive predications, see (13).[7]

(11) *Polish* (Szwedek 1974:215)
W pokoju siedziała dziewczyna.
in room sat girl
'There was a girl sitting in the room.'

[5] The bracketing of the constituents indicates their debatable status with respect to the assumed categories.

[6] The non-canonical placement of indefinite pronouns has not been very well-studied for Slavonic languages. It is sometimes believed to be syntactic in nature (Progovac 2005; Bošković 2008), other times prosodic (Kučerová 2007: section 4.7). A prosodic account of an analogous behavior of German indefinite pronouns is developed in Truckenbrodt (2010).

[7] The #-marking on (12a) (added by us) indicates that, according to Szwedek, (12a) does not form a coherent discourse with the preceding utterance because the two occurrences of *kobietę* do not corefer.

a. Wszedł chłopiec. V ≺ S
entered boy
'A boy entered.'

b. Chłopiec wszedł. S ≺ V
boy entered
'The boy entered.'

(12) *Polish* (Szwedek 2011:72–73)
Widziałem na ulicy kobietę.
saw.1SG on street woman.ACC
'I saw a woman in the street.'

a. #Mężczyzna bił kobietę. S ≺ O
man.NOM beat woman.ACC
'The/A man was beating a woman.'

b. Kobietę bił mężczyzna. O ≺ S
woman.ACC beat man.NOM
'A man was beating the woman.'

(13) *Russian* (Titov 2017:431)
'What happened?'

a. Ivan peredal špiona agentu. DO ≺ IO
Ivan handed spy.ACC agent.DAT
'Ivan handed the/a spy to the/an agent.'

b. Ivan peredal agentu špiona. IO ≺ DO
Ivan handed agent.DAT spy.ACC
'Ivan handed a spy to the agent.'

Various generalizations have been assumed to capture the particular facts, e.g. that preverbal/clause-initial nominals are referential (applicable to (11)/(12)) or that referential nominals cannot follow existential nominals (applicable to (12)/(13)).

3.5 Animacy and humanness

The default SVO order can also be overridden in an information-structurally neutral context (null context or an answer to a question like 'What happened?') if the object refers to a human and the subject to a non-human. For instance, the order of preference in (14) is OVS: The response B is more natural than B′, despite the fact that there is no information-structural motivation for reordering the two arguments.

(14) *Czech*

A: Co se stalo?
what REFL happened
'What happened?'

B: Babičku zasáhl proud. OVS
granny.ACC hit current.NOM
'Electric current hit granny.'

B′: Proud zasáhl babičku. SVO
current.NOM hit granny.ACC
'Electric current hit granny.'

Example (15) demonstrates that the same ordering preference (HUMAN ≺ NON-HUMAN) holds of hu-

mans vs. animate non-humans, such as dogs.

(15) *Czech*

a. Babičku pokousal pes. OVS; broad focus
granny.ACC bit.M dog.NOM
'A dog bit granny.'

b. Pes pokousal babičku. SVO; focus on subject
dog.NOM bit.M granny.ACC
'A dog bit granny.'

The same principle is relevant for the ordering of objects, as shown in (16). The basic DO $\prec$ IO order exhibits a marked interpretation, one where DO is interpreted as definite and IO as indefinite.[8] The non-default IO $\prec$ DO, on the other hand, remains underspecified for referentiality, suggesting that the objects in (16b) are ordered in line with the ANIMATE $\prec$ INANIMATE requirement.

(16) *Russian* (Titov 2017:433)
Context: What happened?

a. Ivan peredal pis'mo agentu. DO $\prec$ IO
Ivan.NOM gave letter.ACC agent.DAT
'Ivan handed the letter to an agent.'

b. Ivan peredal agentu pis'mo. IO $\prec$ DO
Ivan.NOM gave agent.DAT letter.ACC
'Ivan handed a/the letter to an/the agent.'

3.6 Scope

Slavonic languages, more specifically Russian, have been argued to exhibit so-called surface scope: The linear order of quantifiers corresponds to their scope relations, at least if neither of the arguments is interpreted contrastively (Ionin 2002).

(17) a. Odin mal'čik poceloval každuju devočku. SVO
one boy.NOM kissed.SG.M every girl.ACC

✓ 'One (specific) boy kissed every girl.' SURFACE
✗ 'Every girl was kissed by some (different) boy.' INVERSE

b. Odnu devočku poceloval každyj mal'čik. OVS
one girl.ACC kissed.SG.M every boy.NOM

✓ 'For one (specific) girl, every boy kissed her.' SURFACE
✗ 'Every boy kissed some (different) girl.' INVERSE

(Ionin 2002:79)

This generalization has been challenged. According to Bailyn (2012), the basic SVO order does allow for inverse scope, and according to Antonyuk (2015), inverse scope is available even more generally. Recent experimental evidence by Ionin & Luchkina (2018) indicates that the matter is, indeed, quite complex (see section 5).

3.7 Pronominal binding

It is standardly assumed that pronominal binding is subject to syntactic restrictions (the antecedent must c-command the bound pronoun). The contrast in (18) illustrates this type of restriction at work: in

[8] The order in (16a) could of course also be motivated by information structure (e.g. narrow focus on IO), which, however, is fixed to broad focus in this case.

the canonical SVO order, the object *Bětku* cannot comfortably bind the possessive pronoun *její* 'her' contained in the subject; in OVS, on the other hand, such an interpretation becomes readily available.

(18) *Czech*

a. ?Její$_i$ matka spatřila Bětku$_i$. SVO
her mum.NOM spotted Bětka.ACC
Intended: 'Bětka$_i$ was spotted by her$_i$ mum.'

b. Bětku$_i$ spatřila její$_i$ matka. OVS
Bětka.ACC spotted her mum.NOM
'Bětka$_i$ was spotted by her$_i$ mum.'

The need for pronominal binding, however, cannot be the sole motivation for using OVS. The order must be independently licensed by information structure. For instance, (18b) is felicitous if the subject is focused.

Pronominal binding could be the main motivation for (re)ordering in cases where the preference for basic order is much weaker than in the case of SVO, particularly in double object constructions. We showed above that at least for Czech, there seems to be no strong preference for DO $\prec$ IO or IO $\prec$ DO. In such a case, pronominal binding can be the decisive factor, as shown below.

(19) *Czech* DO $\prec$ IO

a. Ukázal Marušku Bětce.
showed.SG.M Maruška.ACC Bětka.DAT
'He showed Maruška to Bětka.'

b. Ukázal Marušku$_i$ její$_i$ dceři.
showed.SG.M Maruška.ACC her daughter.DAT
'He showed Maruška$_i$ to her$_i$ daughter.'

c. ?Ukázal její$_i$ matku Bětce$_i$.
showed.SG.M her mother.ACC Bětka.DAT
Intended: 'He showed Bětka$_i$ her mother$_i$.'

(20) *Czech* IO $\prec$ DO

a. Ukázal Bětce Marušku.
showed.SG.M Bětka.DAT Maruška.ACC
'He showed Maruška to Bětka.'

b. Ukázal Bětce$_i$ její$_i$ matku.
showed.SG.M Bětka.DAT her mother.ACC
'He showed Bětka$_i$ her mother$_i$.'

c. ?Ukázal její$_i$ dceři Marušku$_i$.
showed.SG.M her daughter.DAT Maruška.ACC
Intended: 'He showed Maruška$_i$ to her$_i$ daughter.'

Coming back to the question of what makes Slavonic word order 'free': Is it the multiplicity of factors that impact it? Is it the particularly strong effect of information structure? (Is the order determined by e.g. quantifier scope, as in (17), equally 'free' as the order determined by information structure?) Or is it the fact that most of the factors discussed in this section give rise to preferences and tendencies rather than strict rules? There are no clear answers to these questions, and it seems that the focus of interest has moved from the opposition between 'rigid' and 'free' word order to the study of the individual contributions of and interactions between different factors. In the following sections we present the state of the art in theoretical analysis of Slavonic word order and survey recent empirical studies using quantitative methodology.

4 Theories of word order

'Free' word order in Slavonic languages has been approached from a variety of theoretical perspectives, including Chomskian generative syntax (see below), Lexical Functional Grammar (King 1995; Mahowald et al. 2011 on Russian), Optimality Theory (e.g. Gouskova 2001 on Russian), Role and Reference Grammar (e.g. Rodionova 2001 on Russian), as well as combinations of different approaches. For instance, Kallestinova (2007) treats the grammatical aspects of Russian word order within minimalist syntax and the pragmatic aspects in Optimality Theory. As is the case in other areas of syntactic theory, Chomskian generative syntax has dominated the field of Slavonic 'free' word order study, giving rise to analyses of a broader range of phenomena and a broader range of Slavonic languages. Unfortunately, there has been little exchange between the different theoretical frameworks, especially between Chomskian generativism and the rest, the former having a general tendency to ignore the insights of the latter. This makes comparing the results achieved in different frameworks a particularly difficult task.

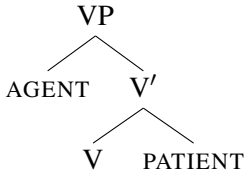
At the same time, there is no such thing as *the* Chomskian generativist account of Slavonic 'free' word order. Diversification within the framework has lead to a relatively complex overall picture. Taking advantage of the right of the strongest and in order to be able to give justice to at least part of theoretical debate at an adequate level of detail, we will concentrate on the developments within the dominant framework.

4.1 Basic word order

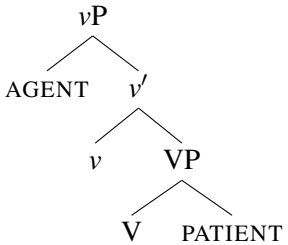
As was already pointed out, in the absence of interfering factors, the basic order in Slavonic languages is SVO. Most of the theoretical accounts of word order concentrate on explaining deviations from the basic order (cf. section 4.2). What we present in this section is only a sketch of an analysis—a kind of baseline (which most researchers would agree on, we believe) that serves as a starting point for specific accounts of 'free' word order.

Let us first concentrate on the basic argument order: S $\prec$ O, leaving the verb aside for the moment. This ordering follows from the conjuction of a number of core assumptions. Consider the first two, namely (i) the linear correspondence axiom (Kayne 1994), which states, very informally, that less embedded arguments precede more embedded arguments and (ii) the assumption that external arguments such as agents are structurally less embedded than internal arguments such as patients; see e.g. Ramchand (2014) for discussion.[9] On this view, a basic transitive predication is represented by (21a) or its more up-to-date version (21b), where the agent is introduced by a semi-functional verbal projection called little *v*; see e.g. Larson (1988) or Kratzer (1996) for discussion.[10] Given assumptions (i) and (ii), both structures map to the AGENT $\prec$ PATIENT order.

(21) a.



b.



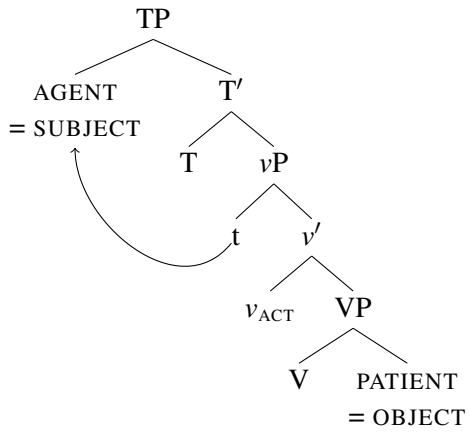
Two further assumptions needed to arrive at the SUBJECT $\prec$ OBJECT order are (iii) that what we call 'subject' is in fact the constituent in a dedicated position in the functional domain of the predicate—specifier of the inflectional/tense phrase (IP/TP) (Chomsky 1986) and (iv) that the subject position is occupied by the structurally closest argument, which happens to be the agent in (21), but could also be the

[9] These assumptions are quite widely accepted, but of course not universally (see, e.g., Abels & Neeleman 2012 for a critical assessment of Kayne's 1994 linear correspondence axiom). Also, the theory must retain some level of flexibility in order to accommodate languages that exhibit O $\prec$ S as the basic order, of which there is a significant minority; Dryer (2013) records the ratio 1148 : 40 in favor of S $\prec$ O.

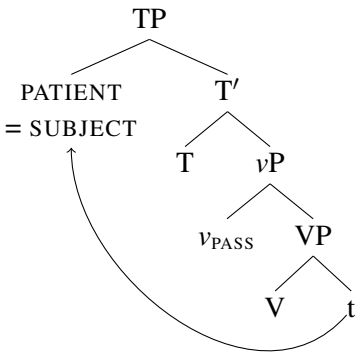
[10] Both Larson (1988) and Kratzer (1996) use different labels; we stick to the nowadays standard 'little *v*' notation.

patient if the agent is missing, as e.g. in passive structures; see the two examples in (22). It is commonly assumed that the subject position is reached by means of syntactic movement (aka displacement), which consists in taking a "base-generated" structure, such as (21b), and displacing one of its constituents to a different position. We follow the standard convention and indicate syntactic movement by an arrow from the base-generated position, occupied by a t(race), to the landing site.

(22) a. Active voice

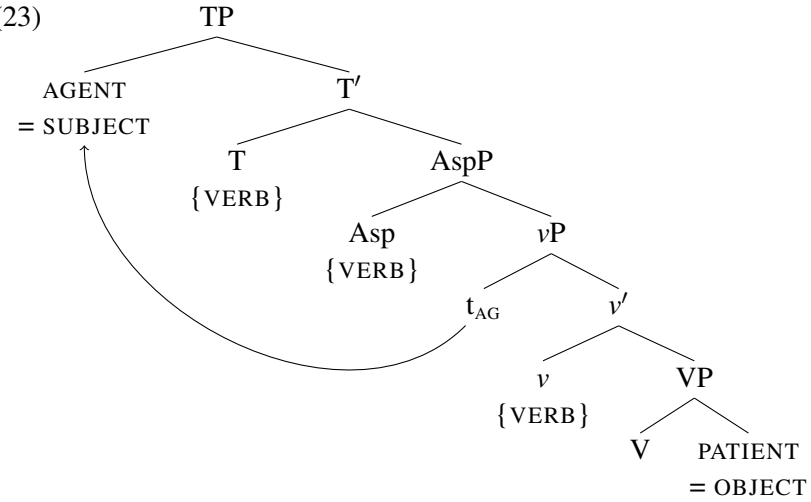


b. Passive voice



There is no unanimous agreement in the literature as far as the syntactic position of the Slavonic main (finite) verb is concerned. The issue is complex and depends on a variety of factors, including finiteness, mood, tense, aspect, the presence or absence of verbal prefixes or auxiliaries, and so forth. Most researchers would agree, however, that the verb is located in (adjoined to) *v*, Asp, or I, and as such is linearized between the subject and object, yielding the SVO ordering. For discussion of verb position and verb movement in SVO orders as well as more specific construction types, see Embick & Izvorski 1997; Lambova 2004 (Bulgarian), Ilc & Milojević Sheppard 2003 (Slovenian), Veselovská 1995 (Czech), Bailyn 1995b, 2004; Gribanova 2013 (Russian), Migdalski 2006; Wiland 2009 (Polish), Bošković 1995 (Serbo-Croatian), Willis 2000 (Old Church Slavonic and (Old) Russian).

(23)



4.2 Word order alternations

The goal of a theory of word order alternations, i.e., deviations from the canonical SVO/SVDOIO order, is to predict which word order is used when and what semantic or pragmatic effects it is correlated with. In this section, we list some of the existing theories and analyses and provide their very basic characterization, as well as a brief discussion of their strength and weaknesses.

Mainstream generative analyses model a deviation from basic word order, often called scrambling, by means of syntactic movement, admitting only one base-generated configuration (typically the one

in (21b), for transitive clauses).[11] There are also researchers who argue that at least some word order alternations are to be accounted for in terms of variation in base-generation. In these accounts, SVO, OVS, and possibly other orders can all be base-generated and do not necessarily involve syntactic movement.

There are two broad classes of word order alternations, each with quite different syntactic, semantic, and pragmatic properties. They are referred to as A-scrambling (or A-movement) and A′-scrambling (or A′-movement; read "a bar"). We discuss them in turn.

4.2.1 A′-scrambling

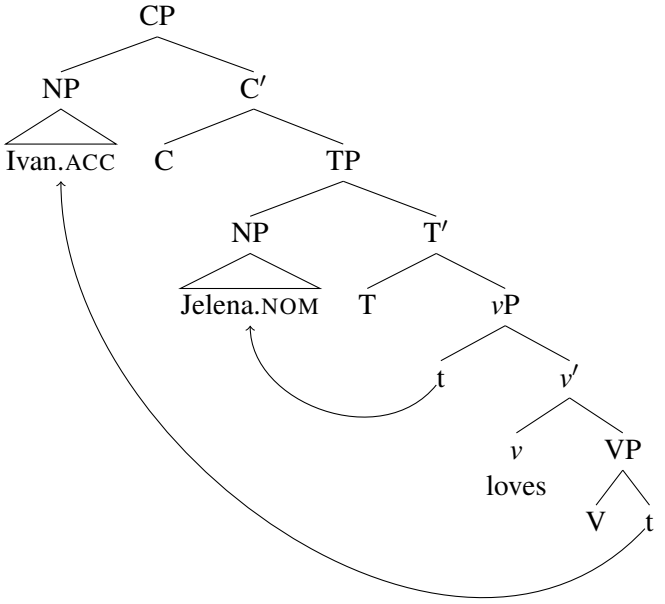
A′-scrambling is very often referred to simply as A′-movement, the reason being that all scholars agree that syntactic movement is actually involved. A typical instance of A′-movement is a displacement of a constituent from its base position (the postverbal position in the example below) into the left periphery of clauses, typically, but not necessarily the first position in the clause, as illustrated in (24a). Since Chomsky (1977), there has been wide agreement that this type of movement is syntactically akin to wh-movement, an example of which is provided in (24b). The tree in (25) illustrates a simplified but standardly assumed syntactic structure for short (clause-bound) movement version of (24), whereby the object *Ivana* moves to SpecCP, the canonical A′-position.

(24) *Serbo-Croatian* (slightly adapted from Bošković 2009)

a. Ivana$_1$ (tvrdiš da) Jelena voli t_1. OSV
Ivan.ACC claim.2SG that Jelena.NOM loves
'(You claim that) Jelena loves Ivan.'

b. Koga (tvrdiš da) Jelena voli t_1? OSV
who.ACC claim.2SG that Jelena.NOM loves
'Who does Jelena love?' / 'Who do you claim Jelena loves?'

(25)



The basic properties of A′-movement are that it is not necessarily clause-bound, i.e., it can be 'long-distance' (as illustrated in (24)), and that the moved constituent is interpreted in situ (in the pre-movement position) for purposes of pronominal binding and quantifier scope.[12] Furthermore, A′-movement of non-

[11] This assumption is known as the uniformity of theta-assignment hypothesis (Baker 1988) and entails a strict correspondence between the base-generated syntactic position of arguments and their thematic role.

[12] See e.g. Neeleman (1994) for a thorough discussion of the A- vs. A′-scrambling distinction.

wh-constituents correlates with their contrastive nature (Neeleman & Titov 2009; Titov 2012; a.o.): they are either interpreted as contrastive foci (often associated with additional inferences such as exhaustivity or correction/negation of salient alternatives) or as contrastive topics (highlighting the relevance of (unresolved) issues pertaining to alternative topics; Büring 2003).[13] In (24a), contrastive focus on *Ivana* could imply that (the addressee claimed that) Jelena loves Ivan rather than somebody else; if *Ivana* is a contrastive topic, on the other hand, the utterance could imply that as far as Ivan is concerned, the addressee claimed that Jelena loves him, but as far as somebody else is concerned, things might be different (e.g., Jelena might hate that person).

The association of A′-movement with contrast and possibly other information structure-related concepts has sometimes been considered an argument for a syntactic treatment of information structure, whereby A′-movement is assumed to be motivated by 'checking' features such as [foc] or [top] or by being located in the specifier of heads like Foc or Top. The former approach is represented by King (1995) and, to some extent, Junghanns & Zybatow (1997); the latter approach, often called cartographic (Rizzi 1997), is represented by Cegłowski & Tajsner (2006) or Dyakonova (2009). Most researchers working on Slavonic languages have considered this approach problematic, however, pointing to the fact that the pertinent IS-related interpretations are not really tied to a single syntactic position or feature and that they can be achieved even by leaving the constituent in situ. Most existing theories therefore assume a somewhat looser relationship between IS and narrow syntax. One such approach is sometimes called configurational (or also relational). It builds on the idea that syntax creates configurations that correspond to IS-partitions (such as topic–comment or focus–background), whereby these partitions are not tied to a specific syntactic position and, if the base-generated word order matches the required partition, no movement is required.[14] The partitions are sometimes considered to be syntactic (encoded by a sisterhood relation), other times surface-oriented (encoded by linear precedence). The gist of the existing proposals is similar, but the technical details and precise empirical predictions differ. For instance, Bailyn (1995a) assumes a dedicated level of representation—Functional Form (on a par with Logical and Phonological Form)—on which the configuration is encoded; Slioussar (2007) offers a minimalist phase-based configurational account, where IS-related movements are narrow-syntactic (and hence also subject to standard syntactic restrictions), but the licensing is based in the interface (in the spirit of Reinhart's 1995; 2006 seminal proposals).

Just as contrastivity and related notions do not require constituents to move, A′-movement does not always entail IS-related properties. As Fanselow & Lenertová (2011) have demonstrated, some instances of A′-movement are completely devoid of any information structure-related effects. Consider the Czech example (26) (from Fanselow & Lenertová 2011:183), which involves broad focus—the all-new answer to the context question—and at the same time A′-movement of its subpart—the object *jeden blbej formulář* 'one stupid form', which has no particular information structural property.

(26) *Context:* 'Why are you so angry?'
Ále, [jeden blbej formulář]$_1$ nevím, jak mám vyplnit t$_1$.
PRT one stupid form NEG.know.1SG how shall.1SG fill.in
'I don't know how to fill in one stupid form.'

Cases like these are still open to discussion. Fanselow & Lenertová (2011) put forth a theory that makes such IS-neutral A′-movement *possible,* though it remains unclear what (if anything) makes it *necessary.* Recent literature (e.g. Frey 2010 and the experimental backing in Fanselow & Wierzba 2019) suggests that IS-neutral A′-movement could be correlated with an emphatic (possibly also affective, emotive, expressive) nature of the moved constituent or in fact the sentence as a whole. This, of course, revives an intuition that goes back to early works on IS, including Behaghel (1932) or Mathesius (1939).

[13] Contrastive foci vs. topics are distinguished prosodically—the focus's background is deaccented, but the topic's comment contains an additional, focus-related accent, e.g. on the verb *voli* 'loves'. Moreover, the two interpretations can sometimes be distinguished by the (un)availability of certain particles (Junghanns 1997; Tajsner 2018).

[14] For a particularly influential proposal along these lines, see Neeleman & van de Koot (2008).

4.2.2 A-scrambling

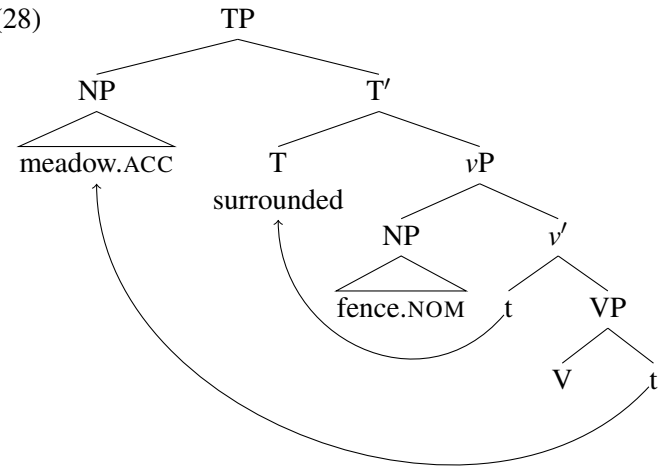
A-scrambling refers to a local—necessarily clause-bound—reordering of the basic word order.[15] In contrast to A′-movement, A-scrambling creates new binding and scope configurations. Moreover, it typically targets non-peripheral positions and does not correlate with contrastive interpretations. Just like A′-scrambling is akin to wh-movement, A-scrambling is sometimes thought of as a subcase of A-movement, prototypically a movement into the 'subject position' (illustrated above in (22) and (23)); cf. the semantic and arguably syntactic parallelism of passivization, (27b), which preserves the basic SV order, and scrambling, (27c), which leads to the non-canonical OVS order.[16] The tree in (28) provides a possible analysis for (27c) (tailored after Bailyn 2004), in which the object moves to SpecTP, the verb to T, and the subject stays in its base-generated position in Spec*v*P.

(27) a. Plot ohraničoval louku. SVO
fence.NOM.M surround.PAST.PTCP.SG.M meadow.ACC.F

b. Louka byla ohraničena plotem. SV
meadow.NOM.F was.SG.F surround.PASS.PTCP.SG.F fence.INSTR

c. Louku ohraničoval plot. OVS
meadow.ACC.F surround.PAST.PTCP.SG.M fence.NOM.M
'The/A meadow was surrounded by the/a fence.'

(28)



A-scrambling can be motivated by a variety of factors (see section 3 for detailed discussion), which are sometimes notoriously difficult to tease apart. In (29a), for instance, the SOV deviation from the canonical SVO might be motivated either by the givenness of *Tomáše* (implying that Tomáš has been mentioned in previous discourse), by the focussing of *navštívil* (its lexical contents, e.g., 'visit' vs. 'meet', or its polarity 'did' vs. 'did not visit'), or by the GIVEN ≺ NEW or BACKGROUND ≺ FOCUS configuration, in line with the configurational theories mentioned in section 4.2.1.[17] The matter gets even more complicated if one realizes that IS might only have an indirect effect in this case, the actual reason being

[15] Which phenomena fall under the notion of A-scrambling depends on the language of interest. In SOV-languages, A-scrambling refers to a non-canonical ordering of two arguments (e.g. German OSV orders with both O and S located in the 'middlefield') or of an internal argument and a VP-related adverbial (German, but also Dutch, where O ≺ S orders are unavailable without A′-movement). In Slavonic languages, which are mostly SVO, SOV orders are also considered to be instances of A-scrambling (see e.g. Biskup 2006 or Mykhaylyk 2011). That said, it is good to keep in mind that the two types of A-scrambling—'over an argument' vs. 'over a verb/adverbial'—might have very different motivations and properties.

[16] See Bailyn (2004) for a theory that aims at the unification of A-scrambling and the traditional subject-related A-movement.

[17] There is an interesting and, to the best of our knowledge, understudied cross-Slavonic difference related to the SOV order. While Russian allows for new/focused preverbal objects rather freely, esp. in colloquial Russian (see e.g. Slioussar 2007: section 5.1.3), West Slavonic languages exhibit a clearly detectable ban against new/focused preverbal objects (Šimík & Wierzba 2017).

optimization for neutral prosodic realization (default clause-final sentence stress / stress on focus / lack of stress on given). Prosodic approaches to apparently IS-motivated scrambling in Slavonic include Sekerina (1997), Arnaudova (2001), or Šimík & Wierzba (2017), and recently received some backing from experimental evidence (see section 5).

Consider now (29b) and (29c), both of which involve the IO $\prec$ DO deviation from the arguably basic DO $\prec$ IO order (Bailyn 2012; Titov 2017). If we keep the focus broad, the order in (29b) could be motivated by pronominal binding, but also by the tendency for human referents to precede non-human ones; in (29c), where humanness and binding play no role, the non-canonical order could be motivated by referentiality: in a readily available reading of the sentence, *policistovi* 'policeman' refers to a uniquely identifiable policeman, while *podezřelého* 'suspect' introduces a new referent.

(29) a. On Tomáše navštívil. SOV
he.NOM Tomáš.ACC visited
'He visited Tomáš.'

b. Ondřej ukázal každému$_i$ jeho$_i$ nový pokoj. SVIODO
Ondřej.NOM showed everybody.DAT his new room.ACC
'Ondřej showed everybody$_i$ his$_i$ new room.'

c. Ondřej ukázal policistovi podezřelého. SVIODO
Ondřej.NOM showed policeman.DAT suspect.ACC
'Ondřej showed a suspect to the policeman.'

A traditional controversy in the theory of A-scrambling concerns the issue of movement vs. base-generation. The presumably still dominant position is that A-scrambling is derived by A-movement (for Slavonic, see Bailyn 2003a, 2004; Biskup 2006; Slioussar 2007; Mykhaylyk 2011; a.o.) has been challenged by the base-generation approach (for Slavonic, esp. for ditransitives, see Gračanin-Yüksek 2007, Dvořák 2010, or Marvin & Stegovec 2012, and for a more general claim, see Titov 2012).[18]

Just as in the A′-domain, A-scrambling has also been approached from various theoretical perspectives, although feature-based and cartographic approaches are rather scarce (see e.g. Dyakonova 2009). There are two dominating approaches—the configurational/relational approach (Slioussar 2007; Kučerová 2007, 2012; Titov 2012), briefly described above, and what could be called a containment-based approach, which follows, in spirit at least, Diesing's (1992) mapping hypothesis, according to which arguments contained in the VP (or more lately *v*P) are −presupposed (indefinite, non-specific) and those external to VP/*v*P are +presupposed (definite, specific). This approach is represented by Junghanns & Zybatow (1997), Späth (2003), Biskup (2006), or Mykhaylyk (2011).

The problem of most mainstream approaches to A-scrambling is their reductionist and deterministic nature, whereby researchers strive to find one single, possibly narrow notion that the phenomenon of A-scrambling could be 'blamed on' and, at the same time, identify conditions under which A-scrambling *must* take place, leaving no space for optionality. The most popular notion exploited for these purposes is referentiality, or closely related (and often insufficiently defined) notions like definiteness, specificity, presuppositionality, anaphoricity, or givenness. As we attempted to show in section 3, however, there is a whole range of word order-affecting factors, many of which cannot easily be subsumed under referentiality (e.g. animacy, scope, prosody). Moreover, as shown by some experimental results (e.g. Šimík et al. 2014; see section 5), there is a fair chance that at least some word order variants are truly optional. The multi-factorial and possibly non-determinstic nature of word order alternations has been acknowledged especially in the literature on German scrambling; see e.g. Choi (1996), Müller (1999), or Struckmeier (2017). Within the literature on Slavonic languages, it is Titov's (2012; 2017) configurational theory that goes the farthest in accounting for the multi-factorial nature of scrambling (although it remains deterministic, leaving no space for optionality). Titov proposes that the interface requires prominent arguments to precede non-prominent ones (her Argument Prominence Hierarchy), where the notion of prominence

[18] Other influential base-generation accounts of A-scrambling include Bayer & Kornfilt (1994), Neeleman (1994), and Fanselow (2001).

subsumes a variety of notions, including IS-related ones, referentiality, and animacy.[19]

4.2.3 Summary

The theoretical literature on the phenomenon of free word order in the generative framework largely agrees on the idea that word order alternations are derived by independently existing syntactic operations such as A′- or A-movement, although opinions differ on local (clause-bound) reorderings involving arguments and their predicates—called A-scrambling—where base-generation of non-canonical orders has been a serious alternative. There is no unanimous agreement as to how and why non-canonical orders are derived. While some theories assume a very tight relation between narrow syntax and the motivation for scrambling, to the extent that syntax contains discourse-related features or functional categories dedicated to triggering scrambling operations, most theories applied to Slavonic languages have assumed a looser relation, whereby scrambling is a rather generic syntactic phenomenon, creating representations which are later evaluated for their suitability with the requirements imposed by more 'peripheral' grammatical levels, including phonology, semantics, and pragmatics.

5 Recent quantitative approaches to word order

Traditionally, theories of free word order in Slavonic languages have been developed against the background of observations gained either using a philological approach, i.e. considering manifestations of specific word order phenomena in existing, often literary texts, or exploiting the intuition of a single individual (or a handful of individuals) concerning the grammatical or pragmatic acceptability of sentences. Obviously, only the latter approach can provide negative data, that is, data on impossible (ungrammatical) structures, which play a crucial role in modern syntactic theory. However, the increased availability of electronic corpora and technology for the recording and analysis of speech, communicative behaviour and underlying unconscious processes has led to the rise of quantitative methodology in the study of Slavonic free word order, just like in other areas of linguistics.

Quantitative methodology consists in collecting a number of datapoints that is large enough to allow for drawing statistically based inferences. In contrast to the traditional methods, it affords not just the replicability of results, but also insight into issues that are simply not measurable one datapoint at a time, esp. the relative strength of the individual factors under consideration. This is of special value with a matter as complex as word order, which, as we have seen above, is influenced by a variety of different factors from all domains of grammar. Moreover, quantitative experimental methods help us access aspects of word order which otherwise remain opaque, namely its psycholinguistic dimension. In what follows, we provide a brief overview of recent experimental and corpus-based studies of the influence of the different factors considered in section 3 on word order in Slavonic languages.

Basic word order

Multiple studies have confirmed the traditional assumption that Slavonic languages are by default SVO. Sekerina (1997) demonstrated for Russian, using reading accessibility ratings and self-paced reading, that AGENT $\prec$ PATIENT readings are more accessible than PATIENT $\prec$ AGENT readings if the case marking on the subject and object is syncretic between nominative and accusative. In other words, if case-marking gives no cue for theta-roles, word order takes over, at least in cases with no contextual priming. Sekerina (2003) replicated the finding with more complex stimuli, involving X-S-V-DO-IO-X (basic) vs. X-DO-S-V-IO-X (DO scrambled) (with X a prepositional phrase). She found that the basic order is read faster than the scrambled one and, in addition, that a context which makes the S and DO given (the same context was used for both conditions) leads to faster reading times. The results suggest a higher processing load for scrambled orders. Šimík & Wierzba (2017), using the acceptability rating

[19] Titov's (2012) theory has an optimality-theoretic tinge (and thus bears a loose relation to the proposals of Choi 1996 and Müller 1999), although she does not discuss this connection.

task, showed for Czech, Slovak, and Polish that SVO is more acceptable than SOV and OSV in an all-new context. At the same time, postverbal objects were equally acceptable irrespective of whether the objects followed or preceded an indirect object or an adverbial. In other words, both SVOX and SVXO (with X being the additional phrase) were equally acceptable. Velnić's (2019) study tested the acceptability of double object constructions in Croatian, including conditions SVDOIO, SVIODO (postverbal objects), as well as SDOVIO, SIOVDO (one preverbal object), and controlling for animacy, givenness, and focus. Velnić concludes that DO $\prec$ IO is the basic order of objects in Croatian, particularly in its SVDOIO (postverbal objects) incarnation.

Word order and givenness

A number of studies on Slavonic languages have looked into the impact of givenness on word order and some have controlled for the potentially confounding factor of prosody. Slioussar (2007: section 5.2) used self-paced reading to test (i) the impact of scrambling on the speed of processing and (ii) the interaction of givenness and word order. Slioussar found that the processing of scrambled orders (DO-S-V-IO and DO-IO-V-S; underlined = given; capital = contrasted) is as fast as the processing of the basic oder (for Slioussar: S-V-IO-DO), as long as the appropriate context is provided.[20] This means that there is no inherent penalty for scrambling (as one might infer from Sekerina's 1997; 2003 studies). Slioussar's study further shows that the processing is significantly slowed down if a sentence is presented in an inappropriate context and that this holds also of the basic order. This result might either be attributed to an illicit NEW $\prec$ GIVEN order (as it is interpreted by Slioussar), but also to the fact that all the inappropriate conditions involved given constituents in the sentence-final position, in which it receives sentence stress (albeit implicitly, upon silent reading). These two competing explanations were first tackled in Šimík et al.'s (2014) study on Czech. The authors compared the acceptability of the following four conditions: 1. S-V-X-DO, 2. S-V-DO-X, 3. S-DO-V-X, 4. DO-S-V-X (underlined = given, X = indirect object or adverbial), whereby GIVEN $\prec$ NEW ordering is violated in conditions 1–3 and GIVEN $\neq$ last/sentence-stressed is only violated in condition 1 (the stimuli were presented auditorily and involved final sentence stress across all conditions). The results strongly match the latter hypothesis: condition 1 is significantly less acceptable than all the others and there was no acceptability difference between conditions 2/3 (violating GIVEN $\prec$ NEW) and condition 4 (not violating it). Velnić (2019) sides with Šimík et al. (2014), finding that the GIVEN $\prec$ NEW requirement is rather weak in Croatian ditransitives. She finds other factors, particularly focus and animacy (see section 3.5 for the latter), to be much stronger predictors of the relative order of objects than givenness.

The confound of prosody

The acceptability studies of Šimík & Wierzba (2015, 2017) on Czech, Slovak, and Polish concentrated further on comparing the word order hypothesis (given must precede new) with the prosodic hypothesis (given must not be sentence-stressed). Their results strongly support the latter hypothesis: the prohibition against stressing given constituents is very clearly pronounced and consistent across different word order conditions, while the requirement for given constituents to precede new ones is very weak (if present at all, esp. for Polish) and inconsistent across different conditions. The authors conclude that givenness-related A-scrambling is likely to be motivated by prosodic optimization (sentence-final stress placement) rather than by optimizing word order configurations, shedding doubt on the existing configurational theories (see section 4.2.2). Šimík & Wierzba (2017) also find a notable difference between Czech/Slovak on the one hand and Polish on the other: Czech/Slovak exhibit a ban on A-scrambling (to a preverbal position) of new/focused constituents (allowing given constituents to scramble very freely), Polish exhibits a general scrambling penalty, applying independently of the IS-status of the scrambled constituent.

[20] Slioussar's items include both A′-scrambling—of the given+contrasted DO, in the scrambling conditions, and A-scrambling—of the given IO in one of the scrambling conditions, and possibly also in the baseline condition (if DO $\prec$ IO is basic, as argued by Bailyn 2012 and Titov 2017). Slioussar does not discuss the notion of contrast explicitly, but it is obviously present in her items and is the facilitating factor for A′-scrambling.

Finally, while Šimík & Wierzba's (2015) results support the prosodic hypothesis, the authors confirm a tendency towards placing +presupposed constituents in front of −presupposed ones (where presupposition is defined in semantic rather than discourse-based terms). The results are therefore compatible with the hypothesis that while givenness—a discourse-based notion—is primarily sensitive to prosody, presupposition—a semantic notion—is sensitive to word order.

Word order and referentiality (definiteness)

The hypothesis that word order interacts with referentiality (see section 3.4) has gained support in two recent corpus studies.[21] Czardybon et al. (2014) show that preverbal bare NPs in Polish are more likely to be interpreted as definite than indefinite. The opposite holds for postverbal bare NPs. Šimík & Burianová (to appear) deliver similar, but more fine-tuned results for Czech. They show that what correlates with (in)definiteness is not pre- vs. post-verbality, but rather sentence-initiality vs. sentence-finality. Their results lend particularly strong support to Geist's (2010) claim that sentence-initial (= topical) bare NPs cannot be interpreted as indefinite, while showing no evidence that preverbality affects the referentiality of bare NPs (counter to containment-based theories, e.g. Diesing 1992; see section 4.2.2). Moreover, Šimík & Burianová (to appear) results show no effect of sentence function; more specifically, there is no visible tendency for subjects to be definite and objects to be indefinite. The observed effect thus boils down to sentence-initiality/finality. Finally, Šimík & Demian (to appear), using the covered box paradigm, failed to confirm that word order in Russian (intransitive SV vs. VS, with S being a bare NP subject) correlates with referential uniqueness (singulars) or maximality (plurals). This stands in contrast to the findings of the parallel experiment for German, where the use of definite articles does correlate with referential uniqueness (singulars) and maximality (plurals). The study thus falsifies the hypothesis that the meaning of articles in languages that have them corresponds to the meaning of word order alternations (initial vs. final NP) in languages without articles. The jury is thus out on which referentiality-related notion—if not uniqueness or maximality—is conveyed by the pertinent word order manipulations.

Word order and scope

Ionin & Luchkina's (2018) study on Russian quantifier scope and its interaction with word order, information structure, and prosody has shed some new light on this complex issue (see section 3.6). The authors used an auditory sentence–picture verification task, presenting participants sentences with varying word order, prosody, and indefinite quantifier type, and let them decide whether they match pictures depicting distributive scenarios, i.e., scenarios corresponding to the wide scope of a universal quantifier over an indefinite. The overall results suggest that inverse scope is significantly harder to get than surface scope, unless the sentence-initial scrambled constituent (more particularly, the indefinite object in OVS sentences) is pronounced with a contrastive accent, in which case the inverse scope becomes available. This result supports the standard view of A- vs. A′-scrambling (see section 4.2), whereby A-scrambling (≈ non-contrastive prosody/interpretation in Ionin & Luchkina's design) yields scope freezing (surface scope) and A′-scrambling (≈ contrastive prosody/interpretation) yields scope reconstruction (inverse scope).[22]

6 Desiderata for future research

In this chapter we have tried to present a picture of the current state of research on Slavonic free word order against the background of its historical roots. In our view, at least two positive developments in the field are noticeable. The first one is the movement away from the dichotomy 'grammatical = rigid' vs.

[21] We follow the studies discussed in this section and understand '(in)definite bare NP' as 'bare NP interpreted/functioning as an (in)definite in a language that has articles'.

[22] The results reported here hold of those conditions in Ionin & Luchkina's (2018) design which used 'one'-indefinites. The use of 'two'-indefinites increased the overall likelihood of inverse scope.

'pragmatic = free' word order towards more nuanced consideration of a broader range of affecting factors. The other positive development is the rise of quantitative methods, which allow for more objective testing and comparison of theoretical approaches. Both trends are definitely worth pursuing further in the future.

In the theoretical domain, however, there is a disconcerting gap between the Chomskians and the non-Chomskians. The former are more numerous, have considered a larger number of word order phenomena in a larger number of Slavonic languages and are engaged in a theoretical debate at a high level of detail, but are often focused on framework-internal issues without making a connection back to the original linguistic motivation of the theoretical constructs used. The non-Chomskian approaches usually keep a strong connection to their foundations, which makes it easier to understand the intuitive rationale behind the theories and to compare them to the results of other frameworks. However, the approaches struggle with typical minority issues: selective coverage of the pool of relevant phenomena and languages, and the lack of dialogue with the mainstream, i.e. discourse that goes both ways, not just in one direction. This problem is not specific to the study of Slavonic word order though, but plagues all areas of theoretical syntax. It remains a wish for the future that generative treatments of Slavonic word order reconnect with linguistic common sense and become more 'interoperable', while their competitors grow and gain coverage.

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