Towards a structure-based typology

Hubert Haider

Univ. Salzburg, Dept. of Linguistics & Centre for Cognitive Neuroscience

Abstract

The predictive power of Greenbergian word order typology can be strengthened. The type assignment of a language ought to be an empirically valid prediction. The accuracy of such predictions can readily be enhanced if word order patterns are joined with properties of phrase structures that underlie the respective patterns.

Presently, Greenbergian types are weak predictors, for several reasons. First, they are defined in terms of the linearization patterns of minimal clauses. Such patterns are structurally ambiguous and therefore, cross-linguistically, associated with incompatible typological correlates. Second, the crucial notion "subject" needs to be defined structurally, not semantically, in order to correctly assort the corresponding patterns of different alignment types. Third, the clause type does not fully determine the phrase-structure type. A more reliable predictor is the phrase-structure type, that is, head-*final*, head-*initial*, and crucially, *alterable* positioning of the head within its phrase in combination with clause-structure types.

The paper lists and analyses eight syntactic properties that correlate directly with the grammatically determined, canonical positioning of the head within its phrase. They serve as diagnostics for more accurate type assignments, with SOV, SVO, VSO, and {S,V,O} (viz. unconstrained head-positioning) as major syntactic clause types. The predictive accuracy of a phrase-structure-based taxonomy is demonstrably higher than a linearization-based one.

1. Introduction

The gist of this paper is threefold. The issues raised, discussed and settled with the conclusion that syntactic typologies need to be based on structural properties rather than mere linear order are as follows.

i. For the proper identification of the SVO type, the S-V-O linearization in minimal declarative clauses is an unreliable property for serving as the main criterion, because of too high a rate of *false positive* type assignments.

ii. The definition of "S" (= subject) needs to be based on syntactical (i.e. structural and categorical) criteria and not on a semantic characterization such as "agent".

iii. In particular, the type profiling of a language needs to take into account the structural organization of the major phrases, at least in terms of the positioning of the heads of phrases. The strictly head-initial organization of [S[VO]] languages must not be conflated with the variable linearization potential of languages in which S-V-O is merely a serialization option, even if such an order is comparatively frequent due to pragmatic reasons, such as information structuring.

In section 2.1, it will be shown that the position of the verb in a minimal declarative clause is an unreliable typological predictor. More reliable is the canonical positioning of the verb relative to its nominal arguments (sect. 2.2). In section 2.3, the semantic identification of 'subject' and 'object' is spotted as a source of potential confusions. Finally, section 2.4, re-emphasizes that the Greenbergian set of types is not exhaustive. The type with alterable head-positioning

(= "*no dominant order*") is a separate type. There are good reasons for not regarding it as a sub-instance of one of the other types, contrary to current practice. This is the issue of section 3, illustrated primarily by Slavic languages.

2. Structure and linearization

Word order is a grammatical epiphenomenon. It is a correlate of a primary property, namely the structure[1] of linguistic expressions. Structure constrains word order but word order does not determine structure. There is no one-to-one relation between word order and structure. The very same word order may be compatible with several incompatible structures. Grammars determine the mapping from structures to word orders, that is, from structure to linear arrays, but the inverse mapping is often a one-to-many relation. The sequence S-V-O, for instance, is compatible with at least *five* different clause structures, each one correlated with different typological properties (see sect. 2.1).

However, there are structural properties that closely correlate with word order cross-linguistically. One of these properties is the positioning of the head of a phrase within its phrase (2.2). This paper will focus on syntactic properties that correlate with the position of the heads of major phrases, such as verb phrases, noun phrases, adjective phrases and particle phrases. Since the verb phrase is a basic constituent of a clause, the properties of verb phrases determine core properties of clauses as well. Section 3 discusses at length syntactical differences between alleged SVO languages and genuine SVO languages.

2.1 Verb positioning in clauses

When Greenberg (1963:45) utilized the relative order of S, O, and V as simple and easily accessible markers for distinguishing clausal word order patterns, he could not know that one of his three major types, namely SVO, viz. his Type II, is difficult to *reliably* identify by merely inspecting the surface order of the three diagnostic items in minimal utterances. Cross-linguistically, the mapping of this order onto a structure is a one-to-many mapping. The very order S-V-O is compatible with different, even incompatible clause structures, each of which giving rise to a linear ordering in a simple clause, with a subject preceding the verb, followed by its object. It is an undesirable consequence of this intricacy that in word-order-based typological surveys, languages are classified as SVO although *structurally*, they are not SVO. They merely share the same serialization in simple clauses consisting of S, O, and V.

An instructive example is the variety of different and incompatible type assignments even for linguistically well-studied languages such as the continental West-Germanic languages, in current literature, that is, the assignments of Afrikaans, Dutch, Frisian, and German. Some contemporary typologists still classify them as SVO languages (Gell-Mann & Ruhlen 2011; appendix)[2]; for others, these are languages with "*no dominant word order*" (Dryer 2013a), and

---

[1] The essential feature of human language grammars is this: Grammars are part of a cognitive program for dimension management, viz. for efficiently and effectively mapping linear arrays (i.e. phonological level) back and forth from linear to hierarchically organized symbol structures (i.e. syntactic and semantic level). In other words, 'atomic' items are hierarchically grouped into (recursive) units that are identified as part of, or dependents of, superordinate units. The 'rest' is (semantic or phonetic) interpretation based on the assigned structures

[2] In particular, German and Afrikaans are classified as SVO, Dutch as SVO/SOV, and Frisian is missing. However, Afrikaans, Dutch, Frisian and German do not differ with respect to the positioning of the finite verbs. They are SOV languages, with a superimposed verb-second requirement: "*The order used for a stylistically unmarked*

for yet others they are languages (Hawkins 2014:140) with an OV order, which by the way, is the *structurally* adequate and empirically correct categorization. They are OV languages with an additional property, namely the "verb-second" property of the finite verb in declarative clauses, which overrides the base-serialization for the finite form of the verb.

Such a state of affairs should be regarded as a warning signal. If the basic linguistic classification of well-studied languages suffers from such a high degree of discrepancy, the chances that the reliability of type assignments for less well-studied languages are of a better quality are proportionally low. The problem lies not so much in the lack of information but in the choice of the classification parameters.

On the WALS description page for German (Dryer 2013a), the verb-second property is honoured and the classification refined: "*In German and Dutch, the dominant order is SVO in main clauses lacking an auxiliary and SOV in subordinate clauses and clauses containing an auxiliary.*" This characterization is roughly[3] appropriate with regard to the positioning of the finite verb. However, the clause-initial position preceding the finite verb is definitely not a subject position. It is open for *any single* constituent of a given clause, that is, not only for subjects,[4] but alternatively for objects, adverbials, or nonfinite verbal constituents.

A second difficulty is the definition of "dominant". "*This means that it is either the only order possible or the order that is more frequently used.*" (Dryer 2013d). Obviously, this definition joins two *disjoint* properties, namely a strict word-order property (viz. "the only order") with a variable-word-order property. In the strict-order type, variation is ungrammatical, in den variable-order-type non-syntactic factors guide the choice of a variant from the pool of grammatical variants. The grammars behind these types are different, without any reasonable doubt. Nevertheless, such languages are grouped together in spite of their incompatible properties.

Second, a frequency-based decision would require sizeable text corpora, which are not available for the majority of languages typologists deal with. And third, frequency is not a decisive criterion either.[5] For German, frequency data are easily available. So, is it true that the initial position in a German declarative clause is most frequently occupied by a subject? A Google-search (18 April, 2019, filtered for news sites and book sites) produced the following results (1). The order that is more frequent than all other orders in (1) taken together is (1a), with a PP in the clause-initial position. An object-initial pattern (1c) and (1e) is more frequent than the subject-initial one (1b, 1d). Does this make German an object-initial language? Moreover, frequency counts for typological samples of languages without literacy are neither workable nor significant.

---

version of '*John saw Mary*' in German would be SVO, too, but to simply call German an SVO language would disguise the verb-second nature of its word order." (Mallinson & Blake 1981:129).

[3] Only a subset of embedded clauses is V-final. Clauses corresponding to English embedded clauses without *'that'* are V-second, just like main declarative clauses.

[4] This has been understood and stated explicitly first by Oskar Erdmann (1886:183): "*Durchaus unrichtig ist es, wenn einige Grammatiker hier dem Subjektsnominativ besonderen Anspruch auf die erste Stelle einräumen wollen.*" (It is entirely incorrect if some grammarians concede a special privilege to the subject nominative for the first position).

[5] For example, Olawsky (2007: 45), THE expert on Urarina, counts 3% OVA and 4% AOV orders in his texts. Nevertheless, he classifies Urarina as OVS (= OVA in typological diction).

(1) a. "*Damit* hat er" ...   140.000 hits (Google books)
      it-with has he$_{Nom}$

   b. "*Der* hat ihn" ...   7.470 hits (Google books)
      this$_{Nom.sg.masc.}$ has him $_{Acc}$

   c. "*Den* hat er" ...   10.700 hits (Google books)
      this$_{Acc.sg.masc.}$ has he$_{Nom}$

   d. "Dieser Fehler hat ...   5780 hits (Google books)
      this$_{Nom}$ mistake has ...

   e. "Diesen Fehler hat" ...   6720 hits (Google books)
      this$_{Acc}$ mistake has ...

Presenting well-formed, simple, minimal clauses with an S-V-O serialization is not sufficient for the appropriate assignment of the label "SVO" to a given language. Such a criterion will produce a large amount of so-called *false positive* typing. Languages will be classified as SVO although structurally, they are not SVO. The very word order pattern occurs with different but mutually incompatible clause structures. The sample in (2) is not exhaustive.

(2)   a. [S [VO]$_{VP}$]$_{clause}$ SVO proper   (e.g. English)
     b. [S V$_{fin}$ [-- O --]$_{VP}$]$_{clause}$[6]   SOV plus V2   (e.g. German)
     c. [S V$_{fin}$ [-- -- O]$_{VP}$]$_{clause}$ SVO plus V2   (e.g. Swedish)
     d. [S [V -- O]$_{clause}$]$_{clause}$ VSO plus subject fronting   (e.g. Syrian)
     e. [{S V O}]$_{VP\&clause}$ AHP (= alterable head positioning)   (e.g. Slavic)

A justly filed SVO language, that is, a language with an SVO clause *structure* is a language with an obligatorily head-initial VP plus an obligatory, VP-external subject position (2a). This type will be referred to as [S[VO]] hereafter. A proto-typical example is English.

In (2b-d), the very same surface order results from different conditions. In (2b), the verb second property turns the word order of a simple transitive clause into an S-V-O order, no matter whether the canonical order for the main verb is VO (as for instance in Swedish) or OV (as for instance in German). Grouping Swedish and German together, joins a structural SVO language with a structural SOV language, whose structural difference is masked by the V2-property in the minimal finite clauses typologists rely on.

(2c) is familiar from VSO languages with the option of fronting the subject; see Dryer (2007: 71) on Yagua, a language spoken in Peru, and the Auk dialect of Tlingit, a language spoken in Western Canada. Steele (1978: 601) presents a survey on word order variation according to which for at least 50% of languages that are classified as VSO, SVO is an alternative order.

(2d), eventually, refers to a clause structure based on a VP with alterable head-positioning. This property will be discussed in due detail with respect to Slavic languages below. In these languages, the position of the head in a phrase is not restricted to the peripheral position of the verb phrase. It may appear in any linear order relative to its dependent items in the phrase. The S-V-O *linearization* is a frequent pattern in these languages but their clause *structure* is not the clause structure of an SVO language and they do not share type-specific properties.

---

[6] "--" marks the gap position of a displaced item. Here, the subject and the verb are in displaced positions. The subject is just one option for the choice of the clause-initial phrase.

A typology that assigns, for instance, Polish and English to the same type, namely [S[VO]], sacrifices much of its predictive power because of the conspicuous syntactic differences between prototypical [S[VO]] languages on the one hand, and languages such as the Slavic languages, on the other hand. If the [S[VO]] type has to provide room for properties of English clauses on a par with properties of Polish clauses, the resulting set of joint properties will either become minimal or inconsistent since much of what is grammatical in Polish is ungrammatical in English. It must not come as a surprise, therefore, that Dryer (2002) was unable to confirm a correlation predicted by Hawkins, between [S[VO]] and little morphological case-marking on the one hand and SOV with richer morpho-syntactic coding on the other hand. Dryer's sample is 'polluted' by misclassified languages, and in particular by the numerous AHP languages filed as SVO. Among them, there are too many languages with rich morphological case and agreement systems, such as most of the Slavic languages. If these misclassified languages are filtered out, Hawkin's correlation is very likely to show in the adequately purified [S[VO]] sample.

2.2 Head positions within phrases - final, initial, or variable

It is commonplace that linguistic expressions are *structured*, that is, they are not mere concatenations of linearly arranged lexical units with rules operating on these concatenations. For the majority of languages, a level of organization that is customarily referred to as the level of *phrases* is easily detectable, even without full knowledge of all relevant grammatical details.

Phrases are endocentric, that is, they consist of a "head" item that is associated with other phrases by various grammatical means. The syntactic category of the head determines the category of the phrase.[7] However, the items that constitute a given phrase are not always contiguous. In many languages, grammar permits reordering and dislocation.

In many languages, the positioning of the head within a phrase follows a uniform pattern. The head position of a phrase is peripheral and it either follows or precedes the dependent phrases[8] within its own phrase. When this property is uniform across all head categories, such a language is a strictly head-initial or a strictly head-final language. English, for instance, is consistently head initial. Japanese, on the other hand, is consistently head final.

However, neither cross-categorical uniformity nor peripherality of the head is a universal property. First, languages may differentiate the position of the head in the phrase along categories.[9] Afrikaans, Dutch, Frisian, German, Kurdish, or Persian, for instance, are head-final for verbal heads of phrases (SOV), but PPs are head-initial and noun phrases, too.

Second, the peripherality property of heads arguably is not a universal property either, contrary to widely shared assumptions in the grammar-theory literature. In the typological community, this possibility is explicitly foreseen: *"Languages with highly flexible word order are*

---

[7] There apparently exists a small set of languages, as for instance the Salish languages (Jelinek & Demers 1994:698), that do not implement a partitioning of lexical items into distinct lexical categories. In such languages, the only way of phrasal organization is the combination of a functor with its argument. Complex utterances are composed of multiple elementary functor-argument propositions: „*Salish languages are as close to 1st order predicate logic as natural languages get.*" (Cable 2008:1).

[8] Modifying phrases – attributes of noun phrases or adverbials of verb phrases – do not count as dependent phrases. Their serialization is not strictly tied to the serialization of dependent elements.

[9] In the literature, frequently a negatively loaded term is used, viz. "disharmonic" (cf. Hawkins 2014:106-115).

themselves a linguistic type." (Dryer 2007:113). If the peripherality constraint is not universal, this leaves room for a type of phrase structure that has not yet been acknowledged in phrase structure theories. In addition to the types with a fixed, peripheral head position – either phrase-initial or phrase-final – there is evidence for the existence of a type with *alterable head-positioning* ("AHP").

Slavic languages are easily accessible and fairly well-described languages with alterable head-positioning, at least for verbs as heads of phrases. They are usually classified as SVO languages and thereby as languages with head-initial verb phrases. Here is an example from Polish (3), illustrating its undisputed word order freedom. Leszkowicz (2015:121) refers to Polański (2003), who explicitly states that in principle any order of the verb in relation to subject and objects is a *grammatical* option in Polish. Polish is representative of Slavic languages in this respect.[10]

The simplest way of describing the variation of the verb position in (3) in contrast to English or Japanese is one in terms of *grammatically* unconstrained verb positioning. The verb may surface in a clause-final position (3a), in a clause-initial position (3d), or in intermediate positions (3b,c). In addition, the relative order of the nominal arguments in (3) may vary, too. This amounts to twenty-four possible different serializations of the four items following the complementizer in (3).

(3) a. (że) Marek Ewie kwiaty *dał*.　　　　　　　Polish
　　　　(that) Marek$_{Nom}$ Eve$_{Dat}$ flowers$_{Acc}$ gave　　　(Leszkowicz 2015:121)
　　b. (że) Marek Ewie *dał* kwiaty.
　　c. (że) Marek *dał* Ewie kwiaty.
　　d. (że) *dał* Marek Ewie kwiaty.

All these variants are grammatical but of course they are not equivalent with respect to information structuring. Thus, some of these serializations are compatible with more contexts of utterance than others since some are associated with particular focus, topic, or givenness properties.

An essential ingredient of such a word order freedom on the clause level is the positioning of the verbal head within the verb phrase. Alterable positioning of a verbal head within its phrase is a general property not only of Slavic languages but in fact of a large number of languages worldwide. Nevertheless, current descriptions of Slavic languages – in typological as well as in theoretical schools of linguistics – take (3c) to be the 'base' order[11] or 'dominant' order. As a consequence, Polish is labelled SVO and grouped with languages like English.[12]

---

[10] "*Apart from the location of clitics there are virtually no syntactic constraints on the ordering of phrases in main declarative clauses. Thus in each of the Slavic languages all twenty-four possible combinations of a subject, direct object, indirect object and verb occur as grammatical declarative orders."* Siewierska & Uhliřová (2010:109).

[11] Generative grammarians would derive the other orders by 'scrambling' that is, by shifting back and forth the subject and the objects, respectively. In any of these accounts, a language like Polish appears to be an exceptional specimen of an alleged [S[VO]]-type language at first sight. Uncontroversial languages of this type do not scramble at all.

[12] Curiously, the neighbouring language of Polish, with virtually *identical* word order properties, namely Belorussian, is classified as language with "*no dominant word order*" in WALS.

As will be explicated in more detail in Section 3, the syntactic properties of Slavic languages would appear to be highly exceptional properties if they were [S[VO]] languages. However, this impression is misleading. What appears to be exceptional [S[VO]] properties are regular properties of a type of its own, namely the type of languages with phrase structures that are not constrained by a directionality constraint for the position of the lexical head of a phrase, that is, the *alterable-head-positioning* (AHP) type.

Prior to that let us turn briefly to a typologically less well-studied phrase. The *internal* order of items in adjective phrases is rarely documented in typological surveys. Direct information on the phrase-internal position of adjectives as heads of complex adjective phrases is usually missing. However, this information is crucial since it interacts with constraints on adjective phrases as modifier phrases of noun phrases. Here is an example.

In German or Dutch, adjective phrases are head final. In consistently head-initial languages such as English or Romance languages, APs are head initial. This has an immediate effect on the positioning of APs as adpositions since 'left' adjuncts of 'left-headed' phrases are subject to an adjacency requirement (see sect. 3.1). The head of a modifier phrase that precedes a head-*initial* phrase must be *adjacent* to the phrase it is adjoined to (Haider 2021). Consequently, adjective phrases with complements that *follow* the adjectival head are ruled out in prenominal positions (4). In English and French, adjective phrases are head-initial. In German, they are head-final. Even if Dryer (1992: 96) is right – "*I conclude that <noun, adjective> is not a correlation pair*" – regularities such as the adjacency requirement for modifiers preceding head-initial noun phrases will be recognizable only when the head-positions of the involved phrases are taken into consideration.

(4) a. a *tired* (*of silly jokes) audience   – ein (der dummen Witze) *müdes* Publikum
    b. a *smaller* (*than a thumb nail) portrait   – ein *kleineres* (*als ein Fingernagel) Porträt
    c. une [[*fière* (*d'elle-même)]$_{AP}$ nation]   – eine (auf sich) *stolze* Nation
       a proud (of itself) nation
    d. une [nation [*fière* (d'elle-même)]$_{AP}$]

In languages with head-initial noun phrases and head-initial adjective phrases, that is, in any consistently head-initial language, complex adjective phrases cannot appear in prenominal positions (4c,d). The adjacency requirement holds for adjuncts of head-initial phrases only, but in typological descriptions, the position of the head of a noun in the noun phrase is rarely assessed.

As for other adnominal items, typological surveys typically focus on the positioning of a noun relative to the serialization of a "genitive" in possessor constructions.[13] However, this construction is no reliable diagnostics for the position of the head in a noun phrase because the structure of head-*initial* NPs in many languages provides *two* positions (cf. Koptjevskaja-Tamm [1993:71]), one preceding and one following the head noun (5a,b). As a consequence, "*SVO & GenN languages are as common as SVO & NGen languages.*" (Dryer 2013c). A more useful diagnostic property would be the serialization of NP-internal phrases relative to

---

[13] "The genitive noun phrase is often called the possessor (phrase) and the head noun is sometimes called the possessee (noun), and the construction itself is known either as a *genitive construction* or as a *possessive construction.*" (Dryer 2013c).

the head-noun (5c), rather than possessor constructions. (5d) unequivocally shows that the German NP is head-initial, preceded only by determiners and equivalent items.

(5) a. die neuen Kleider [*des Kaisers*]　　　b. *des Kaisers* neue Kleider
　　　the new dresses [the emperor's]$_{Gen}$　　　[the emperor's]$_{Gen}$ new dresses
　　c. die korrekte Analyse [der Daten]$_{Gen}$　　d.* [der Daten]$_{Gen}$ korrekte Analyse
　　　the correct analysis [the data's]　　　　the data's correct analysis

In sum, two kinds of essential information should not be missing in typological surveys, namely first, information on the position of the head[14] of each phrasal category of a given language, not only of verb phrases and PPs. The second piece of information is information on the rigidity vs. variability of order patterns within complex phrases, that is, verb phrases, noun phrases, and adjective phrases. Presently, the information on phrase-internal serialization in typological descriptions typically refers to the verb relative to its subject and an object, in terms of "(*no*) *dominant order*".

2.3 What matters is structure, not content

Content is easy to grasp; structure is hard to assess.[15] But it is the structure that matters more than the content. Grammars define structures, and structures constrain the form of the presentation of content. Haspelmath (2014) justly asks: "*Saying that Japanese generally has SOV order while English has SVO order is far more problematic, because it seems to presuppose that we can identify subjects, objects and verbs, i.e. abstract syntactic categories, in both languages. But on what basis*?" Regrettably, instead of insisting on the inevitability of providing structurally sound definitions as the basis of any comparative grammar, he suggests to capitulate and stick to a pre-theoretic, phenomenological attitude.

"*The basic principle is [...] that languages can be readily compared only with respect to meanings and sounds/gestures, but not with respect to their categories, because only meanings and sounds, but not categories, are universal. Thus, instead of saying that English has SVO order, while Japanese has SOV order, we must say that English has agent-action-patient order, while Japanese has agent-patient-action order. This is not the normal notation.*"

Such a conclusion is misleading. What matters is not "readily" but "correctly".[16] Languages can and in fact must be compared "*with respect to their categories*", but only after having ensured that one is comparing identical categories. This is exactly *not* what we do if we compare "agent-patient" order. Here is an example. Siewierkska (1996: 149) identifies and summarizes the following positions arrived at in the literature, based on a semantic definition of subject and object. Typologists agree that there is "*an association between ergative alignment and non-SVO order*" and "*an association between ergative alignment and object-before-subject order*". This would be surprising, given the fact that SVO is a major type.

---

[14] Fixed or variable? If fixed, is it final or initial?

[15] Greenberg (1963: 59) is very clear about his *preliminary* recourse to semantic criteria for the identification of the subject of a clause: "*I fully realize that in identifying such phenomena in languages of differing structure, one is basically employing semantic criteria. There are very probably formal similarities which permit us to equate such phenomena in different languages. However, to have concentrated on this task, important in itself, would have, because of its arduousness, prevented me from going forward to those specific hypotheses.*"

[16] Comparative biology compares homologically. Analogous structures are seen as the result of convergent evolution. It is the structure that determines function (see Haider 2020).

In the literature Siewierska refers to, "SVO" and "OS" order is understood as "*Agent-Action-Patient*" and "*Patient-Agent*" order, respectively. What this neglects is the fact that 'ergative alignment' ought to be read as follows: The argument of a transitive verb that is a *direct object* in nominative-accusative alignment is the *syntactic subject* under ergative alignment, if 'subject' is construed *grammatically*. The grammatical 'subject' is the morpho-syntactically privileged argument of the verbal predicate. It agrees with the finite verb in languages with subject-verb agreement; it cannot be omitted without signalling this morpho-syntactically (i.e. passive in Nom-Acc languages, in direct correspondence to anti-passive languages with Absolutive-Ergative alignment);[17] it occurs in a structurally uniquely position in languages that identify the subject structurally, and so on. Given these structural criteria, Siewierska's findings turn out as expected, straightforward, and cross-linguistically uniform properties of syntactic subjects across alignment systems.

First, an *ergative* language that would 'semantically' be identified as "SVO" is structurally an OVS language. Structural OVS languages, however, are extremely rare if not inexistent. Dryer & Haspelmath (2013) list eleven OVS languages in WALS. *Four* of them have an ergative case-system (Kuikuro, Mangarrayi, Päri, Tuvalan). *Five* are caseless (i.e. 'neutral') but show ergative properties (Asurini, Hixkaryána,[18] Selknam, Tiriyo, Ungarinjin). The two remaining languages are Kxoe and Urarina. This means that structurally, nine of the eleven languages are "SVO" languages, modulo ergative alignment. Hence, there is no reason for being surprised that an ergative "agent-V-patient" language, which would in fact structurally be an OVS language, has not been detected and presumably does not exist.

As for the two alleged nominative-accusative OSV languages, the evidence is questionable. For Urarina, Olawsky (2007: 45), who published a comprehensive grammar of this language (2006), notes: "*The language has a nominative-accusative system but case is marked by constituent order only.*" How can one be sure that the system is nominative-accusative in Urarina if all we have is a semantically identified constituent order? Passive is inconclusive in this language since it is formed periphrastically through a nominalized verb functioning as a copular complement. The 'passivized' verb can take nominal morphology. However, there is an intransitivizer, viz "*ne-*" that produces O>S derivations of transitive verbs; see Olawsky (2006: 600), Muysken et als. (2016, Feature ARGEX8-1). In a Nom-Acc system, an intransitivizer is expected to produce S,P > S, but not O>S. In ergative languages, an intransitivizer is expected to produce S,A>S, which in typological terminology is O>S. This seems to be exactly what happens in Urarina.

As for Kxoe, Fehn's (2015:214), grammar of Grammar of Ts'ixa (Kalahari Kxoe) is very clear: "*There are three patterns available for transitive clauses: AOV, AVO and OAV, with the latter occurring less frequently than the other two. Although the dominant word order of the Khoe languages is thought to be AOV (cf. Heine 1976, Güldemann 2014), AVO is just as*

---

[17] With a concomitant, obligatory Acc-to-nom switch and ergative-to-absolutive case-switch, respectively, in languages with structurally determined case assignment.

[18] According to Derbyshire (1979), an *object* receives the same morphology as an *intransitive* subject when verbs take on derivational morphology. This is an ergative feature, with separate morphology for objects and transitive subjects. As Birchall (2014:101) emphasizes, "*two commonly occurring verbal marking patterns in South American languages that are difficult to characterize as strictly ergative or accusative: hierarchical marking and split intransitivity.*" Kalin (2014) tries to motivate an SOV-based analysis with VP fronting.

frequent." The type-assignment in WALS exclusively follows Köhler (1981). Kxoe is not a reliable testimony of OVS.

Siewierska's second point, the "object-before-subject order" of ergative languages is in reality the Patient-before-Agent order. Structurally, in ergative languages, this is subject-before-object, that is, the noun phrase with absolutive case precedes the noun phrase with ergative case. This – nominative before accusative – is the common serialization in Nominative-Accusative languages as well. Subjects precede objects. In sum, ergative languages pattern just like Nom-Acc-languages, modulo alignment, with SOV and SVO as the most frequent types. The allegedly non-existent "ergative SVO" do exist, as ergative languages that have been misidentified as OVS languages. The alleged "object-subject" order of ergative languages is in fact the cross-linguistically pervasive subject-object order, modulo ergative alignment.

The *structural* identification is the necessary, proper, and inevitable basis for cross-linguistic comparisons. 'Semantic' classifications of grammatical relations obviously lead astray. They rest on a hidden but wrong premise, namely, that universally, for verbs with an agent and a patient argument, the agent argument is the subject in a 'plain'[19] clause. This is true for Nom-Acc-languages, but crucially not for languages with ergative alignment. The equation of Agent with Subject works for Nom-Acc languages, but not for Abs-Erg languages. In these languages, the patient of a transitive verb is the grammatical subject. If one compares Agent-V-Patient patterns cross-linguistically, one compares the *subject* of Nom-Acc systems with a non-subject of Abs-Erg systems. It is not astonishing at all that such ill-defined "subjects" do not share relevant *grammatical* properties.

2.4 Types as predictors

Adequately defined types are bundles of syntactic properties that characterize core properties of the members of the given type. Being a member of a given type means sharing the properties of this type. So, assignment of a given language to a type predicts that the given language matches the core properties of the type. There may be variation between the members of a type in peripheral properties but there must be an invariant core of properties if type assignment is of any practical use and theoretical significance. The invariant core amounts to a set of predictions for grammatical properties to be met by any language assigned to a given type.

For instance, if it were legitimate to file Slavic languages as [S[VO]] languages, they ought to share a substantive set of the defining properties of [S[VO]] languages, that is, the properties that follow directly from the particular clausal architecture of an [S[VO]] language. Slavic languages, however, systematically differ from uncontroversial [S[VO]] languages in numerous properties that are core properties of [S[VO]] languages, as will be pointed out in section 3; see Haider & Szucsich (2018), Szucsich & Haider (2021). However, typologically, Slavic languages are by no means exceptional. They may serve as a good illustration, or as Dixon (2011:183) formulates it: "*More of the world's languages are like Russian than are like English.*"

---

[19] 'Plain' means: non-passivized, non-middle, etc., or, in other words, non-derived form.

In the following section, eight grammatical properties will be reviewed that correlate with the head positioning in phrases, and in particular in verb phrases. It will be argued that properties such as those discussed in the following sections provide a more adequate basis for re-defining the major Greenbergian types – SOV, SVO, VSO – once this set is completed with a type that Greenberg's scheme did not explicitly foresee, namely the type with alterable V positioning, that is, the AHP type with 'no dominant order'. The three major Greenbergian types (6a-c) are types with a fixed verb position within the verb phrase. In the until now missing type (6d), the positioning of the verbal head in its phrase is not constrained to a single position. Cross-linguistically, the type (6d) seems to be as sizeable as the two major types SOV and [S[VO]], since many languages that belong to (6d) are currently classified as SVO.

(6) a. SOV: *fixed V-positioning*: phrase-final
    b. VSO: *fixed V-positioning*: phrase-initial
    c. [S[VO]]: *fixed V-positioning*: phrase-initial; obligatory preverbal subject position
    d. {S,V,O}: *alterable V-positioning* (AHP): phrase-initial, -final, or -medial position

3. Head-positioning as a predictor of grammatical properties

This section highlights eight syntactic properties immediately correlated with the structural position of the head of a phrase. It will be shown that a head-initial structure is subject to constraints that are absent in head-final phrases and in phrases with alterable head-positioning. This is the reason why Slavic languages, that is, languages with an alterable V position, share properties with head-final languages, but not with strictly head-initial languages, that is, with [S[VO]] languages. What they have in common is the *absence* of certain restrictions.

Table 1 itemizes the properties correlating with head-positioning in a phrase for three structure types, namely strictly initial, strictly final, and variable 'alterable'.

Table 1	head-initial	head-final	alterable	section
i. strictly head-adjacent preverbal adjuncts	☑	no	no	3.1
ii. order variation of nominal arguments	no	☑	☑	3.2
iii. obligatory structural subject position	☑	no	no	3.3
iv. auxiliary-and-verb order variation	no	☑	☑	3.4
v. compactness of Aux-V orders	no	☑	no	3.5
vi. positional filler-gap restrictions	☑	no	no	3.6
vii. interrogative subject left behind	no	☑	☑	3.7
viii. preverbal interrogatives left behind	no	☑	☑	3.8

3.1 Adjacency of left-hand side adjuncts of strictly head-initial phrases

As already mentioned in section 2.2, adjuncts that *precede* strictly head-*initial* phrases are subject to a constraint that is absent for adjuncts of non-head-initial phrases (Haider 2021). The head of the adjunct must be *adjacent* to the phrase it is adjoined to. In SVO languages,

for instance French (7), this constraint applies to preverbal adverbial phrases as well as to prenominal attributes (11) of nouns.

(7) a. Il doit être *très soigneusement* analysée   French

       it must be very carefully analysed

    b.*Il doit être *avec soin* analysée

       it must be with care analysed

    c. It must be *very carefully* analysed[20]

    d.*It must be *with great care* analysed

The difference between (7a,c) and (7b,d), respectively, is one in terms of form. Semantically, these adverbial expressions are roughly equivalent. Phonologically and morphologically, the deviant version is less complex than the acceptable form. They differ syntactically. In (7a,c), the head of the adverbial is adjacent to the noun phrase; in (7b,d) it is not, since the adverbial phrase is a prepositional phrase and therefore head-initial.

In Dryer's (2013b) survey, (7b,d) would count as "XVO". He notes that "*the XVO type* [...] is *quite rare; the only known instances are varieties of Chinese*." In head-final languages, adverbial phrases typically precede the verb but no such constraint is at work, as Dryer reports: "*All three types of OV languages are widely attested. Among them, XOV is the most frequent on the map (46 languages), OVX next most frequent (44 languages), and OXV least frequent (27 languages).*"

The crucial cases are those in which the "X" itself is not a head-final phrase. In strictly head-final languages, any phrase is head-final. Hence any adverbial phrase will be head-adjacent to the phrase it precedes. But, it is easy to allocate languages showing that the adjacency constraint is absent for adjuncts of head-*final* phrases, as for instance Dutch (8a) or German (b), or any other OV language that admits postponed phrases:

(8) a. dat beslissingen meer (*dan werd gedacht*) door emoties worden gedreven

      that decisions more (*than was thought*) by emotions are triggered

    b. dass Entscheidungen häufiger (*als man dachte*) durch Emotionen gesteuert werden

      that decisions more-often (*than was thought*) by emotions triggered are

In (8), adverbial phrases precede, but the head of these phrases is not adjacent to the verb phrase. In VO, this is excluded, in OV it is normal. Slavic languages (9), which are testimonies of AHP languages, pattern like OV and not like VO, that is, they admit non-adjacent, preverbal adjuncts; see Haider & Szucsich (2018), Szucsich & Haider (2021).

(9) a. V prošlom godu [gorazdo *bol'še* (čem Igor')] vyigrala tol'ko Maša   Russian

      in last year [much more (than Igor)] *won* only Maša

    b. Prošle godine je [mnogo *više* (od Želimira)] radila samo Branka]]   B/C/S[21]

      last year has [much more (than Želimir)] *worked* only Branka

---

[20] Here are results from corpus search: The sequence "*should more *ly*", with "*" as a joker for a single word, is attested in each consulted corpus: BNC: 17, CocA 53, NOW 254. However, a PP in the pre-VP position, such as "*should with care*", "*should with great care*" is absent. [BNC = British National Corpus (100 million); CocA = Corpus of contemporary American English (520 million); NOW = News on the web (5.2 milliard)]

[21] B/C/S = Bosnian, Croatian, Serbian.

  c. W zeszłym roku [dużo *więcej* (niż Jarek)] pracowała tylko Katarzyna Polish
   in last year much more (than Jarek) *worked* only Katarzyna

Standardly, these languages are filed as SVO. However, they do not pattern like [S[VO]] languages in this respect and others. These are AHP languages, and S-V-O is just one out of a set of admissible orders. The adjacency property is a property that identifies strictly head-initial languages in general, and in particular, languages with a strictly head-initial verb phrase.

Prenominal attributes of optionally head-initial noun-phrases behave alike. The head of the attribute must be adjacent to the noun phrase, if the attribute precedes and the noun phrase is strictly head-initial. In Russian (10a), adjacency does not matter. This shows that the noun phrase is not *strictly* head-initial. In German (10b-d), the noun phrase is strictly head-initial, and the attribute must be head-adjacent (10b,c)

(10) a. [*vernyj* svoej žene] muž   Russian
   faithful his wife$_{DAT}$ man
   'a man faithful to his wife'
  b. ein [seiner Frau *treuer*] Mann   German
   a [his wife$_{DAT}$ *faithful*] man
  c. ein [auf seine Frau *stolzer*] Mann
   a [of his wife *proud*] man
  d.*ein [*stolzer* auf seine Frau] Mann

The adjacency requirement produces collateral effects that have been mentioned already in section 2.2. In strictly head-initial languages, prenominal attributes cannot contain complements (11a,c) since these phrases would make the head of the attribute non-adjacent, as illustrated in (11). French, a language with prenominal as well as post-nominal placement of adjectival attributes, complex attributes are post-nominal therefore (11d). In English, such adjective phrases are replaced by post-nominal appositions (11d).

(11)a. un [curieux (*de tout)] homme   French
   a curious$_{AGR}$ (about everything) man
  b. un homme [curieux$_{AGR}$ de tout]
   a man curious about everything
  c. some [well-known (*to anyone)]$_{AP}$ facts
  d. some facts, [well-known to anyone]

In the typological literature, information on the head position of adjectives within complex adjective phrases is usually missing. If adjectives are discussed in connection with the relative order *adjective-noun* or *noun-adjective,* they are not studied as phrases but only as words accompanying nouns. This state of imperfect knowledge is aggravated by the equally imperfect knowledge of the head position of the noun within the noun phrase. The relevant knowledge would be available but it is not standardly gathered in typological descriptions. Consequently, cross-linguistic statements about correlations of adnominal adjectives and nouns in relation to OV and VO remain indeterminate. Correlations can be found, however, once one zooms in into the involved phrases. Here is a correlation: In strictly head-initial languages, *complex* adnominal attributes are post-nominal.

The reason is the following: If a language is strictly head-initial, noun phrases and adjective phrases are head initial. Hence, the adjacency requirement for adjuncts preceding a head-initial phrase rules out complex, prenominal adjective phrases, since the complement of the adjective would follow the adjective, which precludes adjacency (Haider 2021).

3.2 Variable relative order of the arguments of a predicate

Languages such as German, in which head-positioning is differentiated by the lexical category of the head, provide minimal pairs of head-initial and head-final phrases. Head-final phrases display variable order; head-initial phrases are strictly ordered. These facts clearly indicate that order variation is a property of phrase structure and not a holistic property of languages. German displays variable order within the verb phrase, but not within the noun phrase, since only the former is head-final while the latter is head-initial. Note that the phrases involved in the order variation are morphologically clearly distinguishable. Nevertheless, the pattern (12d) is unacceptable. This contrast between verb phrases and noun phrases is a general contrast between head-final and head-initial phrases.

(12) a. [an den Vorsitzenden eine Aufgabe *übertragen*]$_{VP}$ German
        to the chairman a task$_{Akk}$ assign
    b. eine Aufgabe an den Vorsitzenden *übertragen*
    c. das [*Übertragen* einer Aufgabe an den Vorsitzenden]$_{NP}$
        the assigning a task$_{Gen}$ to the chairman
    d.*das *Übertragen* an den Vorsitzenden einer Aufgabe
        the assigning to the chairman a task$_{Gen}$

[S[VO]] languages are strictly head-initial languages. Hence, in these languages, word order is strict, even if morphology would clearly identify the arguments of a verb. Icelandic is an appropriate example. It is an SVO language with rich case inflection but the word order is strict. In (18), dative and accusative are distinctively marked on the nouns. This notwithstanding, Dehé (2004: 94) reports from in her field study that "*the inverted order was rejected*", i.e. (13b), and it was rejected by all her informants, without exception.

(13) a. Þau sýndu foreldrunum krakkana.   Icelandic
        They showed parents$_{-DEF-DAT}$ kids$_{-DEF-ACC}$
    b.*Þau sýndu krakkana foreldrunum
        They showed kids$_{-DEF-ACC}$ parents$_{-DEF-DAT}$

This situation is in striking contrast with the situation in Slavic languages with their word order freedom on the one hand and their classification as SVO languages on the other hand. So, either the correlation between SVO and strict word order or the classification of Slavic languages is wrong. The criteria discussed in this section converge on the latter. Slavic languages are AHP languages, hence the constraints responsible for the strict order in head-initial phrases do not apply. Bulgarian is particularly instructive in the following respect.

Although Bulgarian lacks morphological case marking, the variability of word order in Bulgarian is as free as in any other Slavic language. The subject and the objects may be serialized freely, with the familiar, concomitant effects on information structuring. (14a-c) are just three variants (see Avgustinova 1997:127-136) out of the set of grammatically admissible twenty-

four permutations of the three arguments and the verb. They are semantically equivalent but differ in information structure, that is, they are felicitous answers to different questions.

(14) a. Ivan *izprati* kuklata na decata   Bulgarian
          Ivan sent doll$_{Def.}$ to children$_{Def.}$
      b. Kuklata Ivan na decata *izprati*
          Ivan sent to children$_{Def.}$ doll$_{Def.}$
      c. *Izprati* na decata kuklata Ivan
          sent to children$_{Def}$ doll$_{Def.}$Ivan

Languages that permit the permutation of objects represented by noun phrases, also permit the permutation of objects and the subject. All in all, phrase-internal word-order variability is a property of head-final phrases and phrases of the AHP type. Head-initial phrases are strictly ordered. Consequently, SVO languages, understood as strictly head-initial languages with an obligatory subject preceding the head-initial verb phrase, are languages with strict word order. Apparent exceptions come from languages that are misclassified, such as the Slavic languages.

"Free" word order is not a holistic property of a language. It is a property of phrases. In languages with category-dependent differences in head-positioning, there are phrases *without* word order variation, namely the head-initial ones, and phrase *with* variation, namely the head-final ones. German is a representative instance of this class of languages. In sum, if a language admits the permutation of S,V, and O, salva grammaticalitate, the language cannot be an [S[VO]] language.

3.3 Obligatory structural subject position

Obligatory subject expletives are reliable indicators of an obligatory structural subject position. In the absence of a subject candidate, the position reserved for the subject in an SVO-type clause is filled with an item whose only grammatical function is to serve as a dummy for a missing subject. In [S[VO]] languages, unlike SOV and VSO languages, the subject is an obligatorily instantiated grammatical relation in a clause. There is an obligatory *structural* position reserved for a subject and this position must not be vacant. In [S[VO]], the obligatory subject position precedes the head position of the verb. The objects follow (15a). In the other types, the subject plus the objects uniformly precede (SOV) or follow the verb (VSO). Genuinely subjectless[22] clauses are common in languages with head-final VPs, such as German (15b), and in VSO languages, cf. Syrian Arabic (15c) or Irish (15d). In SVO languages, the subject position must not remain genuinely empty (15e).

 (15) a. Here, *the subject* precedes the verb.
       b. Aus diesem Glas wurde nicht getrunken   German
           out-of this glass was not drunk
       c. ma nšarab b ha l-kaseh   Syrian Arabic
           not drink$_{3sg.Pass}$ out-of this the-glass   (Farhat 1991:178)

---

[22] "*Genuinely subjectless*" must not be equivocated with "*without a lexical subject*", since in null-subject languages, pronominal subjects are not lexicalized but a subject is (morpho-)syntactically identifiable (see below).

    d. nuair a bhí tráite síos uaidh   Irish
       when comp was ebbed down from-it   (McCloskey 1996:261)
       'when the tide ebbed down from it'
    e.*Out of this glass was not drunk.

A subject expletive is typically a personal pronoun, such as French ‚il‘ (16a) or Norwegian ‚det‘ (16b), or a locative adverbial, such as English 'there' (16c) or Danish ‚der‘ (16d).

(16) a. *Il* a été dormi dans ce lit.   French (Rivière 1981: 42)
        it has been slept in this bed
     b. Ofte vart *det* telefonert.   Norwegian (Åfarli 1992:85)
        often was EXPL telephoned
     c. Since then, *there* has been a long decline.
     d. (at) *der* blevet danset   Danish (Vikner 1995: 209)
        (that) *there* was danced

German and Dutch are particularly instructive. On the one hand, they are SOV and consequently there is no obligatory structural subject position. On the other hand, they are V2 languages, with an obligatory clause-initial position in declarative clauses. This position must be filled with an expletive (17a,c) if no other item is placed there. However, these expletive items do not occur as subject expletives in otherwise subjectless clauses (17b,d).

(17) a. *Es* wird an einer Lösung gearbeitet.   German
        EXPL is on a solution worked
     b. dass (**es*) an einer Lösung gearbeitet wird
        that (EXPL) on a solution worked is
     c. *Er* wordt aan een snelle oplossing gewerkt.   Dutch
        EXPL is on a quick solution worked
     d. dat aan een snelle oplossing gewerkt wordt
        that on a quick solution worked is

Another instructive combination of two typological traits is the combination of SVO and the null-subject property.[23] The latter property eliminates pronouns as candidates for subject expletives, since in null-subject languages, unstressed subject pronouns are obligatorily omitted and expletives would always be unstressed. Romance languages provide a good example.

The majority of Romance languages are null-subject SVO languages. As a consequence, the standard passive is not applicable to intransitive verbs since this would result in a subjectless clause (18a,b). French, however, does not share the null-subject property and therefore a pronoun can serve as an expletive (18c). In at least one null-subject Romance language, viz. in Venetian, a regional vernacular spoken in the northeast of Italy, a locative pronoun has been recruited as an expletive subject and consequently, intransitive verbs may get passivized in this language (18d).

---

[23] In languages with this property, unstressed pronominal subjects are omitted. Superficially, clauses that otherwise would have a pronominal subject appear to be subjectless. Syntactically, they are not subjectless. The subject is arguably a null pronoun.

(18) a.*Fue trabajado duro aquí.   Spanish
    was worked hard here

   b.*È stato dormito bene in questo letto.   Italian
    has been slept well in this bed

   c. *Il* a été dormi dans ce lit.   French
    EXPL has been slept in this bed   (Rivière 1981:42)

   d. *Z'è* stà parlà de ti.   Venetian[24]
    there has been spoken about you

In sum, expletive subjects in otherwise subjectless constructions are reliable identifiers of [S[VO]] languages. In this type of languages, genuinely subjectless sentences do not exist. If a language allows genuinely subjectless sentences, it cannot be an SVO language.

Slavic languages, once more, are an informative set of languages. Despite being classified as SVO, they allow for subjectless clauses without expletive subjects. This is incompatible with [S[VO]] but expected for languages with flexible head-positioning (AHP). Here are pertinent examples from Russian (19a,b) and Bulgarian (19c,d)

(19) a. V komnate bylo nakureno   Russian
    in room was smoked

   b. Ob ètom bylo napisano v gazete
    about this was written in newspaper

   c. V stajat e vlizano   Bulgarian (Desclés & Guentchéva 1996:56)
    in room is entered

   d. Po trevata est xodeno
    on grass$_{def.}$ is walked$_{IMPF-PPP}$

Norwegian, on the other hand, demonstrates how the full grammatical potential is tapped when it comes to filling the subject position in an SVO language (Taraldsen 1979:49; Lødrup 1991:127). The filler for the obligatory preverbal subject position may be the direct object (20a), turned into a derived subject. In (20b), the so-called pseudo-passive, the complement of the prepositional object is turned into a subject. Eventually, in (20c) the subject position is filled with a dummy subject in spite of there being available candidates for the role of a syntactic subject. (20d) is unacceptable since the subject position would not be filled. This is true for main clauses as well as embedded ones.

(20) a. (at) frimerker ble klistret på brevet.   Norwegian
    (that) stamps were pasted on letter$_{DEF}$

   b. (at) brevet ble klistret frimerker på.
    (that) letter$_{DEF}$ was pasted stamps on

   c. (at) *det* ble klistret frimerker på brevet.
    (that) EXPL was pasted stamps on letter$_{DEF.}$

   d.*(at) ble klistret frimerker på brevet.
    that was pasted stamps on letter$_{DEF.}$

---

[24] I am grateful to Cecilia Poletto, as a native of this language AND a syntactician, for having confirmed this fact.

In sum, the obligatory presence of an unequivocal expletive subject is an [S[VO]] identifier. On the other hand, a language cannot be of the SVO type if it admits genuinely subjectless finite clauses. The standard passive applied to an intransitive verb produces a subjectless verb. If the result is grammatical in the absence of a subject expletive, the language is not an [S[VO]] language. Note that this criterion is not affected by the null-subject property. In either case, a subjectless [S[VO]] clause is unacceptable since a null-subject could not serve as an expletive. This is exemplified by Romance languages. This kind of somewhat fine-grained structural constraints on passive constructions easily escape typological surveys.

3.4 Order variation between auxiliaries and the main verb in a clause

In VO languages, auxiliaries typically precede the main verb while in OV they follow. As for the grammatical source of this correlation, Dryer (2009: 204) frankly admits: "*The primary conclusion is that there is no obvious explanation for why auxiliary verbs tend to precede the main verb in VO languages but follow in OV languages*." However, there is a source and the source is the canonical directionality of verbs in a given language.

Dryer has been misled by the fact that typologists look at content and therefore tend to classify auxiliaries as "modifiers" and thus they expect them to pattern like modifiers, what they don't. They pattern the way a *governing* verb patterns. Syntactically, auxiliaries are governing items since they determine the grammatical form of the verbs they combine with. English is a convenient example. It is the auxiliary that determines whether the dependent verb is an infinitive, a participle, or suffixed by "-*ing*". That auxiliaries are governors is Gunnar Bech's (1955) original insight, who explicitly emphasizes the parallel between case government and what he calls "status government". The "status" of the dependent verb (e.g. participial or infinitival or aspectual form) is determined by the governing (auxiliary) verb. The order patterns reflect the directionality property of verbal government. Consequently, OV correlates with V-before-Aux and VO correlates with Aux-before-V. The canonical government direction of verbal government, that is, the selection of the grammatical form of the head of the complement, is uniform in each case. What is different is the governee.

A typologically relevant issue is the variability of these order patterns since variability immediately correlates with the respective word order type. If a language allows order variation for auxiliaries, the language cannot be an SVO language. In other words, in SVO languages, the order of an auxiliary verb relative to the main verb is invariant. The auxiliary precedes the main verb. Order variation is found in OV languages (21) and in AHP languages (22). For this reason, the order variability may serve as a feature for distinguishing SVO languages from apparent SVO language, that is, languages with alterable V-positioning for which S-V-O happens to be a frequent serialization pattern.

Alterable positioning of auxiliaries is well-attested for Indo-European SOV languages (21). Alternative positions may be available for the very same auxiliary, as in Dutch and German (21a,b), or positions may vary with the kind of auxiliary, as in Persian (21c,d). While the auxiliary for passive obligatorily follows (21c), the future tense auxiliary (21d) obligatorily precedes (Goldberg 2002, §6.1).

(21) a. dat hij niets gezien *heeft* / *heeft* gezien   Dutch
       that he nothing seen *has* / *has* seen

b. dass ich es nie beantworten *würde* können / beantworten können *würde*   German

that I it never answer *would* be-able-to/ answer be-able-to *would*

c. ānhā gošude *šodænd*   Persian

they opened$_{Past-Partic.}$ became$_{3P}$ ('They were opened')

d. ānhā gošude *xāhænd* šod

they open$_{Past-Partic.\ FUT-3rd}$ become ('They will be opened')

Uncontroversial SVO languages, that is, languages that meet all the other criteria of the *head-initial* column in Table 1, do not admit order variation for auxiliaries. If there is order variation in an alleged SVO language, this language arguably is a AHP language. A case in point is the Slavic language family (22).

(22) a. We wtorek *poukładać musisz* w szafie.   Polish

on Tuesday *tidy-up must$_{2nd.sg.}$* in wardrobe

b. We wtorek *musisz poukładać* w szafie.

c. Sutra *pospremiti moramo* samo našu sobu.   B/C/S

tomorrow *tidy-up must$_{1st.pl.}$* only our room

d. Sutra *moramo pospremiti* samo našu sobu.

e. Zavtra *ubirat' budem* v Izmajlovskom parke.   Russian

tomorrow *tidy-up shall$_{1st.pl.}$* in Izmajlovo Park

f. Zavtra *budem ubirat'* v Izmajlovskom parke.

The positioning of the auxiliary relative to the dependent verb parallels the positioning of the verbal head relative to its objects, in so far as the relative order is variable or not.

3.5 Compactness of V-aux orders

In languages with head-initial VPs, adverbs typically may be interspersed between stacked VPs. The English example (23a) by Quirk et als. (1986:495, §8.20) presents an adverb in front of each of the four verbal heads of the four stacked verb phrases. In an SOV clause structure such as in German (23b), these adverbs precede the whole sequence of verbs. Any interpolation of adverbs into the canonically ordered sequence of verbs in (23b) would render the clause strongly deviant. This compactness property of the sequence of verbs is a property of head-final languages only. In head-initial languages, each verb is the head of a verbal phrase, and each verb phrase may be modified by preceding adverbials.

(23) a. The new theory *certainly* may *possibly* have *indeed* been *badly* formulated

b. ob es *unter Umständen vielleicht tatsächlich schlecht* [formuliert worden sein könnte]

whether it *under circumstances perhaps indeed badly* [formulated been be could]

'whether it possibly could perhaps have been badly formulated'

In head-final languages, the verbs of a single clause obligatorily 'cluster' (Haider 2010, ch. 7) and these clusters do not leave any room for intervening non-verbal items, except for particles of particle verbs. This is the grammatical source of the compactness property.

Clustering, in brief and without further explication (for an explicit analysis see Haider 2015: 87; 2010: 314), is a grammatical way of avoiding stacked, centre-embedded verbal phrases in head-final languages. Such a structure is unwelcome for the parser, but it would be unavoida-

ble if each verb was the head of a separate, head-final verb phrase. Instead, there is a single VP with clustered verbs in OV languages. Such clusters are compact.

3.6 Positional restrictions on filler-gap relations

Grammatical restrictions constrain the filler-gap relation of phrases fronted to the clause-initial position in languages that employ phrasal displacement in interrogative, comparative or relative clauses, and in some languages also in declarative clauses. Germanic languages, for instance, are V2-languages and so, they front phrases in declarative (24a) as well as in interrogative clauses (24b). In each case, there is a filler-gap relation between the fronted item as the filler and is its canonical position as the gap, indicated by "--" in (24).

(24) a. *Ingenting* ska jag göra -- imorgon   Swedish
   nothing shall I do tomorrow
  b. *Vad* ska du göra -- imorgon?
   What will you do tomorrow

The filler-gap relation is grammatically constrained, but with clear-cut differences between [S[VO]] languages and the other types. A good indicator of an [S[VO]] clause structure is the following constraint. The gap must be within the canonical directionality domain of a (verbal) head. In [S[VO]], this domain excludes the pre-verbal subject position, since the dependent items *follow* the verb. In SOV, VSO, and in languages with alterable positioning, subjects as well as objects are within the respective domains of the verbs. In SOV, subjects and objects precede, in VSO they follow, and in the AHP type, the directionality domain includes preceding as well as following items. As a consequence, fronting an item out of a subject constituent is unacceptable in SVO, but not in languages of the other types.

(25) a. *What* should I avoid [saying --]?
  b.**What* should [saying --] be avoided?
  c. I invited more people than she had asked me to [invite --].
  d.*I invited more people than [to invite --] was reasonable.

In (25a,b), the clause-initial 'what' is related to a gap position. This relation is blocked whenever the gap position is inside the preverbal subject phrase (25b). In (25c,d), the filler of the gap is the target of comparison[25] and the relation is blocked in (25d), for the same reason as in (25c). In OV languages such as German (Haider 2010, sect. 3.5), this subject-object discrepancy does not exist (26).

(26) a. *Wen* hätte [-- dazu zu überreden] sie zu viel Zeit gekostet?   German
   who would-have [to-it to persuade] her too much time costed
  b. Er hat schließlich mehr Leute eingeladen als [-- dazu einzuladen] sinnvoll war.
   he has finally more people invited than [-- at-it to-invite] reasonable was

The following well-known property of Slavic languages is instructive for more than one reason. First, it confirms that Slavic languages do not pattern like SVO languages with respect to filler-gap relations, and second, it shows that the gap may even be within a prenominal constituent of a noun phrase, which is also known as 'left-branch extraction'.

---

[25] In English, it is a null pronoun, like in relative clauses, as in (i); for German, see Haider (2010: 102-104).
 i. the people [~~who~~ I talked [to --]].

Whoever files Slavic languages as SVO languages, falsely predicts the typical pre- vs- post-verbal asymmetry for filler-gap relations. Left-branch extractions are predicted to be acceptable only for gap-phrases in *postverbal* positions but excluded when a gap-phrase is in a *preverbal* position.

(27) a. *Kakuju* Ivan [-- mašinu] *kupil* svoej žene? Russian
   which Ivan [-- car] *bought* his wife
   ('Which car did Ivan buy for his wife?')
  b. *Japonskuju* Ivan [-- mašinu] *kupil* svoej žene.
   Japanese Ivan [-- car] *bought* his wife
  c. *Koju* Petar [-- knjigu] daje svojoj ženi? B/C/S
   which Petar [-- book] gives his wife
  d. *Jaki* Jarek [-- samochód] kupił swojej żonie. Polish
   which Jarek [-- car] bought his wife

In each example in (27), the gap-containing phrase is preverbal. Nevertheless, each construction is acceptable, given an appropriate context for the information structure effect of the particular word order with a preverbal object. The respective grammars of these languages do not rule out such a construction. These structures are well-formed since both, the verb phrase as well as the noun phrase is AHP. Hence the gap is in the directionality domain of the head and the filler-gap relation is well-formed.

3.7 Interrogative subjects left behind

This phenomenon is directly related with the issue of the preceding section since it singles out the preverbal subject position in SVO. In SVO languages that front only a single interrogative phrase in question constructions and leaves all other interrogatives in their positions, an interrogative subject must not be 'left behind'. English (28) is representative.[26] This restriction is absent in SOV and in languages with alterable verb positioning, that is in AHP languages.

(28) a. *Who* experienced what?   – It is unclear [*who* experienced what]
  b.*What did *who* experience? – *It is unclear [what *who* experienced]

In a language with a head-final verb phrase (29) or one with alterable head positioning (30), the subject has no priority for the clause initial position in interrogative clauses. Both patterns are attested in corpora.

(29) a. *Was* hat wen schockiert? – Es ist unklar, *was* wen schockiert hat. German
    what has who shocked   it is unclear what who shocked has
  b. *Wen* hat was schockiert? – Es ist unklar, *wen* was schockiert hat.
    who has what shocked   it is unclear who what shocked has

In SOV (29b) and in AHP languages, such as the Slavic languages (Liakin & Juvénal 2001: 210), interrogative subjects are structurally not privileged over non-subjects (30). An interrogative subject may precede or it may follow another interrogative phrase which is placed in a fronted position. In the unacceptable patterns (28b), an interrogative subject in the canonical position for a subject is preceded by another interrogative item. The ensuing deviance is a

---

[26] The 100-million-words British National Corpus does not contain a *single* hit for "what did who" or "what has who". Google books lists 5150 entries for "*was hat wer*" ('what has who'). [search: Dec. 18, 2020].

characteristic property of SVO languages which is absent in AHP languages in clauses with S-V-O serialization.

(30) a. *Kdo* ho kde viděl je nejasné?   Czech, Toman (1981: 298)
     who him$_{Clitic}$ where saw is unclear
    b. Kde ho *kdo* viděl je nejasné?
     where him$_{CLITIC}$ who saw is unclear
    c. *Ko* je koga vidio?   B/C/S
     who is whom seen ('Who has seen whom?')
    d. Koga je *ko* vidio?
     whom is who seen
    e. *Kto* kogo ljubit?   Russian
     who whom loves
    f. Kogo *kto* ljubit?

3.8 Preverbal interrogative adverbial phrases left behind

This property is a correlate of the adjacency property of adjuncts discussed in section 3.2, in the context of multiple-interrogative constructions. In SVO languages, there is no room for an interrogative item in the position of a preverbal adjunct. The interrogative variant of the pre-verbal adjunct of (31a) is unacceptable in this position in a multiple question (31b). In fact, there exists no acceptable alternative serialization of (31b) at all[27] since fronting the adjunct as in (31c) would leave the interrogative subject behind, which would turn the result deviant for the reason discussed in the preceding section.

(31) a. This has *therefore*/*very often* proven to be a good strategy.
    b.*What has why/*how often* proven to be a good strategy?
    c.*Why/*How often* has *what* proven to be a good strategy?

A further restriction applies to a subclass or adverbial interrogatives. This order restriction holds for "how" and "how x" (with x as a variable other items such as "often", "many", "much", or dimension adjectives)*,* as well as for *'why'*. These adverbials have in common that what they ask for is semantically of a higher type than the semantic type of interrogative pro-nouns like 'who', 'what', 'when' or 'where'.[28] Higher type interrogatives must precede the ca-nonical position of the verb. Consequently, such an expression cannot follow the verb in SVO or AHP languages. (32a,b) illustrates this property for English.

(32) a.*(I don't know) who saw this film *how often*.
    b.*(I don't know) who quitted his job *why*.

In SOV languages and in AHP languages, the necessity of the preverbal positioning (31b) is absent. So, this property may be adduced for distinguishing SVO languages from languages with alterable verb positioning (provided these languages employ fronting in interrogative constructions). If an interrogative adjunct may occur between the subject and the finite verb,

---

[27] An acceptable paraphrase of the intended utterance is a coordination of two simple questions: "*What* has prov-en a good strategy, and *how often*?"

[28] *"Who", "what", "when", "where"* quantify over *elementary* entities, that is, individuals, points of time and place. "*Why*" and "*how*" quantify over sets (of sets). *'How often*, for instance, asks for the cardinality of a set of events; see Haider (2010:119).

the language cannot be an [S[VO]] language. As a consequence, in multiple questions, a subject interrogative plus a higher-order adverbial interrogative cannot co-occur in the same simple clause in SVO languages. If the adverbial interrogative is fronted, the subject is left behind (31c), which is unacceptable. If, on the other hand, the subject interrogative comes first, there is no well-formed serialization available for the adverbial interrogative. It is unacceptable in the post-verbal position (32) as well as in the preverbal position (31b).

If Slavic languages were [S[VO]] languages, they ought to pattern like uncontroversial [S[VO]] languages in this respect. Russian is an apt test case since this Slavic language does not *obligatorily* front all question items in multiply interrogative clauses. (33a) shows that the grammatically well-formed position is the preverbal position. Sentences with higher-order interrogative adverbials in the postverbal position (33b) are ill-formed, as expected. In this case, as in (32), the finite verb would not be in the scope domain. Unlike in strictly head-initial languages, semantically higher-order interrogative adverbials may occur in the position immediately preceding the verb phrase (33). This separates AHP language from SVO languages.

(33) a. Kto *kak* spit?   Russian
     who how sleeps   Stepanov (1997)
   b. *Kak* kto spit?
     how who sleeps
   c. Mne interesno, kakoj fil'm Boris *kak často* smotrel
     me interests which film Boris *how often* saw
   d.*Mne interesno, kakoj fil'm Boris smotrel *kak často*
     me interests which film Boris saw *how often*

(33d) is instructive for yet another reason. It also indicates that the verb position in (33c,d) is a canonical verb position and not a displaced position for a finite verb. In verb second languages, the fronted finite verb is in a displaced position and therefore it may precede this kind of adverbial interrogatives[29] without affecting the acceptability of the construction.

4. Outcomes

First, *syntactic* type assignments must be based on *syntactical* criteria. Semantic criteria are misleading. Second, with respect to the positioning of the head of a phrase, the type of alterable head-positioning should be acknowledged as a type of phrasal organization of its own in addition to the two standardly assumed major types:

- head-final   (= right peripheral; "OV")
- head-initial (= left peripheral; "VO")
- alterable   (= unrestricted; "OVO")

Heads have their canonical position either in a fixed *peripheral* position or their positioning is not constrained and therefore variable (alterable head positioning = AHP). Phrases with a

---

[29] i. Wer wird *wie oft* applaudieren?   (Who shall how often applaud?)   German
     ii. Wer applaudierte *wie oft* -- ?   (Who applauded how often?)

fixed head position are either head final or head initial. These three possibilities of head-positioning amount to three different types of phrase structures.

In many languages, head-positioning within phrases is uniform across all phrasal heads. Consequently, these languages are uniformly head initial, uniformly head final, or uniformly variable. In some languages, head positioning differs along the categories of heads. A well-known case is that of languages with a head-final verb phrase and head-initial noun phrases. Equally well-known are languages in which the head-positioning of verb phrases and particle phrases (PPs) diverge, such as SOV languages with prepositional phrases.

Third, "SVO" needs to be differentiated in SVO languages proper, that is [S[VO]], and the 'rest'. This voluminous rest consists mainly of AHP languages. Fourth, and in general, the position of the head within its phrase correlates with a wide range of syntactic properties and is therefore a good predictor of the entailed properties:

- Adjuncts preceding a head-*initial* verb phrase or a head-*initial* noun phrase are obligatorily adjacent in strict [S[VO]] languages. In AHP or in head-final SOV there is no such adjacency requirement (3.1).

- The relative serialization of nominal arguments is *invariable* in [S[VO]] but variable in AHP and in SOV. In some languages variability is dependent on distinctive morphological markers (3.2), as in Dutch, in other languages this restriction does not hold (cf. Bulgarian).

- Subjectless clauses obligatorily contain a *subject expletive* in [S[VO]] but not in AHP or SOV (3.3).

- In [S[VO]] languages, there is no variation in the order of auxiliaries and the main verb (3.4); in OV languages, the order of main verb and nonfinite auxiliaries is compact (3.5).

- Filler-gap constructions cannot relate the filler to a gap in a preverbal phrase in [S[VO]], but they can in AHP and SOV (3.6).

- If in clauses with multiple interrogative items, a single interrogative phrase is fronted to the clause initial position, a subject interrogative must not be left behind in [S[VO]], but it may in AHP and SOV (3.7).

- If interrogative phrases are fronted to the clause initial position, an adverbial interrogative of a semantically higher type (such as *how* and *why*) must not be left behind in the position preceding the canonical position of the verb in [S[VO]], but it may in AHP and SOV (3.8). In [S[VO]] languages, such adverbials are cannot occur in postverbal positions either.

It is important to precisely define and differentiate syntactic types in terms of their core syntactic properties. It is equally important to avoid misclassifications of languages. Misclassified languages pollute the data base and weaken the predictive power of type assignments. A major source of misclassifications is the commingling of SVO-languages and languages with alterable head positioning.

In many syntactic respects, [S[VO]] languages are more tightly constrained than AHP or SOV languages. If AHP languages, such as for instance the Slavic languages, are mistaken for

[S[VO]] languages, the clear-cut syntactic profile of the SVO type suffers and loses much of its predictive power since AHP languages lack most of the core properties of SOV languages.

Bibliography

Åfarli, Tor. 1992. *The syntax of Norwegian passive constructions*. Amsterdam: Benjamins .

Avgustinova, Tania 1997. *Word order and clitics in Bulgarian*. Unpubl. doctoral dissertation. Saarbrücken: Universität des Saarlandes.

Bech, Gunnar 1955. *Studien über das deutsche verbum infinitum*, Copenhagen: Munksgaard. (Second ed. 1983, introduced by Cathrine Fabricius-Hansen, Tübingen: Niemeyer).

Birchall, Joshua. 2014. *Argument marking patterns in South American languages.* LOT Dissertation series, number 352.

Cable, Seth 2008. *Configurationality and the Salish language*. Ms. U. Mass at Amherst. (http://people.umass.edu/scable/PNWSeminar/handouts/Config/Configurationality-Salish.pdf; accessed June 1st 2018).

Dehé, Nicole 2004. On the order of objects in Icelandic double object constructions. *UCL Working Papers in Linguistics* 16:85-108.

Derbyshire, Desmond C. 1979. *Hixkaryana*. (Lingua Descriptive Studies 1) Amsterdam: North-Holland.

Desclés, Jean-Pierre & Guentcheva, Zlatka. 1996. Passivization in Bulgarian: A formal approach. *Univ. of Trondheim Working Papers in Linguistics* 28: 55-74.

Dixon, Robert M.W. 2011. *I am a linguist*. Leiden: Brill.

Dryer, Matthew S. 1992. The Greenbergian word order correlations. *Language* 68(1): 81-138

Dryer, Matthew S. 2002. Case distinctions, rich verb agreement, and word order type. *Theoretical Linguistics* 28(2): 151-157. DOI: https://doi.org/10.1515/thli.2002.28.2.151. |

Dryer, Matthew S. 2007. "Word order". In *Clause structure*, language typology and syntactic description, Vol. 1, Timothy Shopen (ed.), 61-131. 2nd Edition. Cambridge University Press.

Dryer, Matthew S. 2009. The branching direction theory of word order correlations revisited. In Sergio Scalise, Elisabetta Magni, Antonietta Bisetto (eds.), *Universals of Language Today*. 185-207. Berlin: Springer.

Dryer, Matthew S. 2013a. Order of Subject, Object and Verb. In: Dryer & Haspelmath (eds.) (http://wals.info/chapter/81, Accessed 2018-03-27)

Dryer, Matthew S. (with Orin D. Gensler). 2013b. Order of Object, Oblique, and Verb. In: Dryer & Haspelmath (eds.) (http://wals.info/chapter/84; accessed 2018-03-27)

Dryer, Matthew S. 2013c. Order of Genitive and Noun. In: Dryer & Haspelmath (eds.) (http://wals.info/chapter/86. Accessed 2018-03-27)

Dryer, Matthew S. 2013d. Determining Dominant Word Order. In: Dryer & Haspelmath (eds.) (Accessed 2018-04-01)

Dryer, Matthew S. & Haspelmath, Martin (eds.) The World Atlas of Language Structures Online. (http://wals.info).

Erdmann, Oskar. 1886. *Grundzüge der deutschen Syntax nach ihrer geschichtlichen Entwicklung*. Erste Abt. Stuttgart: Cotta. (Reprint 1985. Hildesheim: Georg Olms Verlag)

Farhat, Haytham 1991. *Empty categories in Syrian Arabic*. Unpubl. PhD-Dissertation. Bangor: Univ. of Wales.

Gell-Mann, Murray and Merritt Ruhlen. 2011. The origin and evolution of word order. *PNAS* 108 (42): 17290-17295. https://doi.org/10.1073/pnas.1113716108

Goldberg, Adele. 2002. Persian Auxiliaries. Ms. Princeton University. https://www.princeton.edu/~adele/papers/Papers (accessed 2018-04-27)

Greenberg, Joseph. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In J. Greenberg (ed.) *Universals of Language*. 73-113. Cambridge, MA.: MIT Press.

Haider, Hubert. 2010. *The Syntax of German*. Cambridge: Cambridge University Press.

Haider, Hubert. 2013. *Symmetry breaking in Syntax*. Cambridge: Cambridge Univ. Press.

Haider, Hubert. 2015. Head directionality – in syntax and morphology. In: Antonio Fábregas, Jaume Mateu, Mike Putnam (eds.) *Contemporary linguistic parameters*. 73-97. London: Bloomsbury Academic.

Haider, Hubert. 2020. Grammar change – a case of Darwinian cognitive evolution. Target paper (in press), *ELT – Evolutionary linguistic theory*. [lingbuzz/005134]

Haider, Hubert. 2021. The Left-Left Constraint – a structural constraint on adjuncts. (to appear in) Ulrike Freywald & Horst Simon (eds.) *Headedness and/or Grammatical Anarchy*? Berlin: Language Science Press. (accessible via Academia.edu and lingbuzz)

Haider, Hubert and Luka Szucsich (2018). *Slavic languages – "SVO" languages without SVO qualities*? Ms. Univ. Salzburg (accessed via Academia.edu; June 20, 2018)

Haspelmath, Martin. 2014. Comparative syntax. In Carnie, Andrew, Yosuke Sato, and Dan Siddiqi (eds.) *The Routledge handbook of syntax*. 490-508. London: Routledge.

Hawkins, John A. 2014. *Cross-linguistic variation and efficiency*. Oxford University Press

Jelinek, Eloise, and Richard Demers 1994. Predicates and pronominal arguments in Straits Salish. *Language* 70: 697–736.

Kalin, Laura. 2014.The syntax of OVS word order in Hixkaryana. *Natural Language & Linguistic Theory* 32: 1089–1104. DOI 10.1007/s11049-014-9244-x

Köhler, Oswin. 1981. La langue kxoe. In Perrot, Jean (ed.) *Les langues dans le monde ancien et moderne*. 483-555. Paris: Centre National de la Recherche Scientifique.

Koptjevskaja-Tamm, Maria. 1993. *Nominalizations*. London: Routledge.

Leszkowicz, Joanna 2015. Scrambling im Polnischen als A-bar-Bewegung. In Elena Dieser (ed.) *Linguistische Beiträge zur Slavistik: XX. JungslavistInnen-Treffen in Würzburg, 22.-24. September 2011*. p. 117-133. München: Verlag Otto Sagner.

Liakin, Denis & Juvénal Ndayiragije. 2001. New look at an old problem: Multiple Wh-Fronting in Slavic. In Gerhild Zybatow, U. Junghanns, G. Mehlhorn & L. (eds.), *Current Issues in Formal Slavic Linguistics*. 206-213. Frankfurt/Main: Lang.

Lødrup, Helge 1991. The Norwegian pseudopassive in lexical theory. *Working Papers in Scandinavian Syntax* 47:118-29.

Mallinson, Graham & Barry J. Blake, 1981. *Language typology: Cross-linguistic studies in syntax*. (North-Holland Linguistic Series 46). Amsterdam: North-Holland.

McCloskey, James 1996. Subjects and subject positions in Irish. In Robert D. Borsley & Ian G. Roberts (eds.), *The syntax of the Celtic languages: a comparative perspective*. 241-283. Cambridge University Press.

Muysken, Pieter, Harald Hammarström, Olga Krasnoukhova, Neele Müller, Joshua Birchall, Simon van de Kerke, Loretta O'Connor, Swintha Danielsen, Rik van Gijn & George Saad. 2016. *South American Indigenous Language Structures (SAILS) Online*. Jena: Max Planck Institute for the Science of Human History. (https://sails.clld.org).

Olawsky, Knut J. 2006. *A Grammar of Urarina.* (Mouton Grammar Library, 37) Berlin: Mouton de Gruyter.

Olawsky, Knut J. 2007. ObViouS OVS in Urarina syntax. In: Simpson, A. & P. Austin (eds.), *Endangered languages*. Special volume of *Linguistische Berichte*. 45-72. Hamburg: Buske Verlag.

Polański, Kazimierz 2003. *Encyklopedia Językoznawstwa Ogólnego*. Wrocław: Ossolineum.

Quirk, Randolph, Sidney Greenbaum, Geoffrey N. Leech and Jan Svartvik (1986^4) *A comprehensive grammar of the English language*, London, Longman.

Rivière, Nicole 1981. *La construction impersonnelle en français contemporain*. Documents de Linguistique Quantitative no. 41, St. Sulpice-de-Favière: Éditions Jean-Favard.

Siewierska, Anna / Uhliřová, Ludmila 2010. An overview of word order in Slavic languages. In: Siewierska, Anna (ed.) *Constituent order in the languages of Europe*. 105-150. Berlin: Mouton DeGruyter.

Steele, Susan 1978. Word order variation: a typological study. In Joseph H. Greenberg, Charles A. Ferguson and Edith A. Moravcsik (eds.) *Universals of Human Language: IV: Syntax*. 585–623. Stanford: Stanford University Press.

Stepanov, Arthur 1997. On wh-fronting in Russian. In Pius N. Tamanji & Kiyomi Kusumoto (eds.) *Proceedings of NELS* 28: 453-467. Amherst: GLSA, University of Massachusetts.

Szucsich, Luka & Haider, Hubert. 2021. *Slavic languages – "SVO" languages without SVO qualities*? (in press in) *Theoretical linguistics. lingbuzz/004973*

Taraldsen, Tarald K. 1979. Remarks on some central problems of Norwegian syntax. Review article of T. Fretheim (ed.) Sentrale problemer i norsk syntaks. *Nordic Journal of Linguistics* 2:23-54.

Toman, Jindřich. 1981. Aspects of multiple wh-movement in Polish and Czech, in: Robert May & Jan Koster (eds.) *Levels of Syntactic Representation*. 293-302. Dordrecht: Foris.

Vikner, Sten. 1995. *Verb movement and expletive subjects in the Germanic Languages*. Oxford: Oxford University Press.