Susanne Wurmbrand[*]
University of Vienna, Austria
Iva Kovač[**]
University of Vienna, Austria
Magdalena Lohninger[***]
University of Vienna, Austria
Caroline Pajančič[****]
University of Vienna, Austria
Neda Todorović[*****]
University of British Columbia, Canada

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FINITENESS IN SOUTH SLAVIC COMPLEMENT CLAUSES: EVIDENCE FOR AN IMPLICATIONAL FINITENESS UNIVERSAL

1 INTRODUCTION

The notion of finiteness is a much-debated topic in syntax, morphology, and semantics, as many fundamental questions have not been answered yet. Due to the vast cross-linguistic variation in the distribution of finiteness, many works have concluded that there is no single morpho-syntactic definition of finiteness, nor a single semantic function associated with it (see e.g., Cristofaro 2007; Bisang 2007; Nikolaeva 2007). Among the morpho-syntactic categories that have been suggested to reflect finiteness are tense, aspect, mood, illocutionary force, person marking, politeness, special forms not used in independent clauses, and/or nominal morphology on the verb (see the works in Nikolaeva 2007). Semantically, finiteness is often associated with clausal independence, specifically, the possibility of a sentence to occur as a free-standing (declarative) main clause (Maas 2004; Bisang 2007; Givón 1990), or, particularly in the *Government and Binding* and *Minimalism* traditions, with independent tense or an anchoring to the logophoric center of a clause (Bianchi 2003; Adger 2007). Despite the (theoretical and empirical) variation, various distributional tendencies and patterns have been observed (see Givón 1990; Cristofaro 2007), which indicate that the distribution is not arbitrary but follows certain implicational relations.

In this paper, we will look at variation in the distribution of finiteness in a well-defined empirical domain – the South Slavic languages (SSL), and show that it falls

[*] susanne.wurmbrand@univie.ac.at
[**] iva.kovac@univie.ac.at
[***] magdalena.lohninger@univie.ac.at
[****] caroline.pajancic@univie.ac.at
[*****] neda.todorovic@ubc.ca

along two dimensions: language and type of complement. To illustrate, while Serbian (Sr) allows finite and non-finite complements of verbs like *try* (1a), Slovenian (Sl) only allows non-finite complements in this context (1b).[1] On the other hand, when the matrix verb is a speech verb like *claim* in (1c), the distribution in Slovenian is exactly the opposite from (1b) – only a finite complement is possible.

(1) a. *Pokušala sam {da čitam / čitati} ovu knjigu.* (Sr)
tried.SG.F AUX.1SG {DA read.1SG / read.INF.IPFV} this book
'I tried to read this book.'

b. *Poskusila sem {*da berem / brati } to knjigo.* (Sl)
tried.SG.F AUX.1SG {*da read.1SG / read.INF.IPFV } this book
'I tried to read this book.' (Adrian Stegovec, p.c.)

c. *Trdim, {da berem / *brati} to knjigo.* (Sl)
claim.1SG {da read.1SG / *read.INF.IPFV} this book
'I claim that I am reading/to be reading this book.' (Adrian Stegovec, p.c.)

The property in (1c) holds for all SSL and we propose that the uniformity in the choice of finite forms in these types of complements is due to a grammatical constraint shared by all SSL. We also show that in addition to the two types of complements in (1), there is a third class, illustrated by complements to verbs like *decide* in (2), which shows flexibility regarding finiteness in most, but not all SSL languages.

(2) *Odločila sem se {brati /da bom brala}* (Sl)
decided.SG.F AUX.1SG REFL {read.INF.IPFV /da will.1SG read.SG.F}
to knjigo.
this book
'I decided to read this book.' (Adrian Stegovec, p.c.)

Comparing constructions like (1) and (2) across the SSL, we argue that complement clauses form a semantic hierarchy, and that the distribution of (non-)finiteness in the SSL reflects an implicational scale along this hierarchy. We suggest that the implicational nature of the hierarchy (and the distribution of finiteness) is derived via containment relations of clausal domains. Lastly, we propose that the variation is the result of different distributions of the features triggering finiteness, specifically in SSL, agreement features. Our findings thus support the existence of implicational hierarchies, defined in semantic terms, on which morphological coding, such as manifestations of finiteness, operates.

More broadly, we will conclude that: i) there is no (universal) semantic correlate of (non-)finiteness, since cross-linguistically, all types of complements can be realized as

1 Since we will argue that *da* does not always act as a complementizer, we gloss it as DA in the examples.

finite or non-finite in at least some language; ii) finiteness is not confined to a particular domain in the clause, but can be distributed over all clausal domains (see also Adger 2007); but iii) there are systematic implicational relations which hold among different types of complements and which, despite possibly arbitrary specific finiteness settings, allow us to predict certain properties of finiteness.

2 IMPLICATIONAL COMPLEMENTATION HIERARCHY (ICH)

Languages exhibit a variety of different types of complementation, which can be divided into different classes based on their semantic and/or their morphosyntactic properties, such as finite/non-finite, subjunctive, nominalization (see among others Givón 1980; Pesetsky 1992; Horie 2001; Cristofaro 2005; Dixon 2006; Noonan 2007 for different approaches). This paper follows Givón's basic insight that classes are defined semantically, forming an implicational complementation hierarchy (ICH), which we define below. Syntactic and morphological distinctions (such as finiteness), if present in a language, operate along that scale. While morphosyntactic effects may be neutralized in different languages, the semantic scale is observable cross-linguistically, and morphosyntactic distinctions can never go against the hierarchy. Wurmbrand and Lohninger (to appear) propose that in addition to the fine-grained semantic scale given in Givón (1980), languages bundle categories into three super-sets, which we refer to as *Proposition, Situation,* and *Event*, adopting the terminology and definitions in Ramchand and Svenonius (2014) (a similar classification has been proposed in Rochette 1988, 1990, although with different terminology). Complements of the type *Proposition* involve speech, epistemic, and factive contexts. These types of complements are temporally independent, have no pre-specified tense value, are anchored in an utterance or embedding context, and may involve speaker-oriented parameters. Complements of the type *Situation* involve emotive and irrealis contexts. These types of complements are elaborate eventualities without speaker- and utterance-oriented properties, but with time and world parameters, allowing them to refer to a specific, possibly pre-determined, time. The most common type of *Situation* complements are forward expanded unrealized events where the time of the complement must be after the time of the matrix verb (Abusch 2004; Wurmbrand 2014b). Complements of the type *Event* include implicative and strong attempt contexts. These types of complements are semantic *Properties* (Chierchia 1984; Wurmbrand 2002) in that they lack speaker- and utterance-oriented, as well as time and world parameters; they are tenseless, may involve actuality entailments (Hacquard 2006), and may have reduced argument structure and/or event properties. Using this classification, Wurmbrand (2014a, 2015), and Wurmbrand and Lohninger (to appear) establish the implicational nature of the ICH as in Table 1. *Independence* refers to properties such as the presence and/or interpretation of an independent subject in the complement clause; *transparency* characterizes whether the embedded clause is permeable for certain cross-clausal operations or dependencies; and *integration* refers to the degree to which the embedded predicate is incorporated into the matrix predicate.

Table 1: Implicational complementation hierarchy (ICH)

MOST INDEPENDENT LEAST TRANSPARENT LEAST INTEGRATED	Proposition ≫ Situation ≫ Event	LEAST INDEPENDENT MOST TRANSPARENT MOST INTEGRATED

ICH hierarchy effects have originally been discussed predominantly for infinitives, where clause union or restructuring effects are easily detectable. However, in Todorović and Wurmbrand (2020) and Wurmbrand and Lohninger (to appear), it is observed that even in languages with no infinitives, complements show (in)dependence and transparency effects that track the ICH. Moreover, the semantic classes identified above are typologically robust, whereas morphosyntactic properties differ significantly across languages. If, as we suggest, the basic complementation classes are defined semantically by the ICH, we expect to see the different (semantic) types of complements to display variable properties, even when morphosyntactic finiteness does not distinguish between them. That the ICH applies to finite and non-finite complements alike is illustrated here by the distribution of clause-introducers in complement clauses in Bulgarian and Macedonian, both languages that do not have infinitives. As shown in (3a), *Proposition* complements must occur with *če* in Bulgarian and cannot be introduced by *da*. *Situation* complements as in (3b) can occur with either *če* or *da*. Lastly, *Event* complements can only occur with *da*, as in (3c).

(3) a. *Lea tvărdi {če / *da} četekniga.*
Lea claim.PRS.3SG {that / *da} read.PRS.3SG book
'Lea claims that she is reading a book.' (Marchela Oleinikova, p.c.)

b. *Lea reši {če *(šte) / da } četekniga.*
Lea decided.PRF.3SG {that *(will) / da } read.PRS.3SG book
'Lea decided to read/that she will read a book.'

c. *Lea se opitvaše {*če / da} četekniga.*
Lea REFL try.PRF.3SG {*that / da} read.PRS.3SG book
'Lea tried to read a book.'

The same restrictions hold for Macedonian as illustrated in (4).

(4) a. *Lea tvărdi {deka / *da} čitakniga.*
Lea claim.PRS.3SG {that / *da} read.PRS.3SG book
'Lea claims that she is reading a book.' (Sandra Jakimovska, p.c.)

b. *Lea se rešila {deka *(e) / da } čitakniga.*
Lea REFL decided.PRF.3SG {that *(will) / da } read.PRS.3SG book
'Lea decided to read/that she will read a book.'

c. *Lea probala {*deka / da} čita kniga.*
Lea try.PRF.3SG {*that / da} read.PRS.3SG book
'Lea tried to read a book.'

As shown in (3b), while *da* complements can encode future directly, *če/deka* complements require an overt future element to be interpreted as a *Situation* complement (see section 4.1 for an explanation of this difference). In Bulgarian, some speakers may also allow a *decide* complement introduced by *če* and no overt future. In this case, the configuration typically cannot receive a *Situation* interpretation, but is instead shifted to a *Proposition* context such as a performative use where the matrix subject evaluates or assigns truth to the embedded proposition (similar to cases like *I decided that he is a nice person*; but other attitude meanings are possible for some speakers as well). Thus, predicates may sometimes undergo a class change, and it is therefore essential to pair the morphosyntactic properties with the interpretation when evaluating ICH effects. If a *Situation* predicate can be changed or coerced into a *Proposition* predicate, it follows from the ICH (which is defined semantically) that the predicate then takes on the morphosyntactic properties of the *Proposition* class (such as the complementizer *če*). The distribution of complement clauses in Bulgarian (Bu) and Macedonian (Ma) is summarized in Table 2.

Table 2: Clause introducers in Bu, Ma

	Proposition	**Situation**	**Event**
če/deka	✓	✓ (with future)	*
da	*	✓	✓

As shown in Table 2, Bulgarian and Macedonian exhibit what we refer to as an *ICH signature effect*: the two classes at the opposite ends of the ICH scale show the opposite properties, while the class in the middle is 'in-between' in that it is compatible with both properties (in this case). In the next section, we will show that the distribution of finiteness in SSL shows ICH signature effects and follows the ICH in an interesting way. In section 4, we then suggest a direction for deriving the ICH and the finiteness distribution. Section 5 concludes the paper.

3 FINITENESS HIERARCHY

3.1 A Finiteness ICH Signature Effect

We now turn to the SSL that have infinitives, i.e., Bosnian, Croatian, Slovenian, and Serbian. To illustrate that SSL show ICH signature effects regarding (non-)finiteness, we begin by summarizing the finiteness property of the three types of complements in Slovenian, as shown in (5) (repeated from (1) and (2); see below for further explanations regarding (5b)).

(5) a. *Trdim, {da berem / *brati} to knjigo.* (Sl)
claim.1SG {da read.1SG / *read.INF.IPFV} this book
'I claim that I am reading/to be reading this book.'

b. *Odločila sem se {brati / da bom brala /*
decided.SG.F AUX.1SG REFL {read.INF.IPFV / da will.1SG read.SG.F /
(*) *da berem} to knjigo.*
(*) da read.1.sg} this book
'I decided to read this book.'

c. *Poskusila sem {brati / *da berem / *da bom*
tried.SG.F AUX.1SG {read.INF.IPFV / *da read.1SG / *da will.1SG
brala} to knjigo.
read.SG.F} this book
'I tried to read this book.'

As in all SSL, *Proposition* complements can only be finite (5a). *Situation* complements can be either non-finite or finite. In Slovenian (and many other languages), finite complements usually require an overt future tense to convey the same meaning as the infinitive in (5b), unless the language and context allows future interpretations to be expressed by present tense (e.g., as in planned or scheduled events). If a present-for-future use is not possible, for whatever reasons, a finite form without overt future (i.e., the third option in (5b)) is excluded when the intended reading is the same as the reading of the corresponding infinitival construction. Similarly to Bulgarian, however, this form may still be rendered acceptable if the matrix verb is shifted to a performative (i.e., a *Proposition*) interpretation (e.g., (5b) could be used in a situation where the subject is making a decision about which book to read in a play and then declares which book they decided on). Finally, Slovenian *Event* complements, as shown in (5c), can only occur as non-finite. These observations are summarized in Table 3.

Table 3: Finiteness in Slovenian complements

	Proposition	**Situation**	**Event**
finite	✓	✓ (with future)	*
non-finite	*	✓	✓

Comparing the distribution of Bulgarian and Macedonian clause introducers with the finiteness distribution in Slovenian, we see an obvious parallel. Both cases display a clear ICH signature effect: the *Proposition* and *Event* classes show opposing properties, whereas the *Situation* class allows both (albeit with certain restrictions).

3.2 A Possible Finiteness Universal

In the broader context of South Slavic, different languages show different patterns of availability of infinitives and finite forms; the distribution of these forms seems to be largely dependent on the geographical location and language contact. As can be seen in Figure 1, Bulgarian and Macedonian do not allow infinitives at all, Croatian is the most infinitive-friendly language, and Bosnian, Slovenian, and Serbian occupy the middle of the scale; Slovenian inclines more towards the non-finite, Serbian towards the finite extreme of the scale, and Bosnian is in the middle (judgements for Bosnian differ, thus illustrating the language contact situation quite well).

NO INFINITIVES	Bu/Ma ≫ Se ≫ Bo? ≫ Sl ≫ Cr	FREQUENT INFINITIVES

Figure 1: Infinitives in the SSL

Since Bulgarian and Macedonian do not use infinitives, we concentrate here on the grammatical patterns of the other four SSL, Bosnian (Bo), Croatian (Cr), Slovenian (Sl), and Serbian (Sr). The distribution is given in (6). Note that due to the contact situation of these languages, language/dialect affiliation is not always clear-cut. Since categorical judgments may not always be possible, the marks should be understood as preferences. The data are given in Serbian in (6) (see Vrzić 1996), but the judgments are to be understood as applying to the translations of these examples into the different languages.

(6) a. *Tvrdim* {*da čitam* / *čitati*} *ovu knjigu.*
claim.1SG {da read.1SG / read.INF.IPFV} this book
'I claim that I am reading this book.' (finite) ✓Sr, ✓Bo, ✓Sl, ✓Cr
'I claim to be reading this book.' (non-finite) *Sr, *Bo, *Sl, *Cr

b. *Odlučila sam* {*da čitam* / *da ću čitati* / *čitati*}
decided.SG.F AUX.1SG {da read.1SG / da will.1SG read / read.INF.IPFV}
ovu knjigu.
this book
'I decided that I will read this book.' (finite) ✓Sr, ✓Bo, ✓Sl, */?Cr
'I decided to read this book.' (non-finite) ?Sr, ✓Bo, ✓Sl, ✓Cr

c. *Pokušala sam* { *da čitam* / *čitati*} *ovu knjigu.*
tried.SG.F AUX.1SG { da read.1SG / read.INF.IPFV} this book
'I tried that I am reading/will read this book.' (finite) ✓Sr, ?Bo, *Sl, *Cr
'I tried to read this book.' (non-finite) ✓Sr, ✓Bo, ✓Sl, ✓Cr

As shown in (6a), the SSL are uniform with *Proposition* complements in that they disallow infinitives across the board. The *Situation* class in (6b) allows infinitives in

all SSL (even though they are dispreferred in many Serbian varieties), but otherwise exhibits variation. Serbian (and possibly Slovenian)[2] can express the future meaning with a finite present tense form. Bosnian, Slovenian, and Serbian allow infinitives or finite overt future forms, but Croatian strongly disprefers any finite form.[3] Lastly, the *Event* class in (6c) permits infinitives in all SSL, with it being the only possible form in Croatian and Slovenian. A finite complement clause is allowed in Serbian and possibly in Bosnian, but judgements in Bosnian differ and we have not been able to conclusively determine the distribution. The distribution of finite vs. non-finite complements is summarized in Table 4 (due to the variation within Bosnian, we have not been able to conclusively allocate it to a category, and we therefore list it in two places). The distribution clearly shows that there is a variation according to the two parameters: language and type of complement.

Table 4: Finiteness in South Slavic

	Proposition	**Situation**	**Event**
Bulgarian, Macedonian	finite	finite	finite
Serbian, Bosnian?	finite	(non-)finite	(non-)finite
Slovenian, Bosnian?	finite	(non-)finite	non-finite
Croatian	finite	non-finite	non-finite

The tendencies observed in the SSL reveal a clear finiteness scale which follows the ICH: a type of complement can never be 'more' finite than the type of complement to its left. On the basis of this distribution we propose the (hypothetical) finiteness universal in (7).

(7) (Hypothetical) Finiteness Universal
If a language {allows/requires} finiteness in a type of complement, all types of complements further to the left on ICH also {allow/require} finiteness.

4 A SKETCH OF AN ACCOUNT

4.1 Towards Deriving the ICH

While the ICH in Givón 1980 is defined functionally, Wurmbrand and Lohninger (to appear) propose a grammatical approach. To address the question of how the ordering and implicational nature of the ICH arise, we start with the mapping of the semantic sorts *Proposition, Situation*, and *Event* to syntax. Following Ramchand and Svenonius (2014), *Propositions, Situations*, and *Events* are semantic sorts expressing conceptual

2 An anonymous reviewer suggested that this may be possible in Slovenian as well, but we have not investigated yet whether this is restricted to present-for-future contexts or possible for future statements in general.

3 This has been confirmed by speaker judgements, preliminary corpus searches on Google, and a query on hrWaC (the Croatian web corpus).

primitives which are in a coherent containment relation – *Situations* are elaborations of *Events*, *Propositions* are elaborations of *Situations*. More specifically, *Situations* are created by combining time/world parameters with an existentially closed *Event*, and *Propositions* combine speaker-oriented/discourse-linking parameters with an existentially closed *Situation*. In other words, these semantic sorts are computed in a predictable way by combining the verb with its arguments (creating an *Event*), by relating an (existentially closed) *Event* to a time through T or other temporal elements (creating a *Situation*), and by anchoring a *Situation* to a context through an element of the operator domain (e.g., C, creating a *Proposition*). Note that while the broad distinction into clausal domains is considered a general property of phrase structure (see also Grohmann 2003), the detailed internal organization of these domains (e.g., CP, TMA, and vP) may vary cross-linguistically. Figure 2 illustrates the containment relations among clausal domains and their semantic correspondences.

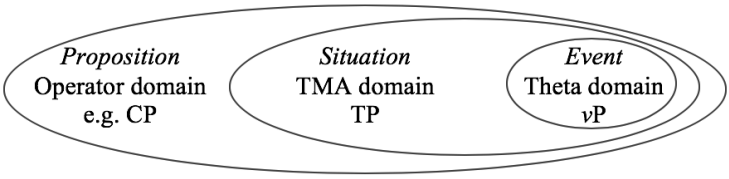


Figure 2: Clausal domains

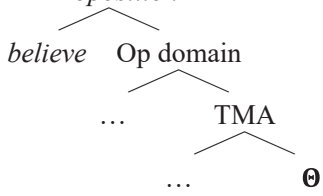
Since, as we propose, complementation is also defined by the semantic sorts *Proposition, Situation*, and *Event*, the same containment implications arise. As specified in Table 5, the three types of complements have different *minimal requirements*. *Proposition* complements are cognition and utterance complements with independent and not predetermined tense interpretations (*I said that he left/will leave/is leaving*). There is still a tense dependency in the sense that the tense in every complement clause is interpreted relative to the event time of the matrix predicate, but, crucially, the choice of the embedded tense value is free. Following Kratzer (2006) and Moulton (2009a,b), aspects of the meaning of an attitude configuration are situated in the operator domain of the complement clause. The operator domain also separates the matrix predicate and the embedded temporal domain, leading to the tense value independence of these complements. *Situation* complements involve an independent temporal domain in that the matrix and embedded temporal interpretation can differ (e.g., *I decided yesterday to leave tomorrow*). However, the tense value is predetermined – the embedded clause, whether infinitive or finite, should be situated after the event time of the matrix predicate. There is thus a closer/tighter connection between the matrix predicate and the embedded temporal domain. Lastly, *Event* complements do not involve an independent tense – they are always interpreted as simultaneous with the matrix predicate. The ranking and implicational nature of the ICH can then be seen as a reflex of the resulting semantic complexity scale.

Table 5: Clausal domains and complexity

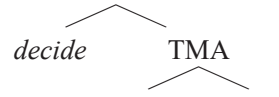
	Proposition	**Situation**	**Event**
Minimal requirement	Operator domain TMA domain Theta domain	TMA domain Theta domain	Theta domain
Complexity	most complex	intermediate	least complex

In this paper, we will pursue the hypothesis that the different types of complements can vary in minimal size as in (8). This does not mean that *Event* complements are necessarily always just theta domains (e.g., *v*Ps). Structures could vary across languages, however, our main claim is that they can never go against the hierarchy. For instance, there could not be a language where *Proposition* complements are always less complex than *Event* or *Situation* complements.

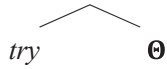
(8) a. *Proposition*



b. *Situation*



c. *Event*



Returning to the distribution of clause introducers in Bulgarian, the system outlined here can derive the ICH signature effect as well as the restriction noted about overt future. The assumption we make is that *če* is a true complementizer (i.e., a head in the operator domain), whereas *da* is a lower clausal head. Since *Proposition* complements require the operator domain, it follows that they always occur with *če*, as in (9a). *Situation* complements can occur without the operator domain, in which case the embedded clause, a TMA domain, directly combines with the matrix verb. The irrealis interpretation arises through a covert future modal WOLL (Wurmbrand 2014b; Todorović 2015), which, following Todorović and Wurmbrand (2020), needs to be identified within the syntactic context. One way to license WOLL is via Merge with a *Situation* verb as in (9b) (we leave open whether this is a selectional or featural relation). If, on the other hand, a *Situation* verb combines with an operator domain, (9c), the matrix verb and WOLL are too far apart, and only an independent overt future is possible (in which case WOLL is licensed by Tense (Abusch 1988)). The resulting future statement, although structurally more complex than a simple WOLL-clause, still satisfies the semantic requirement of a *Situation* verb, which only demands that the complement refers to a forward expanded unrealized event.

(9) a. *Proposition*

believe Op domain

če TMA

...

b. *Situation*

decide WOLLP

WOLL Θ

da

c. *Situation*

decide Op domain

če *WOLLP

✓FUT

In the next section, we show how this implementation of the ICH derives the finiteness universal in (7) (repeated in (10)).

(10) (Hypothetical) Finiteness Universal
If a language {allows/requires} finiteness in a type of complement, all types of complements further to the left on ICH also {allow/require} finiteness.

4.2 Finiteness in the SSL

An account of the distribution of finiteness in the SSL in Table 4, repeated as Table 6, needs to derive the following properties:

i) *Proposition* complements are always finite in the SSL (but not cross-linguistically).
ii) *Situation* and *Event* complements can be finite or non-finite in the SSL, with language-specific settings restricting the options.
iii) The distribution of finiteness follows the implicational universal in (7).

Table 6: Finiteness in South Slavic

	Proposition	**Situation**	**Event**
Bulgarian, Macedonian	finite	finite	finite
Serbian, Bosnian?	finite	(non-)finite	(non-)finite
Slovenian, Bosnian?	finite	(non-)finite	non-finite
Croatian	finite	non-finite	non-finite

Before answering these questions, we need to address one basic, yet very difficult question, namely what finiteness is.

4.2.1 What is Finiteness?

Typically, finiteness is associated with a property of the temporal domain (but see Cristofaro 2007; Bisang 2007 for other options). Comparing the distribution of finiteness in Table 6 with the temporal properties of these complements in Table 7, it becomes clear that there is no general semantic tense property that can be mapped to a morphosyntactic category finite or non-finite in SSL.

Table 7: Embedded tense properties

	Proposition	**Situation**	**Event**
Embedded temporal domain	yes	yes	no
Predetermined tense value	no	yes	N/A

While it may be tempting to treat the uniformity of finiteness in *Proposition* complements as a reflex of a semantic property (e.g., independent, non-predetermined tense; see also below), this would raise the question of why *Situation* complements can (Serbian, Bosnian, Slovenian) or must (Bulgarian, Macedonian) also be finite, and why even *Event* complements can (Serbian, Bosnian) or must (Bulgarian, Macedonian) be finite. It would also be difficult to extend such an account to languages outside the SSL, where *Proposition* complements can also be non-finite (e.g., English *She claims to have won*). Similarly, although *Event* complements tend to be non-finite, this cannot be the result of mapping the semantic lack of tense to a morphosyntactic category non-finite, since it is only a trend – Serbian and Bosnian allow, and Bulgarian, Macedonian require finite *Event* complements, where, importantly, the interpretation is the same as in *Event* contexts in the other languages. Lastly, *Situation* complements also show the entire spectrum from obligatory finite (Bulgarian, Macedonian), optionally finite (Serbian, Bosnian, Slovenian), to non-finite (Croatian), where, once again, the interpretation of the complement in all languages is the same, namely that of a forward expanded unrealized event.

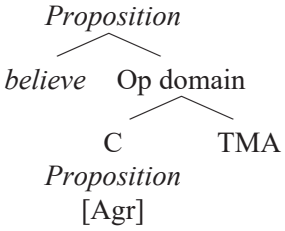
While we conclude that it is not possible to directly derive the distribution of finiteness from semantic properties, we have seen in section 4.1 that the dependencies in Table 7 nevertheless play an important role in the distribution of complementation itself. The different temporal properties reflect a scale of independence of the embedded clauses, which we have suggested is structurally implemented via different syntactic complexities. This approach allows us to derive the implicational nature of the ICH, and it will also provide an answer for the question of why the distribution of finiteness follows the implicational universal in (7).

Returning to the question of what finiteness is, we follow Cristofaro (2007) and Bisang (2007), who argue that there is no universal category of finiteness, but that languages can differ in what properties they utilize to express finiteness. We suggest that in the SSL, finiteness corresponds to agreement (whereas in other languages it could be tense, the combination thereof, or even other properties). More specifically, we follow Adger (2007), where it is suggested that features related to finiteness are not confined to a particular syntactic position (such as a Fin head in the CP), but can also occur on lower clausal heads. For instance, Adger suggests that subject licensing in Scottish Gaelic (a finiteness property) requires the (uninterpretable) features [T] and [Agr], but these features do not necessitate a semantic T or C head – they can also be inserted (somewhat parasitically) on other heads or project independent AgrPs in any domain of the clause. Although the details of finiteness in Scottish Gaelic and the SSL differ, we adopt this proposal in spirit and assume that in the SSL, finiteness is the spell-out of agreement features, which can occur on *v*, T, or C.

4.2.2 *Proposition* Complements

We are now able to derive the distribution of finiteness in complement clauses in SSL, starting with *Proposition* complements. We have observed that, whenever the operator domain must be projected, i.e., in *Proposition* complements (see Table 5), finiteness is obligatory (and this holds regardless of the finiteness settings of *Event* and *Situation* complements). We propose that in *Proposition* complements, the locus of finiteness is the CP in SSL. More specifically, as illustrated in (11), if the operator domain is projected in a complement clause, agreement features are obligatory and they occur on C or a split CP with a separate agreement projection (we do not split Agr in the trees).

(11)



Finiteness in the CP is, of course, what one would expect following cartographic approaches. Our approach differs, however, in several respects. First, as we will see momentarily, finiteness is not restricted to the CP domain. In particular, we argue, following Adger (2007), that finiteness cannot entail the presence of a CP. Adger proposes that finiteness comes in two versions – a semantic notion of finiteness, associated with the CP, and occurrences of finiteness in the lower clausal domains which are not associated with a semantic function of finiteness. While we adopt the second part of Adger's proposal, we submit that finiteness in complement clauses is never associated with a semantic property. Following Bianchi (2003), Adger suggests that a semantic finiteness head in the CP is responsible for identifying the embedded event/reference time [E/R] with the speech time [S] and/or the relation of participants to the external logophoric center, the external speech event. While this is a possible approach for main clauses, it does not carry over to embedded clauses. Bianchi (2003: 7) already qualifies the claim that "A finite verb form can encode the relation of E/R to S" with "at least in main clauses." In complement clauses, the embedded tense is not related to the speech time, but always evaluated with respect to the matrix tense. Thus, even in *Proposition* complements, which have their own temporal domain and no predetermined tense value, there is a tense dependency with the matrix clause and not the speech event. Furthermore, according to Bianchi (2003: 7), "A non-finite form does not encode any relation to S". Since this is true for all types of complement clauses (none of them involve deictic tense), it would not allow us to distinguish between the different types of complements, and it therefore offers no way to approach the distribution in Table 6. The only option to tie finiteness in *Proposition* complements in the SSL to a semantic property is to associate it with the attitude property itself (following Kratzer 2006;

Moulton 2009a,b). But since *Proposition* complements are not finite universally (see e.g., English, German), it once again cannot be a necessary connection between a semantic and morphosyntactic property. Our approach captures this – finiteness is not semantic but purely morphosyntactic. However, the distribution of this morphosyntactic property, implemented by the projection of agreement features, is sensitive to the structure, which in turn is determined by semantic properties. For the SSL we thus have the language-specific property in (12).

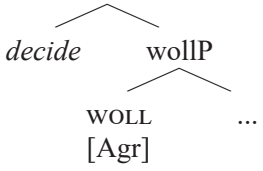
(12) C [*Proposition*]: +Agr

The last point to note is how an Agr head/feature in the CP triggers finiteness on the verb. There are various technical ways to derive this. For the sake of simplicity, we assume that the clausal heads C, T, *v*+V enter a dependency with each other (this could be V/T-movement, Agree, or feature lowering) and that the highest verbal element must realize the Agr feature.

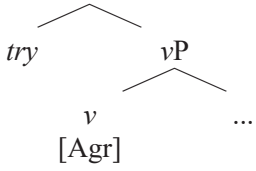
4.2.3 *Situation* and *Event* Complements

Since *Situation* and *Event* complements can lack the operator domain (see Progovac 1993a,b, 1994, 1996; Stjepanović 2004; Todorović and Wurmbrand 2020 for detailed motivation for clause reduction despite finiteness), under a cartographic approach where finiteness is located (solely or partially) in the CP, the question arising is how clauses without CP can be finite. Our account can successfully capture the presence of finiteness in the absence of CP as well as the distribution in Table 6. Following Adger (2007), we assume that agreement features, which are responsible for finiteness in the SSL, can be located in the other clausal domains, i.e., on heads of the TMA domain and even on heads of the theta domain. The structure of a finite *Situation* complement is given in (13a), the one of a finite *Event* complement in (13b).

(13) a.



b.



The distribution of agreement features in the TMA and theta domains must be restricted by language-specific settings, which are spelled out in Table 8 for the SSL.

Table 8: Agr distribution

	CP domain	TMA domain	Theta domain
Bulgarian, Macedonian	Agr	Agr	Agr
Serbian, Bosnian?	Agr	optional Agr	optional Agr
Slovenian, Bosnian?	Agr	optional Agr	no Agr
Croatian	Agr	no/marginal Agr	no Agr

The approach thus captures the fact that *Situation* and *Event* complements can be finite or non-finite, even though *Proposition* complements must always be finite in the SSL. Since the finiteness of *Proposition* complements comes from the CP, and the CP can be missing in non-*Proposition* complements, it is correctly predicted that finiteness is only obligatory (in the SSL) when the operator domain is required. In all other types of complements, non-finite forms could be possible due to different settings of the lower clausal heads, which may or may not come with an Agr head. The approach thus allows us to derive the cross-linguistic variation – languages could differ in the inventory of Agr associated with heads of the different domains. The last advantage of this approach is that, despite the language-specific settings in Table 8, there are predictions it makes, which we turn to in the last subsection.

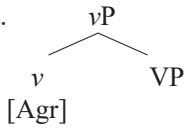
4.2.4 Finiteness Universal

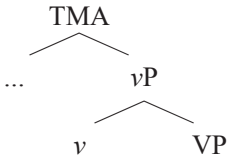
Recall that the distribution of finiteness in different types of complements is systematic and follows the finiteness universal – if a complement is allowed/required to be finite in a language, all the complements to the left of it allow/require finiteness. Thus, for instance, there is no language where *Event* complements are obligatorily finite and *Situation* and/or *Proposition* complements optionally non-finite; or no language where *Event* complements are optionally finite but *Situation* and/or *Proposition* obligatorily non-finite. Note that this does not mean that it is not possible for a language to realize finite *Event* complements and non-finite *Situation* complements at the same time – but what is impossible is that these be the only options in the language.

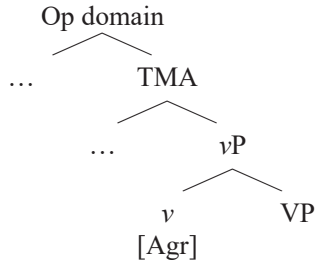
Our approach derives these implicational relations in the distribution of finiteness. Since clausal domains are in a containment configuration (see Figure 2), it follows that settings in a lower domain affect all clauses that include that domain, i.e. also clauses with additional higher domains, since higher domains necessarily include the lower ones. To be more concrete, if in a language the theta domain is specified as (obligatorily) finite (Bulgarian, Macedonian), all types of clauses will be realized as finite since the theta domain is included in all clause types.[4] In other words, if *Event* complements can or must be finite in a language, all other types of complements in the language can

4 The specification for Agr in Table 8 would thus not be necessary for the TMA and CP domains in these languages, since the Agr feature in the theta domain is sufficient to trigger finiteness in all types of clauses. We included it in the table for expository purposes, but also to leave open the option of double finiteness marking (see Todorović and Wurmbrand 2020).

or must be finite as well. This is illustrated in (14) – finiteness as in (14a) entails finiteness in configurations (14b,c). Although the Agr specifications for heads can differ in our system, it is not possible to derive a configuration in which, for instance, the theta domain contains Agr but clauses that include higher domains do not. Even if one were to posit Agr on *v*, but no Agr specifications on TMA or CP heads, the containment relations predict that lower Agr specifications can never be 'undone'.

(14) a. 

b. 

c. 

5 CONCLUSION

We have shown in this paper that the distribution of (non-)finiteness in the SSL reflects an implicational scale along an independently attested semantic hierarchy. We have suggested that in the SSL, finiteness is triggered by clausal agreement features associated with different syntactic heads. Building on a complexity approach to the complementation hierarchy, cross-linguistic variation in finiteness, as well as variation across different types of complements is derived as the result of language-specific differences in the distribution of agreement features. More broadly, we have concluded that there is no (universal) semantic correlate of (non-)finiteness and, contra cartographic approaches, that finiteness is not confined to a particular domain in the clause, but can be distributed over all clausal domains.

Acknowledgements

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Abstract

FINITENESS IN SOUTH SLAVIC COMPLEMENT CLAUSES:
EVIDENCE FOR AN IMPLICATIONAL FINITENESS UNIVERSAL

This paper shows that the distribution of (non-)finiteness in the South Slavic languages reflects an implicational scale along an independently attested semantic complementation hierarchy (e.g., Givón 1980). We suggest that in the South Slavic languages, finiteness is triggered by clausal agreement features associated with different syntactic heads. Building on a complexity approach to the complementation hierarchy, we propose that cross-linguistic variation in finiteness and variation across different types of complements are the result of language-specific differences in the distribution of agreement features. More broadly, we conclude that there is no (universal) semantic correlate of (non-)finiteness and, contra cartographic approaches, that finiteness is not confined to a particular domain in the clause. Following Adger (2007), we argue that finiteness can be distributed over all clausal domains.

Keywords: syntax, morphology, language variation, implicational hierarchies, complementation, infinitives, finiteness, South Slavic

Povzetek

OSEBNE IN NEOSEBNE GLAGOLSKE OBLIKE V JUŽNOSLOVANSKIH DOPOLNILIH: DOKAZI ZA IMPLIKACIJSKO UNIVERZALIJO

V članku pokažemo, da porazdelitev osebnih in neosebnih glagolskih oblik v južnoslovanskih jezikih odraža implikacijsko lestvico po neodvisno potrjeni semantični hierarhiji dopolnil (npr. Givón 1980). Zagovarjamo trditev, da v južnoslovanskih jezikih pojavnost (ne)osebnih glagolskih oblik sprožajo stavčne ujemalne oznake, povezane z različnimi skladenjskimi jedri. Na podlagi pristopa kompleksnosti k hierarhiji dopolnil predlagamo, da so medjezikovne razlike v pojavnosti (ne)osebnih glagolskih oblik in razlike med vrstami dopolnil rezultat jezikovno specifičnih razlik v porazdelitvi ujemalnih oznak. V splošnem zaključujemo, da ne obstaja (univerzalni) pomenski korelat pojavnosti (ne)osebnih glagolskih oblik in da, v nasprotju s kartografskim pristopom, ta lastnost ni omejena na specifično domeno v stavku. Podobno kot Adger (2007) trdimo, da se lastnost (ne)osebnih glagolskih oblik lahko porazdeli po vseh stavčnih domenah.

Ključne besede: skladnja, morfologija, jezikovna variacija, implikacijske hierarhije, dopolnila, nedoločniki, (ne)osebne glagolske oblike, južnoslovanski jeziki