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EDITORS' FOREWORD

This Special Issue of *the Annual Review of the Faculty of Philosophy, University of Novi Sad* brings forth a selection of papers presented as the 14th edition of *Syntax, Phonology, and Language Analysis (SinFonIJA*), which took place in Novi Sad between September 22 and 24, 2021. The conference was organized by the English Department of the Faculty of Philosophy, University of Novi Sad.

After (now more than) 14 editions, *Syntax, Phonology, and Language Analysis (SinFonIJA*) has grown into one of the best-known conferences on formal linguistics in Europe, and quite possibly beyond. As an annual international linguistic gathering, SinFonIJA attracts researchers who approach different levels of language analysis from a formal perspective. Traditionally, the primary focus of the conference has been on theoretical syntax, phonology, and semantics, but it has also been welcoming experimental (psycholinguistics or neurolinguistic) and corpus-based research as well as works taking a formal approach to morphology and pragmatics. The venue of the conference changes each year to a different institution from the region of former Yugoslavia and Austria-Hungary.

SinFonIJA 14 offered a remarkable program achieved through a highly selective review process. The conference received a total of 67 abstract submissions, from which only 20 conference talks and 6 poster presentations were selected. This rigorous selection process ensured that the conference program included only the highest quality and most relevant research, but unfortunately, it also meant that some rather interesting and quality papers were not included in the program. As a result, SinFonIJA 14 provided a platform for showcasing cutting-edge research and fostering intellectual exchange among scholars in the field. For this, we are deeply grateful to the reviewers who volunteered their time and expertise to assist us in this process.

The proceedings volume that is in front of you contains six original research papers that explore various aspects of linguistics. Each of these papers presents novel findings and contributes to our understanding of different linguistic phenomena, using a range of theoretical and methodological approaches.

"Implications of the Danish Definiteness Alternation for Concord in Nanosyntax," by Hayley Ross from Harvard University, investigates the Danish definiteness alternation and its implications for concord in Nanosyntax. Through a detailed analysis, Ross argues that Nanosyntax can provide a more comprehensive explanation of both issues of structural allomorphy and gender concord, compared to the Distributed Morphology analysis proposed by Hankamer and Mikkelsen (2018).

Another paper, "Asymmetry in the Simplification of Reversed Sonority Clusters in (a)typical Phonological Development: Evidence from Greek," by Katerina Iliopoulou and Ioanna Kappa from the University of Crete, explores the phonological productions of a child with Developmental Language Disorder (DLD) compared to the productions of two non-disordered (typical) children. The study shows that the child with DLD applies two different simplification patterns due to constraints that disallow featural Markedness, resulting in an asymmetry attested in the reduction.

Maša Bešlin from the University of Maryland contributes "Raising as a Free Syntactic Operation: Evidence from Serbian," which examines the syntactic properties of the Serbian modal verb *trebati* 'need'. Bešlin shows that *trebati* is a raising verb whose subject can remain in the embedded clause, implying that the raising does not occur in order to value features on matrix T.

In "Possessive, Kind and Not So Kind: The Different Uses of the Adjectival *-ov* in Serbo-Croatian," Marko Simonović from the University of Graz and Predrag Kovačević from the University of Novi Sad investigate the correlations between prosodic and semantic properties of Serbo-Croatian adjectives with the suffixes *-ov*/*-in*. Their corpus study shows that these suffixes are productively combined with bases denoting plants to derive kind or material denotations, in addition to strictly possessive/relational domains.

Svitlana Antonyuk from the University of Graz contributes a paper titled "Base-generated or Derived? Here's How to Tell Structures Apart in Russian," which argues that the Scope Freezing Diagnostic is a reliable way to distinguish between base-generated and derived structures in Russian. Antonyuk also presents a novel finding that Animacy mediates the Argument Inversion permutation, leading to the promotion of the lower [+Animate] argument to a position c-commanding its

co-argument, and discusses the theoretical and methodological implications of these findings.

Finally, "Mandarin Existential Constructions and the Predicate Restriction," by Jing Gao from Cornell University, challenges the claim that only stage-level predicates may appear in the coda of an existential sentence. Gao presents novel data from Mandarin to show that the predicate restriction is absent in Mandarin due to syntactic differences and explains the difference between existentials of the English-type and those of the Mandarin-type.

In conclusion, this Special Issue of the *Annual Review of the Faculty of Philosophy, University of Novi Sad*, showcases the selected papers from *SinFonIJA 14*, one of the most well-known conferences on formal linguistics in Europe. The six original research papers included in this volume, covering various aspects of linguistics, provide novel insights into different linguistic phenomena and highlight the diversity of theoretical and methodological approaches used in the field of linguistics. We hope that this volume will inspire further research and foster intellectual exchange among scholars in the field, and we are grateful to the authors for their contributions.

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Hayley Ross[*]
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IMPLICATIONS OF THE DANISH DEFINITENESS ALTERNATION FOR CONCORD IN NANOSYNTAX[**]

The Danish definiteness alternation presents two challenges for Nanosyntax. First, it displays structural allomorphy of the definiteness marker between a suffix and prenominal article; second, there is concord between the definiteness marker and noun gender. I show that Nanosyntax can address both issues, explaining the suffix-article alternation by virtue of its spellout algorithm and the lexical overlap between suffix and article. This account provides a deeper explanation for the structural allomorphy than the Distributed Morphology analysis proposed by Hankamer & Mikkelsen (2018). The existing proposal for concord in Nanosyntax (Caha, 2019) cannot handle this combination of gender concord and allomorphy, so I propose a simple copying mechanism which handles concord more flexibly. This new proposal, however, is substantially less restrictive than Caha's framework, paving the way for future work to balance restrictiveness with empirical coverage of prefix/suffix alternations and concord across languages.

Keywords: Nanosyntax, Multiple Merge, Danish, definiteness, concord, agreement, morphology

INTRODUCTION

Balancing the restrictiveness and elegance of a formal theory with empirical coverage is a perennial issue for theories of morphology, especially for Nanosyntax (Caha, 2009; Starke, 2010), which aims to have a single, restrictive spellout algorithm to handle all derivations. The Danish Definiteness alternation (Delsing, 1993) poses a particular empirical challenge for the restrictive formulation of Nanosyntax in Caha (2019). Like other Scandinavian languages, Danish has two definiteness markers, a prenominal definite article and a definite suffix. In Danish,

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[**] "Presented at SinFonIJA 14. I am grateful to the audiences at AIMM5, SinFonIJA 14, the Brno Nanolab and several anonymous reviewers for their feedback. I am particularly indebted to Pavel Caha for his insightful comments at my Nanolab presentation."

the two are in complementary distribution: the suffix occurs by default, but when modifiers such as adjectives are present, a prenominal article takes its place[1]:

(1) kant-**en**
edge-DEF.SG.C
'the edge'

(2) **den** skarpe kant
DEF.SG.C sharp edge
'the sharp edge'

(3) * **den** kant
DEF.SG.C edge
~ 'the edge'

(4) * skarpe kant-**en**
sharp edge-DEF.SG.C
~ 'the sharp edge'

Further, the definiteness marker shows concord with noun gender. Caha (2019) proposes the principle of Multiple Merge to handle case concord in Russian using Nanosyntax. This elegantly handles the multiple occurrence of case morphemes on noun and number by inserting the case feature both into the main spine of the derivation containing the noun, and also into the number 'prefix'. I will show, however, that this account cannot extend to gender concord in the Danish definite noun phrase since it is unable to handle the allomorphy involved. Instead, the allomorphy can be captured by a less restrictive formulation of prefix building for Nanosyntax (Starke, 2018). The question then becomes how to handle concord in Danish without Multiple Merge.

Investigating how to handle concord in Nanosyntax sheds light on how agreement (typically thought of as feature copying or sharing) may be implemented in a cartographic theory that insists on a single head per feature, in contrast with theories such as Distributed Morphology (Halle & Marantz, 1993) which use feature bundles and simply inherit agreement from the broader syntax. We will see that a basic feature-copying approach in Nanosyntax can handle the Danish concord data and even extend to adjective agreement, at the expense of being less restrictive. We also gain an explanation of *why* Danish shows this structural allomorphy thanks

[1] In all glosses throughout the paper, I use DEF = definiteness, INDF = indefiniteness, SG = singular, C = common gender and N = neuter gender.

to the spellout algorithm's preference for suffixes over prefixes; this is an improvement over the DM account proposed by Hankamer & Mikkelsen (2018) which relies largely on a 'Sisterhood Condition' describing the phenomenon in words (as opposed to explicit vocabulary insertion rules).

THE DANISH DATA

We saw in the introduction that Danish has two definiteness markers, a prenominal definite article and a definite suffix, in complementary distribution (in contrast with Swedish and Norwegian, where the two may co-occur). The alternation is typically illustrated with the following data, repeated from the introduction (Delsing, 1993; Hankamer & Mikkelsen, 2018):

(1) kant-**en**
edge-DEF.SG.C
'the edge'

(2) **den** skarpe kant
DEF.SG.C sharp edge
'the sharp edge'

(3) ***den** kant
DEF.SG.C edge
~ 'the edge'

(4) *skarpe kant-**en**
sharp edge-DEF.SG.C
~ 'the sharp edge'

This alternation is not limited to adjectives or to linear intervention between article and noun: Hankamer & Mikkelsen (2018) show that the same phenomenon occurs for restrictive vs. non-restrictive relative clauses, even though these occur to the right of the noun.

(5) **den** stol som jeg sad på
DEF chair that I sat on
'the chair that I sat on' [restrictive]

(6) stol-**en** som jeg sad på
chair- DEF that I sat on
'the chair, which I sat on' [non-restrictive][2]

This shows that the allomorphy between suffix and article must be structurally determined: if a modifier intervenes hierarchically in the tree between noun and definiteness marker (regardless of its linear position), the article must be used. My proposal will focus on the adjective case, but the theory developed here extends equally well to any XP inserted in the position proposed for the adjective, including relative clauses. (For the traditional motivations of why restrictive relative clauses are adjoined lower than non-restrictive ones, see Hankamer & Mikkelsen, 2018.)

Further, the forms of the definiteness markers are dependent on noun gender and number. Danish has two noun genders, common and neuter. For common nouns such as *kant* above, definiteness is marked by *-en/den*, while for neuter nouns such as *hus*, *-et/det* is used[3].

(7) hus-**et**
house-DEF.SG.N
'the house'

(8) **det** store hus
DEF.SG.N big house
'the big house'

In sum, the Danish data presents two main challenges: one, to handle the structurally motivated alternation between definiteness suffix and prenominal article, and two, to handle the concord between noun and definiteness marker. For Nanosyntax, which insists on one feature per head, expressing a feature such as neuter gender on both the noun and the definiteness marker requires multiple

[2] Hankamer & Mikkelsen (2005) note that for some speakers, (6) also admits a restrictive reading 'the chair that I sat on'. Like Hankamer & Mikkelsen (2018), I will set aside this possibility of a restrictive reading, assuming that it occurs when the clause adjoins low enough to trigger restrictive semantics but too high to intervene and trigger the definite article.

[3] This paper focuses on the singular forms; see the final section for open questions surrounding the plural.

insertions of that feature. Caha (2019) proposes Multiple Merge to address this (see Section 3.2), but I will show that Multiple Merge cannot handle both the concord and the structural allomorphy.

A third desideratum is to explain the significant overlap between *-en/den* and *-et/det*, ideally by analysing the articles *den* and *det* as *d-en* and *d-et*, i.e. containing the definiteness suffix. (In fact, the final analysis will split them further into *d-e-n* and *d-e-t* in order to account for adjective agreement.) As we will see in Section 3 when discussing prefixes (in Nanosyntax, any material merged on the left), splitting *den/det* in this way will create a 'multi-morpheme prefix' which is only possible in Caha's Nanosyntax under very specific circumstances.

OVERVIEW OF NANOSYNTAX

We begin by reviewing the principles of Nanosyntax[4] as in Caha (2019).

Spellout Algorithm and Fundamental Principles

In Nanosyntax, the lexicon contains not bundles of features mapped to morphemes but rather small syntactic trees which "spell out" (correspond to) a particular morpheme. Further, Nanosyntax follows the principle of one head per feature. For example, a genitive morpheme such as Russian *-i*[5] maps not to a single genitive feature but to the tree [$_{\text{GENP}}$ GEN [$_{\text{ACCP}}$ ACC [$_{\text{NOMP}}$ NOM]]] containing the lower cases (Caha, 2020). The following two principles govern the *spellout*, i.e. mapping to the syntactic derivation, of these lexical entries:

(9) *The Superset Principle*
A lexically stored tree matches a syntactic node if and only if it contains the syntactic node.

(10) *The Elsewhere Condition*
When two entries can spell out a given node, the more specific entry wins. Under the Superset Principle governed insertion, the more specific entry is the one which has fewer unused features.

[4] For a conceptual introduction to Nanosyntax and motivations for choosing it over Distributed Morphology, the reader is referred to Baunaz & Lander (2018); for a detailed step-by-step account of the theory, to the excellent first few chapters of Caha (2019) itself.

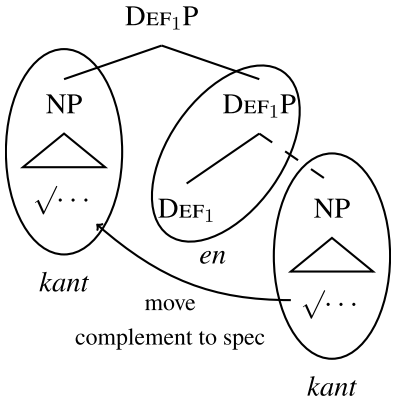
[5] *-i* is the genitive singular suffix for declensions II and III; see Caha (2020) for the full paradigm. Details of how to handle declensions are omitted in this example.

This means that a lexical entry can spell out a derivation at each step as the derivation "builds" the lexical entry, if there is no smaller competitor. Now, given a feature sequence (*fseq*) for a derivation, such as a noun root followed by case features, we merge the features (heads) one by one using the following algorithm (Caha, 2019, Chapter II.6).

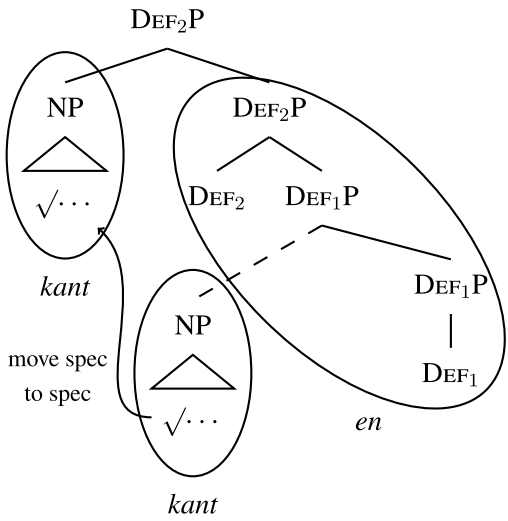
(11) *The Spellout Algorithm*
Merge F and
(a) Spell out FP
(b) If (a) fails, move the spec of the complement of F and retry (a)
(c) If (b) fails, move the complement of F and retry (a)
(d) If (c) fails, backtrack to the previous cycle and try the next option for that cycle
(e) If (d) fails, try to spawn a new derivation providing F. Spell out F in the new workspace, then immediately close the new workspace by merging the FP to the main derivation, projecting the feature F to the top.

Steps (b) and (c) spell out F as a suffix, as shown in the following hypothetical examples (F is DEF_1 in (12), then DEF_2 in (13); suppose that *-en* is spelled out by [DEF_2 [DEF_1]]).

(12)

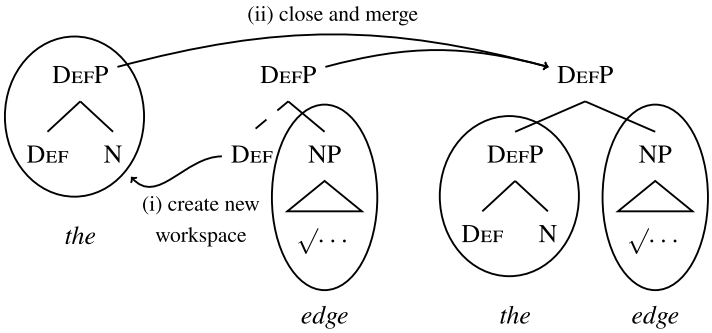


(13)



The remaining steps cover two important features. Step (d) lets the algorithm backtrack, which notably allows roots which have spelled out features too greedily (features required to spell out other morphemes higher in the tree) to be "shrunk" back down to rescue the derivation (see Caha (2020) for examples with Russian case). Step (e) allows the formation of prefixes, which in Nanosyntax refers to any material adjoined on the left. Caha's spellout algorithm is vague about the exact structure prefixes take; all they need is to have a binary foot [$_{FP}$ F X] ("the identity of X is left open on purpose"). For concreteness I'll follow Caha, De Clercq, & Vanden Wyngaerd (2019) where they take the form [$_{FP}$ F F^{-1}] where F^{-1} is the topmost feature in the main spine. This is shown in the hypothetical example in (14), where F is DEF and F^{-1} is N.

(14)



This encompasses both traditional prefixes as well as left modifiers such as adjectives to nouns or the *more* of *more intelligent* (Caha et al., 2019). Further, prefixes are a "last resort", becoming an option only after all other movements and backtracking options have failed. This is justified by the high "cost" of opening a new workspace in the derivation and predicts empirically that there should be a preference for suffixation across and within languages.

Under this strict formulation of the algorithm, prefixes are composed only of a single feature in most cases – Caha argues that keeping a second workspace open is so expensive that we should close it immediately. (Having a binary foot does not make the prefix multi-feature; this is just the notation to make it a full constituent.) Prefixes with several heads are possible only if backtracking is triggered and re-opens the relevant prefix workspace. This strictness for prefix size contrasts with the position taken by Caha et al. (2019), where prefixes may be built with multiple heads (the prefix workspace need not be closed) as long as the prefix spells out a single morpheme. It contrasts further with the original proposal for prefixes by Starke (2018) which argues that the prefix workspace should be kept open as long as possible[6]. Starke also appeals to the cost argument: because the second workspace is so expensive, we should get maximal value out of it rather than closing it immediately. I will follow Caha's approach for now, but we will see the benefits of Starke's variant in Section 5.1.

Multiple Merge

Caha (2019) extends the spellout algorithm above with Multiple Merge, a principle which adjusts how backtracking interacts with prefix workspaces to permit the copying (multiple merging) of features and thus permit concord.

(15) *Multiple Merge*
When backtracking reopens multiple workspaces, merge F in each such workspace.

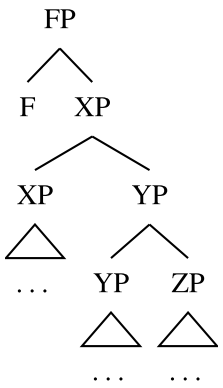
[6] In Starke's example, "as long as possible" corresponds to the end of a lexical entry. It is unclear whether Starke would permit multiple lexical entries to inhabit the same prefix; this is explored in Section 5.1.

In the previous formulation of the spellout algorithm, if we were unable to merge F and the last step happened to have been prefix formation in an auxiliary workspace, we could backtrack, detach and re-open that workspace, and attempt to merge F with the prefix, creating a multi-feature prefix. Caha argues that there is a second option: once we have detached the auxiliary workspace, we could instead merge F in the main spine (and reattach the prefix afterwards). Multiple Merge proposes that we should try both and adopt whichever succeeds (possibly both). The two workspaces are then recomposed in the same configuration as before. Thus, there are three possible outcomes of Multiple Merge:

1. F is merged only in the prefix; spelling it out in the main spine fails. This is how we derive the configurations produced prior to introducing Multiple Merge, including multi-feature prefixes such as English *more* in Caha et al. (2019), as well as possibly multi-morpheme prefixes.
2. F is merged in both the prefix and the main spine. This is the outcome that yields concord, for example case concord between the German determiner and noun (e.g. *des Kind-es*, 'the.GEN.SG child-GEN.SG').
3. F is merged only in the main spine, failing to spell out in the prefix. In this case, features essentially "skip" the prefix. This is useful when features such as case should skip modifiers to the left of the noun such as German numerals (e.g. *den zwei Kinder-n*, 'the.DAT.PL two children-DAT.PL').

Further, this process may be recursive if we have a structure with multiple prefixes. Consider the schematic structure in (16) from Caha (2019, p. 204). If F cannot be spelled out by spec or complement movement, Multiple Merge opens not only the prefix XP but also the prefix YP when applied recursively to the main spine. This results in up to three copies of F, if each spellout of [$_{FP}$ F XP], [$_{FP}$ F YP] and [$_{FP}$ F ZP] is successful, as shown in (17).

(16)



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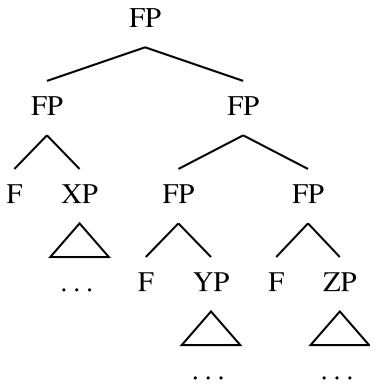


Caha uses Multiple Merge to elegantly derive a particular phenomenon of Russian case marking: when a numeral phrase such as *pjat' stolov* 'five tables' is nominative, there is nominative case marking on the number and genitive on the noun. When the whole phrase is dative, dative case marking appears on both number and noun.

(18) pjat' stol-ov
five.NOM tables-GEN.PL
'five tables'

(19) pjat'-i stol-am
five-DAT.SG tables-DAT.PL
'to five tables'

In combination with the hierarchy of cases (dative contains genitive, genitive contains accusative, accusative contains nominative; see Caha (2020) for

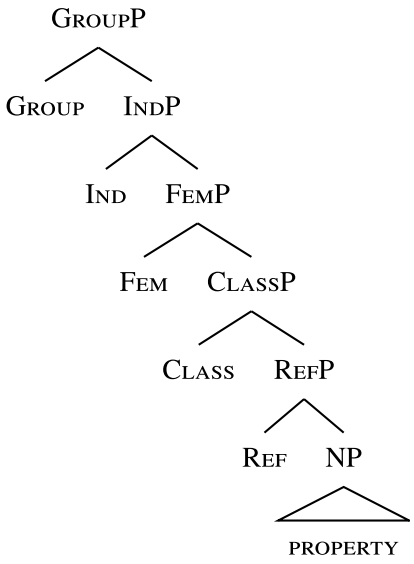
discussion), Multiple Merge explains why the NOM feature only gets merged in the prefix *five*, since the main spine already contains GEN and we cannot spell out NOM on top of GEN. To spell out DAT, by comparison, we first merge every feature from NOM to GEN. These all spell out only in the number as before. When we add DAT, we may spell it out in both the prefix (number) and the main spine, because now both contain GEN.

Feature sequence for noun phrases

The final ingredient of Nanosyntax we need is an appropriate feature decomposition for noun phrases. I adapt the features for Russian proposed by Caha (2020), inherited from Harley & Ritter (2002), to Danish.

At the bottom of the tree in (20), we have the root for the noun in question[7]. REFP indicates that the noun phrase is referential. CLASSP indicates that it has a noun class, common by default; NEUTP is additionally present if the noun is neuter. INDP denotes that the noun phrase refers to an individual (not e.g. a mass noun) while GROUPP is additionally present if the noun is plural.

(20)



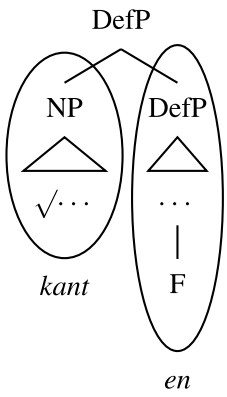
[7] See Caha et al. (2019) for a detailed discussion of the notion of root in Nanosyntax.

ANALYSIS OF DANISH DEFINITENESS WITH MULTIPLE MERGE

The Danish data clearly calls for an analysis with Multiple Merge: we have concord and we have prefixes (prenominal articles) containing several morphemes, if we take the *d-en/et* decomposition. Unfortunately, Multiple Merge is unable to handle the structural allomorphy where the adjective triggers the alternation between article and suffix, by the very nature of its permitting features to be merged into the main spine even when a prefix is present (outcome 3 above). To see why, suppose that we have a way of deriving the plain definite noun phrase *kant-en* 'the edge'. Suppose that some definiteness feature DEF spells out as *-en*, potentially in combination with other features. Call the feature that *-en* is footed in F. (F could be DEF itself in principle but will need to be a distinct feature for Multiple Merge to trigger.) The derivation of *kant-en* is given in (21); the features needed to derive *kant* itself are abbreviated under NP.

Suppose that we want to add the adjective *skarpe* 'sharp'. We begin with the NP for *kant*. Suppose that we next merge the AP as a prefix on the left. Then, we merge definiteness onto the whole phrase, starting with F. We know that F can spell out as suffix *-en*, because it does so in the derivation of *kant-en*. We add the remaining features and build up to DEF; each time, we can spell out as the suffix *-en*. Ultimately, we end up with *[skarpe kant]-en*, as in (22) – not what we wanted. The correct form is *den skarpe kant*. Moreover, we never triggered Multiple Merge.

(21)



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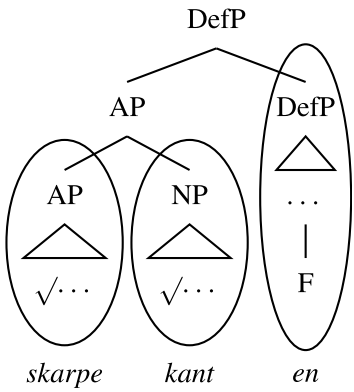
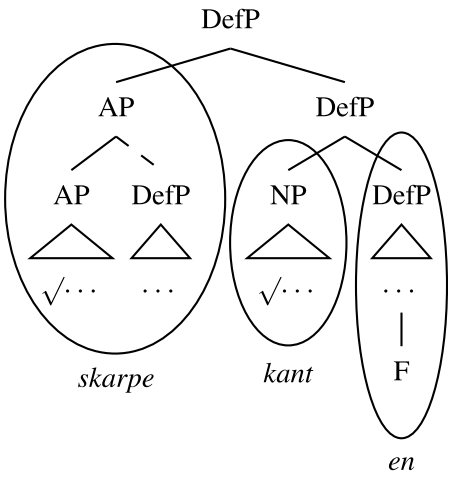


How do we invoke Multiple Merge? In the previous derivation, we implicitly assumed that F lies after the AP in the feature sequence. Suppose that F is instead merged before the AP (possibly with some other features for *-en*), but DEF is only merged after the AP. Merging F and its neighbours spells out as the suffix *-en*, as before. Next, we merge the AP. Now, when we try to merge DEF after the AP we cannot spell it out as *-en* because the AP intervenes between DEF and its desired foot F. This triggers backtracking – and thus Multiple Merge. We re-open the prefix workspace (the AP) and try to merge DEF there[8]. More importantly, we also open the main spine, which contains the NP and F, and merge DEF there as well. This succeeds: just as in *kant-en*, we have the sequence F through DEF in the main spine and may spell out as *-en*. Unfortunately, this means that when the workspaces are put back together, we still get *skarpe [kant-en]*, just with the new bracketing of (23).

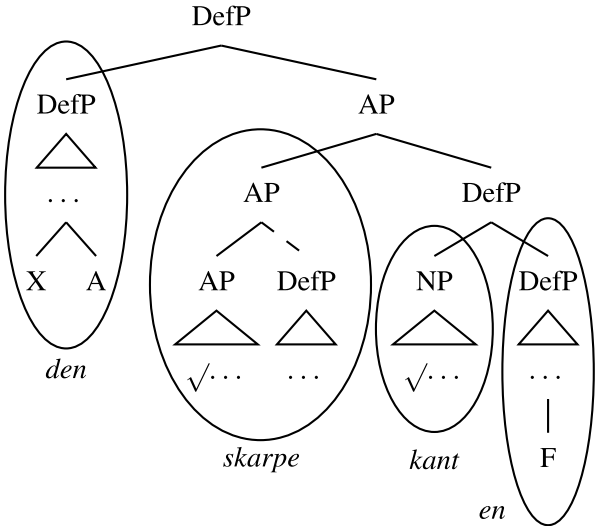
[8] This may succeed, yielding some kind of adjective agreement, or it may not; whether it succeeds does not matter for this argument.

(23)



None of these derivations have produced the article *den*. To host it, we would need an additional prefix in front of the adjective. Perhaps some feature X can be stipulated which is always merged after an adjective and creates this prefix, either spelling out as *den* immediately or phonologically null at first. Then, when DEF is merged, we re-open both prefixes just as in the schema in (17) and merge DEF in each as well as in the main spine. (DEF can't spell out on its own, by construction, so it triggers backtracking every time.) If the tree of X through DEF spells out as *den*, this creates a prenominal article as desired. Unfortunately, Multiple Merge still merges DEF with the main spine as well and spells it out as *-en* as before. So at best, we can derive *den skarpe kant-en*, shown in (24). While this is in fact the correct form for Norwegian and Swedish, it will not do for Danish.

(24)



Multiple Merge's express ability to skip prefixes, perfect for many other languages and situations, is precisely what leads to its downfall in Danish. In Danish, the presence of the adjective "prefix" is precisely triggering the allomorphy and should not be skipped.

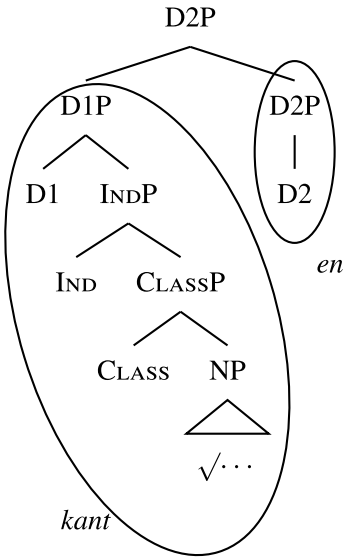
A LESS RESTRICTIVE ANALYSIS

The issues with Multiple Merge stem in part from its highly restrictive formulation. Multiple Merge only triggers when a feature cannot be spelled out by spec or complement movement, and when it does trigger, it always merges F to every workspace where F can be spelled out. While in general it is desirable in Nanosyntax to put the burden on the shape of the lexical entries and keep the spellout algorithm simple, this does not give us enough flexibility to handle the Danish data. I will step back to the original spellout algorithm in (11) (without Multiple Merge) and instead loosen the spellout process in two ways. The first will modify when prefixes are closed, and the second will involve the spellout of "placeholder" heads which initiate the copying necessary for concord without Multiple Merge.

Handling the structural allomorphy with late prefix closure

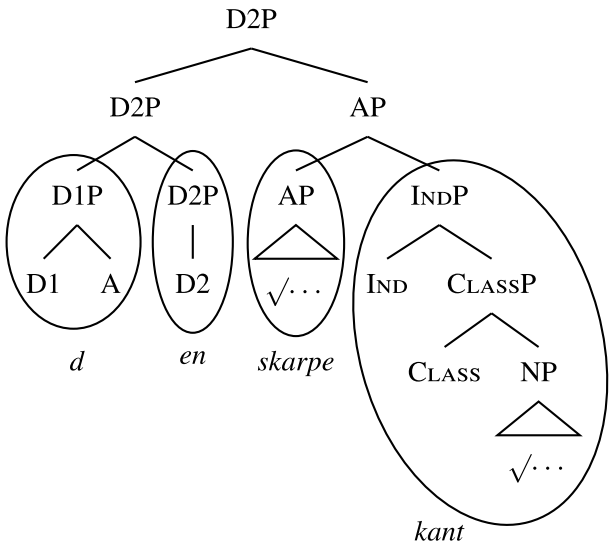
The first problem for the Multiple Merge analysis is building the prefix *den*, provisionally as *d-en*, where *-en* is the definite suffix. Under this decomposition, *d* can be viewed as existing to support *-en* in the prefix position, not unlike how *do*-support in English exists to permit tense in the correct position. To achieve this, I split the definiteness head into two parts, provisionally called D1 and D2, such that D2 spells out the suffix *-en*. D1 is normally spelled out as part of the noun, but becomes the prefix *d* and supports *-en* when an adjective is present. By just changing the lexical entries of nouns to contain D1P (optionally, thanks to the Superset Principle), *kant-en* is derived straightforwardly as follows:

(25)



Next, I stipulate that the AP merges precisely between IND and D1. This prevents D1 from being spelled out by the noun. Instead, I add a new lexical entry for D1P, a prefix which spells out as *d*. This has the standard prefix shape [$_{\text{D1P}}$ D1 A], as discussed in Section 3.1. We will use A for the binary foot, since D1P adjoins to AP. Now, when we come to spell out D2, there is a prefix workspace containing D1. I depart from the early prefix closure in the spellout algorithm of (11) and instead invoke the late prefix closure option of Starke (2018) which allows us to close prefixes "as late as possible". I will interpret this as allowing us to keep the prefix workspace of D1 open long enough to merge D2 as a suffix to *d*, creating *d-en* as in (26). This may be more generous than Starke intended: Starke's only example happens to close the prefix after spelling out one morpheme. Nonetheless, this proposal does not need workspaces to stay open indefinitely: while the notion of a word is not necessarily well defined by Nanosyntax, the prefix workspace here closes after it spells out a word as understood by Danish speakers; perhaps this is a restriction that can be placed on this process. (See Hankamer & Mikkelsen (2018) for a fascinating discussion of what wordhood might mean in this context.)

(26)



This proposal elegantly handles the structural allomorphy of the Danish definiteness alternation with just a decomposition of definiteness into two heads, plus some straightforward lexical items. Moreover, the way that the structural allomorphy works *explains* why *-en* and *den* overlap so much in form. This is a place where Nanosyntax shines: because all allomorphy in Nanosyntax is structural, it has no trouble handling the Danish allomorphy.

Adding concord

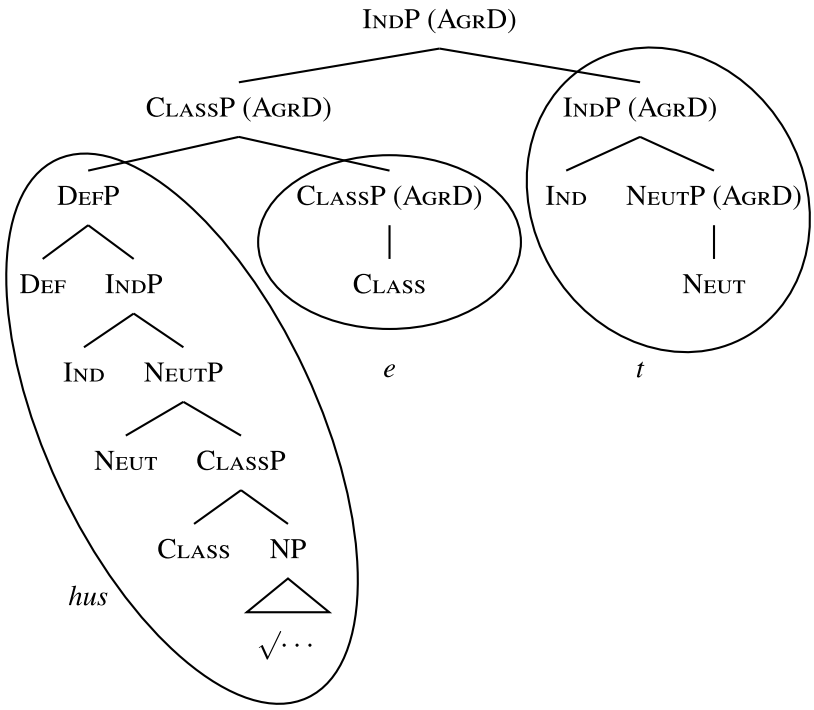
The above derivation only handles common gender: D2 always spells out as *-en*. To derive *hus-et* and *det store hus*, we need D2 to show concord with the noun. Concord in Nanosyntax necessarily means feature multiplicity in one sense or another: if neuter gender is to be expressed both by the noun and on the definiteness marker, then we need two copies. Multiple Merge provides one way to acquire copies by merging the feature in multiple places. This works well for features like case, which are uncontroversially merged after the phrases they attach to. It is less clear how this would work for gender. If we expect gender to be more "core" to the noun than definiteness, which seems intuitive, then gender must merge lower than definiteness; however, if we want Multiple Merge-style copying onto the definiteness marker, then gender must merge higher.

An alternative is to explicitly copy the features from their lower position close to the noun root to the definiteness marker after the definiteness marker is merged. This idea is partially inspired by Taraldsen's analysis of Bantu verbal

agreement using Nanosyntax (Taraldsen, 2010; Taraldsen, Taraldsen Medová, & Langa, 2018) (though Taraldsen uses copying only as an analogy, and explicitly does not use it in his analysis proper) and by the implementation of feature assignment via copying for Russian case concord in Pesetsky (2013), though Pesetsky's principle, like Multiple Merge, copies concord features "downwards" onto existing feature bundles when merged. Gender concord is peculiar in appearing to copy "upwards", if we wish to keep the feature hierarchy in (20).

Since features cannot be copied from one bundle to another in Nanosyntax, I propose a new mechanism. Let D2 be a "placeholder" feature AGRD. When merged, it will instead copy all the features between CLASS and IND from the noun and merge them in the place where it was about to be merged. (I will add AGRD in parentheses to nodes which arise by copying heads into the place of AGRD.) This can be viewed as an entry for AGRD in the lexicon (albeit a new kind of lexical entry), or as a rule to be added to the spellout algorithm. For common gender nouns, this will copy exactly CLASS and IND; for neuter nouns, it will copy NEUT as well. Appropriate lexical entries for CLASS, IND and [$_{\text{NEUTP}}$ NEUT INDP] then yield *-en* and *-et*, as shown in (27) and (28). In fact, we decompose the suffix as *-e-n/-e-t*, with a separate entry for CLASS which just spells out *e*. This is mildly motivated by the overlap between *-en* and *-et*, but we will see a better motivation for this when discussing adjective agreement in Section 6. Finally, let D1 be called DEF, suggesting that in the standard case the definiteness is subsumed by the noun and only reflected by the definiteness concord of AGRD, while becoming overt as *d* in the presence of an adjective.

(27)


IndP (AgrD)
ClassP (AgrD)
IndP (AgrD)
DefP
ClassP (AgrD)
Ind
NeutP (AgrD)
Def
IndP
Class
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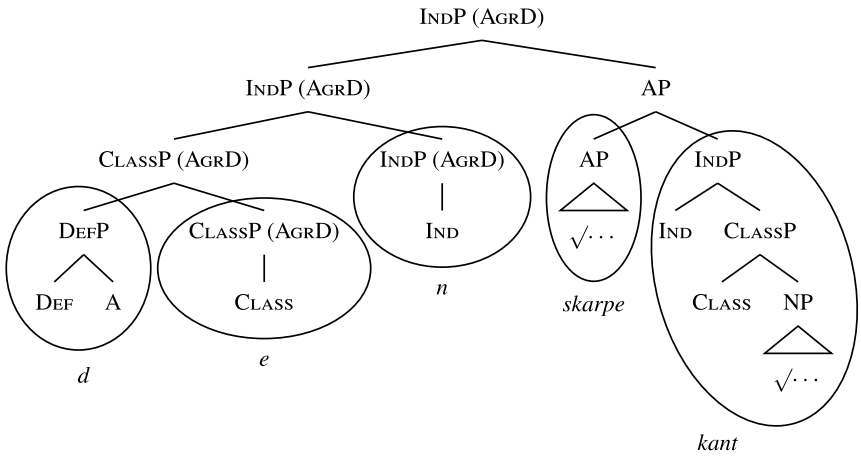
e
t
Neut
ClassP
Class
NP
hus
√…

(28)


IndP (AgrD)
IndP (AgrD)
AP
ClassP (AgrD)
IndP (AgrD)
AP
IndP
DefP
ClassP (AgrD)
Ind
√…
Ind
ClassP
Def
A
Class
Class
NP
n
skarpe
d
e
√…
kant

Summary

This proposal now handles the full paradigm of data laid out in Section 2. We have gained coverage of the data at the expense of loosening our requirements for prefix closure, adopting late prefix closure from Starke (2018), and at the expense of adding an (in principle) unrestricted copying system via placeholder features, though our use of it was fairly limited. The scope of this system clearly needs to be worked out in more detail by studying concord in other languages if we want to restrict it. I will show in the next section that the proposed copying mechanism can be used 'as is' to derive strong adjective agreement, suggesting that it may not be that stipulative and that it might be possible to restrict it to a narrow domain. Likewise, it may be possible to limit the size of prefix workspaces to at most words, to the extent that Nanosyntax can define wordhood, pending further investigation into complex prefixes.

On the plus side, the account of the structural allomorphy in the Danish definiteness alternation is elegant and can easily be extended to the relative clause examples in (5) and (6) by having the restrictive relative clauses merge in the same place as the AP, while the non-restrictive relative clauses merge higher and do not intervene between the noun and DEF (D1). The alternation is explained by the position of the AP relative to DEF and the availability of prefix and suffix lexical entries for DEF. Nanosyntax's prediction that prefixes are a last resort is borne out in this data and explains why we only get the prefix (prenominal article) when the AP blocks the suffix. This provides a deeper explanation than the Distributed Morphology analysis of Hankamer & Mikkelsen (2018). While Hankamer & Mikkelsen do an excellent job laying out the data and showing that the allomorphy must be structural (contra Embick & Marantz, 2008), their analysis relies entirely on their formulation of the Sisterhood Condition:

(29) *Sisterhood Condition* (Hankamer & Mikkelsen, 2018)
A definite D, D[def], is realized as a suffix if and only if it is a sister to a minimal N. Otherwise D[def] is realized as a free-standing article.

This correctly captures the data and its dependence on structural rather than linear intervention, but since it is phrased in words instead of explicit vocabulary insertion rules, it only provides a minimal DM-internal explanation for why this allomorphy occurs. While the account here likewise stipulates where the modifier intervenes (the position for DEF as a suffix is equivalent to being 'sister to a minimal N'), the spellout algorithm then dictates that definiteness (DEF + AGRD)

cannot be spelled out as a suffix, and that the next step is to try a prefix – the prenominal article. (The only "stipulation" needed thereafter is to provide an appropriate lexical entry for *d*.) This motivates why Danish resorts to a prenominal article[9].

Handling Caha's Russian data

As we noted in Section 3.2, Multiple Merge was introduced by Caha (2019) to address case on Russian numeral phrases, repeated here:

(18) pjat' stol-ov
five.NOM tables-GEN.PL
'five tables'

(19) pjat'-i stol-am
five-DAT.SG tables-DAT.PL
'to five tables'

Caha analyses this pattern by having case merge into both the numeral and the noun, with this spelling out successfully on the noun for cases DAT and higher. Moreover, Caha's proposal crucially relies on being able to re-open and modify the main spine below the prefix using Multiple Merge. Without that, we need to propose that a copying feature AGRCASE is merged onto the noun but only "expands" into its copied features after those features have been merged later in the

[9] Another strategy a language could use is to suffix the definiteness marker to the modifier. An anonymous reviewer notes that this is precisely the strategy used in Bulgarian:

(i) kniga=ta
book-DEF

(ii) nova=ta kniga
new-DEF book

If this clitic may be analysed the same way as suffixes in Nanosyntax, this suggests that in Bulgarian, there is no (overt) DEF head, and so instead of keeping the DEF prefix workspace open and adding the AGRD suffix to that, we are able to keep the highest AP prefix workspace open and suffix AGRD there. (This further predicts why in Bulgarian, DEF only attaches to the highest adjective.) Bulgarian represents a promising avenue for future research for this analysis: if DEF can be null, and definiteness still be expressed, perhaps it was hasty to name this head DEF and the other merely agreement (AGRD).

derivation and suffixed to the numeral. (Recall that when we discussed Multiple Merge for gender, its directionality was a problem; now we see the opposite for copying and case.) We then need to posit that AGRCASE's expansion can be satisfied vacuously if the features that it needs to copy are already present adjacent to it. In sum, while we can handle Caha's Russian numeral phrases with copying, the additional complexity of it suggests that perhaps a Multiple Merge-like account may still be preferable for some cases. I will return to this point in the conclusion.

ADJECTIVE AGREEMENT

So far, I have glossed over the fact that Danish adjectives exhibit agreement with the noun. As in many Germanic languages, we see weak agreement (same suffix across genders) with a definite article and strong agreement (distinct suffixes by gender) with an indefinite article. It turns out that the same copying mechanism as before can be used to explain strong adjective agreement, supporting the choice above of which heads to copy. The strong and weak agreement pattern is shown below (using AGR to gloss the gender-unspecific weak agreement and Ø to indicate a null morpheme).

(30) den skarp-**e** kant
DEF.SG.C sharp-AGR edge
'the sharp edge'

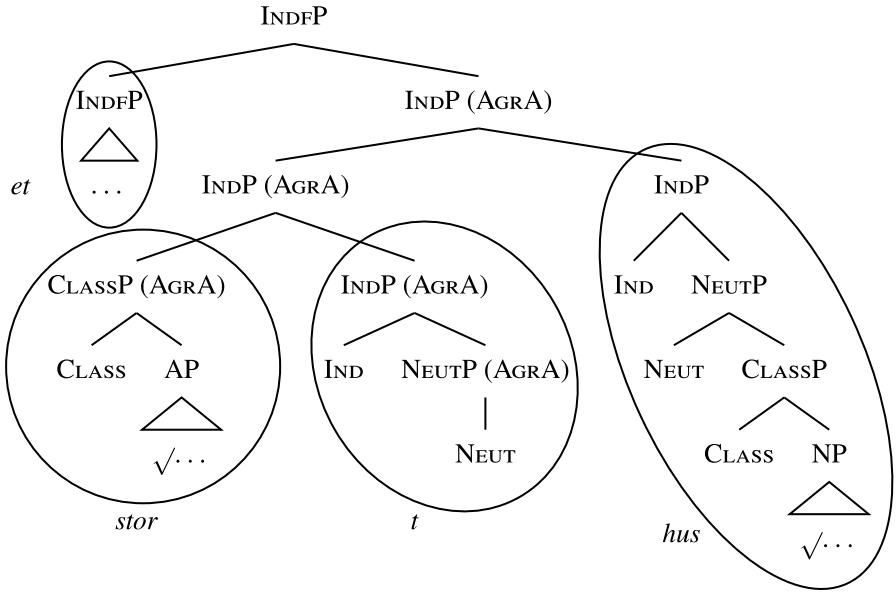
(31) det stor-**e** hus
DEF.SG.N big-AGR house
'the big house'

(32) en skarp-**Ø** kant
INDEF.SG.C sharp-C edge
'a sharp edge'

(33) et stor-**t** hus
INDEF.SG.N big-N house
'a big house'

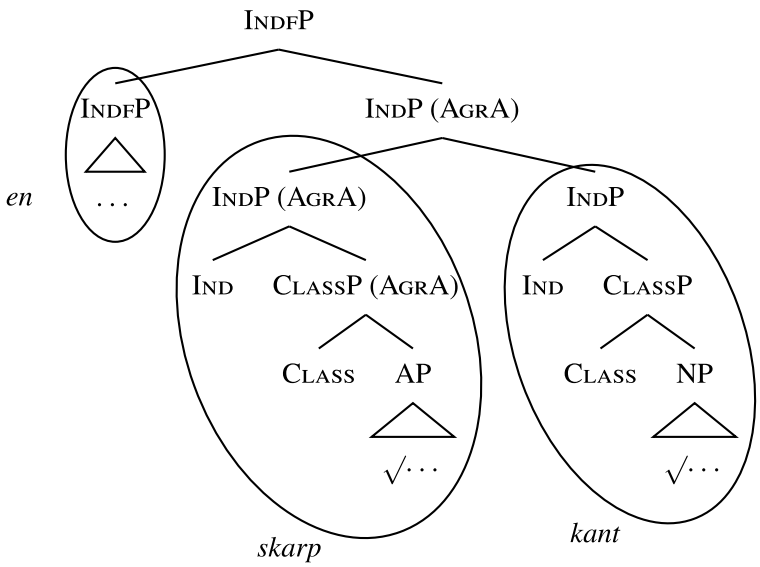
The overlap between the neuter strong agreement *-t* and the neuter definiteness suffix *-et* inspires copying the same material for adjective agreement as for definiteness agreement. Specifically, I introduce a new head AGRA which follows the adjective and which copies the same material as AGRD, namely all heads from IND through CLASS. IND and NEUT give us the desired *-t* suffix, while CLASS is absorbed by the adjective itself. This is shown in (34).

(34)



In fact, the null common gender "suffix" can be derived by allowing the adjective to spell out CLASS and IND but not NEUT; thus the presence of NEUT forces the separate suffix *-t*. The derivation of common gender *en skarp kant* with just CLASS and IND is shown in (35). Theoretically, this implies that adjectives may be 'innately' common gender, but not neuter.

(35)

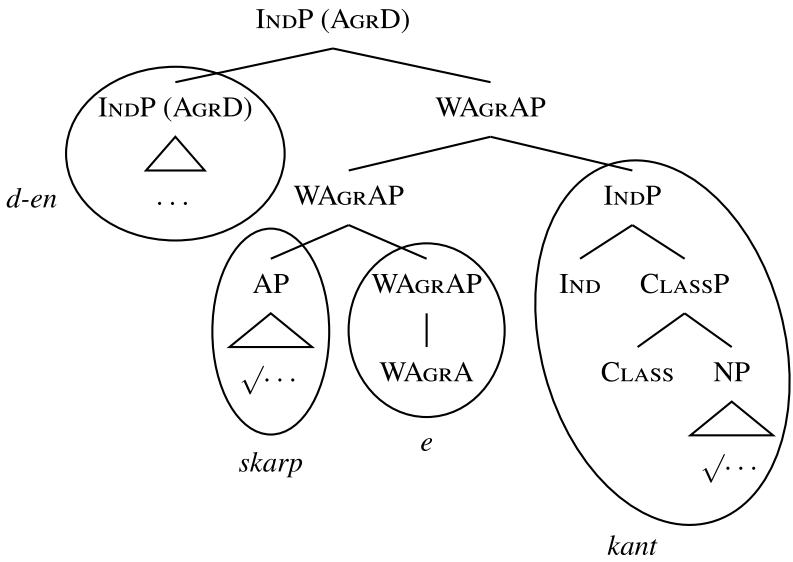


Since the focus of this section is to illustrate how adjective agreement may be derived from the copying mechanism for definiteness, I will not analyse the internal structure of the indefinite article for now (using INDFP as a placeholder) and will set aside its tantalizing overlap in form with *den/det*. This overlap is without question an avenue for future work[10], as is providing a Nanosyntactic explanation for *why* the indefinite article triggers strong agreement while the definite article triggers weak agreement. Here, I will merely assume that if weak agreement is in the feature sequence, then so must be a definite head, and likewise for strong agreement and indefinites. This is not an explanation but may be likened to the stipulation that if NEUT is to be expressed, we must have CLASS, and so forth.

Finally, observe that it is possible to analyse weak agreement in this framework without further theoretical additions, albeit also without adding any interesting insights: simply posit a WAGR head which is lexically defined as *-e* and stipulate, as discussed, that it occurs above the adjective if DEF is present.

[10] One possible analysis which explains the overlap between *en/et* and *den/det* is to posit an INDF head which is always a prefix and which is phonologically null. This behaves exactly like the prefix DEF head and attracts the AGRD suffix *-en/et*, so that the whole indefinite prefix/article gets realised as *Ø-en (en)* and *Ø-et (et)*. This derives the examples above as well as the unmodified phrases *en kant* 'an edge' and *et hus* 'a house'. However, null heads are generally avoided where possible in Nanosyntax and it is not clear from an explanatory perspective why the indefinite should contain a definite agreement morpheme. Without some justification of why the indefinite should be able to be decomposed in this way, explaining *en/et* within Nanosyntax remains an unsolved problem.

(36)



CONCLUSION

Nanosyntax provides an elegant account of the Danish definiteness alternation. Since Nanosyntax treats all allomorphy as structural, it is excellently positioned to account for the Danish data. Moreover, it can explain why the definiteness marker shifts from suffix to prefix, something that the Distributed Morphology account of Hankamer & Mikkelsen (2018) struggles to do using theory-internal reasons. To do so, however, two steps away from the most restrictive formulation of Nanosyntax provided by Caha (2019) are needed. To explain the alternation and the relationship between the articles *den/det* and the suffixes *-en/-et*, I shifted from Caha's immediate prefix workspace closure to closing the prefix "as late as possible" (Starke, 2018). While it need only stay open a "short" time (building a single word), the question of exactly what restrictions we can place on prefix closure remains open for future research. Likewise, the Danish data requires stepping away from Caha's elegant and restrictive principle of Multiple Merge for handling concord. Instead, I proposed an overt copying mechanism to copy the gender features onto the definiteness marker. The scope of what may be copied, when and in what direction remains wide open and will ultimately depend on data from other languages. This proposal is thus not intended as a final solution for concord in Nanosyntax but rather as a first proposal to spark discussion and prompt future research to establish the bounds and limitations of the mechanisms involved. The fact that the Danish plural blocks concord with gender

on the definiteness marker (both common and neuter plural share the same definiteness suffix *-ne* and article *de*) suggests that we may not always want to copy blindly from IND to CLASS and invites a more complex criterion to capture this intervention by the plural (GROUP) feature[11]. Further, since gender shows "upward" concord onto items merged after it while case distributes "downward" across previously merged constituents, it remains open whether one or two mechanisms are needed. By proposing a concise account of the structural allomorphy and exposing what needs to be achieved to capture the concord in this case, I hope that this paper may pave the way to a revised proposal of Multiple Merge or a much narrower copying mechanism which can both account for the full Danish paradigm and retain the restrictiveness which so centrally distinguishes Nanosyntax from Distributed Morphology.

REFERENCES

Baunaz, L., & Lander, E. (2018). Nanosyntax. In: L. Baunaz, L. Haegeman, K. De Clercq, & E. Lander (eds.), *Exploring Nanosyntax*. Oxford University Press.

Caha, P. (2009). *The Nanosyntax of case* (PhD Thesis). Universitetet i Tromsø.

Caha, P. (2019). Case competition in Nanosyntax. A study of numeral phrases in Ossetic and Russian. *LingBuzz.* Available at https://ling.auf.net/lingbuzz/004875

Caha, P. (2020). *Modeling declensions without declension features. The case of Russian*. Available at https://ling.auf.net/lingbuzz/005537

Caha, P., De Clercq, K., & Vanden Wyngaerd, G. (2019). The fine structure of the comparative. *Studia Linguistica*, *73*(3), 470–521.

Delsing, L.-O. (1993). *The Internal Structure of Noun Phrases in the Scandinavian Languages* (PhD Thesis). University of Lund.

Embick, D., & Marantz, A. (2008). Architecture and Blocking. *Linguistic Inquiry*, *39(1)*, 1–53.

Halle, M., & Marantz, A. (1993). Distributed morphology and the pieces of inflection. In: *The view from building 20.* The MIT Press. 111–176.

[11] Note that this counts as an intervention in terms of shielding the gender of the noun from "view" for concord, but does not count as an intervention of a modifier between the noun and DEF (definite plurals with no modifier still use a suffix). I am grateful to Pavel Caha and the audience at the Brno Nanolab for drawing this to my attention.

Hankamer, J., & Mikkelsen, L. (2005). When movement must be blocked: A reply to Embick and Noyer. *Linguistic Inquiry, 36(1)*, 85–125.

Hankamer, J., & Mikkelsen, L. (2018). Structure, Architecture, and Blocking. *Linguistic Inquiry, 49(1)*, 61–84.

Pesetsky, D. (2013). *Russian case morphology and the syntactic categories*. MIT Press.

Starke, M. (2010). Nanosyntax: A short primer to a new approach to language. *Nordlyd, 36(1)*, 1–6.

Starke, M. (2018). Complex Left Branches, Spellout, and Prefixes. In: L. Baunaz, L. Haegeman, K. De Clercq, & E. Lander (Eds.), *Exploring Nanosyntax*. Oxford University Press.

Taraldsen, K. T. (2010). The nanosyntax of Nguni noun class prefixes and concords. *Lingua, 120*(6), 1522–1548.

Taraldsen, K. T., Taraldsen Medová, L., & Langa, D. (2018). Class prefixes as specifiers in Southern Bantu. *Natural Language & Linguistic Theory, 36*(4), 1339–1394.

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ASYMMETRY IN THE SIMPLIFICATION OF REVERSED SONORITY CLUSTERS IN (A)TYPICAL PHONOLOGICAL DEVELOPMENT: EVIDENCE FROM GREEK**

This paper explores the asymmetry in the disordered (atypical) Greek L1 phonological productions of a child with Developmental Language Disorder (DLD) compared to the productions of two non-disordered (typical) children. The study focuses on the simplification patterns of reversed sonority consonantal clusters, namely [S/FRICATIVE+STOP] and [S+FRICATIVE]. The data show that, while the non-disordered children simplify reversed sonority clusters in the same way by deleting the more sonorous consonant, the child with DLD applies two different simplification patterns, resulting from constraints that disallow featural Markedness. We propose that the asymmetry attested in the reduction is due to the employment of two distinct grammars by the two groups of children. The typically developing children employ the cross-linguistically widely attested sonority-driven reduction. Meanwhile, the grammar of the child with DLD is not motivated by sonority, but rather by a general avoidance for Markedness, retaining the unmarked [-continuant] Manner of Articulation in [S/FRICATIVE+STOP] clusters, while favoring the consonant with unmarked Place of Articulation in [S+FRICATIVE] clusters, where the Manner of Articulation of both segments is marked, i.e. [+continuant].

Key words: typical/atypical phonological development, falling/reversed sonority clusters, cluster simplification, asymmetrical patterns, DLD, sonority, markedness, syllable structure, Modern Greek

1. INTRODUCTION

Disordered phonology is manifest through a considerable delay in reaching developmental milestones, as well as through idiosyncratic patterns

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(processes, lack of contrasts, etc.) that can deviate from the patterns attested in typical phonological development (e.g. Grunwell, 1985).

In this case study, we explore the phonological grammars that motivate the divergent and asymmetrical productions of a child with Developmental Language Disorder (DLD) who exhibits a prominent language delay, while not conforming to the patterns attested in children during the typical development of Standard Modern Greek L1 phonological system. At the age of 4;10, the child with DLD still produces only singleton onsets, which means that the child has yet to acquire more complex/marked structures such as branching onsets of rising-sonority, e.g. [pl], and clusters of reversed/falling sonority with extrasyllabic adjuncts, e.g. [st, sp, sk]. In the case of reversed sonority target clusters, which are the focus of this study, an asymmetry is attested in the production patterns, as the child with DLD does not simplify all reversed sonority clusters in a uniform way. These patterns are reviewed in comparison to the reduction pattern that is attested in two -younger- children with typical phonological development, who still have not completely acquired reversed sonority clusters, and whose realizations conform to the sonority reduction pattern, which is widely attested in the language acquisition phonological literature.

2. BACKGROUND

2.1. On Sonority and phonotactics

The Sonority Sequencing Principle (Sievers, 1881; Jespersen, 1904; Clements, 1990; Selkirk, 1984; Blevins, 1995, among others) is a phonotactic principle which states that sonority peaks at syllable nucleus, while it gradually falls towards both syllable edges. Sonority rise and fall is determined by the Sonority Scale (Selkirk, 1984), where segments are sorted hierarchically according to their sonority. The universal ranking of segments on a Sonority Scale is OBSTRUENTS < NASALS < LIQUIDS < VOWELS (< : less sonorous than), according to the natural classes classification. However, more fine-grained scales have been proposed, according to language-specific phonotactics (cf. Steriade (1982) for Latin and Attic Greek, among many others). Steriade (1982) also claims that a language-specific *Minimum Sonority Distance* (MSD) is required among the members of the cluster in order for the cluster to be tautosyllabic.

For Standard Modern Greek (SMG), Malikouti-Drachman (1984) has proposed the Sonority Scale in (1), arguing for Voicing as the determining feature, therefore she groups together the voiceless STOPS and the non-strident voiceless

FRICATIVES as the least sonorous segments, proposing that tautosyllabicity is governed by the language-specific MSD ≥4 between the members of a cluster. Clusters with an MSD less than 4, or with reversed sonority, are considered heterosyllabic.

(1) STOPS, non-strident voiceless FRICATIVES < voiced FRICATIVES < s < z < NASALS < LIQUIDS

/p, t, k/, /f, θ, x/ < /v, ð, γ / < /s/ < /z/ < /m, n/ < /l, ɾ/

less sonorous — more sonorous

rising sonority

(< : less sonorous than)

Given the Sonority Scale in (1) and the language-specific MSD ≥4 for SMG, the well-formed complex clusters of rising sonority are maximally restricted to two consonants. Specifically, only [OBSTRUENT+NASAL/LIQUID] clusters are allowed to be licensed as tautosyllabic under a branching onset in SMG, namely: [voiceless STOP/voiceless FRICATIVE+ NASAL/LIQUID], e.g. *pn, pl, pɾ,* etc., *fn, fl, fɾ, θn, θl, θɾ,* etc., [voiced FRICATIVE+(CORONAL) NASAL], i.e. *vn, γn* (the homorganic *ðn* is not realized), [voiced FRICATIVE+LIQUID], i.e. *vl, vɾ, γl, γɾ, ðɾ* (the homorganic *ðl* is not permitted in native SMG). The attested clusters [S_1+$OBSTRUENT_2$], i.e. [sp, st, sk, sf, sθ, sx], for example in the word [ˈ**sk**a.la] ‘ladder’, violate the *Sonority Sequencing Principle* in SMG, as sonority is not rising from the first to the second consonant, but it is reversed; namely, the sonority falls from the first more sonorous consonant (C_1), i.e. [S], to the second less sonorous (C_2), i.e. [OBSTRUENT]. Due to the latter sonority violation, a [S_1+$OBSTRUENT_2$] cluster does not constitute a well-formed tautosyllabic cluster and is not allowed to be prosodically licensed under a branching syllable onset, thus [S] lies outside the syllable, therefore it is called *extrasyllabic*, or *extraprosodic*. In order for [s] to be phonetically realized, it must be incorporated into a higher prosodic constituent, as an *adjunct/ appendix* to the left of a simple onset (e.g. Steriade (1982), among many others; cf. Vaux and Wolfe (2009) for a detailed overview of extrasyllabicity and the appendix in the phonological theory). In addition, it has been argued that extraprosodic segments are mainly (although not limited to) apical CORONALS cross-linguistically (see contributions in Paradis and Prunet (1991) for a relevant discussion). For SMG, it has been proposed that, in reversed/falling sonority clusters, C_1 is structurally represented as an *appendix* (e.g. Malikouti-Drachman, 1984; Kappa, 1995).

It has to be noted that, in SMG, clusters of [non-strident, voiceless $FRICATIVE_1$+voiceless $OBSTRUENT_2$], i.e. [ft, xt], e.g. [**ft**eˈɾo] ‘wing’, which are of

equal sonority, according to the proposed Sonority Scale in (1), thus violating the *Sonority Sequencing Principle*, are also attested. In order to account for the latter clusters, Kappa (1995) argues for a language specific *scale of consonantal strength* in (2) (the reverse of the Sonority Scale), where STOPS and voiceless FRICATIVES are not grouped together, thus justifying the status of the voiceless FRICATIVE as an adjunct and of the stronger (or less sonorous) STOP as a HEAD-ONSET in [FRICATIVE_1+STOP_2] clusters, such as [ft] and [xt].

(2) STOPS > voiceless FRICATIVES > voiced FRICATIVES > s > z > NASALS > LIQUIDS

stronger ◄——————————————————— *weaker*

(Note : > stronger than).

The Sonority Sequencing Principle is irrelevant in SMG codas, owing to the fact that the (native) SMG phonological grammar only accepts singletons in coda position. Moreover, the segments accepted as a coda are restricted to the CORONALS [s] and [n] word-finally, and the Coronal sonorant consonants [n], [l], [ɾ] word-medially (e.g. Malikouti-Drachman, 1984, among others). This implies that, in falling sonority [S_1/FRICATIVE+OBSTRUENT_2] word medial clusters, C_1 cannot be licensed either under onset (which is due to reversed sonority, since C_1 is more sonorous than C_2) or under the preceding coda, even in cases when the preceding syllable is open, which is due to SMG phonotactics, regarding the segments allowed in word-medial codas. Thus, in SMG, C_1 in falling sonority clusters is parsed as an appendix at the left periphery of the syllable, either in a word-initial or in a word-medial syllable.

2.2 Extrasyllabicity in developing grammars

Patterns of phonological processes towards unmarked structures seem to be of a certain type in the progress of phonological development, whether it is disordered, or not (e.g. Chin and Dinnsen, 1992; Ingram, 1989a; 1989b, among others). It is widely accepted that syllable appendices are considered to be marked structures, compared to CV syllables with a singleton consonant under onset that are acquired first. Moreover, [S+OBSTRUENT] clusters seem to exhibit peculiarities regarding their order of acquisition (cf. Gierut (1999), who provides evidence that [S+OBSTRUENT] clusters are treated as unmarked structures in the acquisition of English).

In the studies on developing (disordered, or non-disordered) phonological grammars, [s] in [S+OBSTRUENT] clusters has been represented either as a *single unit* with the STOP following it, which means that it is represented as a complex segment, structurally analogous to an affricate (e.g. Barlow & Dinnsen, 1998; Gierut, 1999), or as an extrasyllabic/extraprosodic *adjunct*/*appendix* to the left edge of the syllable (e.g. Fikkert, 1994; Barlow, 2001; Goad & Rose, 2004, among many others).

Studies on the (typical) acquisition of SMG clusters (e.g. Kappa, 2002; Tzakosta, 2007; Tzakosta, 2009; Tzakosta & Vis, 2009 a; b; c; Sanoudaki, 2010) have shown that, in the realizations of children, the target[1] clusters of [S+OBSTRUENT] go through a deletion of the segment [s]. Tzakosta (2007) also shows that, while word-initial [OBSTRUENT+LIQUID] clusters are realized earlier at the intermediate acquisition stage, the [S/FRICATIVE+OBSTRUENT] clusters are still simplified. Sanoudaki (2007, 2010) shows that word-initial [S+OBSTRUENT] clusters are acquired before or after the [OBSTRUENT+LIQUID] clusters according to each child's grammar, while [OBSTRUENT+OBSTRUENT] clusters, i.e. [ft], [xt], are systematically acquired later than the [OBSTRUENT+LIQUID] clusters.

Nevertheless, children are expected to realize at least 75% of [S+STOP] clusters faithfully, regardless their word-initial/medial position, between the ages of 3;06 and 4;06 (PAL [Panhellenic Association of Logopaedics], 2000).

3. PRESENT STUDY

Our aim in this pilot study was to investigate the asymmetrical patterns that can be observed in typical versus disordered child Greek, specifically the asymmetry in the simplification of target *reversed (or falling) sonority clusters* [S/FRICATIVE+OBSTRUENT]: [st, sp, sk, sθ, sf, sx, ft, xt] (cf. §2.1). We investigated the production of the above target clusters in word-initial and word-internal position, both in stressed and in unstressed syllables.

In our study, the following research question arises: what drives this observed (a)symmetry in the simplification patterns of reversed sonority clusters in typical and atypical grammars, i.e. what are the relevant constraints/constraint rankings that differentiate the typical grammar from the atypical one? The analysis

[1] It should be noted that, throughout the study, the term *target(s)* refers to adult-like realization(s) to which the children are exposed in their ambient language (L1).

is couched in the framework of Optimality theory (Prince & Smolensky, 1993/2004), see §4.

3.1 Methodology

For the present study, we examined data of target [S/FRICATIVE+OBSTRUENT] clusters in SMG. The clusters were found word-initially or word-internally, both in stressed and in unstressed syllables. We studied their simplification patterns in typical and in disordered child speech.

(i) We studied the realizations of two typically developing children (girls), who were raised in Crete, acquiring SMG as their first language (L1). Both children were in the *intermediate phase of phonological acquisition* at the time of data collection. The relevant naturalistic, developmental productions and the data from picture-naming tasks were produced at ages from 2;06 to 3 years old.

(ii) We studied the realizations of a child with DLD. The child was raised in Crete, has acquired SMG as L1 and was diagnosed with DLD by the local public Center for Diagnosis, Differential Diagnosis and Support and consequently referred to a speech-language pathologist for intervention. It is stated that the child does not have any co-occurring emotional or cognitive disorders, mental or neurological damage, and is not deaf/hard of hearing at the time of data collection. The cross-sectional data for this child are drawn from Giannakaki (2020), who elicited them through a picture-naming task, when the child was 4;10 years old.

3.2 Data

3.2.1 Typically developing children

Both typically developing children exhibit the widely attested *sonority-based* reduction (see relevant data in Table 1), which is common in developing phonologies (for SMG, cf. Kappa, 2002; Tzakosta, 2007; Tzakosta, 2009). This means a reduction to the less sonorous cluster member, according to the language-specific Sonority Scale. In SMG, in the case of a consonantal cluster of a SIBILANT or FRICATIVE (C_1) followed by a STOP (C_2), and in the case of a SIBILANT (C_1) followed by a FRICATIVE (C_2), C_2 is always the less sonorous, or stronger, member, according to the scale in (2) proposed by Kappa (1995) for SMG (cf. §2.1).

For example, word-initially, the target word [ˈ**sx**a.ɾa] ‘grill’ is realized as [ˈ**x**a.ɾa], and the target [**sf**u.ˈga.ɾi] ‘sponge’ is realized as [**f**u.ˈga.ɾi] (1a). In these examples, a word-initial [S+ FRICATIVE] cluster is reduced to the less sonorous

FRICATIVE segment, both in a stressed syllable, e.g. [ˈ**sx**a.ɾa], and in an unstressed syllable, e.g. [**sf**u.ˈga.ɾi].

Examples of target [S/FRICATIVE+STOP] clusters (1b) are indicative of a reduction to the less sonorous STOP member, both in stressed and in unstressed syllables. For example, word-initially, the target [ˈ**sk**a.la] ‘ladder’ is realized as [ˈ**k**a.la] and word-medially the target [le.ˈ**ft**a] ‘money’ is realized as [le.ˈ**t**a].

The reduction pattern is present in about half relevant realizations (target words containing a [S/FRICATIVE+OBSTRUENT] cluster word-initially/medially, in stressed and unstressed syllables). The reduction ratio is 54.25%, whereas the clusters are realized faithfully in a ratio of 45.75%.

Table 1. Examples of realizations from typically developing children

1a) ***typical***				1b) ***typical***			
Target	Child’s output	/Age	Gloss	Target	Child’s output	/ Age	Gloss
s + FRIC → FRICATIVE				s/FRIC+STOP → STOP			
'**sx**aɾa	'**x**aɾa	/ 2;08.19	‘grill’	'**st**oma	'**t**oma	/ 2;08.21	‘mouth’
sxo'lio	**x**o'lio	/ 2;08.14	‘school’	**st**a'fili	**t**a'fili	/ 2;08.28	‘grape’
pa**sx**a'litsa	pa**x**a'litsa	/ 2;08.07	‘ladybug’	a'**st**eɾja	a'**t**eɟa	/ 3;00.04	‘stars’
'**sf**iga	'**f**iga	/ 2;09.12	‘wasp’	'**sk**ala	'**k**ala	/ 2;08.14	‘ladder’
sfu'gaɾi	**f**u'gali	/ 2;08.21	‘sponge’	bi'**sk**oto	bi'**k**oto	/ 2;08.07	‘biscuit’
				'**sp**iti	'**p**iti	/ 2;08.14	‘house’
				spa'θi	**p**a'θi	/ 2;08.14	‘sword’
				'las**p**i	'la**p**i	/ 2;09.12	‘mud’
				'**xt**ena	'**t**ena	/ 2;11.11	‘comb’
				xta'poði	**t**a'poði	/ 2;09.12	‘octopus’
				'ni**xt**a	'ni**t**a	/ 2;11.18	‘night’
				fte'ɾa	**t**e'la	/ 2;11.11	‘wings’
				le'**ft**a	le'**t**a	/ 2;05.20	‘money’

3.2.2. DLD case study

The child with disordered phonology seems to have acquired all phonemes and allophones of the target language (however, affricates are not faithfully realized consistently). The child’s productions in the dataset contain simple onsets to a great extent (97%), which implies that almost all clusters are reduced to a singleton, irrespective of well-formedness, stress, and position in the

word. In other words, complex onsets, as well as syllable initial clusters with reversed sonority are yet to be acquired at this stage in this child's grammar (e.g. [ˈ**pl**i.o] 'boat' is realized as [ˈ**p**i.o]).

In this case study, two different reduction patterns are exhibited in the [S/FRICATIVE + OBSTRUENT] consonantal clusters under study (see relevant data in Table 2):

(i) in [S+FRICATIVE] targets (2a), namely in target words containing the clusters [sx] and [sf], there is a reduction to the more sonorous segment [s]. For instance, the target [**sx**o.ˈli.o] 'school', with the target cluster in a word-initial unstressed position, is realized as [**s**o.ˈli.o]. Moreover, the target [mo.ˈ**sx**a. ɾi] 'calf', with the target cluster at a word-medial stressed position, is realized as [mo.ˈ**s**a.ɾi].

(ii) in [S+STOP] or [FRICATIVE+STOP] targets (2b), namely [st, sp, sk] and [ft, xt], we observe a reduction to the less sonorous STOP segment, a pattern that is also observed in the typical realizations. For example, in the target [**st**a.ˈfi.li] 'grape' the [st] cluster at the word-initial unstressed position is realized as [**t**a.ˈfi.li], with the deletion of the SIBILANT. Similarly, the target [a.ˈ**sp**i.ða] 'shield', is realized as [a.ˈ**p**i.ja].

Reduction is frequent in the relevant data from the child with DLD. A 77% ratio of reduction and a 23% ratio of faithful realizations is observed.

Table 2. Examples of realizations from the child with DLD

2a) **DLD** / Age 4;10			2b) **DLD** / Age 4;10		
S + FRIC →	[s]	Gloss	S / FRIC + STOP →	STOP	Gloss
'**sç**imata	'**s**imata	'shapes'	**st**a'**f**ili	ta'**f**ili	'grape'
ce'ra**sç**a	ce'ra**s**a	'cherries'	a'**st**ɛri	a'**t**ɛri	'star'
sxo'lio	**s**o'lio	'school'	'**sk**ala	'**k**ala	'ladder'
mo'**sx**aɾi	mo'**s**aɾi	'calf'	**sk**a'mni	**k**a'ni	'stool'
pa**sx**a'litsa	pa**s**a'lisa	'ladybug'	ða'**sk**ala	ða'**k**ala	'teacher' FEM
sfi'ɾi	**s**i'ʝi	'hammer'	'ma**sk**a	'ma**k**a	'mask'
po'ðos**f**ɛro	po'ʝos**ɛ**ro	'soccer'	**sp**a'θi	**p**a'si	'sword'
			a'**sp**iða	a'**p**ija	'shield'
			'**xt**ena	'**t**ena	'comb'
			ni**xt**e'ɾiða	ni**t**e'ʝija	'bat'
			'na**ft**is	'na**t**is	'sailor'

3.3. On the simplification patterns

As shown in the examples discussed in §3.2, both the two typically developing toddlers and the child with DLD seem to have yet to complete the development of the extraprosodic structure, thus they cannot realize an appendix either word initially or word medially. Concerning word-medial appendices, it should be noted again that, in SMG, a word-medial onset segment, that cannot be realized as an appendix at this stage, is unable to be accommodated at the preceding coda, due to the language phonotactics (cf. §2.1).

The cluster simplification observed in the data can be grouped in the following two patterns:

(i) When the *Manner of Articulation* of C_1 and C_2 differs, namely when C_1 is a [+continuant] s/voiceless FRICATIVE and C_2 is a [-continuant] STOP, both typically developing children (1b), as well as the child with DLD (2b) reduce the cluster to the least sonorous member, i.e. the STOP (C_2); e.g. the targets [**st**a.'fi.li] 'grape' and ['**sk**a.la] 'ladder' are realized by all children as [**t**a.'fi.li] and ['**k**a.la], respectively.

(ii) On the contrary, when the *Manner of Articulation* of C_1 and C_2 is identical, namely when C_1 is a [+continuant] [s] followed by a [+continuant] voiceless FRICATIVE (C_2), e.g. [sf, sx], then an asymmetry in the reduction patterns is observed (for a comparison, see Table 3). Specifically, the typically developing children in our study still reduce the cluster to the least sonorous member (1a), namely to the voiceless FRICATIVE (C_2); e.g. the target [**sx**o.'li.o] 'school' is realized as [**x**o.'li.o], whilst the child with DLD reduces the [S+ FRICATIVE] cluster to the more sonorous segment (2a), i.e. to [s]; e.g. the target [**sx**o.'li.o] is realized as [**s**o.'li.o].

Table 3. Comparison of simplification patterns

TARGET	**SIMPLIFICATION PATTERN(S)**	Child with DLD	Typically developing children
Appendix	No appendix word initially/-internally	✓	✓
Different MoA [s / FRIC+STOP], [st, sp, sk, ft, xt]	Reduction to the less sonorous (STOP)	✓	✓
Identical MoA [s+FRICATIVE], [sx, sf]	Reduction to the less sonorous segment (FRICATIVE)		✓
	Reduction to the more sonorous segment [s]	✓	

4. ANALYSIS

The data in §3.2 indicate that, in both grammars (typical and atypical), the attested simplification is driven by a preference for *unmarkedness*.

We propose that the prosodic structure in both grammars is not fully developed yet, therefore the extraprosodic/extrasyllabic segments cannot be licensed as adjuncts, hence simplification occurs. Furthermore, despite the older age of the child with DLD, the atypical grammar still retains the demand for phonological unmarkedness, i.e. realization of unmarked syllabic structures such as CV syllables, which is observed in the grammar of much younger children. This demand prompts simplification and, in competition with the constraints for faithful target-like productions, it results in the preservation of the less marked segment. More specifically:

The grammar of typically developing children uniformly simplifies all [S/FRICATIVE+OBSTRUENT] clusters, whether they are [S+FRICATIVE] (e.g. [sf] is reduced to [f] in table (1a)) or [S/FRICATIVE+STOP] (i.e. [sp] is reduced to [p] and [ft] is reduced to [t] in table (1b)), to the unmarked less sonorous segment, which is the segment with the higher consonantal strength, according to the relevant language-specific strength scale (Kappa, 1995) (cf. §2.1).

However, in the case study data of disordered phonological development, an asymmetry is manifest. We propose that, in the DLD child's grammar, the reduction of [S/FRICATIVE+OBSTRUENT] clusters is driven by a general avoidance of segmental markedness, that dictates the preservation of a segment which is unmarked for PoA, or has an unmarked [-continuant] MoA feature. Thus, two different selection patterns emerge. Specifically:

(i) Clusters where the *Manner of Articulation* (MoA) differs in continuance, i.e. [S+STOP] clusters, e.g. [sp, sk], are reduced to the segment with the unmarked MoA, that is the [-continuant] STOP, as seen in the examples in table (2b). This reduction pattern parallels the simplification to the less sonorous STOP pattern that is attested in the typically developing children.

(ii) Clusters of *relative similarity*, which have the same, marked for continuance, *Manner of Articulation*, namely the [+continuant] feature, and differ in PoA, such as the [s+FRICATIVE] clusters, e.g. [sf, sx], are reduced to the segment

with the unmarked *Place of Articulation* (PoA), namely to the CORONAL [s][2], as seen in the examples in table (2a).

We claim that, in the grammar of the child with DLD, the reduction of reversed/falling sonority clusters is driven by the preservation of a segment bearing a maximum of one marked distinctive feature, either for MoA, i.e. [+continuant] or for PoA. Specifically:

a. The child realizes either a segment with a marked PoA (LABIAL or DORSAL) and an unmarked [-continuant] MoA (see above (i)); i.e. the clusters [sp] ([s+LABIAL STOP]) and [sk] ([s+DORSAL STOP]) are reduced to the segment with the unmarked MoA, therefore [p] and [k] are realized, respectively,

or

b. the child realizes a segment with a marked, [+continuant], MoA, and an unmarked CORONAL PoA (see above (ii)), i.e. both [s+LABIAL FRICATIVE] and [s+DORSAL FRICATIVE] clusters are reduced to the unmarked CORONAL [s].

On the contrary, in the grammar of the -younger- typically developing children the reduction is driven by a requirement for unmarkedness in sonority, not for unmarkedness in the PoA or in the MoA feature. Therefore, a less sonorous segment is selected and realized. The realized less sonorous segment(s) may bear both a marked MoA and a marked PoA, i.e. both [s+LABIAL FRICATIVE] and [s+DORSAL FRICATIVE] clusters are reduced to the less sonorous FRICATIVE with the marked PoA, LABIAL and DORSAL, respectively; e.g. [sf] is reduced to [f] and [sx] is reduced to [x].

For our formal analysis, we adopt the theoretical framework of Optimality Theory (OT) (Prince & Smolensky, 1993/2004), with Faithfulness constraints as defined in Correspondence Theory (McCarthy & Prince, 1995). In the framework of OT, the children must acquire the relative ranking of universal constraints that is relevant to their language (L1), as the phonological development proceeds. It is

[2] Regarding the unmarkedness of CORONAL PoA, it has been argued in the phonological literature that coronal consonants are underspecified for PoA, therefore they are universally less marked than the labial and the dorsal ones (e.g. Rice and Avery, 1993; Rice, 1994, among others).

cross-linguistically observed that, in the earlier stages of phonological acquisition, children's realizations are characterized by unmarkedness; e.g., no branching (complex) onsets and no codas, no adjuncts, among others. Namely, the children realize only the unmarked CV syllables. According to OT, unmarkedness in children's realizations is attributed to the different ranking of the same constraints in the children's and in target (adult) grammars. In the children's grammars, Markedness constraints (against marked features, marked structures) are predominant and outrank Faithfulness constraints (M≫F) (cf. Demuth, 1995; Gnanadesikan, 1996; Smolensky, 1996; among many others), while in target (adult) grammars the reverse constraint ranking (F≫M) applies.

In the present study, in the grammar of all children, Markedness constraints are still ranked higher than Faithfulness constraints, resulting in the realization of unmarked structures.

The relevant constraints in this study are described below in (3) and (4).

(3) Faithfulness constraints

MAX-IO (McCarthy & Prince, 1995) This constraint demands a corresponding Output segment for every segment in the Input (No-deletion)

(4) Markedness constraints

a) Markedness constraint against adjuncts/appendices

*APPENDIX$_{[LEFT]}$ (Goad & Rose, 2004) One violation for every consonant attached to the left periphery of the syllable

b) Markedness constraints, that derive from the Sonority Scale for SMG in (2), (cf. §2.1):

*STOP	One violation for every STOP in the Output
*FRICATIVE	One violation for every FRICATIVE in the Output
*[s]	One violation for every [s] in the Output

Ranking Hierarchy of the above markedness constraints in (4b) for SMG:

*s ⩾ * FRICATIVE ⩾ * STOP

The above (partial) ranking hierarchy is the language-specific version of the *universal Margin Hierarchy* proposed by Prince & Smolensky (2004:160), cf. also Baertsch (2002). The above markedness hierarchy generates the *Margin Harmony*

scale M/*s* ≺ M/*FRICATIVE* ≺ M/*STOP*, which states that it is less harmonic to parse a (strident) [s] as a margin segment, than to parse a FRICATIVE, and it is less harmonic to parse a FRICATIVE as a margin, than to parse a STOP.

c) Markedness constraints for MoA (Prince & Smolensky, 1993/2004):

*[+continuant] One violation for every [+continuant] segment in the Output

d) Markedness constraints for PoA (Prince & Smolensky, 1993/2004):

*DORSAL One violation for every DORSAL Place of Articulation in the Output
*LABIAL One violation for every LABIAL Place of Articulation in the Output
*CORONAL One violation for every CORONAL Place of Articulation in the Output

The above Markedness constraints for PoA in (4d) are hierarchically ranked as follows:

*DORSAL, *LABIAL ⩾ *CORONAL (Smolensky, 1993).

In general, simplification in all children (both in children with typical phonological development and in the child with DLD) is driven by adherence to the undominated Markedness constraint against the realization of an appendix at the left edge of the syllable, which is ranked higher than MAX-IO, which forbids segmental deletion, thus

$$*\text{APPEND}_{[\text{LEFT}]} \geqslant \text{MAX-IO}$$

The constraint ranking in (5) results in the grammar (G1) of typically developing children, where reduction to the less sonorous emerges (cf. Table 4 and Table 5).

(5) CONSTRAINT RANKING in GRAMMAR-1 (G1)

$$*\text{APPEND}_{[\text{LEFT}]} \geqslant \text{MAX-IO} \geqslant *\text{s} \geqslant* \text{FRICATIVE} \geqslant* \text{STOP} \geqslant *[\text{continuant}] \geqslant *\text{DORSAL}, *\text{LABIAL} \geqslant *\text{CORONAL}$$

The constraint ranking in the grammar G1 (5) of typically developing children results in the realization of syllables where consonant clusters are reduced to the less sonorous consonant, according to the sonority hierarchy (scale) in (2).
While we propose the ranking in (5), only the ranking in (5a) with the constraints that are relevant for our analysis is presented in Table 4 and Table 5, for economy of space.

(5a) *APPEND$_{[LEFT]}$ ⩾ MAX-IO ⩾*[S] ⩾* FRICATIVE ⩾*STOP

As seen in *Table 4*, the target-like candidate (a), starting with a [s+Stop] cluster, is outranked by the undominated *APPEND[LEFT] constraint, due to the presence of the extrasyllabic adjunct [s]. Simplified candidates (b) and (c) both satisfy the undominated *APPEND[LEFT] constraint and violate the MAX-IO constraint, but (b) is outranked by a fatal violation of the *[s] constraint, which is satisfied by candidate (c). Therefore, (c) is selected as the optimal Output and the STOP is realized as the syllable onset.

Table 4. Grammar 1 - Reduction to the less sonorous

['**sk**ala]	*APPEND$_{[LEFT]}$	MAX-IO	*[s]	* FRICATIVE	*STOP
a. '**sk**a.la	*!	✓	*	*	*
b. '**s**a.la	✓	*	*!	*	✓
☛c. '**k**a.la	✓	*	✓	✓	*

Similarly, in *Table 5*, the target-like candidate (a), starting with a [S+FRICATIVE] cluster, is outranked as a result of violating the undominated *APPEND$_{[LEFT]}$ constraint, due to the adjunct [s]. Like in Table 4, simplified candidates (b) and (c) both satisfy the undominated *APPEND$_{[LEFT]}$ constraint and violate the MAX-IO constraint, but (b) is outranked by a fatal violation of the *[s] constraint, which is again satisfied by candidate (c). Subsequently, the less sonorous voiceless FRICATIVE is realized under the first syllable onset in the Output.

Table 5. Grammar 1 - Reduction to the less sonorous

['**sx**ara]	*APPEND$_{[LEFT]}$	MAX-IO	*[s]	* FRICATIVE	*STOP
a. '**sx**ara	*!	✓	*	**	✓
b. '**s**ara	✓	*	*!	*	✓
☛c. '**x**ara	✓	*	✓	*	✓

In parallel to G1, the simplification in the grammar of the child with DLD (G2) is prompted by the Markedness constraint *APPENDIX$_{[LEFT]}$, which is undominated, and dominates MAX-IO.

The constraint interaction in (6) results in Grammar 2 (G2), illustrated in Table 6 and Table 7.

(6) CONSTRAINT RANKING in GRAMMAR-2 (G2)

*APPENDIX$_{[LEFT]}$ ⩾ MAX-IO ⩾ *[+continuant] ⩾ *DORSAL, *LABIAL ⩾ *CORONAL ⩾ *s ⩾ * FRICATIVE ⩾* STOP

For purposes of space economy and clarity, in Table 6 and Table 7, we are limited in the constraints and ranking in (6a)

(6a) *APPENDIX$_{[LEFT]}$ ⩾ MAX-IO ⩾ *[continuant] ⩾ *DORSAL, *LABIAL ⩾ *CORONAL

In *Table 6*, candidate (a), which is target-like, is outranked due to the violation of the undominated *APPEND$_{[LEFT]}$ constraint, like in Table 4 and Table 5. While the simplified candidates (b) and (c) both violate MAX-IO, candidate (b) fatally violates *[continuant], as it contains two [+continuant] segments. Candidate (c) violates the markedness constraint *[continuant] minimally (only once), therefore it is selected as the optimal Output. The Markedness constraints for PoA do not play any pivotal role in the selection of the optimal candidate.

Table 6. Grammar 2 - Reduction to the unmarked MoA [-continuant]

[**sp**a'θi]	*APPEND$_{[LEFT]}$	MAX-IO	*[+continuant]	*DORSAL	*LABIAL	*CORONAL
a. **sp**a.'θi	*!	✓	**		*	**
b. **s**a.'θi	✓	*	**!		✓	**
☛c. **p**a.'θi	✓	*	*		*	*

Likewise, in *Table 7*, the faithful to the Input candidate (a), is outranked after violating *APPEND$_{[LEFT]}$, like in all the above tables. The simplified candidates (b) and (c) both violate MAX-IO, due to the deletion of one of the consonants of the [S+FRICATIVE] cluster. *[continuant] is also violated by candidates (b) and (c), which both start with a [+continuant] segment. Finally, candidate (c) is selected as optimal, as it does not violate the lower ranked *DORSAL constraint for PoA, which is violated by candidate (b), that starts with a DORSAL [x].

Table 7. Grammar 2 - Reduction to the unmarked CORONAL PoA

[**sx**oˈlio]	*APPEND[LEFT]	MAX-IO	*[continuant]	*DORSAL	*LABIAL	*CORONAL
a. **sx**o.ˈli.o	*!	✓	**	*		**
b. **x**o.ˈli.o	✓	*	*	*!		*
☛c. **s**o.ˈli.o	✓	*	*	✓		**

5. CONCLUSION

The analysis presented in this paper indicates that, while a demand for unmarkedness restricts the realizations and drives the processes in the course of phonological development, whether disordered or not, the constraint ranking, i.e. the relevant constraints that play a crucial role in the children's grammar, can differ between children with typical and children with disordered development.

In our study, the child with DLD has yet to acquire extrasyllabicity at the age of 4;10, exhibiting a delay in the development of prosodic structure. In addition to this delay, the grammar employed by this child differs from the sonority-driven grammar utilized by typically developing children, as we claim that simplification strategies in this child with DLD result from constraints that disallow featural markedness. The asymmetrical simplifications of reversed sonority clusters observed in the data of this case study originate from the demands of the divergent grammar.

These findings point towards the conclusion that phonological development in DLD can be both delayed and deviant, in comparison to the developmental milestones and the grammars put in use by typical children acquiring the same language.

As the present study investigates the phonology of a sole child with DLD, while data and analyses on the phonology of DLD in SMG are scarce, rigorous research on large participant samples is needed in order to understand whether this divergence is prevalent, and draw conclusions on whether acquisition in DLD in SMG is delayed, deviant, or both.

REFERENCES

Baertsch, K. (2002). *An Optimality Theoretic Approach to Syllable Structure: The Split Margin Hierarchy*. Ph.D. Dissertation. Indiana University, Bloomington.

Barlow, J. A. - Dinnsen, D. A. (1998). Asymmetrical cluster development in a disordered system. *Language Acquisition*, 7, 1–49.

Barlow, J. A. (2001). The structure of /s/-clusters: evidence from a disordered system. *Journal of Child Language*, 28, 291–324.

Blevins, J. (1995). The syllable in phonological theory. In Goldsmith, J. (ed.) (1995). *Handbook of phonological theory*. London: Blackwell. 206–244.

Chin, S. B. - D. A. Dinnsen (1992). Consonant Clusters in Disordered Speech: Constraints and Correspondence Patterns. *Journal of Child Language*, 19, 259–285.

Clements, G. N. (1990). The role of the sonority cycle in core syllabification. In Kingston, J. - Beckman, M. (eds.) (1990). *Papers in laboratory phonology I*, Cambridge: Cambridge University Press. 283–333.

Demuth, K. (1995). Markedness and the Development of Prosodic Structure. In Beckman, J. (ed.) (1995). *Proceedings of NELS*: *Papers from the Workshops on Language Acquisition and Language Change* 25(2), Amherst: GLSA. 13–25.

Fikkert, P. (1994). *On the acquisition of prosodic structure*. Ph.D. Dissertation, HIL dissertations 6, Leiden University. The Hague: Holland Academic Graphics.

Gnanadesikan, A. (1996). Child Phonology in Optimality Theory: Ranking Markedness and Faithfulness Constraints. In Stringfellow, A. - Cahana-Amitay, D. - Hughes, E. & Zukowski, A. (eds.) (1996). *Proceedings of the 20th annual Boston University Conference on Language Development*. Sommerville, MA: Cascadilla Press. 237–248.

Giannakaki, K. (2020). *Evaluation of perception and production of phonological structures in spontaneous speech of children with typical and atypical development: The case of two-member consonant clusters* [in Greek]. M.A. Thesis, University of Crete.

Gierut, J. A. (1999). Syllable onsets: clusters and adjuncts in acquisition. *Journal of Speech, Language and Hearing Research,* 42, 708–726.

Goad, H. – Rose, Y. (2004). Input Elaboration, Head faithfulness and evidence for representation in the acquisition of left-edge clusters in West Germanic. In

Kager, R.- Pater, J. & Zonneveld, W. (eds.) (2004). *Constraints in phonological acquisition*. Cambridge: C.U.P. 109–157.

Grunwell, P. (1985). Comment on the terms 'phonetics' and 'phonology' as applied in the investigation of speech disorders. *British Journal of Disorders of Communication*, 20(2), 165–170.

Jespersen, O. (1904). *Lehrbuch der Phonetik*. Leipzig and Berlin: Teubner.

Ingram, D. (1989a). *First Language Acquisition*. Cambridge: Cambridge University Press.

Ingram, D. (1989b). *Phonological Disability in Children*, 2nd ed., London: Cole and Whurr.

Kappa, I. (1995). *Silbenphonologie im Deutschen und Neugriechischen*. Ph.D. Thesis, University of Salzburg.

Kappa, I. (2002). On the acquisition of syllabic structure in Greek. *Journal of Greek Linguistics*, 3, 1–53.

Malikouti-Drachman, A. (1984). Syllables in Modern Greek. In Dressler, W. U. - Luschützky, H. - Pfeiffer, O. & Rennison, J. (eds.) (1984). *Phonologica 1984*. London: Cambridge University Press. 181–187.

McCarthy, J. - Prince, A. S. (1995). Faithfulness and reduplicative identity. *Papers in Optimality Theory*. 10.
Retrieved from https://scholarworks.umass.edu/linguist_faculty_pubs/10

PAL [Panhellenic Association of Logopaedics] (2000). *Anomilo 4. Screening test for speech and language disorders for 4-year-old children* [in Greek]. Athens: Ellinika Grammata.

Paradis, C. - Prunet, J. F. (eds). (1991). *Phonetics and phonology. The special status of coronals: internal and external evidence*, vol. 2. San Diego, CA: Academic Press.

Prince, A. - Smolensky, P. (1993/2004). *Optimality theory: constraint interaction in generative grammar*. Oxford: Blackwell.

Rice, K. - Avery, P. (1993). Segmental complexity and the structure of inventories. *Working Papers in Linguistics, Toronto*. 12(2), 131–153.

Rice, K. (1994). Peripheral in consonants. *Canadian Journal of Linguistics*, 39, 191–216.

Sanoudaki, I. (2007). *A CVCV model of consonant cluster acquisition: evidence from Greek.* PhD Dissertation. University College London.

Sanoudaki, I. (2010). Towards a typology of word-initial consonant clusters: Evidence from the acquisition of Greek. *Journal of Greek Linguistics*, 10(1), 74–114.

Selkirk, E. (1984). On the major class features and syllable theory. In Aronoff, M. – Oehrle, R. (eds.) (1984). *Language sound structure*. Cambridge, Mass.: MIT Press. 107–136.

Sievers, E. (1881). *Grundzuge der Phonetik. Leipzig: Breitkopf und Hartel.*

Smolensky, P. (1993). Harmony, markedness, and phonological activity. Handout to talk presented at Rutgers Optimality Workshop 1, 23 October 1993, New Brunswick, N. J. [ROA-87, http://ruccs.rutgers.edu/roa.html]

Smolensky, P. (1996). On the Comprehension/Production Dilemma in Child Language. *Linguistic Inquiry*, 27, 720–731.

Steriade, D. (1982). *Greek Prosodies and the nature of Syllabification*. Ph.D. Dissertation. Cambridge Massachusetts: MIT.

Tzakosta, M. (2007). Positional and qualitative asymmetries of consonant clusters in Greek L1. In Agathopoulou, E. - Dimitrakopoulou, M. - Papadopoulou, D. (eds). (2007). *Selected Papers: 17th International Symposium on Theoretical and Applied Linguistics*. Thessaloniki: Monochromia. 64–74.

Tzakosta, M. (2009). Asymmetries in /s/ cluster production and their implications for language learning and language teaching. In Tsangalidis, A. (ed.) (2009). *Selected Papers from the 18th International Symposium of Theoretical and Applied Linguistics (18 ISTAL).* School of English, Aristotle University of Thessaloniki. Thessaloniki: Monochromia. 365–373.

Tzakosta, M. - Vis, J. (2009a). Asymmetries of consonant clusters in perception and production: affricates vs. /s/ clusters. In Tsangalidis, A. (ed.) (2009). *Selected Papers from the 18th International Symposium of Theoretical and Applied Linguistics (18 ISTAL).* School of English, Aristotle University of Thessaloniki. Thessaloniki: Monochromia. 375–384.

Tzakosta, M. - Vis, J. (2009b). Perception and production asymmetries in Greek: Evidence from the phonological representation of CC clusters in child and adult speech. *Proceedings of the 29th Annual Meeting of Greek Linguistics*. Thessaloniki: Faculty of Philosophy, Aristotle University of Thessaloniki. Institute of Modern Greek Studies. 553–565.

Tzakosta, M. - Vis, J. (2009c). Phonological representations of consonant clusters: The case of affricates vs. 'true' clusters. In Giannakis, G.K. - Baltazani, M. – Xydopoulos, G.I. & Tsaggalidis, A. (eds.) (2009). *E-proceedings of the 8th International Conference of Greek Linguistics (8ICGL)*. Department of Philology: University of Ioannina. 558–573.

Vaux, B. - Wolfe, A. (2009). The appendix. In Raimy, E. – Cairns, C. E. (eds.) (2009). *Contemporary views on architecture and representation in phonology*. Cambridge, MA: MIT Press. 101–143.

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RAISING AS A FREE SYNTACTIC OPERATION: EVIDENCE FROM SERBIAN**

This paper examines the syntactic properties of the Serbian modal verb *trebati* 'need', which appears in the environment 'NP – *trebati* 'need' – finite *da*-clause'. I show that *trebati* is a raising verb and that the preverbal NP is a (raised) subject. *Trebati* (φ-)agrees with the preverbal NP only optionally, which is surprising since other Serbian verbs agree with their subjects obligatorily. Furthermore, the subject is free to remain in the embedded clause, suggesting that the raising operation is not triggered by the need to satisfy unvalued features on matrix T (contra e.g., Chomsky 1981, 2008). I instead propose that A-movement (of this kind) is 'free'; more precisely, it is fully optional, it can occur at any stage of the derivation (or not), and it is constrained only by the requirement that the output be well-formed. I show that this analysis accounts for the full range of data with *trebati*, but that it can also be applied to English-style raising constructions.

*Keywords***:** raising-to-subject, free movement, φ-agreement, timing analysis, Serbian

1. INTRODUCTION

In this paper, I examine the syntactic properties of the Serbian modal verb *trebati* 'need', which can appear in two configurations that look quite similar on the surface (1)-(2).[1] In (1a) and (2a), *trebati* 'need' is in the present tense, while in (1b) and

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[1] I gloss *trebati* as 'need' throughout for consistency, although its meaning is slightly weaker. That is, *trebati* is likely not a true necessity modal, and as such does not involve universal quantification over possible worlds. Its meaning lies somewhere between the English modals *need* and *should*. I leave the issue of modal force aside in this paper; see Lassiter 2011, 2020 for a discussion of similar cases. In terms of its modal flavor, both

(2b) it is in the past tense. The complement *da*-clause in both (1) and (2) is finite, and the only obvious difference between (1) and (2) is the presence versus absence of subject agreement morphology on the modal *trebati* (and on the auxiliary in the past tense). I will show that both (1) and (2) involve subject-to-subject raising, and argue that the lack of agreement in (2) arises because the raising of the subject NP occurs too late for the matrix agreement probe to 'see' it. Ultimately, I will conclude that accounting for the full range of data with *trebati* necessitates a theory of raising-to-subject on which (this type of) A-movement is free (in a way that is to be specified).

(1) a. Marija i ja treba-mo da ide-mo na pijacu.
Mary and I need-PRES.1PL DA go- PRES.1PL on market

b. Marija i ja smo treba-l-e da idemo na pijacu.
Mary and I AUX.1PL need-LPTCP-FEM.PL DA go- PRES.1PL on market

(2) a. Marija i ja treba-Ø da ide-mo na pijacu.
Mary and I need- PRES.3SG DA go- PRES.1PL on market

b. Marija i ja je treba-l-o da ide-mo na pijacu.
Mary and I AUX.3SG need-LPTCP-NEUT.SG DA go-PRES.1PL on market
'Mary and I need/needed to go to the market.'

I should mention at the outset that I will continue to refer to the language in which both agreeing and non-agreeing *trebati* are used as Serbian, though a more precise characterization would be *in certain dialects of Bosnian/Croatian/Serbian* (BCS). For example, an informal survey revealed that speakers from central Bosnia (Zenica) may prefer the option in (1), whereas speakers from Sarajevo use both (1) and (2) equally. The situation in Serbia is comparable, with speakers of some dialects preferring one option over the other, and others using them interchangeably. Notably, speakers from Croatia are not likely to use *da*-complements with *trebati*, instead opting for infinitival complements (3). Infinitival complements are available in all varieties of BCS and the agreement on *trebati* is then obligatory.

(3) Marija i ja treba*(-mo) ići na pijacu.
Mary and I need-1PL go.INF on market
'Mary and I need to go to the market.'

agreeing and non-agreeing *trebati* can be used epistemically and deontically. In this paper I focus on the deontic flavor of modality with the aim of making the two structures as parallel as possible in all contexts.

The paper is organized as follows. Section 2 offers a general overview of agreement in Serbian, which will be useful in understanding how the pattern in (2) might arise. In section 3, I analyze various properties of *trebati* 'need'; I show that both agreeing and non-agreeing *trebati* 'need' take larger-than-*v*P complements (section 3.1), and that *trebati* is a raising-to-subject verb with raising out of a finite clause (3.2). In section 3.3, I consider and reject the possibility that the sentence-initial NP in (2) is in an A'-position (which could explain why it does not trigger agreement). Instead, I conclude that the sentence-initial NPs in both (1) and (2) are in an A-position. Section 4 offers two analyses in an attempt to account for the optionality of agreement with *trebati*. The first is a timing analysis that relies on the presence of two features ([N*] and [uφ]) on T, and capitalizes on the order in which these features are satisfied. I will reject this approach due to its inability to account for a portion of the relevant data. The second analysis, which I ultimately adopt, allows A-movement to occur freely at any step of the syntactic derivation. This view of raising diverges from mainstream generative analyses of the phenomenon, on which the movement operation is triggered by the need to satisfy unvalued features (Chomsky 1981, 2008). In section 5, I look at raising beyond Serbian and argue that the analysis proposed in this paper can account for English-style raising-to-subject constructions equally well.

2. AGREEMENT FACTS IN SERBIAN

Agreement in Serbian is generally not optional. Transitive predicates always agree with their subjects and never with their objects (4), while intransitive predicates agree with their sole argument (5); see Aljović 2000 for unaccusativity diagnostics in Serbian. As seen in (4), finite verbs agree in person and number, and participles agree in gender and number (5). This makes the pattern in (1)/(2) exceptional, since *trebati* 'need' can either agree with (what I will show to be) the subject, as usual, or not.

(4) Student-**i** vid-**e** tabl-u.
student-NOM.PL see-PRES.3PL board-ACC
'The students can see the blackboard.'

(5) a. Student-**i** **su** stig-l-**i**. (*unaccusative*)
student-NOM.PL AUX.3PL arrive-PTCP-MASC.PL
'The students have arrived.'
b. Student-**i** **su** trča-l-**i**. (*unergative*)
student-NOM.PL AUX.3PL run-PTCP-MASC.PL
'The students have run.'

Importantly for our purposes, zero-place predicates like *sevati* 'flash' in (6) do not have an argument to agree with; this lack of agreement is spelled-out as 3rd person singular (i.e., zero suffix) on finite verbs (6a), and as neuter singular on participles (6b).

(6) a. Seva-**∅**.
flash-PRES.3SG
'There is lightning.'
b. Seva-**l-o** je.
flash-PTCP-NEUT.SG AUX.3SG
'There was lightning.'

Note that this is exactly the same outcome we see with *trebati* 'need' in (2). In section 4, I will argue that the agreement pattern in (2) arises for the same reason as in (6), namely because *trebati* 'need' has failed to agree with a nominal argument (which has φ-features to transmit).

3. SOME FEATURES OF *TREBATI* 'NEED'

Let us now examine the syntactic environment of *trebati* 'need'. I will show that the 'clausal' complement of *trebati* is larger than *v*P (section 3.1), that *trebati* is a raising verb (section 3.2), and that even the non-agreeing form of *trebati* can have a subject in matrix spec TP (section 3.3).

3.1. The complement of trebati 'need' is larger than vP

I will adopt a relatively novel approach to the traditional concept of restructuring (Rizzi 1982, a.m.o.). Wurmbrand (2014, 2015) argues that clauses can come in different sizes, and that the binary mono- vs. bi-clausal distinction is not sufficient. Instead, 'clausal' complements can be (at least) *v*Ps, TPs and CPs. In this section, I show that the complement of *trebati* 'need' is larger than *v*P (while in section 4.2, I specifically argue that it is a TP). Wurmbrand shows that *v*P complements allow long object movement, as illustrated in the Spanish sentence in (7a); the restructuring verb is passivized, and the object of the embedded clause becomes the subject of the matrix. This is impossible with *trebati* (7b). I

should note two things here. First, the *n*-participle which forms part of the passive in (7b) cannot be derived from *trebati* at all (and this is true of all unaccusative verbs in Serbian). Second, long object movement is never possible in Serbian with the type of passive given in (7b). For some speakers, long object movement is, however, possible with so-called *se*-passives, as shown in (7c). However, even in this case it is only possible with embedded infinitives (likely *v*Ps), and not with embedded finite *da*-clauses. Unsurprisingly, then, the same holds for *trebati*: long object movement is impossible with the *se*-passive if the embedded complement is finite (7d).

(7) a. Estas paredes están siendo terminadas de pintar por los obreros.
these walls are being finished to paint by the workers
'They (the workers) were finishing painting these walls.' (Wurmbrand 2014:276)

b. *Ovi zadaci su treba-n-i da uradi-mo
these tasks AUX.3PL need-PASS.PTCP-MASC.PL DA do-1PL
(od strane Marije i mene).
by side Mary and me
'These tasks should have been done by Mary and me.'

c. Ovi obrasci su se zaboravili potpisa-ti / *da potpiš-u.
these forms AUX-3PL SE forgot sign-INF DA sign-3PL
'It was forgotten to sign these forms.'

d. Ovi obrasci su se trebali potpisa-ti / *da potpiš-u.
these forms AUX-3PL SE need sign-INF DA sign-3PL
'It was needed to sign these forms.'

Another hallmark of embedded *v*P complements is the possibility of clitic climbing out of them and into the matrix clause. In the Polish sentence (8a), the clitic-complement of the embedded verb *przeczytać* 'read' precedes the matrix verb. As shown in (8b-c), clitic climbing is very marginal when *trebati* takes a finite DA-complement; (8b) illustrates this for the agreeing form of *trebati*, and (8c) for the non-agreeing form. Now, the embedded clauses in both (8b) and (8c) are finite, while the Polish embedded verb in (8a) is in the infinitive form. Recall that, like the Polish verb *zdecydować* 'decide', Serbian *trebati* 'need' can additionally take an infinitival complement, and clitic climbing is then possible (8c). It seems that there is a structural difference between the finite DA-clause and the non-finite clause, which allows for clitic climbing only in the latter case. In other words, the infinitival clause is a *v*P, and the finite *da*-clause is larger.

(8) a. Marek **ją** zdecydował się przeczytać tCL. (Wurmbrand 2014:276)
Mark it decided REFL read.INF tCL
'Mark decided to read it.'

b. ??Marija i Jovana su **ga** treba-l-e da kup-e tCL.
Marija and Jovana AUX.3PL it need-PTCP-FEM.PL DA buy-3PL tCL
'Marija and Jovana should have bought it.'

c. ??Marija i Jovana **ga** je treba-l-o da kup-e tCL
Marija and Jovana it AUX.3SG need-PTCP-NEUT.PL DA buy-3PL tCL
'Marija and Jovana should have bought it.'

d. Marija i Jovana su **ga** treba-l-e kupi-ti tCL.
Marija and Jovana AUX.3PL it need-PTCP-FEM.PL buy-INF tCL
'Marija and Jovana should have bought it.'

Finally, I show evidence from the licensing of NPIs that the complement of (both agreeing and non-agreeing) *trebati* 'need' is large enough to not be transparent to matrix negation. There are two types of NPIs in Serbian, *ni*-NPIs and *i*-NPIs. For verbs that take a CP complement, like *tvrditi* 'claim' (see Todorović & Wurmbrand 2020), *ni*-NPIs are licensed by clause-mate sentential negation (9a-b), whereas *i*-NPIs are only licensed by superordinate negation (9c-d); see also Progovac 1991.[2]

(9) a. **Ni**-ko **ne** voli **ni**-šta.
NEG-who NEG loves NEG-what
'Nobody loves anything.'

b. *Marija **ne** tvrdi da **ni**-ko želi **ni**-šta.
Mary NEG claims DA NEG-who wants NEG-what
intended: 'Mary is not claiming that anybody wants anything.'

c. ***I**-ko **ne** voli **i**-šta.
i-who NEG loves i-what
intended: 'Nobody loves anything.'

d. Marija **ne** tvrdi da **i**-ko želi **i**-šta.
Mary NEG claims DA i-who wants i-what
'Mary is not claiming that anybody wants anything.'

[2] *Wh*- words appear in the gloss because Serbian NPIs are formed by adding a prefix (*ni*- or *i*-) to a form that morphologically corresponds to a *wh*-pronoun (*ko* 'who' and *šta* 'what'). This is a common strategy in Serbian; for example, prefixes are added to *wh*- pronouns to form indefinite universal and existential pronouns (e.g., *ne-ko* 'someone' and *sva-ko* 'everyone').

In (10a), I show a sentence with the verb *želeti* 'want', which according to the diagnostics in Todorović & Wurmbrand 2020, has a *v*P complement. What we can observe is that, in this case of radical restructuring, a *ni*-NPI in the embedded clause can be licensed by matrix negation, unlike in (9d). In the same configuration, the NPI in the embedded complement of *trebati* is an *i*-NPI (10b), suggesting that the complement is larger than *v*P and non-transparent to matrix negation.

(10) a. Marko ne želi da radi ni-šta. (Progovac 1993:117)
Marko NEG wants DA do ni-what
'Marko does not want to do anything.'

b. Marko ne bi treba(-l)-o da radi i-šta.
Marko NEG be.AOR.3SG need-LPTCP.NEUT/MASC.SG DA read i-what
'Marko should be not doing anything.'

3.2. Trebati 'need' is a raising verb

Having established that *trebati* 'need' has a larger-than-*v*P complement, I will now provide evidence that it is a raising verb (and not a control verb). First, the matrix verb *trebati* and the verb in its complement may never have independent subjects, regardless of whether they are co-referential (11a) or not (11b). Now, compare (11a) with (12), which is a good candidate for a control verb. In both sentences, the two subjects are co-referential and the pronoun in the subordinate clause receives contrastive stress. The contrastive stress is likely necessary to license the overt subject in (12) because Serbian is a *pro*-drop language. Yet, (11a) is still bad. I take this contrast to suggest that *želeti* 'want' in (12) is a control verb, while *trebati* 'need' in (11) is a raising verb. Recall also that the DA-clauses in (11) are finite, so there is no a priori reason to assume that the subject cannot be case-licensed in its base position.[3] The badness of (11) with two overt subjects is explained if the modal *trebati* has no external role to assign, and its subject in well-formed sentences is raised from the subordinate clause.

(11) a. Marija i ja treba(-mo) da (*MI) ostane-mo kod kuće.
Mary and I need-PRES.1PL DA we.NOM.SG stay-PRES.1PL at home
intended: 'Mary and I need us to stay at home.'

[3] In fact, we will see in the following section that the subject *can* be licensed in the embedded clause.

b. Janko treba-Ø da (*Petar) ostane-Ø kod kuće.
Janko need-3SG DA Peter stay-PRES.3SG at home
intended: 'Janko needs Peter to stay at home.' (Arsenijević & Simonović 2014:299)

(12) Marija želi-Ø da (ONA) ostan-e kod kuće.
Mary want-3SG DA she.NOM.SG stay-3SG at home
'Mary wants herself to stay home.'

Furthermore, there is active/passive synonymy in embedded passive contexts with *trebati* (13). This is expected of raising verbs, but not of control verbs (Perlmutter 1970); if *trebati* were a control verb, the base-generated matrix subjects in (13) would be different, so we would expect (13a-b) to exhibit at least some difference in meaning. This is not the case with raising verbs: the argument roles remain on the same nominals in the active/passive pair, namely *Marija* 'Mary' is the agent (of calling), and *Franc* 'Franz' is the theme. The fact that (13a-b) are synonymous provides strong evidence for *trebati* as a raising verb.

(13) a. Marija treba-Ø da pozov-e Franca.
Mary need-3SG DA call-3SG Franz
'Mary needs to call Franz.'

b. Franc treba-Ø da bud-e pozvan od strane Marije.
Franz need-3SG DA aux-3sg called by side Mary
'Franz needed to be called by Mary.'

Wurmbrand (1999) argues that only verbs with underlying external arguments can be passivized. Control verbs, but not raising verbs, have thematic external arguments. Hence, if *trebati* 'need' were a control verb, it would project an external argument and it would be possible to passivize it. However, *trebati* cannot be passivized, which further suggests it is a raising verb. Illustrating with Serbian data in (14a-c), transitives and (impersonal) unergatives can undergo passivization, but unaccusatives cannot. Crucially, *trebati* 'need' in (14d) patterns with unaccusative verbs.

(14) a. Biljk-a je zalive-n-a.
plant-NOM.FEM.SG AUX-3SG water-PASS.PTCP-FEM.SG
'The plant was watered.'

b. Ovde je trča-n-o.
here AUX-3SG run-PASS.PTCP-NEUT.SG
lit. 'It was run here.'

c. *Ovde je dođe-n-o.
here AUX-3SG arrive-PASS.PTCP-NEUT.SG
intended: 'It was arrived here.'

d. *Treba-n-o je da se zalij-u biljk-e.

need-PASS.PTCP-NEUT.SG AUX-3SG DA SE water-3PL plant-FEM.PL
intended: 'It was needed to water the plants.'

Finally, evidence from idioms points to the same conclusion. It is well known that idioms can survive under raising, but not under control (see e.g., Davies and Dubinsky 2004). The explanation that is given for this contrast is that the idiom is base generated as a syntactic constituent in the raising structure, but not in the control structure. For the Serbian idiom in (15a), we observe that the idiomatic meaning is preserved with *trebati* 'need' (15b), but not with *želeti* 'want' (15c), further showing that *trebati* is a raising verb.

(15) a. I vrapci na grani to već cvrkuć-u.
even sparrows on branch that already chirp-3PL
'Everyone knows that', *lit.* 'Even sparrows on the branch are chirping that already.'
b. I vrapci na grani **treba(-ju)** da to već cvrkuć-u.
even sparrows on branch need-3PL DA that already chirp-3PL
'Everyone should know that.'
c. I vrapci na grani **žel-e** da to već cvrkuć-u.
even sparrows on branch want-3PL DA that already chirp-3PL
'Even sparrows on the branch want to chirp that already.' *no idiomatic meaning*

3.3. Sentence-initial NPs with impersonal trebati 'need' are raised subjects

Recall the examples from (1) and (2), repeated here as (16) and (17). *Trebati* 'need' is agreeing with the preverbal NP in (16), but not in (17). This contrast gives rise to one of the most puzzling questions about *trebati*: Why can *trebati* appear in the non-agreeing (default) form, particularly when subject-verb agreement seems to be obligatory in Serbian?

(16) a. Marija i ja treba-mo da ide-mo na pijacu.
Mary and I need-1PL DA go-1PL on market
b. Marija i ja smo treba-l-e da ide-mo na pijacu.
Mary and I AUX.1PL need-LPTCP-FEM.PL DA go-1PL on market
(17) a. Marija i ja treba-Ø da ide-mo na pijacu.
Mary and I need-3SG DA go-1PL on market
b. Marija i ja je treba-l-o da ide-mo na pijacu.
Mary and I AUX.3SG need-LPTCP-NEUT.SG DA go-1PL on market
'Mary and I need/needed to go to the market.'

Perhaps the most obvious hypothesis is that the sentence-initial NPs in (17) are A'-moving, possibly to a topic position; A' movement does not trigger φ-agreement in Serbian. However, the NP in this position does not show any of the usual properties of topics. First, topics need to be under the scope of existential quantification (Reinhart 1976, a.o); universally and negatively quantified NPs are topic resistant, but they occur freely with *trebati* (18). Topicalization is also impossible in a new information context; sentence-initial NPs with *trebati* are fine in this same context (19).[4]

(18) a. Svi treba(-ju) da prim-e vakcinu.
Everyone need-1PL DA get-1PL vaccine
'Everyone needs to get the vaccine.'

b. Ni-ko ne treba(-∅) da primi-∅ vakcinu.
NEG-who NEG need-3SG DA get-3SG vaccine
'No one should get the vaccine.'

(19) Context: "What's happening?"

a. #[Marija i Jovana]$_i$ *pro* misli-m da t_i id-u na pijacu.
Marija and Jovana pro think-1SG DA go-3PL on market
'Marija and Jovana, I think they're going to the market.'

b. [Marija i Jovana]$_i$ treba-(ju) da t_i id-u na pijacu.
Marija and Jovana need-1PL DA go-3PL on market
'Marija and Jovana need to go to the market.'

However, the above examples only show that the sentence-initial NP with impersonal *trebati* is not a topic, but not necessarily that it is not in some other A'-position. Nonetheless, there are other diagnostics that indicate precisely that the NPs in question are in an A position, despite the fact that they do not trigger agreement on the verb.

Scope facts indicate that the sentence-initial NP with *trebati* moves to an A-position. Namely, the sentence in (20a) has two readings, resulting from the interaction of the negation and the universal quantifier. The inverse scope reading, where the negation scopes over the quantifier, may result from the quantifier's position in the embedded clause before raising. Additionally, the quantifier may scope over the negation, suggesting that the NP *svi vakcinisani* 'all vaccinated

[4] There also seem to exist some prosodic differences between (19a) and (19b).

(people)' has moved to an A-position above the matrix negation. I should mention here that, while it is not (cross-linguistically) unheard of that A'-movement can change scope relations, A-movement regularly does so. While it is true that surface position can in general affect scope relations, it is much more difficult to get the universal quantifier to scope over the negation in the long-distance scrambling case I give in (20b), than in (20a). I take the contrast in (20a-b) to suggest that the preverbal NP with *trebati* is raising to an A-position.

(20) a. [Svi vakcinisan-i]$_i$ ne treba(-ju) da t_i se osećа-ju sigurno.
all vaccinated-PL NEG need-3PL DA SE feel-3PL safe
'It's not the case that all vaccinated people should feel safe.' NEG > ALL
'For all vaccinated people, it's the case that they shouldn't feel safe.' ALL > NEG

b. [Svi vakcinisan-i]$_i$ *pro* ni-je mislila da su sigurni t_i.
all vaccinated-PL pro NEG-AUX.3SG thought DA AUX safe
'It's not the case s/he thought that all vaccinated people are safe.' NEG > ALL
??'For all vaccinated people, it's the case s/he thought they weren't safe.' ??ALL > NEG

Finally, it is worth examining some data from relativization. I give an example of an ordinary Serbian relative clause in (21a). In Serbian relative clauses, it is generally impossible to place a nominative NP between the relative pronoun and the subject, *even if the subject is phonologically null* (21b). Additionally, (21c) shows that the sentence is fine if *Marija i Jovana* stays in situ; the issue in (21b) is then clearly the displacement of *Marija i Jovana*. Crucially for our purposes, the NP that precedes *trebati* is still possible (21d) immediately following the relative pronoun. Regardless of the exact reason for the badness of (21b), the fact is that the relative clause with *trebati* in (21d) patterns with (21c) where no nominative phrases have been displaced, and not with (21b) where a nominative NP is placed between a relative pronoun and a (phonologically null) subject. This state of affairs argues against an analysis of (21d) where *Marija i Jovana* is fronting across an expletive *pro*, as in (21b), and for an analysis where *Marija i Jovana* is moving to the subject position in the relative clause.

(21) a. [Čovek [kog Marija vidi]] je visok.
man who.ACC Mary sees is tall
'The man who Mary sees is tall.'

b. *[Čovek [kog [Marija i Jovana]$_i$ Marko/***pro** tvrdi-Ø
man who.ACC Mary.NOM and Jovana.NOM Marko.NOM claim-3SG
da t_i vid-e]] je visok
DA see-3PL is tall

intended: 'The man who Mary and Jovana Marko claims see is tall.'

c. [Čovek [kog Marko/*pro* tvrdi-Ø da Marija i Jovana
man who.ACC Marko.NOM claim-3SG DA Mary and Jovana
vid-e]] je visok.
see-3PL is tall
'The man who Marko claims Mary and Jovana see is tall.'

d. [Čovek [kog [Marija i Jovana]$_i$ treba(-ju) da t$_i$ vid-e je visok.
man who.ACC Mary and Jovana need-3PL DA see-3PL is tall
'The man who Mary and Jovana need to see is tall.'

In this section, I have shown that the verb *trebati* 'need' takes larger-than-*v*P complements, and that the subject of the embedded clause moves to the subject position of *trebati*. Furthermore, *trebati* can, but need not, agree with the raised subject. In what follows, I attempt to account for the optionality of agreement with *trebati*. In doing so, I will show that the complement of *trebati* is a TP (not a CP), as well as address the larger question that arises: What is the motivation for raising?

4. THE ANALYSIS

In this section, I consider two possible analyses for the optionality of agreement with *trebati* 'need'. The first is a timing analysis that relies on the presence of two features ([N*] and [*u*φ]) on T, and capitalizes on the order in which these features are satisfied. I will reject this approach due to its inability to account for all of the relevant data. The second analysis, which I will ultimately adopt, allows A-movement to occur freely at any step of the syntactic derivation.

4.1. A timing analysis

This analysis draws inspiration from Müller (2009), who attempts to account for the differences between accusative and (morphologically) ergative alignments by invoking an indeterminacy in the order of Merge and Agree on the *v*P cycle. Applying this general idea to *trebati* 'need', suppose that the T node of the *trebati* matrix clause is merged into the structure with two features: a strong N feature [N*] and an unvalued φ-feature bundle [*u*φ]. A legitimate question on any approach that does not have an architecture where one head necessarily corresponds to only one feature (e.g., Nanosyntax, see Starke 2009) is which of the two operations applies first—movement of NP to satisfy [N*], or probing for agreement to satisfy [*u*φ].

We may envision the details of this kind of an analysis in more than one way. For example, assume that probing for agreement is only downward, and based on c-command (crucially, not m-command). Then, if the [*u*φ] feature is satisfied before the [N*] feature, *trebati* 'need' will bear the φ-features of the subject (22a). This is because the subject is in the c-command domain of the agreement probe before raising. If, on the other hand, the [N*] feature is satisfied first, the subject NP will no longer be in the c-command domain of the agreement probe. Then, agreement probe will fail to find an appropriate target, and it will be spelled-out with default 3SG agreement (22b).

(22) a. [Marija and Jovana]$_i$ T⟨[*u*φ], [N*]⟩ need-3PL….da t$_i$ …
b. [Marija i Jovana]$_i$ T ⟨[N*], [*u*φ]⟩ need-3SG….da t$_i$ …

However, this analysis leads to several undesirable consequences. For one, we would need to assume that this type of T, which is underspecified for the order of operations that apply, is unique to *trebati* 'need'. For monoclausal structures, we are forced to say that T is always specified for agreement probing to apply first (⟨[*u*φ], [N*]⟩), otherwise we would expect to see non-agreeing verbs all over the place, contrary to fact. While this is not a knock-down argument against this type of analysis, it would be desirable to avoid postulating a distinct T to account for the behavior of one Serbian verb. More importantly, this story cannot account for a piece of data that I have not discussed so far: The subject can stay in its base-generated position if the verb is in the non-agreeing form (23a), but not if it is in the agreeing form (23b).[5] Since this analysis depends on the presence of a strong nominal feature on T, whose purpose is to raise the subject into the matrix clause, it is not clear how it could account for (23a). Note that sentences like (23a) do not lend themselves to analyses on which the subject raises because it needs to satisfy its own (Case) features (Chomsky 2001, 2008)—the subject can clearly be licensed in situ.[6]

[5] In section 4.2, I show that the subject in (23a) is indeed below T; the subject can also move to spec TP of the embedded clause, in which case agreement with the matrix verb is possible. Neither of these options is predicted on an analysis that relies on the presence of strong (movement-triggering) features on matrix T.

[6] The contrast in (23) also undermines an idea put forth in Arsenijević & Simonović 2014, namely that the impersonal form of *trebati* 'need' arises because of a post-syntactic filter

(23) a. Treba-l-**o** **je** da **Marija** **i** **ja** ide-mo na pijacu.
need-PTCP-NEUT.SG AUX.3SG DA Mary and I go-1PL on market
'Mary and I should have gone to the market.'

b. *Treba-l-**e** **smo** da **Marija** **i** **ja** idemo na pijacu.
need-PTCP-FEM.PL AUX.3PL DA Mary and I go-1PL on market
intended: 'Mary and I should have gone to the market.'

Could we save the timing analysis? We could suppose instead that agreement is downward-by-any-occurrence of the label (Béjar 2003, Béjar & Rezac 2009, Keine & Dash 2018), so that the agreement probe can also 'see' elements in its specifier. Next, we would need to assume that the movement-triggering probe can 'see' a little farther than the agreement-triggering probe. Imagine, for example, that [*u*φ] can only see as far as the edge of the closest phase boundary, whereas [N*] has no locality restrictions (modulo islands). Assuming that the embedded subject in *trebati*-constructions is initially in a separate phase, it would have to move *before* being agreed with for its features to be accessible to the agreement probe. If the subject instead moved after agreement probing, we would get the desired default spell-out of [φ].

On these assumptions and in accordance with the Phase Impenetrability Condition given in (24), subjects in monoclausal configurations would be in the domain of the agreement probe regardless of whether they are moved first or agreed with first. The reason is that subjects originate in the specifier of the *v*P phase, which counts as an 'edge' for purposes of the PIC. The monoclausal subject is therefore always in the same phase as T, hence it always triggers agreement.

(24) **Phase Impenetrability Condition** (Chomsky 2000)
In phase α with head H, the domain of H is not accessible to operations outside of α, only H and its edge are accessible to such operations.

However, even on this revised analysis, it is unclear what happens with [N*] on T in cases like (23a), where the subject stays low. It seems that the only solution would be to assume there is an entirely separate kind of embedded clause, which is exactly the same as the regular clause embedded under *trebati* 'need', but

that deletes the agreement morphology. Were the agreeing and non-agreeing *trebati* appearing in identical syntactic configurations, we would not observe distributional differences of the kind seen in (24).

is impenetrable to movement probes (e.g., because it has an additional, invisible structural layer). Since there is no independent evidence to assume that there are two different types of complements with *trebati*, I will attempt to go a different route.

4.2. A-movement is 'free'

Assume again that agreement probing is based on c-command and constrained by the PIC. Assume further that there is *no movement probe*: A-movement is 'free'. More precisely, it is fully optional, it can occur at any stage of the derivation (or not), and it is constrained only by the requirement that the output be well-formed (see Baker & Vinokurova 2010 and Rezac, Albizu & Etxepare 2014 for explorations of this idea in different domains). With these assumptions in place, answers to several questions become clear. Why can the 'movement probe' see the subject even when the agreement probe cannot? Because there is no 'movement probe'; the relevant NP is simply moving out of the lower clause freely. Why does it look like the 'movement probe' and the agreement probe can be freely ordered with respect to each other, giving rise to the optionality of agreement with *trebati*? Because there is no 'movement probe'; movement (of this kind) can freely occur at any step of the derivation, ipso facto it can occur before or after agreement probing.

Several aspects of the analysis still need to be fleshed out. The first one I will tackle concerns the position of the subject and, related to that, the phase status of the embedded complement. When or where is the subject (in)visible to the agreement probe? In answering this question, we first need to determine the identity of the embedded complement's topmost projection. Two candidates immediately come to mind: TP and CP. On the one hand, this is a raising construction, and clauses that are raised out of in English are TPs. On the other hand, the embedded *da*-clause is finite, and all finite complements in English are usually taken to be CPs. Fortunately, Todorović & Wurmbrand (2020) have devised diagnostics that split Serbian *da*-complements into three groups: *v*P, TP and CP. These diagnostics include, for example, the temporal interpretation of the embedded clause with respect to the matrix, the possibility of clitic climbing, the availability of the perfective aspect in the embedded clause, adverb positions, and others (see Todorović & Wurmbrand 2020:48). According to all of these, *trebati* behaves like a verb that takes a TP complement; I do not give examples here for reasons of space.

Then, if the embedded TP is a phase, agreement should still be possible when the subject is in spec TP (the phase edge), but not when it stays in its base

position (spec *v*P). If *da* 'DA' is in T, as Todorović & Wurmbrand suggest, the subject in sentences like (23a) is indeed lower than spec TP, and therefore inaccessible to the agreement probe. When the subject and *da* 'DA' switch places, the sentence becomes grammatical (25) *even with the agreement on the matrix verb*.

(25) Treba-**mo** **Marija i ja** **da** ide-mo na pijacu.
need-1PL Mary and I DA go-1PL on market
'Mary and I need to go to the market.'

Yet, Serbian is a language that allows rampant scrambling, so we cannot know from (25) alone whether the subject is in spec TP of the embedded clause, or whether it has A-moved to the matrix, and the verb was displaced to the left of it. Recall, however, that Serbian has a class of NPIs (*i*-NPIs) that can only be licensed by superordinate negation; furthermore, there is a class of NPIs (*ni*-NPIs) that are licensed only by clause-mate negation (Progovac 1991). We can use this to test whether the subject in (25) is at the edge of the embedded clause, or whether it has moved to the matrix. In fact, it seems that both options are possible (26). In (26a), the subject is in spec TP of the embedded clause; the *i*-NPI is licensed by the superordinate negation, and the matrix predicate can agree because the subject is at the edge of the phase. In (26b), the subject has raised into the matrix clause and the matrix material has been scrambled to the left of it; the *ni*-NPI is licensed by clause-mate negation, and the matrix predicate agrees with the subject.

(26) a. **Ne** bi treba-o **i**-ko da to uradi.
NEG AUX.AOR.3SG need-PTCP.MASC.SG i-who DA that do
'No one should do that.'

b. **Ne** bi treba-o **ni**-ko da to uradi.
NEG AUX.AOR.3SG need- PTCP.MASC.SG ni-who DA that do
'No one should do that.'

To test the validity of the above diagnostic, we can run it on similar examples for which our theory gives clear predictions. The predictions seem to be borne out. For example, (27a) is grammatical because the *i*-NPI is licensed by superordinate negation, and there is default agreement on the auxiliary/participle, reflecting the fact that the subject is too low to be agreed with. On the other hand, (27b) is ungrammatical because the agreement probe on the participle cannot reach the low subject; therefore, there is no way to get the masculine agreement. Furthermore, (27c) is bad regardless of the agreement on the participle because the *ni*-NPI is not licensed by clause-mate negation; the negation is in the superordinate clause.

(27) a. Ne **bi** treba-**lo** da **i**-ko to uradi.
NEG AUX.AOR.3SG need- PTCP.NEUT.SG DA i-who that do
'No one should do that.'

b. *Ne **bi** treba-**o** da **i**-ko to uradi.
NEG AUX.AOR.3SG need- PTCP.MASC.SG DA i-who that do
intended: 'No one should do that.'

***Ne** bi treba(-l)-o da **ni**-ko to uradi.
NEG AUX.AOR.3SG need- PTCP.NEUT/MASC.SG DAni-who that do
intended: 'No one should do that.'

We have established that the agreement probe can 'see' the subject when it is in spec TP of the embedded clause, but not when it is in its base position in spec *v*P. Let us now specify how combining this with the freedom of movement gives us the desired optionality of agreement with *trebati*. If probing for agreement occurs when the subject is in spec *v*P of the embedded clause, it will fail. Nothing will go wrong in such derivations: agreement probing is free to happen and fail (Preminger 2011, 2014). Since A-movement is 'free', it is also free to not occur. The subject-NP can clearly be licensed in situ (cf. (23a)). The NP stays low, out-of-reach of the higher agreement probe, which fails to find a target and therefore shows the characteristic morphology associated with unvalued φ-features (28a). On the other hand, if movement to spec TP of the embedded clause applies first, the relevant NP will be in the domain of matrix T when agreement probing takes place. The result is φ-feature agreement between the subject and the matrix T (28b). As before, movement of the subject to the matrix clause is free to apply after this or not. This analysis allows us to explain the 5-out-of-6 grammaticality pattern I represent schematically in (29).

(28) a. *agreement first*: T[uφ] need-3SG….[TP da [*v*P Marija and Jovana …
b. *movement first:* T[φ:3PL] need-3PL….[TP [Marija and Jovana]$_i$ da [*v*P t$_i$ …

(29)

NP.3PL – need-3SG – da…	need-3SG – NP.3PL – da…	need-3SG – da – NP.3PL
NP.3PL – need-3PL – da…	need-3PL – NP.3PL – da…	***** need-3PL – da – NP.3PL

Note that this empirical picture provides some evidence for the phasehood of the embedded TP: the agreement probe sees elements at the edge of the lower phase, but not those that are inside the phase. While there are some other indications that the phase-based analysis may be on the right track (e.g., the

impossibility of clitic climbing in (8b-c)), coming up with convincing evidence for phasehood turns out to be tricky, often for independent reasons.[7] Furthermore, that TP is a phase in the *trebati* construction may look strange at first sight, since the more common candidates for phasal status are *v*P and CP. However, CP is absent in the complement of *trebati*, and there is evidence that *v*P is not be behaving as a phase either. We may be seeing here a case of Phase Extension (den Dikken 2007) or Phase Sliding (Gallego & Uriagereka 2007), where the phase status of XP (*v*P) is extended to a dominating YP (TP).

To see this, it is interesting to look at what happens when *trebati* 'need' is embedded in a *da*-complement of another *trebati* verb. We can, in fact, use such data to answer two questions, namely (i) is there evidence for *v*P phasehood, and (ii) are the predictions we make in relation to (im)possible agreement patterns borne out? Consider the contrast in (30); in (30a) the highest *trebati* is not agreeing with the subject but the embedded one is, and in (30b) we have the reverse.[8]

(30) Context: Chomsky and Lasnik have agreed to come to our summer school, where we usually ask the teachers to attend as many lectures as they can. However, my colleague does not think Chomsky and Lasnik should be required to go to introductory classes, so she says:

a.	Čomski	i	Lasnik	ne	treba-**Ø**	da	treba-**ju**	da	idu.
	Chomsky	and	Lasnik	NEG	need-3SG	DA	need-3PL	DA	go
b.	*Čomski	i	Lasnik	ne	treba-**ju**	da	treba-**Ø**	da	idu.
	Chomsky	and	Lasnik	NEG	need-3PL	DA	need-3SG	DA	go

'Chomsky and Lasnik shouldn't be made to go.'

[7] For example, binding facts have been used to argue that CP is a phase in English based on the ambiguity of examples such as *Which picture of himself did John say Mark liked?*. For the anaphor to be bound by 'John', it would have had to "stop over" in a position where it is above 'Mark' but in the c-command domain of 'John', and spec, CP of the embedded clause is an excellent candidate. However, Serbian does not have the equivalent of English *himself*; *svoj* 'self' is always subject-oriented, and *trebati* constructions do not allow for two independent subjects (11).

[8] I confine the discussion to the examples in (30) because the judgements for these cases are the most reliable. Our analysis predicts sentences where both verbs *trebati* agree or both do not agree with the subject to be grammatical. In fact, these sentences are somewhat degraded (though significantly less than (30b)), but this is possibly an effect of repetition.

Focusing for now on (30a), I will show that its agreement pattern can be derived if only TP is a phase, but not if *v*P is a phase, nor if both *v*P and TP are phases. Let us show the structure of (30a) schematically in (31). If only TP is a phase, we get the agreement pattern in (30a) as follows: The subject moves from its base position to spec TP of the most embedded clause; there, it is at the edge of the most embedded TP phase, so it is accessible to the agreement probe on embedded *trebati* 'need', but not to the one on matrix *trebati*. The subject stays in this position until matrix T is merged and probes for agreement. The probing fails, giving rise to 3SG agreement, and the subject is then raised to spec TP of the matrix clause (or not). If only *v*P were a phase, we would first need to allow movement to spec *v*P, since each agreement probe on T would only be able to see the NP that is in the spec of its closest phasal *v*P. Then, since the final raising of the subject should be optional (with no repercussions for agreement, cf. the default agreement on the matrix in (30a)), we would predict the word order in (32) to be possible, contrary to fact.

(31) [TP [Chomsky and Lasnik]$_i$ T[*u*φ] [NEGP not [*v*P need
[TP T DA[φ:3PL] [*v*P need [TP **t**$_i$ DA [*v*P **t**$_i$...

(32) *Ne treba-Ø da Čomski i Lasnik treba-ju da id-u.
NEG need-3SG DA Chomsky and Lasnik need-3PL DA go-3PL
intended: 'Chomsky and Lasnik shouldn't be made to go.'

Additionally, it is unclear how the phasal *v*P account would rule in sentences like (26a), where the subject is in spec TP of the embedded clause and yet the agreement probe on matrix T is able to see it. If matrix *v*P were a phase, we would not expect (26a) to be grammatical. Moreover, if both *v*P and TP were phases, we would again run into the same problems; we would incorrectly predict (32) to be grammatical and (26a) to be ungrammatical. Both of these alternatives would also struggle to account for the existence of 'hybrid forms', which I discuss in the following section. The data therefore support an analysis where, in a *trebati* construction, (i) the complement of an embedded T head is opaque to agreement probing outside of that TP, and (ii) A-movement, which is not feature-driven, does not obey such locality restrictions.

4.3. Hybrid forms support the free movement analysis

So far, we have seen that, in complex tenses, the auxiliary and the participle either both agree (1b) or both do not agree with the subject (2b). There are

additionally what we can call 'hybrid forms', where one member of {auxiliary, participle} agrees with the subject, and the other one does not. Such constructions are not at all uncommon (see Klikovac 2011:8). Crucially, the element that agrees in these hybrid forms is always the auxiliary and never the participle (33).

(33) a. Sada bi-**h** ja treba-**lo** da se naljutim.
now AUX.AOR-1SG I need-PTCP.NEUT.SG DA SE get_angry
'Now I should become angry.'

b. Iako su koncerti treba-lo da predstavljaju…
although AUX.3PL concerts need-PTCP.NEUT.SG DA represent
'Although concerts were supposed to represent…'

c. Takođe bi-**ste** treba-**lo** da budete pažljivi prilikom
also AUX.AOR-2PL need- PTCP.NEUT.SG DA be careful while
korišćenja rumenila…
using blush
'You should also be careful while using blush…'

If agreement probing happens in lockstep with structure building, our analysis predicts the pattern in (33). In the first step of deriving the pattern in (33c), the subject is low; the participle probes for agreement and does not find a goal—the φ-features of the participle stay unvalued and are spelled-out as neuter singular (34a). Before matrix T is merged, the subject can either move or stay in situ. If the subject stays in situ (or moves after agreement probing), we get the familiar non-agreeing pattern, e.g. (2b) and (23a). If the subject moves to the specifier of the embedded TP before agreement probing, matrix T will agree with it, and we will get the hybrid pattern in (33c), see (34b).

(34) a. *first step*: **[*u*φ] on Part spelled-out as NEUT.SG.**
[PARTP Part [*u*φ] need-PTCP.NEUT.SG [TP DA you...]]

b. *second step:* **T agrees with the moved subject**
[TP T [φ:2PL] AUX.2PL [PARTP Part [*u*φ] need- [TP [you]$_i$ DA t$_i$...]]
PTCP.NEUT.SG

The free movement analysis accounts for the existence of hybrid forms without introducing any additional assumptions. Importantly, this analysis also predicts the reverse case to be impossible. In order for the participle to agree, the subject must move to spec of the embedded TP. At that point, the subject is also accessible to the agreement probe in matrix T. We then correctly predict that it is impossible for the participle to agree with the subject when the auxiliary does not also do so.

5. RAISING BEYOND SERBIAN

In this section, I will briefly reflect on the generalizability of the proposed analysis to raising constructions beyond Serbian. On the surface, the empirical picture in English is quite different. Namely, the embedded subject in a raising construction *must* move when the complement clause is an infinitival TP (35a), and it *cannot* move when the complement clause is a finite CP (35b). The standard explanation for this contrast is that the subject in (35a) must move because it cannot get Case in its original position and/or because it needs to satisfy the EPP feature on matrix T (Chomsky 1981, 2008). On the other hand, mainstream analyses of (35b) claim that the embedded subject there cannot move because the PIC makes it inaccessible to operations outside the embedded CP (Chomsky 2000, 2001) and/or because nominals whose Case/φ-features have been checked cannot move (Activity Condition, Chomsky 2001).

(35) a. John seemed [TP <John> to like Mary].
b. It seemed [CP that John liked Mary].

Only one of the accounts for the obligatoriness of movement in (35a) is in principle compatible with the Serbian data—the account on which the nominal moves "because" it cannot get licensed in its base position. Recall that the English raising construction in (35a) is crucially different from its Serbian counterpart in that the embedded clause is non-finite. It is independently known that English infinitival T cannot license a subject. Therefore, if the subject remained in situ, the resulting sentence would be ungrammatical regardless of our assumptions about the need to satisfy features on matrix T. Suppose instead that A-movement is essentially free, as in Serbian. Still, in (35a), the subject "needs" to move because it cannot be licensed in its base position. In other words, only the derivation where the movement has occurred will generate a grammatical sentence. This contrasts with the Serbian case, since the embedded clause there is finite, and the subject can be licensed in situ.[9] Crucially, however, there is no need to assume that movement is triggered by features on matrix T; the non-movement option in (35a) is ruled out for independent reasons. Are there similarly independent reasons to think that the output in (35b) would not be well-formed had the subject moved out of the

[9] Recall that *trebati* 'need' can also take an infinitival complement. In that case, we get exactly the same result as in English. The infinitive cannot license a subject and the raising appears to be obligatory.

embedded clause? Yes, assuming that the embedded CP is a phase, the subject would have to A'-move to spec CP, and then A-move to spec TP of the matrix clause—this would be a case of improper movement (Chomsky 1973, May 1979, Williams 2003, Abels 2008). We also have an answer for why the Serbian raising construction does not constitute a case of improper movement. According to the diagnostics in Todorović & Wurbrand 2020, the complement clause of *trebati* 'need' is a TP; there are no A'-positions in which the subject is required to stop on its way to spec TP of the matrix clause.

6. CONCLUSION

In this paper, I explored the syntactic properties of the Serbian modal verb *trebati* 'need'. I first showed that *trebati* is an unaccusative verb which takes a finite clausal complement. The embedded subject may raise to the subject position of *trebati*, and *trebati* can, but need not, agree with said subject. The embedded subject can also stay in situ, which is inconsistent with the mainstream view that raising-to-subject is a feature-driven operation. I considered two analyses for the optionality of agreement with *trebati*, a timing analysis and a 'free' movement analysis. I concluded that timing analyses run into problems, either with monoclausal subjects or with low subjects of *trebati*, depending on one's assumptions. The free-movement analysis seems to fare a lot better with respect to both of these issues, in addition to explaining the basic pattern of agreement optionality in simple terms. This analysis can also account for most of the data with multiple embeddings of *trebati*, and it is supported by agreement possibilities of what I termed hybrid forms. Finally, I showed that, coupled with independently needed restrictions, the free-movement analysis can be extended to English-style raising constructions.

7. REFERENCES

Abels, Klaus. 2008. Towards a restrictive theory of (remnant) movement. *Linguistic Variation Yearbook 7*. 52–120.

Aljović, Nadira. 2000. Unaccusativity and Aspect in SerBoCroatian. In C. Czinglar et al. (eds.), *Proceedings of ConSOLE 8*. Leiden: SOLE.

Baker, Mark. C., & Nadya Vinokurova. 2010. Two modalities of case assignment: Case in Sakha. *Natural Language & Linguistic Theory, 28*(3), 593–642.

Béjar, Susana. 2003. Phi-syntax: A theory of agreement. PhD thesis, University of Toronto.

Béjar, Susana & Milan Rezac. 2009. Cyclic Agree. *Linguistic Inquiry 40*, 35–73.

Chomsky, Noam. 1973. Conditions on Transformations. In S. R. Anderson & P. Kiparsky (eds.), *A Festrschrift for Morris Halle*, 232–286. New York: Holt, Reinhart and Winston.

Chomsky, Noam. 1981. Lectures on Government and Binding. Dordrecht: Foris.

Chomsky, Noam. 2000. Minimalist Inquiries: The Framework. In R. Martin, D. Michaels & J. Uriagereka (eds.), *Step by Step: Essays in Syntax in Honor of Howard Lasnik*, 89–155. Cambridge, MA: MIT Press.

Chomsky Noam. 2001. Derivation by phase. In: M. Kenstowicz (ed.) *Ken Hale*: *A Life in Language*, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2008. On phases. In R. Freidin, C. Otero & M. L. Zubizaretta (eds.), *Foundational Issues in Linguistic Theory*, 133–166. Cambridge, MA: MIT Press.

Davies, William & Stanley Dubinsky. 2004. The Grammar of Raising and Control: A Course in Syntactic Argumentation. Oxford: Blackwell.

Den Dikken, Marcel. 2007. Phase extension contours of a theory of the role of head movement in phrasal extraction. *Theoretical Linguistics 33*(1). 1–41.

Gallego, Ángel & Juan Uriagereka. 2007. A critique of phase extension, with a comparison to phase sliding. *Theoretical Linguistics 33*(1). 65–74.

Keine, Stefan & Bhamati Dash. 2018. The ups and downs of agreement. Ms., University of Southern California.

Lassiter, Daniel. 2011. Measurement and modality: The scalar basis of modal semantics. PhD thesis, NYU.

Lassiter, Daniel. 2020. Graded Modality: Qualitative and Quantitative Perspectives. Oxford: OUP.

May, Robert. 1979. Must comp-to-comp movement be stipulated? *Linguistic Inquiry 10*(4). 719–725.

Müller, Gereon. 2009. Ergativity, accusativity, and the order of Merge and Agree. In K. Grohmann (ed.), *Explorations of phase theory: Features and arguments*, 269–308. Berlin: Mouton de Gruyter.

Perlmutter, David. 1970. The two verbs *begin*. In Roderick A. Jacobs & Peter S. Rosenbaum (eds.), *Readings in English Transformational Grammar*, 107–119. Waltham, MA: Blaisdell.

Preminger, Omer. 2011. Agreement as a fallible operation. PhD thesis, MIT.

Preminger, Omer. 2014. Agreement and its failures. Cambridge, MA: MIT press.

Progovac, Ljiljana. 1991. Polarity in Serbo-Croatian: Anaphoric NPIs and pronominal PPIs. *Linguistic Inquiry 22*(3). 567–572.

Progovac, Ljiljana. 1993. Locality and subjunctive-like complements in Serbo-Croatian. *Journal of Slavic Linguistics 1*: 116–144.

Reinhart, Tanya. 1976. The syntactic domain of anaphora. PhD thesis, MIT.

Rezac, Milan, Pablo Albizu & Ricardo Etxepare. 2014. The structural ergative of Basque and the theory of Case. *Natural Language & Linguistic Theory, 32*(4), 1273-1330.

Richards, Norvin. 1997. What moves where when in which language?. PhD thesis, MIT.

Rizzi, Luigi. 1982. *Issues in Italian syntax*. Dordrecht: Foris.

Simonović, Marko & Boban Arsenijević. 2014. Ličnost i bezličnost srpskog glagola trebati: Avanture teorijske lingvistike u prenormiranom domenu. *Jezik, književnost, marginalizacija*, 278–304.

Starke, Michal. 2009. Nanosyntax: A short primer to a new approach to language. *Nordlyd 36*(1). 1–6.

Todorović, Neda & Susi Wurmbrand. 2020. Finiteness across domains. In T. Radeva-Bork & P. Kosta (eds.), *Current developments in Slavic Linguistics: Twenty years after,* 47–66. Frankfurt am Main: Peter Lang.

Veselinović, Dunja. 2019. The syntax and acquisition of modal verb flavors. PhD thesis, NYU.

Williams, Edwin. 2003. *Representation theory*. Cambridge, MA: MIT Press.

Wurmbrand, Susi. 1999. Modal verbs must be raising verbs. In *Proceedings of WCCFL 18*(1).

Wurmbrand, Susi. 2014. Restructuring across the world. In *Complex visibles out there. Proceedings of the Olomouc Linguistics Colloquium*.

Wurmbrand, Susi. 2015. Restructuring cross-linguistically. In *Proceedings of the North Eastern Linguistics Society Annual Meeting 45*. Amherst: GLSA, 227–240.

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POSSESSIVE, KIND AND NOT SO KIND: THE DIFFERENT USES OF THE ADJECTIVAL *-OV* IN SERBO-CROATIAN

The paper tackles correlations between prosodic and semantic properties of Serbo-Croatian adjectives with the suffix(es) *-ov*/*-in*. A corpus study was performed to identify: (i) the types of bases that these suffixes attach to, and (ii) semantic and prosodic properties of these derivations. The results show that besides the strictly possessive/relational domain (e.g., *Ivan-ov* 'Ivan's) *-ov* and *-in* are productively combined with bases denoting plants to derive kind or material denotations (e.g., *hrast-ov* 'made of oak'). These denotations also allow combinations of stems and suffixes that are not found with possessives. Specifically, only with kind or material denotations can feminine bases combine with *-ov* e.g., *jabuk-ov* 'made of apple' (cf. *jabuk-in* 'belonging to an apple (tree)'). Moreover, kind or material forms can involve a shift in the prosodic pattern of the base. We approach these data from the perspective of Distributed Morphology (Halle-Marantz 1993). We argue that possessive *-ov*/*-in* forms always involve a phasal *n* projection which triggers spellout, resulting in full productivity, semantic transparency and prosodic faithfulness. Kind or material forms involve a 'defective' n head, which can lack a gender feature (explaining the occurrence of *-ov* on feminine bases). This n head acts as a phase at LF, triggering semantic transparency, while being permeable at PF, allowing prosodic shifts (Marušič 2005, 2009).

Key words: possessive, kind semantics, compositionality, prosodic faithfulness, Serbo-Croatian

1. INTRO

This article targets a data set consisting of Serbo-Croatian (SC) adjectives derived with the affix *-ov*, which show a clear correlation between semantics and prosodic faithfulness to the base. In order to enable the reader to appreciate our examples, we start with an introductory note on Neo-Štokavian prosody (on which

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SC standard prosody is based). Neo-Štokavian is a system in which both stress and tone play a role, but the distribution of stress is predictable from that of tone (see, e.g., Zec-Zsiga 2010 and Zsiga-Zec 2013). Per word, there is one syllable with High tone (H, marked with acute accent: tá) and one syllable with stress (marked with a stress mark: ˈta). There are two possible relations between H and stress: they are either on the same syllable or the stressed syllable precedes that with H. In the former case, traditional descriptions speak of falling accents (e.g., in ˈhráasta ‘oak tree.GEN.SG’ whereas in the latter case they speak of rising accents (e.g., in ˈhraastóvi ‘oak tree.NOM.PL’).

We start with masculine and neuter bases, in (1) and (2), respectively. The adjectivizer *-ov* can derive possessive adjectives (1a, 2a) and adjectives denoting materials defined by the nominal element in the base, kind/material (K/M) adjectives, (1b, 2b). In (1) and (2), possessive adjectives retain the prosodic pattern of the base, while the derivation of K/M adjectives can involve a prosodic shift: vowel shortening and the shift of H to the suffix (1b, 2b).

(1)	a.	ˈhráast ‘oak tree’	→	ˈhráast-ov koren	‘the root of the oak tree’
	b.	ˈhráast ‘oak tree’	→	ˈhrast-óv pod	‘oak flooring’
(2)	a.	ˈviin-ó ‘wine’	→	ˈviin-óv-a reputacija	‘the wine’s reputation’
	b.	ˈviin-ó ‘wine’	→	ˈvin-óv list	‘grape leave’

As a matter of fact, all minimal pairs which only differ in prosody have monosyllabic masculine/neuter bases as the examples in (1) and (2). With polysyllabic bases, possessive/kind pairs show no prosodic differences, as illustrated by masculine (class 1) nouns in (3) and (4).

(3)	a.	ˈjávor ‘maple tree’	→	ˈjávor-ov koren	‘the root of the maple tree’
	b.	ˈjávor ‘maple tree’	→	ˈjávor-ov pod	‘maple flooring’
(4)	a.	ˈjásen ‘ash tree’	→	ˈjásen-ov izdanak	‘the sprout of the ash tree’
	b.	ˈjásen ‘ash tree’	→	ˈjásen-ov prut[1]	‘ashwood stick’

The situation becomes more complicated in the main feminine class (class 3, ending in *-a* in the citation form). There, all possessive adjectives have the suffix *-in* rather than *-ov*. Prosodically, *in*-adjectives are always faithful to the base. On the K/M side, there are three options. Some bases take *-in* also in this use, leading to

[1] Nikolić (2000) also registers *ja*ˈ*sen-óv*, but we didn’t find any native speakers who accept this form.

homonymy, as illustrated in (5). Other class-3 bases take the suffix *-ov* in the K/M adjective, but this affix leaves the prosody of the base unaffected, as illustrated in (6). Finally, there is a group of class-3 bases which take the suffix *-ov* in the K/M adjective and display, in the *ov*-adjectives, the prosodic shifts already illustrated in (1-2) for class-1 and class-2 items. Such bases are illustrated in (7).

(5)	a.	ˈruuž-á ‘rose’ →	ˈruuž-ín koren / # ruž-ev koren	‘the root of the rose’
	b.	ˈruuž-á ‘rose’ →	ˈruuž-ín ekstrakt	‘rose essence’
(6)	a.	ˈlíp-a ‘linden’ →	ˈlíp-in koren / #ˈlíp-ov koren	‘the root of the linden’
	b.	ˈlíp-a ‘linden’ →	ˈlíp-ov sto	‘a table made of linden’
(7)	a.	ˈjeel-á ‘fir’→	ˈjeel-ín koren / #ˈjel-óv koren	‘the root of the fir’
	b.	ˈjeel-á ‘fir’→	ˈjel-óv pod	‘fir flooring’

We present an analysis of the observed correlation between prosodic (un)faithfulness and semantics couched in Distributed Morphology (DM) (Halle-Marantz, 1993). We argue that semantically transparent and prosodically faithful possessive structures are derived by attaching *-ov/-in* to phasal nPs, while K/M adjectives are derivations from defective nPs, which lack the semantics of individuation, can lack a gender feature and don’t act as phases at PF (see Marušič 2005, 2009 for non-simultaneous spellout). The lack of a gender feature on the defective *n* explains why *-ov* can also attach to otherwise feminine-marked bases. Moreover, defective nPs, when lacking a gender feature, are constellations where the affix *-ov* and the root end up in the same phase and *-ov* can therefore influence the spellout of the root.

2. BACKGROUND

As a syntaxocentric approach to morphology, DM provides a way of capturing correlations between semantic and prosodic shifts of the type investigated in this paper. In its Y-shaped model of grammar, syntax, as the only structure-building module, interfaces with Phonological Form (PF) and Logical Form (LF). Consequently, syntactic operations have effects on both of these levels of representation (Chomsky, 1995). If we assume that Syntax is responsible for word-internal structure building, then correlations between semantic and prosodic effects at word level can be analyzed as ramifications of syntactic operations.

DM research agenda has produced quite promising results when it comes to capturing links between phonology/prosody and semantics in the domain of morphology across languages. Marantz (2001) accounts for the differences between English suffixes *-ee* and *-er* by attributing them to the differences in merge sites. The agentive suffix *-er* is always stress-neutral (i.e. it does not affect the stress pattern of the base it attaches to), and it produces semantically transparent outputs. The derived word always denotes the agent of the event named by the verb form in the base (see, however, Alexiadou-Schäfer 2010 for a more detailed empirical picture including some exceptions). On the other hand, the suffix *-ee* is a stress-carrying suffix, which means that the derived word will always be stressed on this suffix, regardless of the stress pattern of the base. This phonological property correlates with non-compositional or totally opaque semantics. The *ee*-derivation will sometimes denote a theme of the event named by the base (e.g., *examinee*), but it can also denote an individual who is not a direct participant of the verbal situation (e.g., an *amputee* is the person whose body part has been amputated not the actual body part itself). Furthermore, the suffix *-er* is more productive and it always attaches to verbs while *-ee* can also attach to roots (e.g., *amput-ee* / **amputat(e)-ee*). Marantz (2001) captures these facts by assuming that *-er* attaches to a phasal projection, vP, which triggers spellout. This results in fixed phonology of the base and transparent semantics. On the other hand, *-ee* attaches to roots, allowing prosodic interaction between the suffix and the base (stress shift) and non-compositional interpretations.

South Slavic has also proven to be a fertile ground for the investigations of this type couched in DM. Marvin (2002, p. 124) demonstrates that various instances of correlation between semantic and prosodic properties in Slovenian can be captured by syntactic accounts. For instance, Slovenian allows two types of deverbal derivations involving the suffix *-ec* (8). This suffix can attach to active participles, and in that case, it attracts stress to the syllable preceding it (8a). On the other hand, it can also attach to passive participles, in which case the stress pattern of the base is preserved (8b).

(8) a. ˈplava-l(swim-ACT.PTCP) + -ec → plaˈvalec; *ˈplavalec (‘swimmer’)

b. ˈpita-n(‘feed-PASS.PTCP’) + -ec → *piˈtanec;ˈpitanec(‘the animal for feeding’)

Marvin (2002) argues that derivations involving passive participles include more syntactic structure and presumably a phasal head, which block the interaction between the suffix and the base. Simonović (2020) addresses the same data in a DM framework where derivational affixes are roots (Lowenstamm 2014), arguing that stress-shifting is a consequence of stress deletion and imposition of default stress in

constellations where roots select other roots as complements. He shows that all derivations involving active participles are stress-shifting, which he takes as an argument that the relevant morpheme is a root selected by other roots.

When it comes to SC, a number of puzzling phenomena concerning correlations between prosody and semantics have received explanations couched in syntaxocentric approaches. Arsenijević and Simonović (2013) point to correlations between prosodic and semantic (ir)regularities with deadjectival nominalizations in SC (9). The nominalizing suffix *-ost* attaches to adjectives and in many cases produces two versions, which differ only in prosody. One member of the pair retains the prosodic pattern of the base (9b), while the other one alters it (9a). Systematically, the prosodically faithful member is also semantically more transparent, i.e. it denotes the state of some property as applying to an individual or what Roy (2010) terms *State-Nominal* (see Marvin 2002 for similar data in Slovenian).

(9) a. ˈópaasan (‘dangerous’) + ost → oˈpaasn-ást (‘danger’)

b. ˈópaasan (‘dangerous’) + ost → ˈópaasn-ost (‘dangerousness’)

In Arsenijević and Simonović’s (2013) analysis, the semantic transparency and phonological faithfulness of the derivations, illustrated in (9b), again stem from the presence of additional syntactic structure, blocking interaction between the suffix and the base. The same authors have also shown that the differences between deverbal nouns derived from passive participles of imperfective and perfective verbs using the suffix *-je* exhibit similar correlations between prosody and semantics (Simonović-Arsenijević, 2014). Specifically, deverbal nouns derived from passive participles of imperfective verbs are almost totally productive, semantically transparent and phonologically faithful to the base, whereas their counterparts derived from passive participles of perfective verbs are far less productive, alter the prosody of the base and tend towards semantic opaqueness. These facts lend themselves to the same type of analysis where the more productive, phonologically faithful and semantically transparent derivations involve more syntactic structure (see also Kovačević 2021).

When it comes to the suffix *-ov*, which is in focus of our investigation, Simonović and Mišmaš (2020) provide an analysis which employs the tools of DM to capture a rather diverse set of properties of this suffix in Slovenian. They highlight the remarkable multifunctionality of this suffix by showing that it can be combined with various categories and derive various categories. One of its functions is to derive possessive denominal adjectives which can also denote K/M (i.e. the phenomenon that we are exploring here for SC). In addition, *-ov* can be

found as an extension in nominal declension classes and in denominal adjectives ending in *-(e)n*. Drawing on Lowenstamm's (2014) analysis of affixes as roots, Simonović and Mišmaš (2020) argue that *-ov* is a root that can attach both to other roots and to categorized structures, resulting in different phonological and semantic properties.

In SC, the suffixes *-ov* and *-in* are also multifunctional. One of their uses is as augments in nominal paradigms (Simonović-Arsenijević, 2019). Some nouns require no augments of the root/stem either in singular or in plural (e.g., *konj* 'horse', *konj-i* 'horses'). Others require the augment *-in* in singular, but combine with case suffixes directly in plural (e.g., *Srb-in* 'Serb', *Srb-i* 'Serbs'). The third group of nouns have the augment *-ov* in the plural (e.g., *lav* 'lion', *lav-ov-i* 'lions'). Simonović and Arsenijević (2019) assume that *-in* and *-ov* are allomorphs of the same abstract morpheme (Num) for singular and plural, respectively.

These same two affixes behave as allomorphs in the formation of possessives. These possessive forms are traditionally labeled 'possessive adjectives' due to their adjectival properties such as agreement with the head noun. In the formation of possessives, *-ov* is attached to referential masculine/neuter nouns, while *-in* combines with feminine ones (10). In contrast to their role in case paradigms, where *-ov* and *-in* seem to be allomorphs conditioned by number, in (10), these same two suffixes appear as allomorphs conditioned by gender.

(10) a. brat-ov pas
brother-POSS dog
'brother's dog'

b. sestr-in pas
sister-POSS dog
'sister's dog'

As discussed in the introduction, the possessive affix can attach to bases that denote inanimate entities, giving rise to relational or part/whole semantics (11).

(11) a. hrast-ov-Ø koren
oak-POSS-MASC root
'the root of the oak tree'

b. vrb-in-a grana
willow-POSS-FEM branch

‘the branch of the willow tree’

In some cases, however, these suffixes can be attached to non-referential bases, but, then, they do not derive typical possessive semantics. Instead, the derived adjective denotes either a mass consisting of the entities named by the base or the material that the entity denoted by the head noun is made of (see Stevanović 1986; Klajn 2002; Stojković 2015), In (12a), the suffix *-ov* is attached to the root/base *hrast* (‘oak’) resulting in a mass reading (~ “an unbounded collection of oak trees”) in (12b) or material reading (~”oakwood”).

(12) a. hrast-ov-a šuma
oak-POSS-FEM forest
‘a forest consisting of oak trees’ NOT ‘a forest belonging to oak trees’

b. hrast-ov-Ø pod
oak-POSS-MASC floor
‘oak floor’

Essentially, these two possible readings correspond to atomic and non-atomic mass/kind denotations (cf. Barner-Snedeker 2005; Chierchia 1998; Rothstein 2010). Thus, we refer to these two denotations together as K/M.

Crucially, the prosodic pattern of the base can change with K/M denotations, but with possessives/relationals, the prosodic pattern of the derived form is faithful to the base. As we already illustrated in (1), repeated here as (13), the possessive reading of *hrastov* (‘oak-ov’) retains the prosodic pattern of the noun *hrast* (‘oak’), whereas the kind reading of *hrastov* (‘oak-ov’) is pronounced with a shifted prosodic pattern.

(13) a. ˈhráast ‘oak tree’ → ˈhráast-ov koren ‘the root of the oak tree’

b. ˈhráast ‘oak tree’ → ˈhrast-óv pod ‘oak flooring’

Finally, only with K/M denotations but not with possessive/relational readings can *-ov* attach to feminine nouns. All the base nouns in (14) are feminine and in the typical possessive/relational form they combine with the suffix *-in* like all other feminine nouns. However, they tend to derive these forms used for K/M denotations with the suffix *-ov*.

(14) a. maslin-ov-o ulje (cf. maslin-a)
olive-POSS-NEUT oil olive-FEM

	‘olive oil’		‘olive
b.	palm-ov-o	ulje	(cf. palm-a)
	palm-POSS-NEUT	oil	palm-FEM
	‘palm oil’		‘palm’
c.	vrb-ov-Ø	šumarak	(cf. vrb-a)
	willow-POSS-MASC	grove	willow-FEM
	‘willow grove’		‘willow’

Summarizing the description, we can say that we observed a strong generalization, on the one hand, and a tendency on the other. The rule is that *-ov*/*-in* derivations with completely transparent possessive or relational semantics always preserve the prosodic shape of the base noun, and the choice of the suffix is completely determined by the gender of the base (*-ov* for masculines/neuters and *-in* for feminines). The tendency is that K/M denotations sometimes induce a prosodic shift (i.e. the prosodic pattern of the derived item is different from the prosodic pattern of the base noun) and the choice of the suffix is not entirely predicted by the gender of the base noun, in that the suffix *-ov* can attach to feminine nouns.

This picture raises some interesting questions. Descriptively, an important question concerns the scope of these patterns. To answer this question, one needs to collect a representative sample of *-ov/-in* derivations with the K/M semantics. Furthermore, a quantitative statement of the identified tendencies would be useful (i.e. what proportion of K/M adjectives shows prosodic unfaithfulness to the base and/or gender mismatches between the base and the suffix?). Finally, the question becomes how to account for this semantic, prosodic and morphological contrast between pure possessive/relational forms and K/M denotations.

3. METHODOLOGY

In order to explore the questions raised in the previous section, we conducted a corpus-based study with the aim of collecting and then analyzing a representative sample of the forms under investigation. We used the online corpus of (Eastern) SC called srWaC (Ljubešić & Klubička 2014) and conducted a simple search that extracted all the adjectives ending in *-ov* or *-in* with at least 4 attestations per million words. This gave us 1838 lexemes in total, but the majority of these lexemes were basic possessive adjectives (e.g., *Ivan* ‘Ivan’ → *Ivan-ov* ‘Ivan’s’),

which were not of primary interest to us. For that reason, we manually isolated only those *-ov*/*-in* forms that allowed what we termed K/M reading.

We then built a database where each extracted item was annotated for four different properties. The first property that we coded for was the gender of the noun that the adjective was derived from (masculine/feminine/neuter). Second, we coded for the suffix used to derive the typical possessive form from this noun (*-ov*/*-in*). The purpose of this step was to check whether the predictability of the possessive affix based on the gender specification of the noun has any exceptions. Third, we entered the information on the suffix that is used to derive the adjective denoting K/M because, as we already pointed out, this adjectival form can differ from the possessive adjective in the choice of the suffix. Here, we observed three different options: *-in*, *-ov*, or both. Native speaker judgements and independent corpus attestations were used to decide which forms were possible for each item. Finally, the items were coded for the presence or absence of a prosodic shift in the derived form with the K/M denotation. An item was marked as having a prosodic shift with the K/M denotation if the derived form with a prosodic shape different from the one in the base noun was acceptable to some speakers. Our annotations do not entail that a form marked as displaying a prosodic shift does not also allow a prosodically faithful option with the same denotation, at least for some speakers. Instead, such an annotation entails that there exists a prosodically unfaithful variant of a given form.

4. RESULTS

The data that we gathered exhibited some revealing patterns regarding (i) the productivity of K/M readings with *-ov*/*-in* forms; (ii) the distribution of gender mismatches between the base noun and the suffix; and (iii) the presence of prosodic shifts. We will present these findings in turn. First, we will discuss the findings related to productivity. Second, we will describe the data on gender mismatches. Finally, we show our results for prosodic shifts.

4.1. Productivity

Our starting point regarding the productivity of the patterns under investigation was to determine the number of *-ov*/*-in* derivations giving rise to ‘kind’ semantics (in the corpus). We were also interested in the (lexico-semantic) domains in which they are productive. For instance, even if the use of *-ov*/*-in* is not the most productive way of deriving K/M meanings in SC, it is still possible that it

is a fully productive or at least a reasonably productive with particular classes of nouns.

We made some rather interesting observations on both fronts. Firstly, having extracted only the forms with the possible a K/M reading from our initial pool of 1838 words, we obtained a total of 54 lexemes. All of these lexemes allowed both possessive/relational and K/M readings, so it was possible to compare them. Secondly, all but one of the forms with extracted from the corpus were derived from nouns denoting plants (e.g., *bor* 'pine', *breza* 'birch', *malina* 'raspberry', *višnja* 'cherry', *jasen* 'ash'', etc.). Curiously, the only exception that we found was *vino* 'wine' producing the form *vin-ov*, which refers to the grapevine.

Finally, in terms of the gender of the base, the majority of adjectives were derived from masculine bases (n=30). 22 adjectives were derived from feminine bases, and there were only 2 neuter bases in our sample.

4.2. Gender of the base and the selection of the suffix

Each item in our database was coded for the gender of the base, the suffix used to derive the possessive form (*-ov*/*-in*) and the suffix used to derive the K/M form (*-ov*/*-in*/both). This data structure allows us to quantify the correlation between the gender of the base and the type of suffix both in the possessive and in the K/M form. For possessives, there were no surprises, and the mapping between the gender of the base noun and the suffix was one-to-one. All possessive adjectives derived from masculine/neuter nouns included the suffix *-ov*, and this was the only possible option. There was the same level of predictability with feminine bases, as they all combined with the suffix *-in*, and none of them allowed *-ov*.

When it comes to K/M readings, the situation was much less transparent and there was no one-to-one mapping between the gender of the base and the suffix. However, variation was entirely confined to the forms derived from feminine bases. In the masculine portion of the database, all the adjectives were still derived with the suffix *-ov* and no other option was allowed. The same applies to neuters. However, with the adjectives derived from feminine nouns, the strict feminine to *-in* mapping that was systematically observed with possessives applied in only 4 out of 22 cases. 7 adjectives allowed the suffix *-ov* as the only option with the K/M reading, whereas 11 items, which is exactly 50% of the feminine portion of the sample, allowed both the suffix *-in* and the suffix *-ov*.

Finally, we collected data on the presence of prosodic shifts in both possessive and K/M readings. The possessive adjectives were completely uniform in this regard, since they all showed full prosodic faithfulness to the base, and no

cases of prosodic shift were attested in that portion of the database. Again, K/M adjectives showed some variation in this regard; however, unlike in the case of suffix selection, variation was not confined to feminine bases. We observed prosodic shifts in 5 adjectives with masculine bases while 25 of them were prosodically faithful to the base. Even though the number of adjectives with feminine bases was smaller than the number of adjectives with masculine bases, there were also 5 prosodically shifted adjectives in this portion of the database. Finally, both adjectives with neuter bases exhibited prosodic shifts. The table in (15) summarizes the data.

(15)		**suffix**			**prosodic change**	
		-ov	*-in*	both	yes	no
	masculine	30	0	0	5	25
	feminine	7	4	11	5	17
	neuter	2	0	0	2	0

Summarizing the results of our investigation, we can conclude that true possessive/relational forms are fully productive, and involve one-to-one mapping between the gender of the base and the suffix in the possessive form such that masculine/neuter bases always combine with *-ov*, while feminines always combine with *-in*. Also, possessive forms are always completely prosodically faithful to the base. With regard to K/M adjectives, we observed that they are productive only with nominal bases denoting plants. Masculine/neuter bases always combine with *-ov*, while feminine bases can combine with *-in*, *-ov*, or both. Finally, prosodic shifts are quite restricted, but present in all three genders

5. ANALYSIS

The main findings summarized at the end of the previous section call for an analysis that would unite several seemingly disparate observations. On the one hand, we want to account for the productivity puzzle with the K/M readings associated with *-ov*/*-in* suffixes because these forms seem to be quite productive but they only select nouns denoting plants. Next, an explanation is needed for the fact that feminine nominal bases can be combined with *-ov*, *-in* or both to derive K/M readings, which is not possible with possessive adjectives. Finally, the (restricted) possibility of prosodic shifts with K/M adjectives should also be explained.

5.1. Morphosyntactic analysis

Starting form the issue of productivity, *-ov*/*-in* with K/M denotations are in competition with other suffixes (16). The suffixes in (16) are not interchangeable and they are all specialized for bases of some kind (although it is not easy to formalize these specializations precisely).

(16) a. -en gum-en
rubber-EN
'made of rubber/rubbery'

b. -n papir-n-i
paper-N-DEF
'made of paper'

c. -sk beton-sk-i
concrete-SK-DEF
'made of concrete'

d. -an zemlj-an
earth-AN
'earthen'

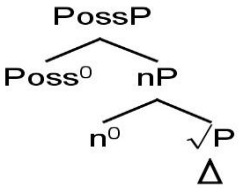
The two suffixes under investigation here (*-ov* and *-in*) clearly specialize in bases denoting plants. In order to capture this 'lexical domain' specialization we postulate that they are able to 'access' the meaning of the structure they attach to, selecting bases with the lexico-semantic feature [plant]. Assuming that roots do not come with semantic features as specific as this one, the only way to capture this semantic specialization is to say that *-ov/-in* attaches to nPs or more precisely to the set of nPs with the semantic feature in question.

The observations about the interplay between semantics and prosody point in the same direction. Specifically, the presence of a phasal head in the derivation triggers spell-out, ensuring semantic transparency and phonological faithfulness to the base. The absence of a phasal head allows lexicalization and prosodic unfaithfulness.

Possessive derivations are fully productive, always semantically transparent and phonologically faithful to the base. Thus, we assume that typical possessives

with *-ov*/*-in* contain a categorizing *n* head on top of the root and below the layers that introduces the suffix (we label this layer Poss) as in (17).

(17)



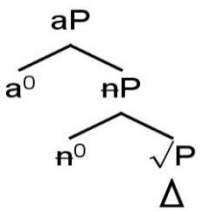
The presence of a full phasal head *n* in (17) ensures that the derivation is spelled out to the interfaces before the suffix is attached, resulting in totally predictable semantics and prosody.

From the semantic point of view, the denotations of K/M forms are still transparent. They systematically derive adjectives that denote K/M defined by the nominal element in the base. Following Chierchia (1998), among others, we assume that the K/M denotation is the very basic denotation of a noun, which then gets further enriched (see also Zamparelli 1995). Based on this semantic fact, we conclude that these *-ov*/*-in* adjectives denoting 'kinds' also involve the categorizing *n* head, whose effects manifest themselves at the semantic (LF) interface in the form of full semantic transparency.

At the same time, this *n* head cannot be of the same sort that is present with possessives because it lacks the semantics of individuation. Recall that possessive denotations are derived on the basis of referential nPs (i.e. those nPs that refer to specific individuals of the kind named by the noun in the base). Moreover, with K/M denotations *-ov* can attach to what are otherwise feminine bases, which is impossible with possessives. Therefore, we assume that this *n* head can also lack gender features. In other words, only those *n* heads that refer to individuals are fully specified for gender in this sense. Since masculine is the unmarked gender, *-ov* is the Elsehwere allomorph of this morpheme. The lack of gender features on *n*, therefore, allows *-ov* to surface with otherwise feminine bases.

Finally, with K/M denotations we also sometimes observe phonological unfaithfulness to the base, which is absent with possessives. The ability of the suffix to affect the phonological shape of the base suggests the lack of a phasal boundary, at least at the phonological interface. We propose the structure in (18) as a way of capturing this set of facts.

(18)



The structure in (18) represents a derivation in which a 'defective' *n* head (symbolized with a strikethrough), which lacks individuation and can lack gender features, is projected on top of a root. This *n* head carries the K/M denotation and ensures semantic transparency, which means that it acts as a phase at LF. However, it is still permeable at PF enabling prosodic shifts. This type of *n* head can be seen as an instance of a *non-simultaneous phase head*, which acts as a phase at one interface but not at the other (Marušič 2005, 2009).

Even though it might be tempting to try to capture these data by assuming a simpler distinction between derivations which involve a categorizing phasal *n* head (explaining full productivity, semantic transparency and phonological faithfulness) and deradical derivations, such an analysis would be too simplistic. K/M derivations are semantically compositional and quite productive (within the lexico-semantic class of plants), while at the same time allowing some prosodic unfaithfulness and gender mismatches when it comes to the selection of suffix. In full recognition of the clash between regularity at the LF interface and (potential) irregularity at PF, we are convinced that these derivations need to be distinguished from fully lexicalized and systematically phonologically unfaithful examples of *ov*-derivations.

Such derivations are also attested in SC. We were able to identify four examples (19).

(19) a. Trn-óv-a Ruž-ica
thorn-POSS-FEM rose-DEM
'Sleeping Beauty'; Literally: 'Thorn's Rose'

b. boj-év-a municija
battle-POSS-FEM ammunition
'live ammunition' Literally: 'Battle's ammunition'

c. kuk-óv-o leto
hip-POSS-NEUT summer

‘never’; Literally: ‘hip’s summer’

d. plod-óv-a voda

fruit/foetus-POSS-NEUT water

‘amniotic fluid’; Literally: ‘foetus’s water’

The derivations in (19) clearly do not involve K/M semantics, which is why we did not include them into our database. However, these examples are highly relevant for our purposes as a point of comparison because they seem to illustrate what true deradical derivations involving these suffixes look like. Namely, all the adjectives in (19) appear only as part of idioms or fixed phrases where their meanings are always non-compositional and they are always prosodically unfaithful to the base noun. In light of such examples, unless we want to collapse K/M derivations with the fully lexicalized ones in (19), we must posit the existence of structures represented by (18) as an intermediate station.

5.3. Phonological analysis: Phasal vs Non-phasal bases

We cast our sketch of a phonological analysis in terms of Optimality Theory (Prince-Smolensky 1993), but we also assume phasal spellout (see, e.g., Sande et al. 2020, for a recent proposal along these lines). It follows from our syntactic analysis presented above that the central contrast in the phonological computation is between cases where the base is a phasal nP and those where the nP does not close off a phase, so that the base and the affix end up in the same spellout domain. In the case of a full nP, the derivation will always proceed in two phases, the prosody of the base will be fixed in the first phase and the derivation will surface with a prosodic pattern faithful to that of the base noun. This is the case in all possessive adjectives analyzed here, as well as in all cases where we can see a gender feature on the nP (recall that all *in*-adjectives have faithful prosody, indicating that the presence of the gender feature makes the nP phasal). In the case of a defective nP, where the root and the affix are spelled out together, we observe two scenarios. We either see the K/M adjective copying the prosodic shape of the noun, just like in the case of a full nP or we see a shifted pattern with two light syllables and final H. As will be shown below, the dichotomy between faithful and shifting monophasal *ov*-derivations depends on the specification on the root.

Before turning to the OT grammar used to capture these facts, we need to address the question of what will serve as the input to this grammar. In the case of a full phasal nP, the input of the final evaluation (where the prosody of the whole

derivation is computed) will be the output of the previous phase, i.e. the prosodic form of the base noun attested, e.g., in the case forms which have an overt ending. On the other hand, in the case of a monophasal *ov*-derivation, the input will contain the underlying representation of the base. In SC, nouns can be underlyingly toneless or endowed with a H (see, e.g., Zec 1999, Becker 2007). Their input specifications are protected by two faithfulness constraints defined in (20) and (21).

(20) LINK-SPONSOR: Assign a violation mark for every H which is not linked to the segmental content of its lexical sponsor.

(21) LINK-MAX-μ: Assign a violation mark for every mora that is present in the input but absent from the output.

As for the shifted pattern with two short syllables and a final H that surfaces in some K/M adjectives, it is tempting to analyze it as imposed by the prosodic marking on the affix. However, the same pattern can also be encountered for many other adjectivizers. For instance, Simonović and Arsenijević (2020) discuss three such examples (*en*, *at* and *an*). This indicates that this pattern is actually better analyzed as following from a certain structure. For the rightmost H, we assume that this is the epenthetic default (at least in the adjectival domain), imposed by (22). The shortening of long vowels and strict disyllabicity are captured by a constraint conjunction which requires equal trochees in words with an epenthetic H: TROCHAICQUANTITY $\&_{PWD}$ DEP-H.

(22) ALIGNRIGHT-H: Assign a violation mark for every mora between the H and the right edge of the prosodic domain.

(23) TROCHAICQUANTITY & DEP-H: Assign a violation mark for every form where (i) in a rhythmic unit [S W], |S| ≠|W| (from Zec 1999) and (ii) there is a H in the output which is not present in the input.

While this constraint conjunction may appear defined just to capture these data, there is independent evidence for its being active in SC. There are no polysyllabic simplex adjectives which contain long vowels (i.e. there are simplex adjectives like ˈjálov ‘barren’ or ˈgotóv ‘done’, but no simplex adjectives like ˈjáloov or ˈjalóov or ˈjáalov). Furthermore, Zec (1999) shows arguments for TROCHAIC QUANTITY elsewhere in the system (in items that are arguably toneless). Finally, constraint conjunctions which involve DEP-H (essentially regulating epenthetic tone only) have been proposed for SC independently by Becker (2007).

Since the conjunction and LINK-SPONSOR are never violated in our dataset, we place them in the topmost stratum of the ranking. MAX-μ, which only gets violated to satisfy the conjunction, and ALIGNRIGHT-H, which gets violated to

satisfy LINK-SPONSOR, are ranked immediately below them. Finally, DEP-H, which does not decide any winners, will be placed at the bottom of the ranking.

Now, we can turn to the phonological evaluations of our examples. The first tableau shows an evaluation which takes place at the second phase (23). The input will always have a H attached to a specific syllable and this specification will always be respected due to the high-ranked LINK-SPONSOR. The conjunction is irrelevant because there is an input H and MAX-μ protects the long vowel. Essentially, in this system, nothing will ever disrupt the perfect preservation of the prosodic specifications inherited from the previous phase, capturing the total faithfulness encountered in the domain of all possessives and all *in*-adjectives.

(23) OT evaluation for ˈhráastov ‘of an oak tree’

/xráast + ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
☞ a. (ˈxráastov)				**	
b. (ˈxraastóv)		*!			
c. (ˈxrástov)			*!	*	
d. (ˈxrastóv)		*!	*		

Concerning monophasal evaluations (24), we start from the cases where the nominal root is endowed with a H. What this evaluation has in common with the previous one is that the conjunction is irrelevant because there is an input H. Here, we see ALIGNRT-H pushing lexical H towards the right edge of the word. However, LINKSPONSOR puts a limit to how far the right alignment can go, as it does not allow the H to leave the sponsoring morpheme.

(24) OT evaluation for ˈmaslínov ‘made out of olives’

/maslin, H + ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
a. (ˈmásli)nov				**!	
☞ b. (ˈmaslín)ov				*	
c. ma(ˈslinóv)		*!			

Finally, we present a monophasal evaluation with a toneless root (25). This means that there will be no input H. Now the constraint conjunction eliminates all the candidates that respect the input length and vowel shortening is imposed, to the detriment of MAX-μ. Due to ALIGNRT-H the epenthetic H is right-aligned with the prosodic domain

(25) OT evaluation for ˈhrastóv ‘made out of oak’

/xraast+ov/	TROCHQU & DEP-H	LINKSPONSOR	MAX-μ	ALIGNRT-H	DEP-H
a. (xráastov)	*!			**	*
b. (xraastóv)	*!				*
c. (xraástov)	*!			*	*
d. (xrástov)			*	*!	*
☞e. (xrastóv)			*		*

Our analysis captures the distinction between the ever faithful biphasal and the variable monophasal derivations. We further showed that tone-endowed nouns never allow vowel shortening or H on *ov*. In the next short section, we briefly discuss which nouns come out as toneless in our analysis.

5.3.1. Residual issue: Polysyllabic toneless nouns

The issue of the underlying prosody (i.e. which nouns are toneless, tone-endowed and whether there is need for additional lexical specification of H on specific moras/syllables) is far from resolved for SC. One prominent feature of our analysis is that relatively few classes are required to be toneless, as also reflected in the relatively small number of prosody-shifting K/M adjectives. The nouns that we can view as toneless based on our evidence all have monosyllabic stems and belong to one of the following types (shown with an overt ending *-a*):

- the masculine type ˈxráast-a ‘oak.GEN.SG’ (analysed as toneless in Zec 1999),
- the feminine type ˈbreez-á ‘birch.NOM.SG’ (analysed as toneless in Simonović & Arsenijević 2014),
- the neuter type ˈviin-ó ‘wine’ ‘wine.NOM.SG’ (analysed as toneless in Simonović & Arsenijević 2014).

The most curious aspect of this picture is the restriction to monosyllabic bases. As we emphasized already in the introduction, prosodic shifts never affect polysyllables and *ov*-adjectives never display stress shifts of base prosody (only H-shifts and vowel shortening).

Traditionally, (and in analyses that were based on nouns), toneless nouns surface with an initial H. Examples of polysyllabic nouns which were assumed to be toneless in previous analyses, (e.g., Zec 1999 and Becker 2007) are ˈjásen ‘ash’ and ˈjábuk-a ‘apple’. We will not delve into an analysis of nominal prosody, which indeed displays different surface patterns in SC from adjectival prosody, but we

need to say something about the items of this type, because they derive K/M adjectives, as shown in (26) and (27).

(26)	a.	ˈjásen ‘ash tree’ →	ˈjásen-ov izdanak	‘the sprout of the ash tree’
	b.	ˈjásen ‘ash’ →	ˈjásen-ov prut	‘ashwood stick’
(27)	a.	ˈjábuk-a ‘apple’ →	ˈjábuk-in /#ˈjabuk-ov koren	‘the root of the apple. tree’
	b.	ˈjábuk-a ‘apple’ →	ˈjábuk-ov ocat	‘apple vinegar’

If we combine the toneless URs for these items with our grammar, the ungrammatical outputs *jaˈsen-óv and *jaˈbuk-óv result. The form jaˈsen-óv is attested in a traditional description, but modern speakers reject it (see footnote 1). In the case of ˈjásen-ov, we can still obtain the correct result by postulating the presence of the masculine gender feature and enforcing a diphasal evaluation (recall that the gender feature cannot be excluded altogether from K/M adjectives, because there are feminine bases which consistently take *-in* in this use, illustrated in 5 and 6). However, no such escape hatch is available for ˈjábuk-a, because the form ˈjábuk-ov clearly indicates the lack of a gender feature and therefore requires a monophasal evaluation. By consequence, for this specific item, the only one of that kind in our dataset, we need to assume full prosodic specification of the H the UR: /jábuk-a/. Now LINKSPONSOR can protect this specification in the derived form and no shift will take place.

This solution covers all the data, but it still remains somewhat mysterious why no single polysyllabic noun allows for a shift, which in the case of polysyllabic items would not only affect H and vowel length, but also stress. Now, given the fact that there is positive evidence of the disappearance of one adjective with stress shift from modern SC (jaˈsen-óv), an alternative solution, involving the interplay between the grammar and the lexicon seems at least equally plausible. Such an analysis would invoke Lexical Conservatism (Steriade 1997), a family of constraints which block new, phonologically different allomorphs. In this case the relevant constraint would block derived adjectives with a stress shift. Nouns like *jabuk-a* can then still be toneless, and the grammar can compute the prosody of their K/M adjectives with a final H and a stress shift. However, Lexical Conservatism would block such a form because it involves a stress shift and a faithfull structure would be introduced as a repair.

Adjudicating between the two options would require a clearer empirical picture of the system as a whole, at least in the domain of stress-shifting adjectivizers. As far as we could observe, no productive adjectivizers in SC behave

as the prosody-shifting *-ov* described in this paper, deleting all vowel length and imposing a final H. However, at least 3 other unproductive adjectival affixes have exactly this effect (see Simonović-Arsenijević 2020 on *an*, *en*, *at*).

6. CONCLUSION

In SC, *-ov* and *-in* can be used to derive possessive as well as kind/material denotations. With possessives, *-ov* is attached to masculine and neuter referential nouns, while *-in* is attached to feminine referential nouns to produce semantically transparent structures in which the prosody of the base is preserved. In kind/material denotations, *-ov* is always attached to masculine/neuter bases, while feminine bases can be combined with *-ov*, *-in*, or both. This latter pattern is productive with bases that denote plants, but not beyond. The two structures are semantically transparent (i.e. they denote kinds). The prosodic shape of the base is altered in some kind/material *ov*-adjectives.

The behavior of possessives is accounted for by assuming that *-ov* and *-in* are attached to nPs specified for gender with individuated semantics. For kind/material adjectives, we postulated the presence of a 'defective' *n* between the root and the suffix. This head is responsible for the transparent, 'kind' semantics, and it also allows the suffix to semantically select bases with a semantic feature [plant]. The fact that this head does not always contain gender features accounts for the variation of *-ov* and *-in* with normally feminine bases. Prosodic modifications in kind/material adjectives are possible because the affix is spelled out together with the root.

The picture emerging from our analysis fits the schema observed in the DM literature. There is a contrast between a more productive pattern involving more structure and more faithful prosody and a less productive pattern in which some aspects of structure are absent and there is no guarantee of prosodic faithfulness. One typical ingredient was absent, however: both types of derivations were shown to be equally semantically transparent because even the 'poorer' structure enforced phasehood at LF. An issue that we hope further research will tackle is the establishing of all features/projections involved and whether there are projections which are systematically treated differently at LF and PF when it comes to phasehood.

Finally, our brief discussion of the productivity of stress-shifting patterns raised some interesting empirical issues concerning the productivity of prosody-shifting (i.e. monophasal) derivational patterns that coexist with prosody-neutral (multiphasal) patterns involving the same morpheme. It seems plausible that in such

cases the more transparent pattern will always be more productive, but we are not aware of cross-linguistic studies to date targeting this generalization.

REFERENCES

Alexiadou, A.-Schäfer, F. (2010). The syntax of episodic vs. dispositional-er nominals. In: Alexiadou, A.-Rathert, M. (eds.) (2010). *The syntax of nominalizations across languages and frameworks.* Berlin: De Gruyter Mouton. 9-38.

Arsenijević, B.-Simonović, M. (2013). The role of syntax in stress assignment in Serbo-Croatian. In: Folli, R.-Sevdali, C. & Truswell, R. (eds.), *Syntax and its Limits*. Oxford: Oxford University Press. 192-217.

Barner, D.-Snedeker, J. (2005). Quantity judgments and individuation: Evidence that mass nouns count, *Cognition* 97(1), 41–66.

Becker, M. (2007). Tone licensing and categorical alignment in Serbo-Croatian. In Bateman, L. et al. (eds.) (2007). *University of Massachusetts Occasional Papers in Linguistics 32: Papers in Optimality Theory III.* Amherst: GLSA. 1 – 19.

Chierchia, G. (1998). Reference to kinds across language. *Natural language semantics*, *6*(4), 339-405.

Klajn, I. (2002). *Tvorba reči u savremenom srpskom jeziku. 1. Slaganje i prefiksacija*. Beograd: Zavod za udžbenike i nastavna sredstva.

Kovačević, P. (2021). On the internal structure of Serbian –(n)je nominalizations. *Acta Linguistica Academica*, 68(4), 426-453.

Ljubešić, N-Klubička, F. (2014). {bs,hr,sr}WaC - Web corpora of Bosnian, Croatian and Serbian. In: Bildhauer, F.-Schäfer, R. (eds.) (2014). *Proceedings of the 9th Web as Corpus Workshop (WaC-9)*. Gothenburg: Association for Computational Linguistics. 29–35.

Lowenstamm, J. (2014). Affixes as roots. In: A. Alexiadou, A.- Borer, H. & Schäfer, F. (eds.) (2014). *The syntax of roots and the roots of syntax*. Oxford: OUP. 230-259.

Halle, M.-Marantz, A. (1993). Distributed morphology and the pieces of inflection. In: Hale, K.- Keyser, S. (eds.) (1993). *The view from Building 20*. Cambridge: MIT Press. 111-176.

Marantz, A. (2001). Words. (unpublished manuscript). MIT, Cambridge, MA.

Marušič, F. (2005). On non-simultaneous phases (unpublished doctoral dissertation). Stony Brook University, New York.

Marušič, F. (2009). Non-simultaneous spell-out in the clausal and nominal domain. In: Grohmann, K. (ed.) (2009) *InterPhases: Phase-Theoretic Investigations of Linguistic Interfaces.* Oxford: OUP. 151-181.

Marvin, T. (2002). Topics in the stress and syntax of words (unpublished doctoral dissertation). MIT, Cambridge, MA.

Prince, A.-Smolensky, P. (1993). Optimality Theory: Constraint Interaction in Generative Grammar (Rutgers University Center for Cognitive Science Technical Report 2). Rutgers, New Brunswick.

Rothstein, S. (2010). Counting and the mass/count distinction. *Journal of Semantics*, 27(3) 343–397.

Roy, I. (2010). Deadjectival nominalizations and the structure of the adjective. In: Alexiadou, A.-Rathert, M. (eds.) (2010). *The syntax of nominalizations across languages and frameworks.* Berlin: De Gruyter Mouton. 129-158.

Sande, H.-Jenks, P. & Inkelas. S. (2020). Cophonologies by Ph(r)ase. *Natural Language & Linguistic Theory*, 38, 1211–1261.

Simonović, M. (2020). Categories, Root Complexes and Default Stress. *Linguistica* 60, 103-117.

Simonović, M.-Arsenijević, B. (2014) Regular and honorary membership: on two kinds of deverbal nouns in Serbo-Croatian. *Lingue e Linguaggio*, 13(2), 185-210.

Simonović, M.-Arsenijević, B. (2019). Good Roots Go to Heaven, Bad Roots Go Everywhere: Num Augments in Serbo-Croatian (Poster presented at *Connecting roots and affixes*), Masaryk University, Brno, Czechia.

Simonović, M.-Arsenijević, B. (2020). Syntax predicts prosody: Multi-purpose morphemes in Serbo-Croatian. In: Marušič, F.-Mišmaš, P. & Žaucer, R. (2020) (eds.). *Advances in Formal Slavic Linguistics 2017.* Berlin: Language Science Press. 277–304. .

Simonović, M.-Mišmaš, P. (2020). √ ov is in the Air. *Linguistica*, *60*(1), 83-102.

Steriade, D. (1997) Lexical conservatism. In: Ba S.Y. (ed.) (1997). *SICOL 1997: Linguistics in the morning calm.* Seoul: Hanshin Publishing House. 157–79.

Stevanović, M. (1986). *Savremeni srpskohrvatski jezik: gramatički sistemi i književnojezička norma* [Contemporary Serbo-Croatian language: grammatical systems and norms]. Beograd: Naučna knjiga.

Stojković, J. (2015). Izvedenice sufiksom -ov/-ev u nazivima tečnih derivata voća. "Radovi" *Časopis za humanističke i društvene nauke*, 1(21).

Zamparelli, R. (1995). Layers in the Determiner Phrase (Doctoral Dissertation), University of Rochester, Rochester, NY.

Zec, D. (1999). Footed tones and tonal feet: rhythmic constituency in a pitch-accent language. *Phonology*, 16(2), 225-264.

Zec, D.-Zsiga, E. (2010). Interaction of stress and tone in Standard Serbian. In: *Formal Approaches to Slavic Linguistics 18*. (2010). Ann Arbor, Mich: Michigan Slavic Publications. 535–555.

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BASE-GENERATED OR DERIVED? HERE'S HOW TO TELL STRUCTURES APART IN RUSSIAN.

The paper argues that *the Scope Freezing Diagnostic* (Antonyuk 2015; 2020) is an accurate test of relative argument relations and a reliable diagnostic for base-generated structures in Russian. An important novel finding reported here is that a vP-internal argument permutation, *Argument Inversion*, is mediated by Animacy, leading to the promotion of the lower [+Animate] argument to a position c-commanding its co-argument. Crucially, such permutations are shown here to result in an order that allows Focus projection, and one that is widely perceived to be discourse-neutral, hence routinely analyzed as underived. The diagnostic is argued to be a more accurate test of argument relations than other syntactic tests proposed in the literature, as well as a valuable diagnostic overall, one that has helped uncover Animacy as a pervasive and previously unrecognized confound on Information Structure and its complex interactions with argument structure in Russian. Theoretical and methodological implications of our findings are discussed.

Keywords: the Scope Freezing Diagnostic; Russian; Information Structure; Argument Structure; Focus spreading; scope freezing; Animacy; Ditransitive Alternation.

1 INTRODUCTION

Traditional linguistic approaches to Russian free word order as well as formal linguistic approaches share in common the belief, grounded in empirical observations and native speaker intuitions, that discourse neutral orders are the more basic ones in that they occur in a greater number of contexts than the non-discourse neutral orders and also do not require special discourse licensing (Isačenko 1966; Sirotinina 1965/2003; Bailyn 1995; Franks 1995; Junghanns & Zybatow 1997, Slioussar 2007, Yokoyama 1986, i.a.). Discourse neutrality is thus widely believed to indicate base generation as far as the linearization of arguments

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is concerned and is therefore routinely used as a diagnostic tool to probe argument structure relations. In this paper we argue that the heuristic underlying such tests, namely *'discourse neutrality = non-derived word order'* is not always correct (at least as far as Russian is concerned) and that therefore discourse neutrality is not a good indication of underlying structural relations, a conclusion that can have profound implications for Slavic languages, in which word order and its permutations are inherently tied to discourse relations.

The empirical discovery at the heart of our claim that 'discourse neutral' orders in Russian occasionally represent derived word orders is related to a recently proposed test of relative argument structure relations dubbed *the Scope Freezing Diagnostic* (SFD) (Antonyuk 2015; 2020). Antonyuk (2015; 2020) has found that overt permutation of quantificational arguments inside the VP/vP in Russian leads to quantifier scope freezing of the kind familiar from English (see Larson 1990 originally for the Double Object Construction; Schneider-Zioga 1988 for the *Spray-Load* Alternation). Since doubly quantified sentences in Russian, as in English, are normally scopally ambiguous (Antonyuk 2015; 2019; Zanon 2015) and quantifier scope ambiguity under the right structural and pragmatic conditions is arguably the norm, the lack of expected scope ambiguity (i.e., surface scope freezing) is thus treated as a marked situation arising under special circumstances (see also Larson, Antonyuk and Liu 2019 on this point; Cf. Bruening 2001).[1] The fact that in Russian ditransitives one order of arguments within the vP is scopally ambiguous and the opposite order is (most often) surface scope frozen is then seen as the direct consequence of the overt argument QP crossing (per Antonyuk 2015).[2] The finding was used to probe underlying argument structure relations, with scope freezing (or *strong surface scope bias* for one particular group of verbs, see esp. Antonyuk 2020) thus always pointing to the derived nature of the relative order of arguments.

The validity of the diagnostic has been strongly supported by independent syntactic tests, which show that the three groups of Russian ditransitives identified on the basis of this diagnostic (see 1-3) are also singled out by the distinct behavior of the groups on other tests, e.g., unaccusativity diagnostics, shown in (4-6) with the Distributive *po* test.

[1] Cf. Ionin (2003), which famously argued that Russian is a rigid surface scope language, a claim partially retracted in Ionin's later experimental work.

[2] Some arguments for why the permuted order of argument XPs in ditransitives must be the result of overt syntactic movement (as opposed to base-generation) can be found in Antonyuk (2015); (under review); Bailyn (2009); (2012); Dyakonova (2009), i.a.

(1) **Group 1:**
ACC > OBL (amb.)
OBL > ACC (frozen)
(2) **Group 2:**
OBL > ACC (amb.)
ACC > OBL (frozen)
(3) **Group 3:**
ACC > OBL (amb.)
OBL > ACC (amb., but: surface scope bias)

As shown originally in Pesetsky (1982), only direct objects of transitive predicates and subjects of unaccusatives may appear as objects of distributive *po* in Russian, while subjects of transitive and unergative predicates typically may not. According to this test then, only the objects of Groups 1 and 3 are true direct objects, whereas the Accusative-marked objects of Group 2 verbs, while morphologically indistinguishable from the direct objects of Group 1/3, must in fact occupy a distinct structural position. In fact, the apparent 'direct' objects of Group 2 verbs have been shown to consistently differ from the other two Groups in terms of their syntactic behavior on a range of diagnostics, argued to stem from a structurally lower initial position for such objects, with Accusative case being assigned by a null preposition (see Antonyuk 2015; 2020 for details).

(4) Učitel' po-dari-l po tetradk-e **Group 1**
Teacher PO-present-PST.MSC DISTR notebook-DAT.FEM
každ-omu student-u.
every-DAT.MSC student-DAT.MSC
'The teacher presented a notebook to every student'

(5) *Maša ugosti-l-a po rebenk-u **Group 2**
Masha treat-PST-FEM DISTR child-DAT
(kak-im-to pečen'je-m).
some—INSTR.MSC.-IND cookie-INSTR.MSC
'Masha treated each child to a cookie'

(6) Maša na-pisa-l-a po slogan-u **Group 3**
Masha NA-write-PST-FEM DISTR slogan-DAT.MSC
na každ-oj sten-e
on every-PREP.FEM wall-PREP.FEM
'Masha wrote a slogan on every wall'

Interestingly, for one group of ditransitives (i.e., Group 1, ex. 4 & 7), the SFD suggests that the arguments are merged in the following order: NP_{ACC} > NP_{DAT}. This is so since it is the order that is scope ambiguous while the reverse order, NP_{DAT} > NP_{ACC}, is scope frozen, hence derived (see 8). While this position, namely the structurally higher merge position of the direct object, has been independently and extensively argued for in the literature (e.g., Bailyn 1995; 2012, following Larson 1988), it nevertheless goes against the strong native speaker intuitions that the word order on which the Goal argument precedes the Theme (7a) represents the discourse neutral (DN) order, which can be given in response to the '*What happened?*' question (Dyakonova 2009). The opposite order, the one the SFD indicates is the non-derived one (7b), in contrast is perceived to be relatively more *discourse marked* and as such not suitable as an answer to the '*What happened?*' question-test. Thus, intuitions about discourse neutrality and the SFD directly contradict each other in cases such as (7), which casts doubt on the overall validity of the SFD, since the discourse neutrality and Focus projection tests have long been part of the Slavic syntactician's toolbox and are thus considered to be beyond doubt.[3,4]

(7) a. On kupil kakomu-to niščemu **obed**. (Dyakonova 2009)
he$_{NOM}$ buy$_{PST.MASC}$ some beggar$_{DAT}$ lunch$_{ACC}$
'He bought some beggar a lunch.'
✓What's up with Sergey? He looks so happy.
✓What did Sergey buy for some beggar on the street?

b. On kupil obed kakomu-to **niščemu**.
he$_{NOM}$ buy$_{PST.MASC}$ lunch$_{ACC}$ some beggar$_{DAT}$
'He bought a lunch for some beggar.'
✓Who did Sergey buy a lunch for?
*What's up with Sergey? He looks so happy.

[3] See Cinque (1993); Reinhart (1995); Selkirk (1995); Zubizarreta (1998) i.a. on the relation between word order and Focus spreading and Stjepanović (1999) as a classic work on Slavic regarding the what-happened/word order/focus test.

[4] See Grabska & Abels (2022) on the distribution of scope ambiguity and scope freezing in Polish which largely argues against the view of argument structure defended here.

(8) a. On kupil kakomu-to niščemu každoe bljudo.
he$_{NOM}$ buy$_{PST.MASC}$ some beggar$_{DAT}$ every dish$_{ACC}$
'He bought some beggar every dish.'
✓**Surface scope:** for some beggar x, for every dish y, he bought x y (the same beggar got every dish);
***Inverse scope:** for every dish x, for some beggar y, he bought x for y (beggars can vary with dishes).

b. On kupil kakoe-to bljudo každomu niščemu.
he$_{NOM}$ buy$_{PST.MASC}$ some dish$_{ACC}$ every beggar$_{DAT}$
'He bought some dish for every beggar.'
✓**Surface scope:** for some dish x, for every beggar y, he bought x for y (same dish for every beggar);
✓**Inv. scope:** for every beggar x, for some dish y, he bought x y (possib. a diff. dish for each beggar).

Section 2 of this paper will discuss novel evidence that provides key insight into the above clash which points to the previously unnoticed role that Animacy plays in Russian syntax, Information Structure and their interface. Section 3 briefly discusses theoretical and methodological significance of this finding. A brief section 4 offers our conclusions.

2 NOVEL EVIDENCE FOR THE ROLE OF ANIMACY IN SYNTAX AND IS OF RUSSIAN

The empirical claim of this paper is that the above situation (i.e., the clash between the SFD and the intuitions of Discourse Neutrality and Focus spreading, schematized in (9)) is nevertheless not an anomaly and also not an indication of a suspected unreliability of the SFD, as there turn out to be more contexts where the intuition of DN and the SFD clash, which, when viewed together, reveal a clear pattern, summarized in (10) below:

(9) **the Clash between SFD and DN:**
V DPDAT >> DPACC scope frozen (<= must be derived)
V DPDAT >> DPACC DN (<= must be basic/non-derived)!

(10) **the Empirical Claims made:**
(i.) Argument Inversion is mediated by Animacy;

(ii.) raising the structurally lower [+Animate] argument via AI to a higher position, c-commanding its co-argument, does not disrupt Focus projection and results in a structure perceived as DN, hence routinely analyzed as base-generated.

Applied more broadly, the SFD suggests base-generation for a number of structures commonly analyzed as derived, with Animacy of the structurally lower argument undergoing AI (in the related derived structures) being what they all have in common. Sections 2.1-2.3 present the data and discussion of three such constructions, with the SFD providing an alternative account to the one widely adopted in the literature in each of these cases.

2.1 Object Experiencers: Preslar (1998)

Consider, for instance, the data in (11-12), (11) being due to Preslar (1998), which argues that the underlying direct object Experiencers in such constructions raise into the Spec,IP position to satisfy the EPP, crucially relying, among other things, on intuitions of DN in making the argument:

(11) a. Sestru tošnilo ot ryby. **DN**
sister$_{ACC}$ nauseated from fish
'The sister got nauseated from the fish'
b. Ot ryby tošnilo sestru.
from fish nauseated sister$_{ACC}$
'The sister got nauseated from the fish'

Applying the SFD to Preslar's examples in (11), we get (12a-b), with the two argument phrases realized as Quantifier Phrases (QPs):

(12) a. Kakuju-to devušku tošnilo ot každogo bljuda.
Some girl$_{ACC}$ nauseated from every dish
'Some girl was being nauseated from every dish'
✓**Surface scope:** one specific girl got sick from every dish in some relevant set of dishes;
***Inverse scope:** for every dish x, some girl y got sick from x (possib. different girl sick from each dish). **<= derived**

b. Ot kakogo-to bljuda tošnilo každuju devušku.
From some dish nauseated every girl$_{ACC}$

'Every girl got nauseated from some dish'
✓**Surface scope:** for some dish x, for every girl y, x made y sick (same dish for every girl);
✓**Inver. scope:** for every girl x, for some dish y, x got sick from y (diff. dish could make each girl sick).

According to the SFD, the order of arguments in 12b (*ot*-PP > NP_{ACC}) is the base-generated order while overtly raising Object Experiencer QP across the PP argument causes scope freezing and is thus determined to be the derived order. Crucially, however, it is the order NP_{ACC} > *ot*-PP that is perceived as DN, this intuition being widely shared by naive native speakers and Russian linguists alike.

2.2 'Distant DO placement from the verb': Sirotinina (1965/2003)/Bailyn (2012)

Bailyn (2012) discusses an interesting type of examples from traditional Russian literature, namely Sirotinina's (1965/2003) examples involving "distant placement [of the DO from the verb]", given in (13a-c):

(13) a. vosproizvodit' [u krolikov] arterioskleroz.
create [in rabbits] arterial $sclerosis_{ACC}$
'create arterial sclerosis in rabbits'
b. Pozval [k sebe] syna.
called [to self] son_{ACC}
'He called hiss on [over] to him'
c. dostal [iz karmana] rasčesku.
got [from pocket] $comb_{ACC}$
'took a comb out of his pocket'

Bailyn motivates the analysis of PPs in (13a-c), given in brackets, as modificational rather than argumental, based on the fact that (i) the bracketed constituent is optional (in contrast to the direct object) and (ii) the PP is fairly free syntactically, with both preverbal and clause-final positions being possible. In fact, Bailyn notes, the vP/VP-internal position of the PP as in (13) is much harder to account for, on

the assumption that modificational PPs are vP-attached.[5] Applying the SFD to (13a), we get the following:

(14) a. Učenye vosproizveli u kakoj-to porody každoe zabolevanie.
scientists created [in some breed] every illness
'Scientists created in some breed every illness'
surface scope: there is a particular breed x, such that scientists created every illness y in x;
***inverse scope:** for every illness x, for every breed y, scientists created x in y.

b. Učenye vosproizveli kakoe-to zabolevanie u každoj porody.
scientists created some illness in every breed
'Scientists created some illness in every breed'
Surface scope: for some illness x, for some breed y, scientists created x in y;
Inverse scope: for every breed x, for some illness y, scientists created y in x.

Surface scope freezing observed in (14a) opens up an interesting possibility that the PP originates not as a vP adjunct, but rather as the verb's complement, a base position from which it can raise across the direct object via AI, and then arguably raise further from there to a preverbal position, thus accounting for all of the linearization possibilities discussed in Bailyn (2012), schematized in (15), (with irrelevant details omitted and movement only shown by including a moved constituent into angular brackets, e.g., <PP>):

(15) [$_{vP}$ PP [$_{vP}$ <Subject> v+V [$_{XP}$ <PP> $X_{(NULL)}$ [$_{VP}$ DP_{ACC} <V> <PP>]]]]

Crucially for our purposes here, the SFD suggests that the [+Animate] PP is merged low, then undergoes AI to yield the linearization in (13a), which we perceive to be the most DN one (Cf. Bailyn 2012 on this score).

2.3 Adversity impersonals: Lavine & Freidin (2002)

Finally, the same overall pattern is observed with adversity impersonals, with ex. (16)-(17) due to Lavine & Freidin (2002):

[5] See Bailyn (2012) for a number of possibilities on how we can analyze these examples in a way that would allow us to maintain a configurational approach to phrase structure. Those possibilities do not include the one proposed here that is due to the SFD.

(16) a. Soldata ranilo pulej. **(DN)**
soldier$_{\mathbf{ACC}}$ wound$_{\text{PST.NON-AGR}}$ bullet$_{\mathbf{INSTR}}$
'A soldier was wounded by a bullet'
b. Pulej ranilo soldata.
bullet$_{\mathbf{INSTR}}$ wound$_{\text{PST.NON-AGR}}$ soldier$_{\mathbf{ACC}}$
'A soldier was wounded by a bullet'

(17) a. Emu otrezalo nogu. **DN**
him$_{\mathbf{DAT}}$ severed$_{\text{NON-AGR}}$ leg$_{\mathbf{ACC}}$
'His leg was severed (not by a human agent).'
b. #Nogu otrezalo emu.
Leg$_{\text{ACC}}$ severed him$_{\text{DAT}}$
'His leg was severed'

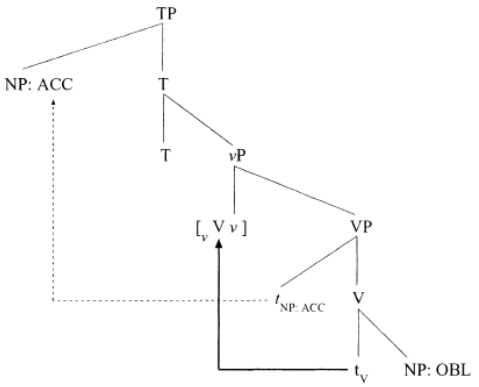
As argued by Lavine & Freidin, "discourse-neutral word-order is established by the location of the ACC or INST complement in a preverbal position" (2002, p.257). In our own judgment, (16a) and (17a) are the more neutral-sounding orders, that is, the two relative linearizations of co-arguments are not quite equal from a discourse point of view, and, secondly, it is crucially the advancement of the [+Animate] argument that yields the intuition of DN. In cases such as (17) where the [+Animate] argument is a pronoun, the ordering as in (17a) is not simply the DN one, it is the only felicitous one. This is true both in cases where only one argument is promoted, as in (17a), as well as when both arguments are raised, as in *Emu nogu otrezalo*; the order *Nogu emu otrezalo* only being acceptable on non-neutral prosody where *Nogu* is realized with the strongest stress and falling pitch accent, that is, in contrastive or corrective focus contexts. As shown in (18a-b), the practice of interpreting intuitions of DN and Focus spreading as being indicative of base-generation also clashes with the SFD for these examples:

(18) a. Kakomu-to parnju otrezalo každyj palec (na ruke).
[some guy]$_{\mathbf{DAT}}$ severed$_{\text{NON-AGR}}$ [every finger]$_{\mathbf{ACC}}$ (on hand)
'Some guy got every one of his fingers severed' **frozen**
b. Kakoj-to palec (na ruke) otrezalo každomu parnju.
[some finger]$_{\mathbf{ACC}}$ (on hand) severed [every guy]$_{\mathbf{DAT}}$
'Some finger or other got severed for every guy' **ambiguous**

As already stated, the traditional approach to such constructions is to analyze the Accusative argument as being generated in a structurally higher position than the oblique. Our own intuition that sentences such as (16a) are the DN ones thus

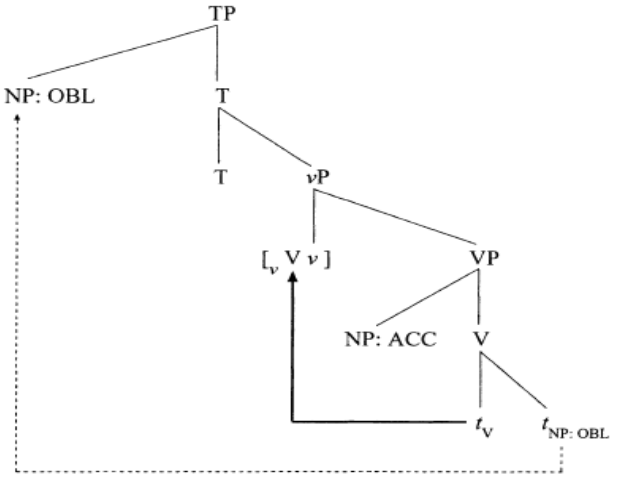
actually aligns with such analyses. Lavine and Freidin (2002) assign the following structure to the sentences in (16a/16b):

(19)



Lavine & Freidin's analysis of (16a).

(20)



Lavine & Freidin's analysis of (16b).

Applying the Scope Freezing Diagnostic to the examples in (16), we see, yet again, that the SFD implicates the opposite order of arguments at Marge:

(21) a. Kakogo-to soldata ranilo každoj pulej.
Some soldier**ACC** wound**PST.NON-AGR** every bullet**INSTR**
'Some soldier was wounded by every bullet'
✓**Surface scope:** some soldier x is such that x was wounded by every bullet y;
***Inverse scope:** for every bullet x, there is a (potentially) different soldier y, such as x wounded y;

b. Kakoj-to pulej ranilo každogo soldata.
Some bullet**INSTR** wound**PST.NON-AGR** every soldier**ACC**
'Some soldier was wounded by every bullet'
✓**Surface scope:** some bullet x wounded every soldier y;
✓**Inverse scope:** for some soldier x, for some bullet y, x was wounded by y.

The conclusion emerging from the above (incomplete) set of constructions is that the [+Animate] argument must be merged lower than its co-argument in the above constructions and, furthermore, that the advancement of the [+Animate] argument to a structurally prominent position c-commanding its co-argument does not disrupt Focus projection and results in a linearization widely judged to be the DN one. Other examples where the SFD provides key insights into the relative order of argument Merge suggest we are dealing with a phenomenon that is systematic and fairly widespread, though hitherto not recognized in the literature.

3. THEORETICAL AND METHODOLOGICAL IMPLICATIONS

3.1 Theoretical Implications

3.1.1 On the Discourse Neutrality of Derived Structures

While one of the main claims of this paper, namely that the intuition of discourse neutrality does not always correspond to the base-generated word order in Russian may sound surprising to a Russian linguist, this claim is in fact strongly supported by cross-linguistic findings. Thus, as pointed out by an anonymous reviewer, if Kayne's (1994) approach to languages with SOV word order (where on Kayne's account such word order must involve overt object movement) is correct, the languages in question provide a rather drastic example instantiating this claim, with discourse neutrality clearly not reflecting the base-generated word order in such cases. Verb raising in Romance languages, whereby head movement feeds

word order that is perceived as both discourse neutral and as the solely grammatical one also arguably instantiates the same pattern.[6] Finally, Kayne (2010) observes that there are languages with SONegV as the canonical/discourse neutral word order; this, the reviewer points out, is the case where the object must be taken to have undergone overt movement, whatever one's theoretical assumptions may be.[7]

3.1.2 On Thematic Hierarchy, Animacy and Focus Spreading

While the finding that AI is mediated by Animacy and in this way interacts with Focus projection is indeed novel, much of what the SFD uncovers has been at least hinted at in the literature before. Thus, the finding that the derived word order may not always disrupt Focus projection is not entirely new and is at least implicit in cross-linguistic research cited in section 3.1.1 above. As far as research on Russian is concerned, Bailyn (2004) has suggested in passing (ft.26, p.28) that it is not necessarily the case that A-movement disrupts Focus spreading in Russian (despite this being commonly assumed); instead, he suggests that the Thematic Hierarchy plays a role in whether or not Focus spreading in Russian is observed. While this is correct both in that AI is indeed A-movement (see e.g., Bailyn 2012; Dyakonova 2009), and in that the thematic roles are relevant here, what we observe in our data is that the role of Thematic Hierarchy is an indirect one and that it must be mediated by Animacy. Specifically, Thematic Hierarchy is relevant for or determines the order of arguments at Merge (e.g., Causers merged later, hence higher in the structure than Experiencers, Ramchand 2008), but it does not in itself interact with or affect Focus and Focus spreading. Rather, we have argued that it is not just any A-movement, but crucially Animacy-mediated Argument Inversion (AI being an extremely local instance of A-movement, see Antonyuk 2021; Antonyuk and Mykhaylyk 2022) that determines whether such permuted word order will

[6] See also Antonyuk (2022) on head movement in East Slavic, which treats verb raising in Russian as a syntactic operation and, crucially for present purposes, shows that word orders where the verb has undergone head raising outside vP and AspP can, under the right conditions, indeed instantiate the most discourse neutral and felicitous order.

[7] The same reviewer cites data from Brazilian Portuguese due to Lacerda's (2020) dissertation, where both overt movement of the direct object across an adverb and a linearization without such movement are both fine as an answer to the *what-happened* question-test.

allow Focus spreading and will thus result in a linearization perceived as DN or not. In other words, the thematic role of any given argument will either be (in)compatible with or require the [+Animate] specification of the bearer of this theta role. And what we have observed is that in every case we have seen where Focus spreading obtains with a derived word order (per SFD), is that the word order in question is derived via AI and the argument undergoing AI must denote a [+Animate] entity. Finally, it is important to point out that AI can also take place when the inverted XP is [-Animate], thus Animacy cannot be the driving force behind this operation. Indeed, examples involving ditransitive verbs like the one in (6), modified below in (22a), will routinely allow inversion of the lower [-Animate] PP argument to a position preceding its co-argument. Crucially though, such AI will not lead to Focus spreading, thus serving as a control in our attempt to tease out the contribution of Animacy. The key examples completing the paradigm are (23a-b), which demonstrate that when the same verb takes a [+Animate] argument PP, the preference yet again is for the [+Animate] PP to precede the [-Animate] direct object. Incidentally, there is no disagreement in the literature regarding the PP being the lower/subordinate argument in such examples (a conclusion also supported by the SFD, see Antonyuk 2015; 2020), thus demonstrating yet again that Animacy of an argument overrides base-generation as far as Focus projection is concerned. [8]

Out of the blue context: Čto sluchilos'? What happened?

(22) a. Maša na-pisa-l-a slogan na sten-e **DN**
Masha NA-write-PST-FEM slogan-ACC.MSC on wall-PREP.FEM
'Masha wrote a slogan on the wall'

b. Maša na-pisa-l-a na sten-e slogan
Masha NA-write-PST-FEM on wall-PREP.FEM slogan- ACC.MSC
'Masha wrote a slogan on the wall'

Out of the blue context: Čto sluchilos'? What happened?

(23) a. Maša na-pisa-l-a slogan na Lene.
Masha NA-write-PST-FEM slogan-ACC.MSC on Lena-PREP.FEM
'Masha wrote a slogan on Lena'

[8] I am grateful to Klaus Abels (p.c.) for urging me to clarify the relation between AI and Animacy as presented in this paper.

b. Maša na-pisa-l-a na Lene slogan. **DN**
Masha NA-write-PST-FEM on Lena-PREP.FEM slogan-ACC.MSC
'Masha wrote a slogan on Lena'

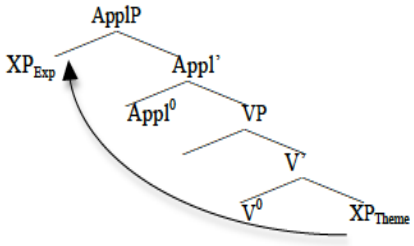
3.1.3 Insights from SFD and Previous Accounts

The insights afforded by the SFD allow us to adjudicate between existing analyses of various constructions as well as to propose viable alternatives. As far as the distant object placement examples from Sirotinina (1965/2003), which Bailyn (2012) analyzes as problematic cases involving modificational XPs, our findings strongly suggest instead that these cases involve an XP merged as the verb's complement. Notice in this regard that if Sirotinina's examples indeed involve an adverbial XPs rather than an argument, as argued in Bailyn (2012), their being merged in the complement position is in fact fully expected on rightward descent theories of adjunction defended in Larson (2004; 2014). Thus, to the extent that examples such as (13) can indeed be analyzed as involving modificational XPs, our results provide independent cross-linguistic support for rightward descent analyses of adjunction. Furthermore, while our main results regarding Animacy-based AI and Focus spreading may be surprising, considering how well established the tests based on DN and Focus spreading are, they nevertheless fit quite well with existing research on argument structure and phrase structure more generally. Notice, for instance, that contrary to existing analyses of examples such as Preslar's (11), the PP argument being merged higher than the NP_{ACC} in such instances is not far-fetched, since the PP can be analyzed as representing an Inanimate Causer argument (presumably an *Initiator* argument in Ramchand 2008). Furthermore, the fact that movement of an ACC-marked [+Animate] Experiencer across the Inanimate Causer implicated by the SFD results in what is widely perceived as the neutral word order, while novel, is of course not entirely unexpected, since Animacy has long been known to play a role in linguistic phenomena generally (Palmer 1994; de Swart 2006; de Swart et al. 2008 i.a.), and for its ability to affect argument structure relations in particular (Branigan et al. 2008; Malchukov 2007; Tomlin 1986 i.a.).[9] Most relevantly for us, Glushan (2013) has explored the role of Animacy in Russian

[9] As pointed out by an anonymous reviewer, it is also worth noting in this respect the Animacy restriction on Differential Object Marking in numerous languages (see Aissen 2003; Krause & von Heusinger 2019, von Heusinger & Kaiser 2003, a.m.o.)

unaccusative constructions, arguing that [+Animate] Themes undergo raising to Spec, ApplP and thus obtain the Experiencer role as well (see 24).

(24)



Glushan's (2013) analysis of Russian unaccusatives

The findings reported here both provide support for this line of work as well as suggest an even greater role of Animacy in the syntax of Russian. Specifically, the fact that this same pattern is found over and over again, in e.g., ditransitives, causatives, experiencer constructions, adversity impersonals, etc, suggests that Animacy plays a central role in the syntax and IS of Russian.[10] Perhaps most importantly, our results carry non-trivial implications for the decades-long debate on the nature of the relation between the Double Object and the Prepositional Dative Constructions, where the Animacy restriction on the Goal/Recipient argument in the DOC has been argued to provide evidence for the lack of a derivational relation between the two alternating frames.[11]

3.1.4 Animacy vs Givenness

Interestingly, Mykhaylyk, Rodina & Anderssen (2013) have argued, on the basis of experimental data on adult and child Russian and Ukrainian, that the DP_{DAT} > DP_{ACC} order of internal arguments in ditransitives is determined by Givenness.

[10] See Junghanns & Zybatow (1997); Dyakonova (2009); Kallestinova (2007), Kučerová (2007, 2012); Mykhaylyk et al. (2013); Antonyuk & Mykhaylyk (2022, i.a.), on the permutation of internal arguments in Russian and/or Ukrainian and the factors implicated in such argument reordering (referred to here as *Argument Inversion*, following Antonyuk & Mykhaylyk 2022).

[11] This point is discussed in some detail in Antonyuk (under review) and Antonyuk (in preparation).

Drawing on the finding that children prefer the DP_{DAT} > DP_{ACC} order not only in Goal-given contexts but in Theme-given contexts as well, Mykhaylyk et al. (2013) furthermore conclude that DP_{DAT} > DP_{ACC} order of ditransitives must be base-generated, in alignment with generative and traditional literature that considers the IO-DO to be more neutral. We agree with the authors that Givenness plays an important role in Slavic and believe there is a significant degree of overlap between Givenness and Animacy as the factors at play in the derivation of various constructions. Nevertheless, it is possible to tease the two apart. That the order of internal arguments in ditransitives cannot be primarily attributed to the role of Givenness is very clear in cases where both internal arguments represent given information:[12]

(25) *Context:* Začem mama kupila Miške etu knigu?
Why did mother buy Mike this particular book?

a. ✓Mama$_j$ kupila Miške etu knigu, čtoby PRO$_j$ probudit'
Mother bought Mike this book, in.order to. incite
interes k matematike.
interest to mathematics
'Mother bought Mike this book in order to inspire interest in math.'

b. #Mama$_j$ kupila etu knigu Miške, čtoby PRO$_j$ probudit'
Mother bought this book Mike in.order to. incite
interes k matematike.
interest to mathematics
'Mother bought this book for Mike in order to inspire interest in math'

As the above shows, in contexts where both object XPs represent given material (thus Givenness as a factor is taken out of the equation), Animacy of the

[12] Mykhaylyk et al. (2013) investigate contexts where either DO or IO represent given information, but not both. In the context of their general conclusions, the only plausible interpretation of the data in (25) is that (25a) is more felicitous/neutral since the IO > DO is the base order. Our results provide another explanation, namely that the existence of a highly ranked Animacy constraint (in Optimality-theoretic terms), which outranks the Givenness constraint, requires the [+Animate][given] argument to precede the [-Animate][given] argument.

Goal argument requires that it precede the Theme. The novel insights afforded by the SFD moreover suggest that this requirement is satisfied through syntactic movement, and not through base-generation of the Recipient/Goal in a structurally higher position, as is widely assumed. We maintain that this is a fairly general situation. Any argument, irrespective of its case, thematic role or grammatical function can represent given material in Slavic and as such will have to undergo fronting (see esp. Kučerova 2007; 2012; and Antonyuk 2021 on Russian). In this sense it is both nearly impossible and clearly superfluous for Givenness to reflect the original Merge relations, as is implicit in numerous accounts of the Dative Alternation, e.g., Junghanns & Zybatow 1997; Dyakonova 2009; Mykhaylyk et al. 2013, i.a., which assume that Focus spreading observed in $DP_{DAT} > DP_{ACC}$ order is a reflection of its status as underived.

Our results provide another interpretation for Mykhaylyk et al.'s findings. Specifically, we suggest that, despite Givenness clearly being an important factor in Slavic, Animacy plays a more central role yet in both adult and child grammar. In the case of ditransitives, the SFD suggests that the Recipient/Goal, which overwhelmingly represents a [+Animate] entity, is merged lower than the Theme (which represents a [-Animate] entity in ditransitives), but will routinely undergo movement to a position c-commanding the Theme.[13] In other words, neither Givenness *nor* Animacy reflect or are reflected structurally in the order of Merge, with the requirements imposed by both being satisfied via leftward syntactic movement. Nevertheless, despite this similarity, there is a crucial distinction between the two: as is abundantly clear from our data, advancement of a [+Animate] NP via AI invariably yields Focus projection and results in a linearization uniformly perceived as the more discourse neutral one.[14]

3.2 Methodological Implications

[13] Our results thus provide general support for theories of ditransitives such as Baker (1988; 1997); Larson (1988; 1990; 2014) i.a.

[14] The discussion here will remain somewhat incomplete in that it does not detail exactly how Argument Inversion interacts with Information Structure so as not to disrupt Focus projection the way syntactic movement is widely believed to do (Selkirk 1984; 1995). As far as the relevant difference between Animacy and Givenness is concerned, we argue in (Antonyuk, under review) that the former is a 'first phase syntax' phenomenon whereas the latter is not, in other words, Animacy-mediated movement interacts with phasehood differently from the way Givenness does.

The finding that discourse neutrality is not an inherent property of base generated structures carries an important methodological implication, namely that we cannot continue to rely on insights due to Focus spreading and intuitions of discourse neutrality as the primary diagnostic as such intuitions are shown here to be inconclusive and therefore must be verified with independent diagnostics. Furthermore, the finding that the SFD, by contrast, yields consistent results, pointing to the same pattern across a range of unrelated syntactic constructions, has important implications for the analysis of various syntactic phenomena and is especially significant methodologically, since other tests developed for Russian for this purpose (e.g., Krylov 2001; 2007; Janko 1991; 2001), while working well within a group of verbs, are nevertheless contradictory in their conclusions when applied to other groups, as well as partially contradictory to each other (see esp. the discussion in Zimmerling 2007). The SFD, on the other hand, yields consistent results that are supported by widely recognized diagnostics, such as the unaccusativity tests (see esp. Antonyuk 2020). At the moment, the SFD has allowed identification of three distinct classes of ditransitives, a classification that has been independently supported by additional syntactic tests, has unambiguously pointed to the derived nature of the Dative alternation and has provided non-trivial insights into first-phase syntax, helping us tease apart the contributions of Thematic Hierarchy and Animacy and the important role of the latter in the Argument Structure-IS interface.

4. CONCLUSION

This paper has provided novel evidence that establishes the Scope Freezing Diagnostic as a reliable test of argument structure relations. The evidence comes from the application of the SFD to a variety of constructions which all exhibit the same pattern and bring us to the same conclusion: i.e., argument permutation (*Argument Inversion*), which yields the two internal argument linearizations in Russian ditransitives (which correspond to the Double Object Construction and the Prepositional Dative Construction in English) is mediated by Animacy: specifically, the diagnostic provides strong evidence that the [+Animate] argument (i.e., a Goal argument in ditransitives) originates in the structurally lower position, as the verb's complement (per Bailyn 2012; Antonyuk 2015; 2020; under review i.a.). Crucially, we show that advancement of the [+Animate] argument to its 'canonical' position preceding the Theme does not disrupt Focus projection and results in an intuition of Discourse Neutrality, which has been widely taken in the literature to reflect the

base structure on the assumption that Focus projection and Discourse Neutrality are indicative of underived argument structure relations.

The present findings have wide-ranging theoretical and methodological implications, among them the conclusion that, at least as far as Russian/Slavic is concerned, the common practice of relying on intuitions of Discourse Neutrality and Focus Projection as a diagnostic of basic argument structure relations must be abandoned, or, at the very least, supported with a range of independent diagnostics. While the discussion here had to be kept to a minimum for space reasons, we hope to have demonstrated the potential of the SFD and the need for further exploration of the domains of its application. Finally, our results suggest a much more central role for Animacy in the domain of Argument Structure, Information Structure and their interface in Russian, which suggests a similar situation may hold more broadly across Slavic.

SUMMARY

The goal of this paper is to discuss novel insights afforded by the Scope Freezing Generalization (due to Antonyuk 2015; 2020) and the Scope Freezing Diagnostic based on this generalization. According to the SFG, scope freezing obtains from an instance of Argument Inversion which brings a structurally lower QP to a position c-commanding its previously higher co-argument through a single instance of movement. One of the most important early insights gained from the SFD pointed to the derived nature of the DP_{DAT} > DP_{ACC} order of ditransitives, which corresponds to the Double Object Construction in English. This result, while supported by additional diagnostic tests clashes with the strong native speaker intuition that DP_{DAT} > DP_{ACC} represents the more basic order in terms of Information Structure due to allowing Focus spreading and being perceived as the more neutral order acceptable in 'out of the blue' contexts. The novel results reported in this paper allow us to understand exactly why the SFD and intuitions of Focus spreading and discourse neutrality clash with each other. Applying the SFD to a range of constructions beyond ditransitives uncovers a common underlying pattern, namely that Argument Inversion (the operation that predominantly results in scope freezing), raises the [+Animate] argument to a position c-commanding its co-argument. This finding not only validates the original conclusion that DP_{DAT} > DP_{ACC} is derived from DP_{ACC} > DP_{DAT}, but also provides novel insights into the Argument Structure - IS interface, by showing that Animacy-mediated Argument Inversion does not disrupt Focus projection and yields a linearization generally perceived as the more discourse neutral one. Among the numerous implications of this finding are methodological ones, namely that the widely relied upon practice to draw conclusions about underlying structural representations from intuitions of discourse neutrality and (presence/lack of) Focus projection is methodologically problematic. Our findings suggest that such practice yields results that are inconclusive at best and misleading

at worst and thus should always be supplemented with independent diagnostics. Finally, on a general theoretical level, our results suggest that while a Thematic Hierarchy is responsible for the order of Merge; Animacy is shown to play a much greater role in the syntax of Russian than hitherto appreciated, with Animacy-mediated syntactic movement (i.e., Argument Inversion) having a unique effect on LF (resulting in scope freezing or surface scope bias) and on the Information Structure-relevant properties of the sentence.

Keywords: *the Scope Freezing Diagnostic; Russian; Information Structure; Argument Structure; Focus spreading; scope freezing; Animacy; Ditransitive Alternation.*

REFERENCES

Aissen, J. (2003) Differential object marking: Iconicity vs. economy. *Natural Language and Linguistic Theory* 21(3). 435–483

Antonyuk, S. (2015) Quantifier Scope and Scope Freezing in Russian. Ph.D. Dissertation, Stony Brook University

Antonyuk, S. (2019) Quantifier Scope in Russian. *Glossa: a journal of general linguistics* 4(1): 54. 1–27. DOI: https://doi.org/10.5334/gjgl.562

Antonyuk, S. (2020) The puzzle of Russian ditransitives. In Anna Pineda & Jaume Mateu (eds.), *Dative constructions in Romance and beyond*, 43–74. Berlin: Language Science Press. DOI:10.5281/zenodo.377653

Antonyuk, S. (2021) Russian OVS: towards a Better Understanding of the Construction's Properties and Significance. *Journal of Slavic Linguistics* 29: FASL extra issue. http://ojs.ung.si/index.php/JSL/article/view/156

Antonyuk, S. & R. Mykhaylyk (2022) Scope freezing and object shift in Ukrainian: Does Superiority matter?. *Syntax*. 00:1–25. https://doi.org/10.1111/synt.12229

Antonyuk, S. (2022) Object-Shifting and Head-Raising One's Way to Discourse Configurationality. In Markéta Janebová, Joseph Emonds, and Ludmila Veselovská, eds. *Language Use and Linguistic Structure. Proceedings of the Olomouc Linguistics Colloquium 2021*. Olomouc: Palacký University.

Antonyuk, S. (under review) On Methodology: The Scope Freezing Diagnostic (SFD) as a Diagnostic Tool for Probing Underlying Argument Structure Relations. Ms. University of Graz

Antonyuk, S. (in preparation) On the Syntax of Experiencer Constructions in East Slavic. Ms. University of Graz

Bailyn, J. F. (1995) A Configurational Approach to Russian 'Free' Word Order. Doctoral dissertation, Cornell University.

Bailyn, J. F. (2004) Generalized Inversion. *Natural Language & Linguistic Theory* 22: 1- 49.

Bailyn, J. F. (2012) *The syntax of Russian*. Cambridge University Press.

Baker, M. C. (1988) *Incorporation: a theory of grammatical function changing*. Chicago: University of Chicago Press.

Baker, M. C. (1997) Thematic Roles and Syntactic Structure. In *Elements of Grammar*, edited by Liliane Haegeman, 73–137. Dordrecht: Kluwer.

Branigan, H., Martin J. Pickering & T. Mikihiro (2008) Contributions of animacy to grammatical function assignment and word order during production. *Lingua* 118(2): 172-189.

Bruening, B. (2001) QR obeys Superiority: Frozen scope and ACD. *Linguistic Inquiry* 32:233–273.

Cinque, G. (1993). A Null Theory of Phrase and Compound Stress. *Linguistic Inquiry*, *24*(2), 239–297. http://www.jstor.org/stable/4178812

Dyakonova, M. (2009) A-phase-order. Ph.D. dissertation, Netherlands Graduate School of Linguistics.

Franks, S. (1995) Parameters of Slavic Morphosyntax. New York / Oxford: Oxford University Press.

Glushan, Z. (2013) The Role of Animacy in Russian Morphosyntax. *Doctoral Dissertations*. 264. University of Connecticut.

Grabska, D., & Abels, K. (2022) On the distribution of scope ambiguities in Polish, Glossa: a journal of general linguistics7(1). doi: https://doi.org/10.16995/glossa.8170

Ionin, T. (2003) The one girl who was kissed by every boy: Scope, scrambling and discourse function in Russian. In Marjo van Koppen, Joanna Sio & Mark de Vos (eds.), *Proceedings of ConSOLE* X, 65–80. Leiden: SOLE.

Isačenko, A. (1966) O grammatičeskom porjadke slov. Voprosy jazykoznanija 6: 27–34.

Janko, T. (1991) Коммуникативная _структура _с _неингерентной _темой _// Научно-техническая _информация, Сер. 2, 1991, No. 7, 27-32.

Janko, T. (2001) Kommunikativnye strategii russkoj reči, Moscow: Jazyki Slavjanskoj Kul'tury.

Junghanns, U. & G. Zybatow. (1997) Syntax and Information Structure of Russian Clauses. In Wayles Browne (ed.), Formal Approaches to Slavic Linguistics 4: The Cornell Meeting, Ann Arbor, MI: Michigan Slavic Publications, 289–319.

Kallestinova, E. (2007) *Aspects of word order in Russian*. Ann Arbor: UMI.

Kayne, R. S. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.

Kovtunova, I. (1976) *Sovremennyj russkij yazyk. Por'adok slov i aktual'noe členenie predloženija*. Moscow. (='Modern Russian Language. Word Order and Communicative Perspective' – in Russian).

Krause, E. & K. von Heusinger. (2019) Gradient Effects of Animacy on Differential Object Marking in Turkish. Open Linguistics 5 (1), 171-190. https://doi.org/10.1515/opli-2019-0011

Krylov, S (2001) Дополнение // Энциклопедия «Россия on-line» www.krugosvet.ru

Krylov, S. (2007) О понятии дополнения в современной лингвистике //Язык и действительность. Памяти _В.Г.Гака _// М. –УРСС.

Kučerová, I. (2007) The syntax of givenness. Ph.D. dissertation, Massachusetts Institute of Technology

Kučerová, I. (2012) Grammatical marking of givenness. *Nat Lang Semantics* 20, 1-30.

Lacerda, R. (2020) Middle-field Syntax and Information Structure in Brazilian Portuguese. *Doctoral Dissertations.* University of Connecticut.

Landau, I. (2010) *The Locative Syntax of Experiencers*. Linguistic Inquiry Monograph. The MIT Press. Cambridge, Massachusetts. London, England.

Larson, R. K. (1988) On the Double Object Construction. *Linguistic Inquiry* 19*:* 335-391.

Larson, R. K. (1990) Double Objects Revisited: Reply to Jackendoff. *Linguistic Inquiry*, 21: 589–632.

Larson, R. K. (2004) Sentence-final adverbs and scope. In *Proceedings of NELS 34*, M. Wolf & K. Moulton (eds.). 23-43. UMSAA: GLSA.

Larson, R. K. (2014) *On Shell Structure*. London: Routledge.

Larson, R.K., S. Antonyuk & L. Liu. (2019). Superiority and scope freezing. *Linguistic Inquiry*. https://doi.org/10.1162/ling_a_00300

Lavine, J. E., & Freidin, R. (2002) The Subject of Defective T(ense) in Slavic. *Journal of Slavic Linguistics, 10* (1/2), 251–287. http://www.jstor.org/stable/24599685

Malchukov, A. (2008) Animacy and asymmetries in differential case marking. Lingua 118(2): 203-221

Mykhaylyk, R., R. Rodina & M. Anderssen. (2013). Ditransitive constructions in Russian and Ukrainian: Effect of givenness on word order. Lingua 137: 271-289.

Paducheva, E. (1985) *Vyskazyvanie i ego sootnesennost' s dejstvitel'nost'ju*. Moscow.

Palmer, F.R. (1994) Grammatical Roles and Relations. Cambridge University Press, Cambridge.

Pesetsky, D. (1982) *Paths and Categories*. Ph.D. dissertation, MIT.

Preslar, M. (1998) The Subject Position in Russian Impersonal Sentences. Linguistic Analysis 28(1–2): 33–66.

Ramchand, G. (2008) Verb Meaning and the Lexicon: A First-Phase Syntax. Cambridge: Cambridge University Press.

Reinhart, T. (1995) Interface Strategies. OTS working papers in linguistics. https://dspace.library.uu.nl/handle/1874/17195

Selkirk, E. (1984) Phonology and Syntax: The Relation between Sound and Structure. Cambridge, Mass.: MIT Press

Selkirk, E. (1995) Sentence Prosody: Intonation, Stress, and Phrasing. in J. A. Goldsmith (ed.), The Handbook of Phonological Theory, London: Basil Blackwell, pp. 550–569

Sirotinina, I. (1965/2003) Porjadok slov v russkom jazyke. Moscow: Editorial, URSS.

Slioussar, N. (2007) Grammar and Information Structure. Ph.D. dissertation, University of Utrecht.

Schneider-Zioga, P. (1988) Double objects and small clauses. Ms., University of Southern California, Los Angeles.

Stjepanovic, S. (1999) What do second-position cliticization, scrambling and multiple wh-fronting have in common? Ph.D. Dissertation, University of Connecticut.

de Swart, P. (2006) Case markedness. In: Kulikov, L., Malchukov, A., de Swart, P. (Eds.), Case, Valency and Transitivity. John Benjamins Publishing Company, Amsterdam/Philadelphia, pp. 249–267.

de Swart, P., Monique Lamers, Sander Lestrade (2008) Animacy, argument structure, and argument encoding. *Lingua* 118(2): 131-140

Tomlin, R. (1986) Basic Word Order: Functional Principles. Croom Helm, London.

von Heusinger, K. & G. A. Kaiser. (2003) Animacy, specificity, and definiteness in Spanish. In Klaus von Heusinger & Georg A. Kaiser (eds.), Proceedings of the Workshop *Semantic and Syntactic Aspects of Specificity in Romance Languages* (Arbeitspapier 113), 41–65. Universtität Konstanz

Yokoyama, O. (1986) Discourse and Word Order. Philadelphia: John Benjamins.

Zanon, K. (2015) On hybrid coordination and quantifier raising in Russian. Bloomington, IN: Indiana University dissertation.

Zimmerling, A. (2007) Порядок слов в русском языке. In: *Текст. Структура и семантика. Доклады XI международной конференции М. Moscow, 138-151.*

Zubizarreta, M.L. (1998) *Prosody, Focus and Word Order*. Cambridge, MA: MIT Press.

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MANDARIN EXISTENTIAL CONSTRUCTIONS AND THE PREDICATE RESTRICTION**

In this paper I raise questions about the predicate restriction, which claims that only stage-level predicates may appear in the coda of an existential sentence. I present novel data from Mandarin to show that the predicate restriction is not universal: It is systematically absent in Mandarin. I propose that the reason behind its absence is syntactic. Specifically, I show that the English existential coda cannot be as large as a TP, while the Mandarin existential coda contains a full TP. This, in combination with Diesing's (1992) Mapping Hypothesis, which says individual-level predicates need to be in TPs, naturally derives the difference between existentials of the English-type and those of the Mandarin-type. Finally, I show that the Mandarin existential coda is not a relative clause, despite being a full clause. Thus, this paper seeks to attain two purposes: (i) to bring attention to the possibility of violations of the predicate restriction, which has largely been thought to be universal; and (ii) to make a first attempt at explaining why the predicate restriction is absent in Mandarin.

Key words: existential constructions, the predicate restriction, Mandarin syntax

1. INTRODUCTION

Existential sentences pose many interesting problems to linguistic theories due to their non-canonical syntax and distinctive semantic features. Cross-linguistically, existential sentences appear in the following form (adapted from Bentley et al. 2003; parentheses stand for optionality). The term 'pivot' refers to the noun phrase, the existence of whose referent is being expressed, and the term 'coda' refers to the material to the right of the pivot.

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(1) (expletive) (proform) (copula/existence verb) pivot (coda)

It is clear from the schema in (1) that existential sentences have non-canonical syntax. In addition, existentials have shown distinctive semantic properties (Milsark, 1979; Francez, 2007; McNally, 2011). In previous research, two properties have been widely noted, commonly known as 'the definiteness effect' (or 'definiteness restriction') and 'the predicate restriction' (ibid.). The definiteness effect refers to the observation that definite nominals are prohibited from appearing as the pivot in an existential sentence. The predicate restriction refers to the observation that only stage-level predicates (SLPs) may appear as the coda of an existential; individual-level predicates (ILPs) are excluded from this position. The following English examples demonstrate the definiteness effect and the predicate restriction, respectively.

(2) (a) There is <u>a student</u> sick. (indefinite NP pivot)
(b) *There is <u>the student</u> sick. (definite NP pivot)

(3) (a) There is a student <u>sick</u>. (SLP coda)
(b) *There is a student <u>tall</u>. (ILP coda)

1.1. The problem

Compared to the definiteness effect, the predicate restriction has generated 'much less discussion' in the literature, 'in part because there is less controversy over the facts' (McNally, 2011: 1845). Mandarin Chinese, however, systematically allows both SLPs and ILPs in its existential codas. The following examples demonstrate this trait. The existential sentence in (5) contains an individual-level predicate in its coda, yet it is fully grammatical.

(4) *You* *yi-ge* *xuesheng* <u>*bing-le*</u>. (SLP coda)
EX one-CL student sick-PFV
'There is a student sick.'

(5) *You* *yi-ge* *xuesheng* <u>*hen gao*</u>. (ILP coda)
EX one-CL student PRED tall
Lit. *'There is a student tall.'
'There is a student who is tall.'

The presence of *hen-gao* 'tall' in (5) cannot be explained as a post-nominal adjectival modifier, since adjectival modifiers only occur pre-nominally in Mandarin. Additionally, the degree marker *hen*, which is obligatory for forming predicates out of adjectives, must be present. These facts show that the coda in (5) is truly predicative, and that the predicate restriction is absent in Mandarin. This absence demands an explanation. However, the fact that there lacks the predicate restriction in certain languages is largely unnoted and little has been said about this peculiarity. This paper thus seeks to attain two purposes: (i) to bring attention to the possibility of violations of the predicate restriction, which has largely been thought to be universal; and (ii) to make a first attempt at explaining why the predicate restriction is absent in Mandarin.

2. PREVIOUS ACCOUNTS OF THE PREDICATE RESTRICTION

When Milsark (1979) first takes note of the predicate restriction, he claims that the predicate restriction is unnecessary as an independent statement about the behavior of existential sentences, because it follows from two independently necessary considerations: (i) the pivot of existentials must be a 'non-quantified NP'[1] (which Milsark refers to as 'the quantification restriction'; cf. example (2)), and (ii) individual-level properties cannot be predicated with non-quantified NPs (which I will refer to as 'the subject restriction' for ease of reading). Example (6) demonstrates the subject restriction: In (6b) an individual-level property is predicated with the non-quantified/weak NP subject *a man*, and the sentence is rendered ungrammatical; this contrasts with (6a), where a stage-level property is predicated with the same subject. On the other hand, (7a) and (7b) are both grammatical with a strong NP as subject.

(6) (a) **A man** was sick. (non-quantified/weak NP, SLP)
(b) *A man was tall. (non-quantified/weak NP, ILP)

(7) (a) **The man** was sick. (strong NP, SLP)
(b) The man was tall. (strong NP, ILP)

[1] In later works (e.g., Barwise and Cooper, 1981; Keenan, 1987) these NPs are commonly referred to as 'weak NPs'.

While Milsark's observations appear to work well for English, such reasoning cannot be extended to Mandarin, as Mandarin is also subject to both the quantification restriction (example (8)) and the subject restriction (example (9)), yet the predicate restriction is absent.[2] It should be noted, however, that the problem we see in (9) is possibly even more complicated than it first seems, considering that indefinites subjects are generally not allowed in Mandarin (Li & Thompson 1981). The complexities shown here require further scrutiny. I do not attempt to explain this set of data in this paper but merely use these examples to point out the difficulty that we face with a semantic account of the predicate restriction.

(8) (a) *You* *yi-ge xuesheng* *bing-le*. (weak NP)
EX one-CL student sick-PFV
'There is a student sick.'

(b) **You* *nei-ge xuesheng* *bing-le*. (strong NP)
EX one-CL student sick-PFV

(9) (a) *Yi-ge* *xuesheng* *bing-le*. (SLP)
one-CL student sick-PFV
'One student is sick.'

(b) **Yi-ge* *xuesheng* *hen gao*. (ILP)

[2] One reviewer points out that (9b) is grammatical under a contrastive focus reading (see (i)), whereas in English such a contrast is usually expressed by partitives (see (ii)), not indefinite articles (see (iii)) (examples are the reviewer's). This is to say that Mandarin appears to be more tolerant towards the subject restriction compared to English. The reviewer thus wonders whether this observation may be extended into a Milsark-type explanation. I agree with these examples, and I think that future work should explore this in more detail. For the time being, I wish to add that since Mandarin does not have indefinite articles and 'one' as a numeral is not truly equivalent to the English *a*, there is a possibility that (ii) might be more comparable to (i) than (iii) is and the difference between the two languages might be smaller, especially considering that the sentence in (ii) does not need to use the partitive structure if a focus stress is placed on *one*.

(i) *Yi-ge* *xuesheng hen* *gao*, *yi-ge* *xuesheng hen* *ai*.
one-CL student PRED tall one-CL student PRED short
'One student is tall, one student is short.'

(ii) One (of the) student(s) is tall, one (student) is short.

(iii) ?? A student is short, a student is tall.

one-CL student PRED tall

3. THE PREDICATE RESTRICTION AND MANDARIN EXISTENTIAL SENTENCES

The difficulty of reducing the predicate restriction to a natural result of the semantic properties of existential sentences suggests that we may need to look into their syntactic properties for an answer instead. In this section I put forward one possible explanation along this line of thinking. I first discuss the syntax of English existential sentences and point out that one important syntactic property of the English existential coda is that it must be smaller than TP. This, in combination with Diesing's Mapping Hypothesis (1992), predicts that individual-level predicates are prohibited in English existentials. I then show that the Mandarin existential coda, by contrast, contains at least a full TP; thus we regularly find individual-level predicates in Mandarin existentials. Finally, I argue that the Mandarin existential coda is not a relative clause, despite it being a full clause. This is important because it shows that we cannot defer the problem of the absence of the predicate restriction in Mandarin to the claim that Mandarin existentials are relative clauses.

The Mandarin existential sentences discussed in this paper are all formed with the existential verb *you*. Their syntactic form follows the schema in (10).

(10) *You* NP XP
existence verb pivot coda

It is worth noting that employing the existential verb is not the only possible way of expressing existence in Mandarin. Mandarin existential constructions show a rich variety, consisting of several sub-types. Interested readers should refer to Huang 1987 for details. For the present discussion, I examine only the *you*-existentials. This is because they are considered the canonical type of Mandarin existentials, as they are constructed with the existential verb[3] and they pattern with the general existential schema described in (1), repeated here as (11).

[3] The other types of Mandarin existential sentences are not constructed with the existential verb, and the existence of the referent of the 'pivot' is implied rather than asserted. For example, (i) is an example of the 'appearance verb' existential, and the existence of *yi-ge xuesheng* 'one student' is implied, not asserted.

(i) *Jie-shang zou lai yi-ge xuesheng.*

(11) (expletive) (proform) (copula/existence verb) pivot (coda)

In the remainder of this paper I will refer to the *you*-existentials simply as 'Mandarin existentials', without specifying that they are the *you*-type. This, however, does not mean that I assume the discussions of the *you*-existentials can be directly extended to other types of Mandarin existential constructions. I leave it to future work to determine whether the analyses of the *you*-existentials can be applied to other types of Mandarin existentials.

3.1. A syntactic account of the predicate restriction

At the end of section 2, I conclude that the predicate restriction cannot be reduced to the semantic properties of existential sentences, and we may need to investigate the syntactic properties of existentials for an explanation. Previous research on the syntax of English existentials focuses intensely on the relation between the pivot and the coda. Two main lines of research are (i) the small clause analysis, which treats the pivot and the coda as one constituent called a 'small clause' that is consisted of a subject (the pivot) and a predicate (the coda), and (ii) the adjunct analysis, which treats the coda as either a VP or a sentential adjunct (as summarized in Francez, 2007). In all these analyses, the contention is on the relation between the pivot and the coda; the internal structure of the pivot is somewhat not considered to be important, perhaps rightfully so, as the types of phrases that can appear in the coda position are limited. Two examples of English existential sentences are given in (12). The codas in (12a) and (12b) consist of an Adjective Phrase and a Verb Phrase, respectively.

(12) a. There are two librarians [$_{\text{AdjP}}$ available].
b. There is a student [$_{\text{VP}}$ waiting at the door].

What is significant about the permitted phrases in English existential codas as seen in (12) is that they are quite small: None can be as big as a TP. To show that it is indeed the case that the English existential coda must be smaller than TP, we

street-on walk come one-CL student
Lit. 'On the road walked a student.'

can employ the tests of overt T elements (example (13)) and sentential adverbials (example (14)). The ungrammatical results in these examples lead to the conclusion that the English existential coda cannot be as large as TP.

(13) a. There are two librarians (*are) available. (overt T)
b. There is a student (*is) waiting at the door.

(14) a. There is a student (*unfortunately) sick. (sentential adverb)
b. These is a student (*apparently) sick.

Given that the coda is smaller than TP, the unavailability of individual-level predicates in English existentials can be naturally derived from Diesing's LF Mapping Hypothesis (Diesing, 1992), which claims the following:

(15) Subjects of stage-level predicates can be mapped into either [Spec, IP] or [Spec, VP]. Subjects of individual-level predicates must stay in [Spec, IP].

Since the subject of a stage-level predicate can stay in the VP, a phrase smaller than TP may also contain a stage-level predicate. An individual-level predicate, on the other hand, needs an IP (TP) for its subject, and the English existential coda, being smaller than TP, cannot contain an individual-level predicate. If this explanation is on the right track, we would expect that the Mandarin existential coda must be at least as large as TP; only then can the coda provide the necessary position for the subject of an individual-level predicate. As I will show in the next section, this is indeed true with Mandarin existentials.

3.2. Mandarin existential codas contain full TPs

In this section I show that the size of the Mandarin existential coda is as big as a full clause. This is perhaps the most distinctive syntactic property of Mandarin existentials. While this property has been the underlying assumption in many of the existing works on the syntax of Mandarin existentials (e.g., in Fang and Lin, 2008; Zhang, 2008; Liu, 2011), there has not been explicit discussion on whether such an assumption is in fact valid. Through a series of empirical evidence, I show that the Mandarin existential coda contains a full TP. Four types of evidence are included:

(i) overt T elements (examples (16) and (17)); (ii) sentential adverbs (examples (18) and (19)); (iii) focus constructions (example (20))[4]; and (iv) sentence-internal topics (example (21)). More specifically, for an overt T element to be permitted in an existential coda, the coda must necessarily contain a TP. Likewise, sentential adverbs, focus constructions, or sentence-internal topic constructions would not have been allowed in an existential coda, if the coda does not contain a full clause.

(16) *You yi-ge xuesheng hui lai kan wo.*
EX one-CL student will come see 1SG
'There will be a student coming see me.' (overt T)

(17) *You yi-wei laoshi neng bangzhu ni.*
EX one-CL teacher can help 2SG
'There is a teacher who can help you.' (overt T)

(18) *You yi-ge xuesheng buxing de-le zhong-bing.*
EX one-CL student unfortunately catch-PFV serious-disease
'There is a student who unfortunately is seriously ill.' (sentential adv)

(19) *You yi-ge xuesheng xianran mei xie zuoye.*
EX one-CL student apparently NEG write homework
'There is a student who apparently did not do their homework.' (sentential adv)

(20) (Context: The speaker is talking about an extremely hard-working student who stays in the lab all the time and who won't even go home during weekends.)

[4] One reviewer points out that at least some focus constructions in Mandarin are smaller than TP, using (i) as an example, in which the focus structure *lian…dou…* embeds under *hui*, the supposed T element. I agree with this comment and I think it is reasonable to postulate that Mandarin focus structures are not one-size: Some focus structures are smaller than TP; some are larger. In the case of (20), the focus structure is larger.

(i) *Zhangsan bu hui lian laoshi dou pian de.*
Zhangsan NEG will LIAN teacher DOU deceive SFP
'Zhangsan will not deceive the teachers (and it is unlikely that one would deceive the teachers).'

You yi-ge xuesheng [$_{\text{FocusP}}$ *lian zhoumo dou* [$_{\text{TP}}$ *bu hui hui-jia*]].
EX one-CL student LIAN weekend DOU NEG will go-home
'There is a student who won't go home even during weekends.' (focus)

(21) *You yi-ge xuesheng* [[$_{\text{TopicP}}$ *dieyong*] *you de tebie hao*].
EX one-CL student butterfly swim MOD extremely good
'There is a student who swims butterfly extremely well.' (internal topic)

It therefore seems that the crucial difference between Mandarin existentials and the English type of existentials is found in their syntactic structures. In English existentials, the coda cannot contain a phrase as large as TP. In Mandarin existentials, on the other hand, the coda contains a full TP. The (un)availability of the individual-level predicate in the coda thus naturally derives from the different sizes of the existential codas following the Mapping Hypothesis.

3.3. Mandarin existential codas are not relative clauses

Since the Mandarin existential coda contains a full clause and the coda is embedded in a root clause, it seems plausible to speculate that the coda is a relative clause. A popular analysis of the Mandarin *you*-existentials is indeed the relative clause analysis. Different variants of this analysis are found in Fang & Lin 2008 and Zhang 2008. Under the relative clause analysis, the pivot is treated as the head noun phrase and the coda the relative clause modifying the pivot. If the relative clause analysis is correct, the problem of the predicate restriction would be much less interesting, as that would mean that Mandarin existentials have a completely different structure than the English type of existentials. While the underlying assumption of the relative clause analysis – that the Mandarin existential coda contains a full clause – is well founded, as discussed in section 3.2, the relative clause analysis cannot be correct. In this section, I present a series of evidence to show that the Mandarin existential coda cannot be a relative clause.

The first challenge for the relative clause analysis comes from the fact that there generally lack post-nominal relative clauses in Mandarin. The canonical type of relative clause in Mandarin is pre-nominal. While post-nominal relative clauses

(RCs) do exist, the true post-nominal RCs look rather different from the existential codas in form (cf. Gao, 2020). An example of a Mandarin post-nominal RC is given in (22). Its semantic equivalent in the canonical form of Mandarin RCs, i.e., in a pre-nominal RC, is shown in (23).

(22) *Nei-ge ren,* [$_{RC}$ *ni zuotian jian-guo* (* *ta*) *(*de*)], *shi wo pengyou.*
that-CL person 2SG yesterday meet-PFV 3SG REL COP 1SG friend
'The person, whom you met yesterday, is my friend.'

(23) [$_{RC}$ *Ni zuotian jian-guo* (**ta*) *(*de*)] *nei-ge ren shi wo pengyou.*
2SG yesterday meet-PVF 3SG REL that-CL person COP 1SG friend
'The person whom you met yesterday is my friend.'

As shown in (22) and (23), Mandarin post-nominal RCs share several syntactic similarities with pre-nominal RCs: The subordinator *de* is obligatory; resumptive pronouns in subject and object RCs are prohibited. An important difference between Mandarin post-nominal and pre-nominal RCs is that the former require a prosodic break between the head NP and the following RC, as indicated by the comma in (22). In contrast, neither the subordinator *de* nor the prosodic pause is found in existential sentences. These major differences in form make it highly questionable that the existentials could be a type of post-nominal RCs. For further validation, we may also apply relative clause diagnostics to existential sentences. One such test involves the particle *suo*, which is a remnant from Classical Chinese which is now used only in passivization and relativization (Chiu, 1992). Example (24) showcases the use of the particle *suo* in a canonical prenominal relative. By contrast, existential sentences fail this diagnostic, as shown in (25). This further suggests that the existential coda is not a relative clause.

(24) *Bie wang-le* [$_{DP}$ [$_{RC}$ *Laoshi* (*suo*) *fanfu qiangdiao de*] *nei-jian shi*].
do.not forget-PFV teacher SUO repeatedly emphasize REL that-CL matter
'Do not forget the thing that the teacher has repeatedly emphasize.'

(25) *You yi-jian shi* [*laoshi* (**suo*) *fanfu qiangdiao*].
EX one-CL matter teacher SUO repeatedly emphasize
Intended: 'There is a matter which the teacher has repeatedly emphasized.'

Another difficulty for the relative clause analysis comes from the conjunction word test. There is strong evidence that the pivot and the coda do not form a nominal projection, contrary to what the relative clause analysis predicts. Mandarin has several *and* equivalents which are mostly non-interchangeable. Which conjunction is to be used depends on the syntactic categories of the conjuncts. To conjoin two nominal phrases, *he* is used, as shown in example (26). However, example (27) demonstrates that it is not possible to conjoin two pivot and coda strings using the same conjunction word.

(26) [*Yi-ge xuesheng*] *he* [*yi-wei laoshi*] *chuxi.*
one-CL student and one-CL teacher present
'One student and one teacher are present.'

(27) *You* [*yi-ge xuesheng chuxi*] (**he*) [*yi-ge xuesheng quexi*].
EX one-CL student present and one-CL student absent
Intended: 'There is a student present and a student absent.'

Those in favor of the relative clause analysis may argue that there may simply be no suitable conjunctions for coordinating two pivot and coda strings, as the Mandarin conjunctions are sensitive not just to the constituency status of the coordinated phrases but also to the syntactic types of the conjoined phrases. Liu 2011 seems to be following this line of thinking and contends that the pivot and the coda form a constituent (though Liu 2011 does not eventually settle for a relative clause analysis), using the following example as a demonstration that two codas can be coordinated to argue for constituency:

(28) *You* [*yi-ge nvsheng zai sao-di*], [*yi-ge nansheng zai ca-chuanghu*].
EX one-CL girl PROG sweep-floor one-CL boy PROG wipe-window
'There is a girl sweeping the floor, a boy wiping the window.' (Liu, 2011: 53)

It is rather dubious whether the above example actually shows what it is claimed to show, however. We can, as a matter of fact, resort to verbs that have much less controversial verbal structures than the existential *you* to construct sentences with similar patterns. Compare, for instance, example (29) with Liu's example. In (29), 'let Mary sit on the left side' is followed by a second full clause, 'let John sit on the right side'. The verb *rang* 'let' takes an NP argument based-generated in [Spec, VP] and a clause argument in the complement position; *rang* undergoes movement to the *v* head position. The repeated verb *rang* is elided in the second sentence. The structures of the two sentences in (29) are shown in (30). The process involved in generating (29) is gapping. The same process is responsible for (28), i.e., we are seeing in (28) two independent sentences coordinated with the verb elided in the second sentence, not two [pivot coda] strings being coordinated. Thus, (28) does not in fact show what it is claimed to show, i.e., (28) does not show [pivot coda] is one constituent (even though in (29) *Mali* 'Mary' and *zuo zuo-bian* 'sit on the left side', together with the trace left by the verb, form a constituent).

(29) *Rang* [*Mali* *zuo* *zuo-bian*], [*Yuehan* *zuo* *you-bian*].
let Mary sit left-side John sit right-side
'Let Mary sit on the left side, John the right side.'

(30) $[_{TP}\ [_{vP}\ \textit{Rang}_i\ [_{VP}\ \textit{Mali}\ \ t_i\ \ [_{CP}\ \textit{zuo zuo-bian}\ ]\ ]\ ]\ ]$
$[_{TP}\ [_{vP}\ \sout{\textit{Rang}}_i\ [_{VP}\ \textit{Yuehan}\ \ t_i\ \ [_{CP}\ \textit{zuo you-bian}\ ]\ ]\ ]\ ]$

A further piece of evidence against the relative clause analysis comes from resumptive pronouns. Resumptive pronouns in the subject or the object position are prohibited in both pre-nominal and post-nominal RCs (cf. examples (22) and (23)). This is not the case with existential codas (see example (31)). It is possible, though, that for some speakers, sentences like (31) represent two different syntactic structures simultaneously and one of the two structures is the existential construction, hence the acceptability of the pronoun might be influenced by the presence of another structure. For speakers who think (31) has simultaneously two different syntactic structures, this is due to an ongoing reanalysis of the existential verb. I do not attempt to get into details here. Since this reanalysis is not affecting all speakers, I consider (31) to be still revealing to a certain extent regarding the difference between existential sentences and relative clauses. The contrast between (31) and the relative clause examples suggests that they are constructions of different kinds.

(31) *You yi-ge xuesheng ta chidao le.*
EX one-CL student 3SG arrive.late PFV
'There is a student late.'

To sum up, all evidence we have seen so far leads to the conclusion that Mandarin existential codas are not relative clauses. Recognizing that Mandarin existential codas are not relative clauses puts them on par with existential sentences in other languages such as English: The relation between the pivot and the coda is not that of a head NP and an NP modifier. If Mandarin existential codas were relative clauses, the absence of the predicate restriction would be unsurprising and in fact totally expected. The next question that naturally arises is: What is the structure of Mandarin existential sentences, given that the relative clause analysis is incorrect? As far as the data in the present paper have shown, the structure of Mandarin existentials seems highly mysterious. I make no proposal in the present paper, but leave it to future work to determine the full structure of Mandarin existentials. For the current discussion, I pause at recognizing the coda is a full clause but not a relative.

4. CONCLUSION

In this paper, I raise questions about the predicate restriction, which roughly claims that only stage-level predicates are allowed in existential codas. This restriction has largely gone unchallenged in the literature. However, data from Mandarin show that the predicate restriction is robustly absent in some languages. I then make a first attempt at explaining this absence. By showing that the English existential coda must be smaller than TP while the Mandarin existential coda contains a full clause, I suggest that the reason for the absence of the predicate restriction may be syntactic. More specifically, the size of the existential coda determines whether individual-level predicates are allowed: If a language allows existential codas that are as large as a full TP, both stage-level predicates and individual-level predicates are permitted; if a language only allows existential codas that are smaller than TP, only stage-level predicates are permitted in codas.

The immediate next question is what determines the size of the existential coda in a language. My speculation is that tense may be relevant to the coda size. English, a 'tensed' language, would have two tenses in one TP if a T element is present in the existential coda, rendering the sentence ungrammatical. Mandarin, as a 'tenseless' language on the other hand (it should however be noted that whether

Mandarin is truly 'tenseless' is still very much debated), would not have the problem of 'too many tenses' even though the existential coda is of TP size. This, of course, is currently a working hypothesis, and much more evidence is needed to determine its validity. I leave this work to future research.

REFERENCES

Bentley, D. –Ciconte, F. M. & Cruschina, S. (2012). Existential constructions in crosslinguistic perspective. *Rivisata di Linguistica*, 25(1), 1-13.

Diesing, M. (1992). Bare plural subjects and the derivation of logical representations. *Linguistic Inquiry*, 23(3), 353-380.

Fang, H. & Lin, T.-H. J. (2008). The Mandarin you existential: A verbal analysis. *UST Working Papers in Linguistics*, 4, 43-56.

Francez, I. (2007). Existential propositions. Stanford University dissertation.

Gao, J. (2020). A syntactic analysis of the Mandarin postnominal relative clause. In Asatryan, M. –Song, Y. & Whitmal, A. (eds.) (2020). *Proceedings of the 50th Annual Meeting of the North East Linguistic Society*, 247-260.

Li, C.N. & Thompson, S. (1981). *Mandarin Chinese: A Functional Reference Grammar*. Berkeley: University of California Press.

Liu, Y.-H. (2011). Topic-comment and the Chinese existential construction. In: Jing-Schmidt, Z. (ed.) (2011). *Proceedings of the 23rd North American Conference on Chinese Lingusitics*, 48-65.

McNally, L. (2011). Existential sentences. In: Maienborn, C., –von Heusinger, K. & Portner, P. (eds.) (2011). *Semantics: An International Handbook of Natural Language Meaning*, 1829-1848. Mouton de Gruyter.

Milsark, G. (1979). Existential sentences in English. New York: Garland.

Zhang, N. N. (2008). Existential coda constructions as internally headed relative constructions. *The Linguistics Journal*, 3(3), 8-54.

Годишњак Филозофског факултета у Новом Саду

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б) анонимизацијом референци у библиографији,

в) пажљивим именовањем фајлова, како се не би видело ко је творац (нпр. File > Check for Issues > Inspect Document > Document Properties and Personal Information > Inspect > Remove All > Close).

Радове рецензирају два квалификована рецензента, и то један интерни, са Филозофског факултета, а други рецензент је екстерни.

Аутор се аутоматски обавештава о томе да ли је његов чланак прихваћен за објављивање или не чим се процес рецензирања заврши. Процес рецензирања подразумева проналажење два рецензента, њихово оцењивање рада, ауторске исправке (ревизије) уколико су захтеване од стране рецензената и уколико је потребно, још једно читање рада од стране рецензената, а завршава се предајом коначне верзије рада која је спремна за процес лектуре и даље припреме за објављивање. Уколико један од рецензената да позитивну, а други негативну оцену проналази се трећи рецензент који даје коначну оцену рада. Уколико се категорије рада коју рецензенти одреде не слажу, проналази се трећи рецензент који чија оцена одлучује којој категорији рад припада. Рок за објављивање прихваћених радова је најкасније 12 месеци од предаје коначне верзије рукописа. Аутор је дужан да у року од 5 дана уради коректуру рада, уколико је то од њега затражено.

Језик и писмо

Радови се публикују на свим језицима који се изучавају на Филозофском факултету у Новом Саду (српски, мађарски, словачки, румунски, русински, руски, немачки, енглески, француски), и то латиничним писмом, изузев радова на руском који се штампају ћирилицом, али и код њих референце морају да стоје латиницом (због захтева иностраних база за индексирање часописа), док се у загради наводи да је библиографска јединица објављена ћирилицом.

Форматирање текста

Текстови се пишу у програму Microsoft Word, фонтом Times New Roman. Величина фонта основног текста је 12 (сем код блок цитата, односно цитата од преко 40 речи, где величина фонта износи 11). Проред основног текста је 1,15. Сваки први ред новог пасуса је увучен (Paragraph/Indentation/Special:_First line 12.7 m), а текст треба изравнати са обе стране („justify"). Не треба делити речи на крају реда на слогове. Странице треба да буду нумерисане, а формат странице је А4.

За фусноте се користе арапски бројеви, од 1 па надаље (осим првих двеју означених звездицом – које се прикључују имену првог аутора, односно наслову рада). Фусноте се пишу величином фонта 10.

Графички прилози треба да буду црно-бели и уређени у изворном формату. Њихову величину и сложеност треба прилагодити формату часописа, како би се јасно видели сви елементи.

Радови који не задовољавају формалне стандарде не могу да уђу у поступак рецензирања.

Насловна страница

Сви радови имају насловну страницу која треба да у горњем левом углу садржи име(на) аутора са именом институције, испод тога пун наслов прилога центрирано, верзалом, затим број карактера текста (укључујући фусноте и референце) и фусноту која је обележена звездицом (*, **). Звездица (*) која се налази иза имена јединог или првог аутора односи се на прву фусноту на дну странице која садржи e-mail адресу аутора, а две звездице (**) се додају иза наслова рада и односе се на другу фусноту, која треба да садржи име и број пројекта, захвалницу, напомену да је рад излаган на научном скупу итд. Иза насловне стране следи прва страна текста, са идентично наведеним насловом рада а затим остали елементи рада.

Структура чланка

Рукопис понуђен за штампу треба да има следеће елементе: име и презиме аутора, институцију у којој је запослен, наслов рада, сажетак, кључне речи, текст рада, резиме и научни апарат (редоследом којим су овде наведени).

Изворни, тј. *оригинални научни рад* мора јасно да представи научни контекст питања које се разматра у раду, уз осврт на релевантне резултате из претходних истраживања, затим опис корпуса, методологију и циљеве истраживања, анализу корпуса, односно истраженог питања уз обавезан закључак са јасно представљеним резултатима истраживања.

Прегледни научни рад треба да пружи целовит и критички приказ одређеног научног проблема као и критички однос према релевантној

литератури (са посебним освртом на разлике и недостатке у тумачењу резултата), и теоријски заснован став аутора.

Стручни чланак треба да буде приказ резултата развојних а не фундаменталних истраживања, ради примене у пракси и ширења већ познатих знања, ставова и теорија, с нагласком на употребљивости резултата. Поред теоријског ретроспективног и експликативног дела, овакви чланци треба да садрже аналитичко експериментални део у којем се решавају задати проблеми, доказују хипотезе. Такви радови треба да садрже и део у којем се нуде могућа решења актуелног проблема.

Наслов рада

Наслов треба да што верније опише садржај чланка, треба користити речи прикладне за индексирање и претраживање у базама података. Ако таквих речи у наслову нема, пожељно је да се наслову дода поднаслов.

Апстракт и кључне речи, резиме

Пре основног текста рада, испод наслова, следи апстракт, кратак информативан приказ садржаја чланка, који читаоцу омогућава да брзо и тачно оцени његову релевантност. Апстракт се пише на језику основног текста у једном параграфу, и то не дужи од 200 речи, величином фонта 10, са проредом 1.15. Саставни делови апстракта су циљ истраживања, методи, резултати и закључак. У интересу је аутора да апстракт садржи термине који се често користе за индексирање и претрагу чланака. Испод апстракта са насловом Кључне речи: треба навести од пет до десет кључних речи (то треба да буду речи и фразе које најбоље описују садржај чланка за потреба индексирања и претраживања).

Резиме на енглеском језику се пише на крају текста, а пре литературе, величином фонта 10, са проредом 1.15. Наслов резимеа на енглеском је исписан верзалом, центрирано. У резимеу се сажето приказују проблем, циљ, методологија и резултати научног истраживања, у не више од 500 речи. Резиме не може бити превод апстракта са почетка рада, већ сложенији и другачије формулисан текст. Затим с ознаком Keywords: следе кључне речи на енглеском (до 10 речи).

Уколико је рад на страном језику, резиме је на српском, а ако је рад на мађарском, словачком, румунском или русинском језику, поред резимеа на енглеском следи резиме и кључне речи на српском.

Обим текста

Минимална дужина рада је 20.000, а максимална 32.000 карактера, укључујући апстракт, резиме и литературу. Радови који не задовољавају дате оквире неће бити узети у разматрање.

Основни текст рада

Основни текст се пише величином фонта 12. Наслови поглавља се наводе верзалом центрирано, а поднаслови унутар поглавља курзивом.

Табеле и графикони треба да буду сачињени у Word формату. Свака табела треба да буде означена бројем, са адекватним називом. Број и назив се налазе изнад табеле/графикона.

У подбелешкама, тј. фуснотама, које се означавају арапским бројевима дају се само коментари аутора, пишу се фонтом величине 10. Изузетак у погледу начина означавања фусноте јесу прве две.

Скраћенице треба избегавати, осим изразито уобичајених. Скраћенице које су наведене у табелама и сликама треба да буду објашњене. Објашњење (легенда) се даје испод табеле или слике.

Цитирање референци унутар текста

Цитати се дају под двоструким знацима навода (у раду на српском „...", у радовима на другим језицима у складу с одговарајућим правописом), а цитати унутар цитата под једноструким знацима навода ('...'). Коришћени извор наводи се унутар текста тако што се елементи (презиме аутора, година издања, број странице на којој се налази део који се цитира) наводе у заградама и одвајају зарезом и двотачком (Bugarski, 1998: 24). Цитирани извори се наводе на крају реченице, непосредно пре тачке.

Ако цитат који се наводи у тексту садржи више од 40 речи не користе се знакови навода, већ се цитат пише у посебном блоку, лева маргина (Paragraph/Indentation/Left) је код таквих цитата увучена на 1,5 цм, а фонт је величине 11, на крају се у загради наводи извор. Размак пре и после блок цитата (Paragraph/Spacing/Before и After) је 6пт.

Кад се аутор позива на рад са 3–5 аутора, приликом првог навођења таквог извора потребно је набројати све ауторе: (Rokai–Đere–Pal, & Kasaš, 2002). Код каснијих навођења тог истог извора навести само првог аутора и додати „и др." уколико је публикација на српском или „et al." ако је писана на страном језику: (Rokai и др., 1982).

Уколико рад има 6 и више аутора, при првом и сваком даљем навођењу тог рада ставити само првог аутора и додати „и др." ако је публикација писана на српском или „ et al." ако је књига писана на страном језику.

Када се цитира извор који нема нумерисане странице (као што је најчешће случај са електронским изворима), користе се број параграфа или наслов одељка и број параграфа у том одељку: (Bogdanović, 2000, пара. 5), (Johnson, 2000, Conclusion section, para. 1).

Ако рад садржи две или више референци истог аутора из исте године, онда се после податка о години додају словне ознаке „а", „б" итд. (Торма, 2000а) (Торма, 2000б). Студије истог аутора наводе се хронолошким редом: (Halle, 1959; 1962).

Ако се упућује на више студија различитих аутора, податке о сваком следећем одвојити тачком и зарезом (From, 2003; Nastović, 2008), студије се наводе такође хронолошким редом.

Литература

У списку литературе наводе се само референце на које се аутор позвао у раду и то по абецедном реду презимена првог аутора. Референце морају бити исписане Романским писмом, уколико је рад штампан ћирилицом, поред латиничног навођења у загради треба да стоји податак да је оригинални рад објављен ћирилицом. Фонт је величине 12, а облик навода „висећи" (Hanging) на 1,5 цм, као у следећим примерима:

Књиге (штампани извори)
Књига са једним аутором

Lukić, R. (2010). *Revizija u bankama*. Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.

Уколико рад садржи неколико референци чији је први аутор исти, најпре се наводе радови у којима је тај аутор једини аутор, по растућем редоследу година издања, а потом се наводе радови у односу на абецедни ред првог слова презимена другог аутора (уколико има коауторе).

Књига са више аутора

Када је у питању више аутора, наводе се сви, с тим што се пре последњег презимена додаје амперсенд, односно „&". Ако има више од седам аутора, наводи се првих шест, затим се пишу три тачке и на крају последњи аутор:

Đorđević, S.–Mitić, M. (2000). *Diplomatsko i konzularno pravo*. Beograd: Službeni list SRJ.

Rokai, P.–Đere, Z.–Pal, T. & Kasaš, A. (2002). *Istorija Mađara*. Beograd: Clio.

Књига са уредником или приређивачем, зборник радова

Ако је књига зборник радова са научног скупа или посвећен једној теми, као аутор наводи се приређивач тог дела и уз његово презиме и иницијал имена у загради додаје се „уред." или „прир." односно „ ed." ако је књига писана на страном језику.

Đurković, M. (ured.) (2007). *Srbija 2000–2006: država, društvo, privreda*. Beograd: Institut za evropske studije.

Чланак из зборника

Radović, Z. (2007). Donošenje ustava. U: Đurković, M. (ured.) (2007). *Srbija 2000–2006: država, društvo, privreda.* Beograd: Institut za evropske studije. 27–38.

Чланак из научног часописа

Đurić, S. (2010). Kontrola kvaliteta kvalitativnih istraživanja. *Sociološki pregled*, 44, 485–502.

Чланак из магазина

Чланак из магазина има исти формат као кад се описује чланак из научног часописа, само што се додаје податак о месецу (ако излази месечно) и податак о дану (ако излази недељно).

Bubnjević, S. (2009, decembar). Skriveni keltski tragovi. *National Geographic Srbija*, 38, 110–117.

Чланак из новина

За приказ ових извора треба додати податак о години, месецу и дану за дневне и недељне новине. Такође, користити „str." (или „p." ако су новине на страном језику) код броја страна.

Mišić, M. (1. feb. 2012). Ju-Es stil smanjio gubitke. *Politika*, str. 11.

А ако се не спомиње аутор чланка:

Straževica gotova za dva meseca. (1. feb. 2012). *Politika*, str. 10.

Онлајн извори

Кад год је могуће, треба уписати DOI број. Овај број се уписује на крају описа без тачке. Ако DOI није доступан, треба користити URL.

Чланак из онлајн научног часописа

Stankov, S. (2006). Phylogenetic inference from homologous sequence data: minimum topological assumption, strict mutational compatibility consensus tree as the ultimate solution. *Biology Direct*, 1. doi:10.1186/1745-6150-1-5

Ако чланак нема DOI број, може се користити URL адреса:

Stankov, S. (2006). Phylogenetic inference from homologous sequence data: minimum topological assumption, strict mutational compatibility consensus tree as the ultimate solution. *Biology Direct*, 1. Preuzeto sa http://www.biology-direct. com/content/1/1/5

Е-књиге

При цитирању књига или поглавља из књига која су једино доступна „онлајн", уместо података о месту издавања и издавачу ставити податак о електронском извору из ког се преузима:

Milone, E. F.–Wilson, W. J. F. (2008). Solar system astrophysics: background science and the inner solar system [SpringerLink version]. doi: 10.1007/978-0-387-73155-1

Веб сајт

Податак о години односи се на датум креирања, датум копирања или датум последње промене.

Kraizer, S. (2005). Safe child. Preuzeto 29. februara 2008, sa http://www.safechild.org/

Penn State Myths. (2006). Preuzeto 6. decembra 2011, sa http://www.psu.edu/ur/about/myths.html

Срана унутар веб сајта:

Global warming solutions. (2007, May 21). U: Union of Concerned Scientists. Preuzeto 29. februara 2008, sa http://www.ucsusa.org/global_warming/solutions

Блог и вики:

Jeremiah, D. (2007, September 29). The right mindset for success in business and personal life [Web log message]. Preuzeto sa http://www.myrockcrawler.com

Happiness. (n.d.). U: Psychwiki. Preuzeto 7. decembra 2009 sa http://www.psychwiki.com/wiki/Happiness

Video post (YouTube, Vimeo и слично)

За податак о аутору изма се презиме и име аутора (ако је тај податак познат) или име које је аутор узео као свој алијас (обично се налази поред „uploaded by" или „from"):

Triplexity. (1. avgust 2009). Viruses as bionanotechnology (how a virus works) [video]. Preuzeto sa http://www.youtube.com/watch?v=MBIZI4s5NiE3.

Необјављени радови

За резимее са научног скупа, необјављене докторске дисертације и сл. – уколико је навођење таквих радова неопходно, треба навести што потпуније податке.

Smederevac, S. (2000). Istraživanje faktorske strukture ličnosti na osnovu leksičkih opisa ličnosti u srpskom jeziku (Nepublikovana doktorska disertacija). Filozofski fakultet, Univerzitet u Novom Sadu, Novi Sad.

Рукописна грађа наводи се према аутору рукописа, а уколико аутор рукописа није познат, према наслову. Уколико рукопис нема наслов, наслов му даје онај који о њему пише. Следећи елемент је време настанка текста, затим место и назив институције у којој се рукопис налази, сигнатура и фолијација.

Уредништво часописа *Годишњак Филозофског факултета у Новом Саду*

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Игор Лекић

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