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Licensing SOV in Estonian: A Naturalness Rating Study

Marju Kaps
University of California, Los Angeles

1 Introduction

Estonian, much like other Finno-Ugric languages, is a discourse-configurational language in which the possible syntactic positions of a particular linguistic expression are determined by that constituents' information structural status (Henk 2010). For instance, Topics, or discourse-given elements that the clause is about, usually occur clause-initially. Foci, or elements contributing new or unexpected information to the clause, typically occur clause-finally¹. The tendency to place old information before new information is at times obscured by the fact that Estonian is verb-second (V2) language, requiring a single lexical constituent to precede the main verb of the clause (Holmberg 2015). For instance, in the question-answer pair shown in (1) both the verb 'rains' and the noun 'rain' are equally new to the discourse.

(1) Q: What's the weather like?

A: *Vihma sajab.*

rain-PART rains

'It is raining.'

The interaction between information structure and syntax is a multifaceted phenomenon. While the V2 principle places constraints on the mapping between information structure and linear order, I argue in this paper that in Estonian the V2 constraint is itself sensitive to information structure. That is, under certain discourse conditions, the V2 constraint appears to be violated, allowing the verb to occur later in the clause, even in the clause final position. These data are surprising for a language that shows robust V2 effects in other contexts.

There have been previous proposals explaining the verb-third (V3) order occurring in some declarative matrix clauses by an appeal to the special status of subjects in Estonian (e.g. Lindström 2005); however, as we will see, the previous Multiple Topic approach fails to account for corpus-attested examples containing non-Topical preverbal constituents. I propose more general discourse conditions on V3 (and verb-final) clauses, where multiple preverbal elements are licensed by the presence of a Contrastive Topic (CT) as well as the discourse-givenness of the preverbal elements themselves. The proposal is tested in a naturalness rating experiment, revealing that previously theoretically neglected SOV clauses are sensitive to the information structure of the subject. The grammaticality of these clauses is not predicted under the previous Multiple Topic account, as is spelled out in the

¹Focus-marked subjects are a notable exception as they may also occur preverbally.

following few sections. Some hints at a possible direction for a syntactic analysis of non-V2 phenomena in Estonian will also be provided. The findings speak to the importance of considering a wider range of data when exploring the left periphery of Estonian, as well as to carefully disambiguating the information structure of discourse-configurational languages when exploring syntactic phenomena.

2 Word Order in Estonian

2.1 Verb-second

The examples in (2), all judged acceptable when uttered with a neutral intonation, illustrate that the preverbal position may be occupied by a range of different constituents (Ehala 2006), such as a subject (2a), an object (2b) or an adverb (2c), and that a preverbal constituent is obligatory in declarative matrix clauses (2d).

- (2) a. *Lapsed söövad täna suppi.*
 children-NOM eat today soup-PART
 b. *Suppi söövad lapsed täna.*
 soup-PART eat children-NOM today
 c. *Täna söövad lapsed suppi.*
 today eat children-NOM soup-PART
 d. **Söövad lapsed täna suppi.*
 eat children-NOM today soup-PART
 ‘The children are eating soup today.’

All three of the grammatical examples in (2) have the same truth conditions, namely that the children are eating soup today, but the clauses differ in the contexts they might be used in. Example (2a) is considered the most felicitous when the subject ‘children’ is the Topic of the clause, e.g. when answering the question ‘What are the children eating today?’ (although, SVO being the canonical order, a range of information structures can be expressed here by using prosody). Similarly, example (2b) is felicitous when the object ‘soup’ acts as the Topic, such as when answering the question ‘When is the soup going to be eaten by the children?’. We see the preverbal adverb in example (2c) when the adverb is topical, particularly when a contrastive alternative is available in the discourse (e.g. the adverb ‘yesterday’ in the possible continuation ‘but yesterday they ate pasta.’).

2.2 Verb-third

A corpus study of spoken Estonian (Lindström 2005) revealed that Estonian allows for V3 matrix clauses such as (3) in clauses beginning with a non-subject constituent, such as an object, adverb or locative.

- (3) *Marit ma nägin.*
 Mari-PART I-NOM saw
 ‘Mary, I did see.’

Comparing OVS and OSV type clauses in the spoken corpus, Lindström (2005) noted that the probability of a preverbal, second-position subject (i.e. OSV) is increased when the subject has Topic-like features, such as being human, pronominal (particularly 1st or 2nd person) or having been explicitly mentioned in the preceding discourse. This has led to the proposal that Estonian has an extended left periphery (see e.g. Rizzi 1997 for recursive projections in Italian), with multiple Topic projections above the highest verbal projection². Native speakers judge (3) to be grammatical when intonational prominence is placed on the clause-initial object ‘Mary’, pointing to an importance of information-structural factors in allowing for multiple preverbal constituents.

It is worth mentioning that while our discussion revolves around V3 clauses, it is possible to obtain more than two constituents in a preverbal position. As long as clauses like (4) are licensed under the same discourse conditions as (3), we would want our theory to provide a unified account of when multiple preverbal constituents may occur. Interestingly, the existence of clauses like (4), with the same necessary intonational prominence on the initial object as in (3), provide evidence against the possibility of the information-structurally marked first constituent being extracausal (*cf.* German, Haider 2010). If the object ‘Mary’ was extraposed in (4), the V3 order in the remainder would go unexplained.

- (4) *Marit ma täna nägin.*
 Mari-PART I-NOM today saw
 ‘Mary, I did see today.’

Before inspecting the previous account for V3 clauses in Estonian, I will lay out some ways for diagnosing information structure that are useful for empirical work. We will see that the previous account for V3 clauses imposes conditions on preverbal elements that are too restrictive. An updated proposal will be presented, and a crucial test case empirically examined in a naturalness rating experiment.

3 Diagnosing Information Structure

The most relevant information structural notion for the present purposes is contrast. Contrast comes in two varieties – a contrastive element may be either a Contrastive Topic (CT) or a Contrastive Focus (CF).

In this paper, I assume that CTs are Topics with salient alternatives in the discourse context. CTs can also be construed of as partial Topics (Büring 2003), if a wider Topic is under discussion (e.g. ‘the girls’ in 5). Here, the CTs ‘Annie’ and ‘Mary’ act as each other’s discourse alternatives.

- (5) Q: What did the girls eat?
 A: Annie ate the pie and Mary the cake.

In a similar vein, I take CFs to be Foci with salient alternatives in the discourse context. CFs often have a corrective usage (Büring 2016), as can also be seen

²Leftward movement of the verb to a non-base position in matrix clauses is assumed here and elsewhere in the paper

in example (6). Here, the CFs ‘Mary’ and ‘Annie’ act as each other’s discourse alternatives.

(6) Q: Was it Mary who ate the pie?

A: No, Annie ate the pie.

There is indirect evidence for the importance of studying contrast in order to understand the structure of the left periphery in Estonian. Namely, the closely related language Finnish has been argued to have a clause-initial Kontrast position (Vilkuna 1995) which is non-selective and can accommodate either a CT or a CF.

There is also phonological evidence for contrast being required in V3 clauses in Estonian. Namely, if a V3 clause has two preverbal pronouns, these cannot both be weak forms (7a). Weak pronominal forms such as *ma* ‘I’ are unstressed and can thus not receive a pitch accent when syntactically required to. Grammaticality is achieved by using a strong pronoun such as *mina* in sentence (7b).

- (7) a. ??? *Ma ta-ga mängisin jalgpalli.*
I.WEAK he.WEAK-COM played football-PART
- b. *Mina ta-ga mängisin jalgpalli.*
I.STRONG he.WEAK-COM played football-PART
‘I played football with him’

As pointed out by Kaiser & Hiietam (2004), the function of strong pronouns in Estonian is to communicate that the speaker contrasts the referent to another salient referent in the discourse context. Strong pronouns may thus pick out CTs or CFs. While CTs have been previously claimed to play a central role in V3 clauses, this observation has so far not been experimentally verified. Clear diagnostics are required in order to disambiguate between CTs and CFs in the preverbal domain, a distinction that is not trivial in Estonian.

3.1 Contrastive Remnant Ellipsis

A particular word order such as SVO may be used to express a range of information structures. In written text where prosodic cues are not available, or in dealing with categories where pitch accents might be underdetermining information structure,³ additional diagnostics are needed to disambiguate the status of the constituents of interest. This is where gapping with CT and CF remnants to ellipsis (see e.g. Repp 2010 for German and Rasekhi 2018 for Persian) allows us to identify Foci, CTs and discourse-given elements.

Following the terminology of Konietzko & Winkler (2010) I use the term CT ellipsis (CTE) for gapping with a CT remnant. What we notice in example (8) is that the CT remnant ‘Annie’ is clause-initial and precedes the negative focus particle *mitte*⁴. As the subject remnant is contrastive, it requires a salient alternative in the discourse context. This disambiguates the subject of the preceding matrix clause (‘Mary’) as a CT as well. Therefore, by combining an otherwise ambiguous matrix

³Surely, ‘intonational prominence’ alone is not much to go on!

⁴CTE is also possible with the positive focus particle *küll*

SVO clause with CTE, we are able to identify the subject as a CT. In addition, any material elided from the second clause ('ate pie') can reasonably be taken to be discourse-given, providing us with an even more detailed view of the information structure of this particular SVO clause.

- (8) *Mari*_{CT} *sōi* *pirukat*, *Anni*_{CT} *mitte*.
 Mari-NOM ate pie-PART Anni-NOM NEG
 'Mary ate pie, Annie didn't.'

Analogously, what is referred to as CF ellipsis (CFE) appears to be a form of gapping with a CF remnant. CFE is used in order to explicitly exclude a salient Focus alternative, resulting in a corrective reading. Here, *mitte* acts as a Focus particle and immediately precedes the CF it associates with. The SVO matrix clause in (9) is now disambiguated to have a CF subject, as the CF remnant requires a contextually salient alternative. Similarly to (8), ellipsis from the second clause points to the VP 'ate pie' being discourse given, making (8) and (9) parallel to each other in this regard. In both cases, the type of remnant in the ellipsis clause imposes a particular information structure on an otherwise information-structurally ambiguous SVO clause.

- (9) *Mari*_{CF} *sōi* *pirukat*, *mitte* *Anni*_{CF}.
 Mari-NOM ate pie-PART NEG Anni-NOM
 'Mary ate pie, not Annie.'

A lucky advantage of using CTE and CFE in the form presented above for disambiguating information structure is that on the surface, these two structures only vary in terms of their word order – whether the remnant precedes the focus particle (giving us CTE) or follows it (giving us CFE). This allows for the contribution of individual lexical items to be controlled.⁵

3.2 Question-answer Congruence

Information structure is often expressed in terms of question-answer congruence. We can use question-answer congruence to validate the observations made above about CTE and CFE. Under the view that CTs correspond to partial Topics in a discourse context (Büring 2003), the discourse question with a coordinated subject in (10) should be compatible with CT subjects but not CF subjects in the answer. This is indeed the case, as the clause with subject CFE (10b) is judged to be an infelicitous answer to this question by native speakers.

- (10) Q: Did Mary and Annie eat pie?
 a. *Mari*_{CT} *sōi* *pirukat*, *Anni*_{CT} *mitte*.
 Mari-NOM ate pie-PART Anni-NOM NEG
 'Mary ate pie, Annie didn't.'

⁵An additional complication can be posed by lexical items such as *aga* 'but' which is felicitous with CTE but not CFE, or *vaid* 'but' which is felicitous with CFE but not CTE. The question of the role of contrastive coordinators in contrastive remnant ellipsis is set aside for now.

- b. # *Mari*CF *sōi pirukat, mitte Anni*CF.
 Mari-NOM ate pie-PART NEG Anni-NOM
 ‘Mary ate pie, not Annie.’

The reverse is seen with the CF-congruent discourse question in (11) – speakers judge the CTE clause (11a) to be infelicitous in this context. The CFE clause (11b), on the other hand, sounds completely natural in this context as it conforms to a corrective usage associated with CFs.

- (11) Q: Was it Annie who ate pie?
 a. # *Mari*CT *sōi pirukat, Anni*CT *mitte*.
 Mari-NOM ate pie-PART Anni-NOM NEG
 ‘Mary ate pie, Annie didn’t.’
 b. *Mari*CF *sōi pirukat, mitte Anni*CF.
 Mari-NOM ate pie-PART NEG Anni-NOM
 ‘Mary ate pie, not Annie.’

4 Proposal

4.1 Previous Multiple Topic Account

The analysis alluded to in Lindström (2005) and Henk (2010) makes use of the fact that subjects have a special status in the language, allowing them to occur preverbally even when not acting as aboutness Topics. Under this view, a subject is by default raised to the specifier position above the highest verbal projection. This position (Spec,TopP) is allocated to aboutness Topics in order to achieve V2 order, but it also attracts the subject due to either the subject’s high salience and other Topic-like characteristics, or its syntactic features. Another projection above TopP, the Contrastive Topic phrase or CTopP, is only able to attract CTs to its specifier position, resulting in V3 order being possible only in clauses with initial CTs. Crucially, clauses with only a preverbal CT are grammatical (recall e.g. example 8), meaning that Spec,TopP does not need to be filled as long as Spec,CTopP is. In CT clauses, subjects would be expected to be raised to Spec,TopP to satisfy some independent constraint arising from the subject’s features. More broadly, default topicalization to Spec,TopP may be targeting the most salient and referential entity of the clause. Default topicalization would in fact be a useful mechanism to allow the language to maintain V2 order even when there isn’t an obvious aboutness Topic in sight, as was the case in example (1).

4.2 Corpus Analysis

The Multiple Topic account was inspired by corpus evidence of the possibility of V3 with clause-initial non-subject constituents (Lindström 2005). However, being focused on the relative ordering between the subject and the verb, the previous study did not look at whether V3 order is possible in clauses with initial subjects. I conducted a small-scale corpus analysis looking at the Newspaper Subcorpus of the

Balanced Corpus of Estonian⁶, using CT remnant ellipsis (clause-final negative particle *mitte* or positive particle *küll*) to identify relevant cases. As there are presently no detailed grammatically annotated corpora that would have lent themselves to this analysis, I chose the newspaper subcorpus for its consistent punctuation in order to reliably identify clause boundaries. A search of the 5-million-word corpus revealed a total number of 124 relevant sentences that were selected based on being instances of CTE with a subject, object, adverb or locative remnant, where the matrix clause contained an overt subject, object, adverb or locative correlate.⁷ Additionally, the relevant instances contained more than two words in the matrix clause in order to disambiguate between V2 and verb-final order. In accordance with Lindström (2005), close to a third of matrix clauses followed by non-subject CTE exhibited non-V2 word order (32.4% for object remnants, 29.4% for adverb or locative remnants), making the two analyses roughly comparable despite being conducted on language samples from different corpora and registers. Crucially, while the majority of matrix clauses followed by subject CTE exhibited V2 order in the present analysis, non-V2 order was seen in 18.9% of the cases⁸, e.g. (12).

- (12) *Inimesed viga ei saanud, aga mõlemad masinad küll.*
 people-NOM harm-PART NEG receive but both-NOM machines-NOM POS
 ‘People were not harmed, but both machines were.’

For comparison, without the CTE clause the corpus-attested (12) would be required to be V2, as seen in the modified example (13).

- (13) *Inimesed ei saanud viga.*
 people-NOM NEG receive harm-PART
 ‘People were not harmed.’

Interestingly, the verb phrase *viga saama*, literally ‘to receive harm’ does not have a referential object that could plausibly act as a sentential Topic on its own, as seen from the oddness of example (14). Rather, what might conceivably be topicalized is the whole verb phrase, as shown in example (15).

- (14) # *Mis veasse puutub, siis inimesed viga ei saanud.*
 what harm-ILL pertains then people-NOM harm-PART NEG receive
 ‘When it comes to harm, people were not harmed.’

- (15) *Mis viga saamisesse puutub, siis inimesed viga ei saanud.*
 what harm-PART receiving-ILL pertains then people-NOM harm-PART
 NEG receive
 ‘When it comes to getting injured, people were not harmed.’

⁶Retrieved February 18th, 2016 from <https://www.cl.ut.ee/korpused/grammatikakorpus/>

⁷Instances of sprouting were excluded from the data set.

⁸A higher proportion of V2 clauses with initial subject CTs, compared to initial object or adverbial CTs might be explained by an additional preference for the canonical SVO order where possible. V2 order with an object CT would yield a less canonical OVS order, perhaps making the alternative OSV order comparatively less marked.

4.3 Present Proposal

The fact that V3 order is attested with initial subjects poses challenges to the default topicalization account of V3 on two basic grounds. Sentential Topics are typically defined as salient entities that the sentence is about (Reinhart 1982), so the conditions of relative salience in the clause and referentiality might be expected to be met by any constituent that undergoes default topicalization, particularly when the V2 requirement has already been met by the presence of a clause-initial CT.

Firstly, just by virtue of not being subjects, second-position objects are not necessarily the most salient entities in a clause. The relative reduction in salience can be enhanced by looking at clauses with animate subject and inanimate objects, such as example (16). Despite the subject ‘Mary’ being more salient than the object ‘pie’, we observe that the clause is acceptable with SOV order.

(16) Q: Did Mary and Annie eat pie?

A: *Mari pirukat sõi, ...*

Mari-NOM pie-PART ate

‘Mary did eat pie...’

Secondly, building on the discussion of (12 - 15), we have observed that second-position objects need not be referential. Using a slightly less idiomatic example, we see that both (17), where the object ‘the dogs’ is definite and referential, and (18), where the object ‘dogs’ is indefinite and non-referential, are judged to be acceptable by native speakers. In both cases, the canonical SVO order is available too.

(17) Q: Are Mary and Annie afraid of the neighbor’s dogs?

A: *Mari neid koeri kardab, Anni mitte.*

Mari-NOM those-PART dogs-PART fears Anni-NOM NEG

‘Mary is afraid of the dogs, Annie isn’t’

(18) Q: Are Mary and Annie afraid of dogs?

A: *Mari koeri kardab, Anni mitte.*

Mari-NOM dogs-PART fears Anni-NOM NEG

‘Mary is afraid of dogs, Annie isn’t’

The observations that relatively less salient, non-referential objects may occur in the second position of the clause leads to the necessity of weakening the Topic condition on second-position elements in V3 clauses. I propose that multiple elements may occur preverbally in Estonian, provided that they are discourse given or easy to accommodate (i.e. not Foci) and that at least one preverbal constituent is a CT (that is, a discourse-given element with contextually salient alternatives). Here, SOV clauses with CT subjects offer a useful test case as second-position objects can not plausibly undergo default topicalization.

5 Naturalness Rating Experiment

The information structure of V3 clauses in Estonian has not been previously experimentally tested. I tested my proposal that V3 order is licensed in CT clauses but that

other preverbal elements need not be aboutness Topics, in an Internet-based naturalness rating experiment. Contrastive remnant ellipsis was used to disambiguate subjects as either CTs or CFs. As outlined above, if the remnant in contrastive ellipsis precedes the polarity particle *mitte*, the remnant (as well as its discourse alternative) is identified as a CT. If the remnant in contrastive ellipsis follows the polarity particle, then the remnant (as well as its discourse alternative) is identified as a CF. If V3 order is specifically licensed in CT clauses then SOV clauses should show sensitivity to the information structural status of the subject, preferring CT subjects (even though the special status of subjects in the language also allows CF subjects to occur clause-initially). In addition to SOV clauses, the experiment included the canonical SVO order for comparison. OVS order was also included as it has been claimed that Estonian has a clause-final Focus position (Henk 2010), which was expected to translate into a reversed pattern of CF subject preference for OVS clauses.

5.1 Design and Materials

The 3x2 experimental design crossed matrix Word Order (SVO, OVS or SOV) with Ellipsis Type (CTE or CFE), as can be seen below in Table 1. The ellipsis remnant was unambiguously in the Nominative case, ensuring that it was taken to be the subject of the ellipsis clause. The goal in marking the ellipsis remnant as either a CT or a CF was to disambiguate the subject of the antecedent clause as either a CT or a CF as well. In order to make both the matrix subject and the ellipsis subject salient and to license contrast, every target sentence was preceded by a context sentence mentioning these two animate entities. 30 experimental sextets were constructed.

Context sentence:

‘Toomas and Sirje both bought lottery tickets, hoping to win big sums.’

Target sentence:

| | SVO | OVS | SOV |
|------------|---|---|---|
| CTE | <i>Sirje võitis raha, Toomas mitte.</i> Sirje won money, Toomas NEG | <i>Raha võitis Sirje, Toomas mitte.</i> Money won Sirje, Toomas NEG | <i>Sirje raha võitis, Toomas mitte.</i> Sirje money won, Toomas NEG |
| CFE | <i>Sirje võitis raha, mitte Toomas.</i> Sirje won money, NEG Toomas | <i>Raha võitis Sirje, mitte Toomas.</i> Money won Sirje, NEG Toomas | <i>Sirje raha võitis, mitte Toomas.</i> Sirje money won, NEG Toomas |
| Prediction | CTE \approx CFE | CTE < CFE | CTE > CFE |

Table 1: A sample item and predictions for naturalness ratings to the target sentence

While SOV clauses were of main interest, the two V2 orders (SVO and OVS) were included in the experiment in order to validate the assumption that contrastive remnant ellipsis is sensitive to the information structure of its antecedent clause, and vice versa. SVO, being the canonical order, was predicted to be compatible with both CT and CF subjects, although a preference for clause-final focus may reduce the naturalness of subject CF in SVO clauses. Following OVS matrix clauses,

CFE subjects were predicted to be natural while subject CTE was expected to incur a penalty due to an information structure mismatch between the matrix and ellipsis clause. Under the hypothesis that subject CT licenses multiple preverbal elements, SOV clauses were predicted to be rated significantly higher when followed by subject CTE compared to subject CFE.

5.2 Participants and Procedure

Native Estonian speaking volunteers (N=41) participated in the experiment over the Internet. The Ibex Farm platform (Drummond 2013) was used to present the materials and collect responses. All materials and instructions were presented in Estonian. The experiment took less than 20 min on average to complete. After a short guided practice, participants rated target sentences based on how natural they sounded in the given context, on a 7-point Likert scale (1 = Unacceptable, 7= Completely Natural).

Each participant saw a total of 65 sentence pairs – the 30 experimental sextets were presented in a Latin square design along with 30 filler items and 5 nonsensical catch items. The filler items were similar to the experimental items in describing real-life scenarios but did not contain CT or CF remnant ellipsis in the second sentence. Participants were encouraged to assign ratings at their own pace, with each participant spending an average of 6 seconds or longer reading and rating the sentence pairs. Both the context sentence and the target sentence remained visible during rating.

5.3 Results and Discussion

Data were excluded for participants who assigned a rating of 3 or above to more than one catch item (N=11) or whose mean rating of the filler items was below 5 (N=1), resulting in data from 29 participants entering the final analysis. Individual responses faster than 1000 ms were removed from the dataset. Each experimental item was left with at least 4 ratings per condition. Means and standard errors by conditions are shown in Fig. 1.

Linear mixed effects models (Baayen *et al.* 2008) from the *lme4* package (Bates *et al.* 2010) in R (R Core Team 2016) were used to analyze the data, with sum coded fixed effects contrasts and maximal random effects structures (Barr *et al.* 2013). The models were compared using the *anova* function in the R base package by forward-fitting random effects and backward-fitting the fixed effects of Word Order and Ellipsis Type. The most complex model lending itself to planned pairwise comparisons included Word Order and Ellipsis Type interacting as fixed effects as well as by-subject and by-items random slopes and intercepts for Word Order.

The linear mixed effects model with sum-coded factors revealed a main effect of both Word Order ($t=4.06$, $p<.001$ for OSV and $t=-9.40$, $p<.001$ for SOV) and Ellipsis type ($t=-3.05$, $p<.01$ for CFE). There was also a significant interaction between Word Order and Ellipsis type ($t=6.81$, $p<.001$ for OSV with CFE), confirming the assumption that the different word orders differed in how natural they were judged to be, based on the type of subject remnant in the ellipsis clause.

The model was examined more closely by conducting planned pairwise comparisons for each of the three word orders to determine whether the information

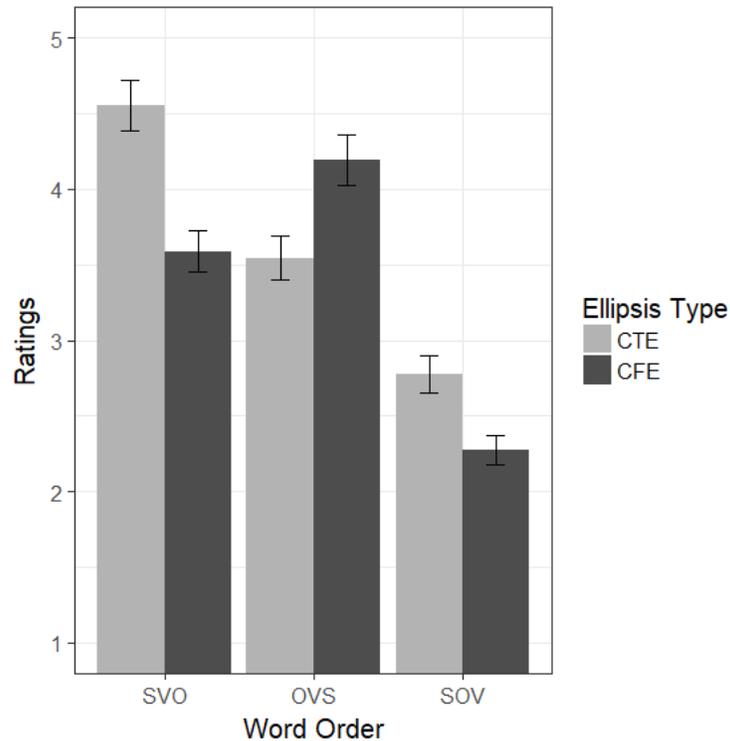


Figure 1: Naturalness ratings with standard errors to target sentences

structure disambiguation in the ellipsis clause had a significant effect on naturalness ratings, using t-tests with Tukey’s adjustment for multiple comparisons in the R package *lsmeans* (Lenth 2016). Ellipsis type effects were statistically significant at all three levels of word order. In the canonical SVO conditions, CFE was judged as less natural than CTE ($M=-0.95$, $SE=0.16$, $t=-6.03$). Evidence against a global CFE penalty was seen in the OVS conditions, where CFE was judged as more natural than CTE ($M=0.61$, $SE=0.16$, $t=3.82$). As hypothesized, in the SOV conditions, CFE incurred a penalty compared to CTE ($M=-0.49$, $SE=0.16$, $t=-3.10$). Thus, despite an overall preference for V2 clauses in the experiment, SOV clauses were not rejected outright, but rather showed sensitivity to the information structure of the matrix subject, as disambiguated by the ellipsis clause.

6 General Discussion and Conclusion

Using contrastive remnant ellipsis to disambiguate matrix clause information structure, the corpus and experimental data jointly indicate that default topicalization of subjects (i.e. the Multiple Topic approach) is not able to account for all V3 clauses in Estonian. The present data provide evidence for re-evaluating the previous recursive Topic view to the Estonian left periphery. It is clear that second-position objects need not be Topics, opening the floor to potential alternative syntactic analyses. For instance, in the absence of distinct +Top or +subject features that would license movement to preverbal specifier positions, non-contrastive preverbal elements may

instead end up in their linear position by pied-piping to the left periphery along with constituents that do carry movement-inducing features (e.g. the CT, V, VP or Foc⁹). An analysis positing pied-piping of discourse given material along with the CT constituent would have the perhaps appealing implication that any preverbal material truly only occupies a single specifier position, in accordance with what might be expected of a V2 language. This, however, may lead to a need to redefine what V2 truly means.

Disambiguating information structure in corpora and experimental work can be notoriously difficult. The fact that robust effects of the ellipsis type manipulation were seen for both the more acceptable V2 clauses as well as the V3 clauses in the present experiment suggests that contrastive remnant ellipsis is a useful tool for tackling interesting questions at the syntax-information structure interface.

7 Future Directions

Fruitful future directions for this project could span from developing and empirically testing more precise syntactic analyses, to looking at the processing implications of non-canonical word order in language comprehension and production, along with any mediating effect that prosody may have at the syntax-information structure interface.

The present study indicates that movement to the preverbal domain is not contingent on subjecthood (and thus default topicality) for non-contrastive elements. The previous Multiple Topic account of the Estonian left periphery may have predicted a strict ordering of contrastive and non-contrastive elements in the preverbal domain,¹⁰. This is due to an assumption of a fixed hierarchy of CT and Top projections in the left periphery. If, however, the CT and Top projection are not distinct from each other, the question of relative ordering of preverbal constituents and examining the discourse factors constraining potential variability in the preverbal domain become particularly relevant. Future work investigating whether preverbal word order is flexible could provide us with additional insight to the syntax of these clauses.

A big question left unaddressed in the present paper is why V3 orders occur if V2 is perfectly acceptable in the same contexts. Some answers may be provided by looking into the comprehension and production of these clauses – both from a psycholinguistic and potentially a phonological perspective. There is interesting work to be done in addressing the sentence processing implications of V3 order. As the naturalness rating experiment showed, V3 is judged to be significantly less acceptable than V2 orders and may thus incur an online processing penalty on the part of the comprehender. However, V3 order may be more informative in terms of the information structure of the clause, potentially aiding in anticipating and processing upcoming contrast in the discourse.

It has been previously proposed that Topics avoid the clause-final position in

⁹The potential role of (Polarity) Focus in producing V3 order in CT constructions remains to be explored.

¹⁰All the CTs seen in V3 clauses in this paper have been clause-initial, but prosody might be able to be used to mark a second-position CT.

Estonian (Henk 2010), perhaps due to a preference for clause-final nuclear pitch accent. This phenomenon may be more general, whereby any prosodically deaccented elements may undergo movement to ensure that Focus falls in the clause-final position. Prosody could, indeed, prove to be a key factor in whether a speaker decides to produce a V2 or V3 clause.

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