

### Real-time processing of LBE dependencies under coordination

Left-Branch Extraction (LBE) poses important questions for theories of syntactic representation and real-time sentence processing, particularly regarding how agreement features are maintained across long-distance dependencies. While production studies have shown that working memory plays a role in subject–verb agreement computation [2], comprehension studies suggest that agreement processing may rely more heavily on morphosyntactic cues available during incremental parsing [3], [4], [5]. This study investigates how LBE interacts with agreement mechanisms in Bosnian-Croatian-Montenegrin-Serbian (BCMS), focusing on possessive modifier and conjunct first extraction from coordinated noun phrases. Unlike (1a), in (1b-c) the extracted pronominal possessive adjective *tvoje* ‘your(s)’ agrees with its head noun(s) of mixed genders, despite being displaced. This suggests that agreement features must be preserved across long-distance dependencies in the syntactic representation.

- (1) a. Tvoje      nagrade      i      priznanja      su      mi  
 your-F.PL      award-F.PL      and      acknowledgement-N.PL      AUX-3PL = I-DAT.SG  
 dostavljene/a/i      oštećene/a/i      u      transportu.  
 delivered-F/N/M.PL      damaged-F/N/M.PL      in      transportation-LOC.SG
- b. Tvoje<sub>i</sub> su      mi      [[t<sub>i</sub> nagrade]      i      priznanja]  
 your-F.PL AUX-3PL = I-DAT.SG      award-F.PL      and      acknowledgement-N.PL  
 dostavljene/a/i      oštećene/a/i      u transportu.  
 delivered-F/N/M.PL      damaged-F/N/M.PL      in transportation-LOC.SG
- c. Tvoje<sub>i</sub> su      mi      dostavljene      [[t<sub>i</sub> nagrade]      i      priznanja]  
 your-F.PL      AUX-3PL = I-DAT.SG      delivered-F.PL      award-F.PL      and      acknowledgement-N.PL  
 oštećene/a/i      u      transportu.  
 damaged-F/N/M.PL      in      transportation-LOC.SG

Additionally, in (1d-f) both the modifier and NP1 are displaced out of the coordinated subject, with (auxiliary and participial) verbal agreement following the extracted arguments in (1d, 1e) or appearing in between (1f), and followed by a secondary predicate. In (1b-f), we observe possessive modifier-head agreement, marked for number, gender, person, and case, followed by a tucked-in clitic auxiliary (agreeing in number and person), an indirect object clitic pronoun (agreeing in number and person), and the first adjectival participle (agreeing in number and gender), controlled by the first conjunct noun on one side, and a second participle agreeing either with the first or last conjunct or showing default gender on the other. The first probe is DP-internal, while the subsequent probes are DP-external.

- d. [Tvoje      nagrade]<sub>i</sub>      su      mi      [t<sub>i</sub> i      priznanja]  
 your-F.PL      award-F.PL      AUX-3PL = I-DAT.SG      and      acknowledgement-N.PL  
 dostavljene/a/i      oštećene/a/i      u      transportu.  
 delivered-F.PL      damaged-F/N/M.PL      in      transportation-LOC.SG
- e. [Tvoje      nagrade]<sub>i</sub>      su      mi      dostavljene      [t<sub>i</sub> i priznanja]  
 your-F.PL      award-F.PL      AUX-3PL = I-DAT.SG      delivered-F.PL and acknowledgement-N.PL  
 oštećene/a/i      u transportu.  
 damaged-F/N/M.PL      in transportation-LOC.SG
- f. Tvoje<sub>i</sub> su      mi      [t<sub>i</sub> nagrade]<sub>k</sub>      dostavljene      [t<sub>k</sub> i priznanja]  
 your-F.PL AUX-3PL = I-DAT.SG      award-F.PL      delivered-F.PL      and acknowledgement-N.PL  
 oštećene/a/i      u transportu.  
 damaged-F/N/M.PL      in transportation-LOC.SG

'Your awards and acknowledgements were delivered to me damaged during transportation'.

However, (1g) appears degraded, if not altogether ruled out by native speakers.

g. ?*[Tvoje nagrade] <sub>i</sub>	su	mi	dostavljene	oštećene
your-F.PL award-F.PL	AUX-3PL = I-DAT.SG		delivered-F.PL	damaged-F.PL
[t <sub>i</sub> priznanja]		u transportu.		
and acknowledgement-N.PL		in transportation-LOC.SG		

Using a self-paced reading experiment, we examine whether morphological agreement cues facilitate the processing of LBE dependencies and whether agreement mismatches within coordinated structures increase processing difficulty. The design manipulates structural distance and agreement strategy across three configurations of extraction under coordination, testing predictions derived from distributed agreement models [1], [6]. In particular, we compare three agreement strategies—double Highest Conjunct Agreement (HCA), double Closest Conjunct Agreement (CCA), and HCA with default masculine agreement.

Forty native BCMS speakers participated in a word-by-word self-paced reading experiment with nine critical conditions (72 experimental items) and filler sentences. Reading times were analysed using linear mixed-effects models, with agreement pattern and structural distance as fixed factors and participants and items as random factors.

We expect increased reading times at gap and participial agreement regions relative to non-extracted controls, reflecting the processing cost of establishing LBE dependencies. Furthermore, we predict that morphologically distinctive agreement patterns will facilitate processing, reducing distance-related costs. Specifically, double HCA structures are expected to yield the longest reading times, while default masculine agreement may show processing facilitation due to reduced feature specification. These results will contribute to understanding how morphosyntactic agreement cues guide the real-time processing of long-distance dependencies in South Slavic.

## References

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