

Homogeneity effects with bare plurals and distributive markers in Serbian

We report on an experimental study of homogeneity effects in Serbian, used as a diagnostic to decide between two competing approaches to the semantics of the Distributive Share marker *po*: namely, whether *po* should be analyzed as a universal quantifier (UQ) (Zimmermann 2002; Bosnić et al. to appear), or as a marker of event plurality (Knežević 2015).

The experimental findings showed two distinct populations - one population that interprets *po* as a universal quantifier, and one that interprets *po* as an event plurality marker. We speculate that the discovery of these two patterns might be evidence for an ongoing diachronic process of semantic weakening of *po*.

Homogeneity. In contexts where the property ascribed to the plurality denoted by a subject DP does not hold uniformly, ‘homogeneously’, sentences with definite plurals are trivalent: they yield a truth-value gap, and are judged neither completely true, nor completely false (1a). We refer to such scenarios as *gap scenarios* (Križ & Chemla 2015 and references therein). In contrast, sentences with a universally quantified subject come out as false in (1b). UQs are thus said to remove homogeneity effects:

- 1) a. The monkeys are holding an umbrella.
Undefined iff *some*, but not all are holding an umbrella. -> *truth-value gap*
- b. Every monkey is holding an umbrella.
False iff *some*, but not all monkeys are holding an umbrella

The difference in the truth conditions of definite plurals vs. universally quantified phrases come out even more clearly in negative statements:

- 2) a. The monkeys are not holding an umbrella.
True iff *none* of the monkeys are holding an umbrella.
Undefined iff *some*, but not all are holding an umbrella > *truth-value gap*
- b. Every monkey is not holding an umbrella.
True iff *some*, but not all are holding an umbrella (preferred reading)
(Also **true** iff *none* were holding an umbrella - less preferred reading)

Hypothesis. Homogeneity effects thus provide us with a straightforward diagnostic for teasing apart the analysis of Serbian *po* in the literature: as a UQ vs. as a marker of event plurality. If sentences with a definite plural subject and *po* on the object (e.g. (3b)) involve universal quantification over the subject, then they should have the truth condition of (2b) in gap scenarios (Figure 1). That is, *po*, just like the UQ *svaki* ‘every’ in (3c) should remove homogeneity effects in negative sentences with a definite subject (i.e. Figure 1 should be accepted with the sentence (3b)). If instead *po* has no universal quantificational force, but is merely an event plurality marker, then (3b), just like (3a) without *po*, should have the truth conditions in (2a). That is, if *po* is not a UQ, then it should not remove homogeneity effects (i.e. Figure 1 should not be accepted with the sentence (3b)). Note that according to Križ (2017), *po* in Russian does indeed retain homogeneity effects in gap scenarios and, thus, does not pattern like a UQ.

Experiment. We tested three types of sentences: with definite (bare) plural subjects, universally quantified subjects using *svaki* and sentences with the Distributive Share marker *po* on the object. Following Križ & Chemla’s (2015) experiments for testing homogeneity effects, we tested

sentences in (3) in the gap situations (Figure 1) in a picture verification task with 45 native speakers of Serbian (33f, 12m; MA:33.53). Crucially, we provided participants with three possible responses: *yes*, *no* and a third response *not really yes and not really no*, simply called a *gap* answer.

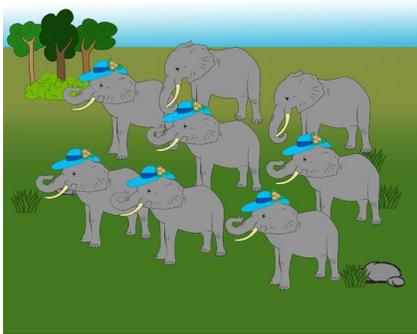


Figure 1: A (truth-value) gap scenario paired with the sentences in (3)

3) Context (for a definite interpretation of the bare plural subject):

There are eight elephants in the picture.

a. Slonovi ne nos-e šešir.
 elephant-PL.NOM NEG wear-PRS.3PL hat-ACC
 ‘The elephants are not wearing a hat.’

b. Slonovi ne nos-e **po** šešir.
 elephant-PL.NOM NEG wear-PRS.3PL DISTR hat-ACC
 ‘The elephants are not wearing DISTR a hat.’

c. Ne nos-i **svaki** slon šešir.
 NEG wear-PRS.3SG every elephant-SG.NOM hat-ACC
 ‘Not every elephant is wearing a hat.’

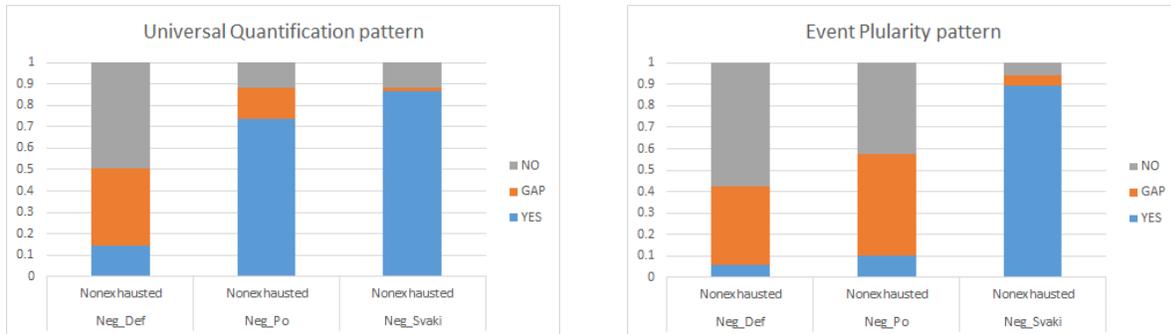


Figure 2: Two patterns of responses - universal quantification pattern for 17/45 participants (left) and an event plurality pattern for 24/45 participants (right)

The experimental results, however, revealed a split in the population with two distinct patterns of responses (Figure 2). One possible explanation is that the split might be evidence of ongoing language change. It seems that for some speakers, *po* has lost its universal quantificational force and is simply interpreted as a weaker, pluractional marker.

References: Knežević, N. 2015. Numerals and Distributivity in Serbian: at the syntax-semantics acquisition interface. Doctoral dissertation. University of Nantes, Nantes. | Križ, M., & Chemla, E. 2015. Two methods to find truth-value gaps and their application to the projection problem of homogeneity. *Natural Language Semantics*, 23(3), 205-248. | Križ, M. 2017. In Soviet Russia, alcohol is dependent on you. *Festschrift for Martin Prinzhorn*. *Wiener Linguistische Gazette (WLG)* 82, 173-180. | Bosnić, A, Spenader J. & Demirdache H. to appear. Dancing monkeys in Serbian and Korean - exhaustivity requirements on distributive share markers. *Glossa: A Journal of General Linguistics*. | Zimmermann, M. 2002. Boys buying two sausages each: On the syntax and semantics of distance-distributivity. LOT, Utrecht