

Word order-based determinacy inferences: Experimental evidence from Czech

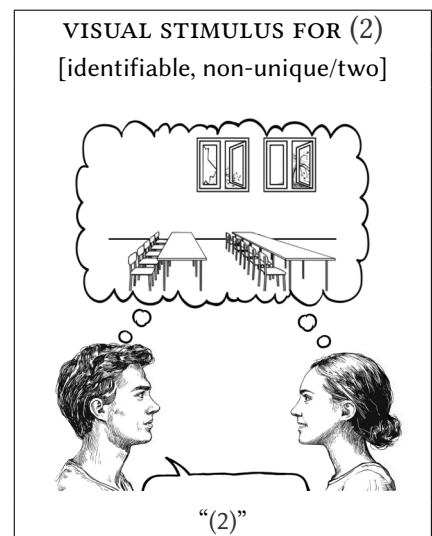
Background Word order alternations in flexible-word order languages without articles have been argued to correlate with bare NP interpretation (1) (Krámský 1972, Chvany 1973), motivating the claim that sentence-initial/preverbal bare NPs obligatorily involve the iota-shift (Geist 2010, Collins 2019). Recent literature has cast doubt on this idea, failing to find evidence for uniqueness inferences (Šimík & Demian 2020, 2021; Seres & Borik 2021), supporting instead the idea that bare NPs are indeterminate (Heim 2011).

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|-----|---|---|
| (1) | a. Přijel vlak.
arrived train
Assumed: ‘A train arrived.’ | b. Vlak přijel.
train arrived
Assumed: ‘The train arrived.’ |
|-----|---|---|

Contribution We report new experimental evidence suggesting that uniqueness is relevant for the interpretation of sentence-initial/preverbal bare NPs in Czech, but only if the NP referent is hearer-identifiable. The small effect size and a comparison with the presupposition-triggering determiner *oba* ‘both’ suggest that the “unique identifiability” (Lyons 1999) of initial NPs is of a purely pragmatic rather than semantic/iota-related origin.

Experiment We have adapted the stimuli from Šimík & Demian (2020) with the aim to manipulate referent identifiability in addition to word order and uniqueness (plurals have been aside in the interest of more statistical power). We used a within-items, within-participants $2 \times 2 \times 2$ design, manipulating WORD ORDER (SV vs. VS), IDENTIFIABILITY (hearer-identifiable vs. non-identifiable), and UNIQUENESS (unique/one referent matching the NP description vs. non-unique/two referents). Each stimulus consisted of a visual part, depicting two conversing individuals (a man and a woman, with left–right placement and speaker–hearer attribution balanced across the experiment), with one individual making a briefly contextualized statement (with the target clause in SV or VS form) about a memory which is either shared (bubbles from both individuals + “Remember...” = referent identifiable), or not (bubbles only from speaker + “Imagine...” = referent non-identifiable).

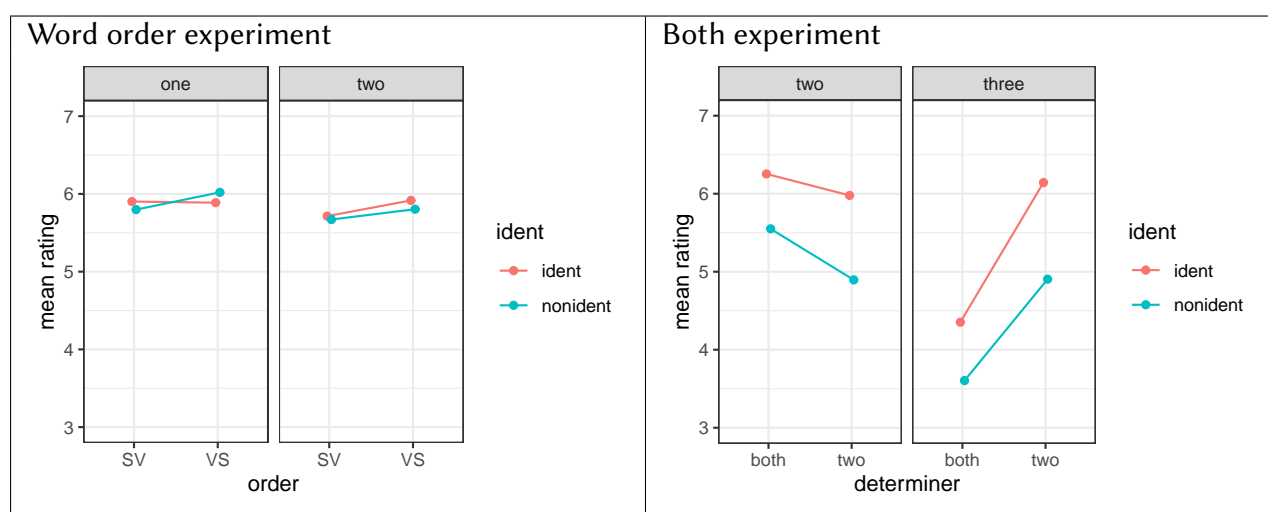
- | | | |
|-----|---|-----------|
| (2) | Při té velké bouři se poničila i naše třída.
‘Our classroom was damaged during the storm.’ | |
| | a. Vzpomeň si, ... ‘Remember...’ | ident |
| | b. Představ si, ... ‘Imagine...’ | non-ident |
| | (i) okno se tam rozbilo.
window REFL there broke | SV |
| | (ii) rozbilo se tam okno.
broke REFL there window | VS |



There were 24 items like (2) interspersed with 40 fillers, containing smaller-scale experiments. One of the experiments tested the cardinality presupposition of *oba* ‘both’ compared to the presupposition-free *dva* ‘two’ (Example of linguistic stimulus: ‘A waiter filled both cups.’ Corresponding visual stimulus: “two cups, both filled” ≈ presupposition satisfied vs. “three cups, two filled” ≈ presupposition violated.) 183 university students took part in the experiments. Their task was to rate the suitability of the speaker’s utterance with regard to the visually depicted (non-)shared memory.

Results The results of both reported experiments are visualized below in the form of mean ratings. For statistical analysis, we relied on cumulative link mixed models (dependent vari-

able: raw rating) with sum-coded predictors (ORDER/DETERMINER, UNIQUENESS/CARDINALITY, IDENTIFIABILITY) and all possible interactions. The models included random intercepts and random slopes for items and participants. In the experiment with ‘both’ we see an interaction between DETERMINER and CARDINALITY ($z = 3.738, p < .001$): as expected, the use of ‘both’ is considered significantly less suitable if the cardinality is three (and more suitable if it is two). No interaction with identifiability was found: the presupposition of ‘both’ has an effect independently of whether it is shared knowledge (condition identifiable), or informative (condition non-identifiable). (The main effect of IDENTIFIABILITY is a spurious item effect, to be discussed.) In the word order experiment, all conditions are considered highly suitable. There is no two-way interaction between ORDER and UNIQUENESS (unlike in the both experiment and in line with Šimík & Demian’s 2020/2021 results for Russian and Polish), but there is a three-way interaction ($z = 2.161, p = .03$), suggesting a relatively higher suitability of the SV order in case the referent is both unique and identifiable.



Discussion and analysis Our results provide a new empirical argument against treating word order-based determinacy inferences in Czech/Slavic, illustrated in (1), on a par with those triggered by presuppositional determiners like ‘both’ (or, by analogy, the definite article). In other words, the sentence-initial/preverbal position of bare NPs should not be analyzed as conventionally conveying iota-shifting (cf. Geist 2010; Collins 2019). The question is how to model the slight relative preference for the SV order in case the referent is uniquely identifiable. We suggest that the preverbal order is indicative of the bare NP being evaluated relative to the topic situation (whose properties are, by assumption, familiar to both discourse participants), which in turn is more likely to happen if the topic situation involves a single potential referent for the NP. We follow Šimík (2021) in assuming that determinate argumental NPs are shifted not by iota, but by a presupposition-free choice function (treated here as a free variable for simplicity). The analysis is presented in a simplified fashion in (3).

- (3) a. $\llbracket s_t \text{ train arrived} \rrbracket = \exists s[s > s_t \wedge \text{ARRIVED}(s)(f(\text{TRAIN}(s_t)))]$
‘There is a situation extending the topic situation in which a train already present in the topic situation arrives.’
- b. $\llbracket s_t \text{ arrived train} \rrbracket =$
- (i) $\exists s[s > s_t \wedge \text{ARRIVED}(s)(f(\text{TRAIN}(s_t)))]$
‘There is a situation extending the topic situation in which a train already present in the topic situation arrives.’
- (ii) $\exists s[s > s_t \wedge \text{ARRIVED}(s)(f(\text{TRAIN}(s)))]$
‘There is a situation extending the topic situation in which a train arrives.’

References (name+year hyperlinked if possible)

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