

## Fixed in English, not (that) free in Slovak: A contrastive study of weight effects on word order

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Whereas English is well-known as a language with a rigid word order, Slovak is generally claimed to be very flexible in this regard. In fact, it has been noted that “Slovak sources decline to refer to any unmarked order of constituents in terms of basic word order” (Short 2002: 566). Rather, the literature only ever discusses information structure as a factor, as is evident from a review of Slovak grammars (e.g. Pauliny et al. 1963; Orlovský 1971; Mistrik 1983, 1988, 2003; Pauliny 1981, 1997; Pavlovič 2012) and several decades’ worth of articles from linguistic journals such as *Jazykovedný časopis* [*Linguistic journal*] and *Slovenská reč* [*Slovak language*]. However, considering evidence of cognitive effects on language structure, it seems unlikely that information structure should be the only determinant of word order in Slovak. Goldberg’s Tenet #5, for example holds that general cognitive constraints are responsible for cross-linguistic generalizations (2003: 219). In a similar vein, Hawkins’ (1994) Performance-Grammar Correspondence Hypothesis (PGCH) predicts that the fixed word orders in languages (such as English) will be mirrored as preferred orders in languages that are more flexible, such as Slovak. According to Hawkins, this tendency can be attributed to “performance preferences” (2004: 5). In other words, Slovak should exhibit a preference for word orders that correspond to the fixed word orders of English. In this talk, I present a contrastive study in support of PGCH, providing evidence for preferred/unmarked syntactic patterns in Slovak that mirror their fixed counterparts in English.

Specifically, I present an experimental study on the “principle of end-weight” (Quirk et al. 1985), according to which speakers prefer placing short/less complex (‘light’) constituents before long/more complex (‘heavy’) ones. As a result, “[l]ong, complex phrases tend to come at the ends of clauses” (Wasow 1997: 81), an effect that has been attributed to cognitive constraints, specifically processing efficiency (cf. e.g. Hawkins 1994, 2004, 2014). The principle of end-weight also applies to postverbal NPs and PPs, which is why Hawkins speaks of a “basic” or “grammaticalized”  $_{VP}[NP\ PP]$  (1) order in English (Hawkins 1994: 20); Medeiros et al. speak of a “canonical English word order” (2021: 426): Because the PP is more complex than the NP, speakers prefer to place it at the end. However, when the NP becomes heavier than the PP, there is a ‘shift’ to  $_{VP}[V\ PP\ NP]$  (2)<sup>1</sup>. In other words, there is a “tendency for speakers to place *long* direct object phrases at the end of a clause rather than next to the verb” (Stallings and MacDonald 2011: 177, emphasis mine):

- (1) I  $_{VP}[gave\ NP[a\ book]\ PP[to\ Mary]]$
- (2) I  $_{VP}[gave\ PP[to\ Mary]\ NP[the\ valuable\ book\ that\ was\ extremely\ difficult\ to\ find]]$

Weight effects have been discussed for well over a century in the context of research on German (cf. Behaghel 1909, 1930) and English, with many experimental and corpus studies adducing ample evidence (*inter alia*, Wasow 1997; Stallings et al. 1998; Arnold et al. 2000; Wasow and Arnold 2003; Stallings and MacDonald 2011; Mains et al. 2015; Melnick 2017; Medeiros et al. 2021). However, in research on Slovak (and most languages from the Slavic family, for that matter), there is a remarkable gap. Given Goldberg’s (2003) Tenet #5 and Hawkins’ (1994) PGCH, however, it seems unlikely that Slovak should not be susceptible to weight effects.

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1 Examples (1) and (2) based on Hawkins (1994: 20).

Accordingly, the primary aim of my study was identifying typological effects - that is, whether and to what degree languages with fixed word orders (English) and flexible word orders (Slovak) are affected by weight effects. My data comes from acceptability judgements obtained from 40 L1 English speakers and 40 L1 Slovak speakers in June 2025. The data were collected using the Magnitude Estimation (ME) method (Bard et al. 1996; Cowart 1997: 73-84; Hoffmann 2013), which features relative judgments where “subjects do not have to rate stimuli on a scale [...] which might artificially limit their choices” but “decide on their own scale and make as many fine-grained choices as they deem necessary” (Hoffmann 2013: 103). The ratings were later normalized using  $z$ -scores to make them comparable. I tested the variables WEIGHT ORDER (levels: HEAVY-LIGHT; LIGHT-HEAVY; HEAVY-HEAVY; LIGHT-LIGHT) and PHRASE ORDER (levels: NP-PP; PP-NP) and all possible interactions. My questionnaires also comprised grammatical and ungrammatical fillers, whose means serve as ‘yardsticks’ against which the test items can be compared in the plots.

The results for WEIGHT ORDER (Fig. 1) show that English and Slovak pattern rather similarly, with LIGHT-HEAVY preferred over HEAVY-LIGHT, in line with the principle of end-weight. This suggests that Slovak, like English, is also susceptible to weight effects. The language-specific preferences can be described as mild at best, with no clear typological effects. Looking at PHRASE ORDER (Fig. 2), we see a preference for the NP-PP order over the alternative PP-NP order in Slovak, again mirroring the results from English. However, here there is a more pronounced typological effect: The  $z$ -score difference between NP-PP and PP-NP is considerably higher in English than in Slovak; but note that the absolute difference between the grammatical and ungrammatical filler ‘baselines’ is greater in English (0.70) than in Slovak (0.54).

Finally, the interactions (Fig. 3) show that NP-PP coincides with relatively high acceptability ratings for most observations in English, with HEAVY-HEAVY showing substantial ambiguity in judgement. Conversely, PP-NP is strongly dispreferred in most cases; yet, LIGHT-HEAVY appears to revert this tendency to some extent. The patterns in the Slovak data, by contrast, indicate that ‘anything goes’; however, LIGHT-LIGHT +NP-PP seems to be particularly well formed, while HEAVY-LIGHT + PP-NP is not. In fact, in English, the latter lexicalization is the only one with ratings so low that they even fall below the ungrammatical baseline.

The results, corroborating PGCH, provide evidence for the cross-linguistic applicability of the principle of end-weight and thus, of cognitive constraints (cf. Goldberg’s Tenet #5). Furthermore, they show that not only is Slovak susceptible to weight effects, it also exhibits a preference for NP-PP over PP-NP, suggesting that phrase order does play a role in Slovak. My study therefore demonstrates that there are factors beyond information structure that influence word order and the existence of unmarked/basic word orders in Slovak, with serious implications for linguistic research on Slovak.

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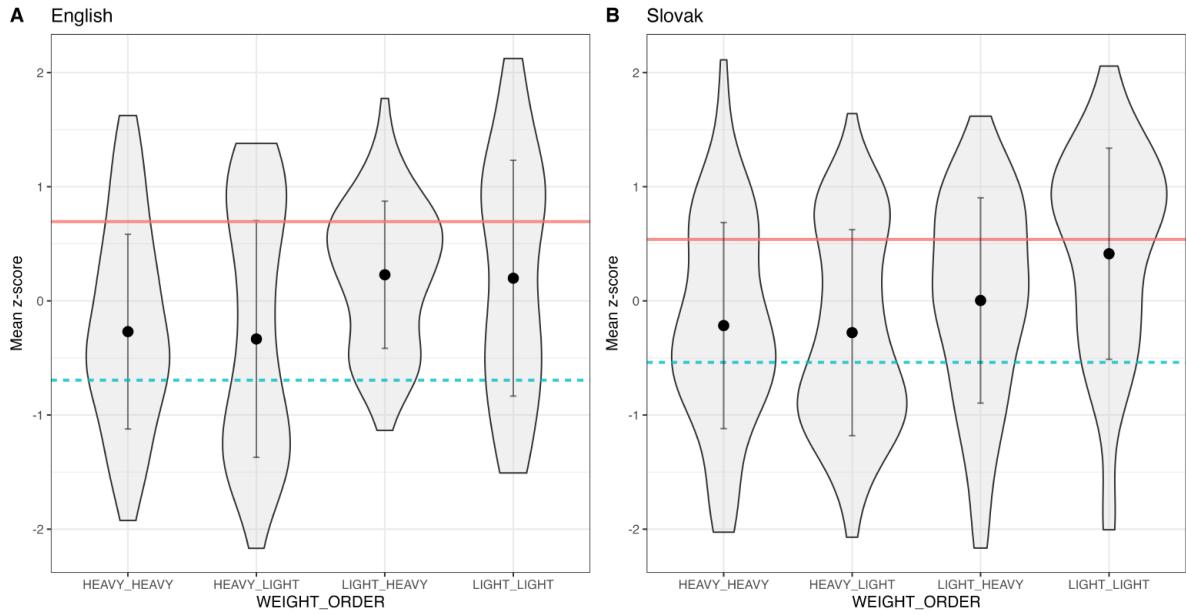


Fig. 1 Z-score means of WEIGHT ORDER, English (A) and Slovak (B)

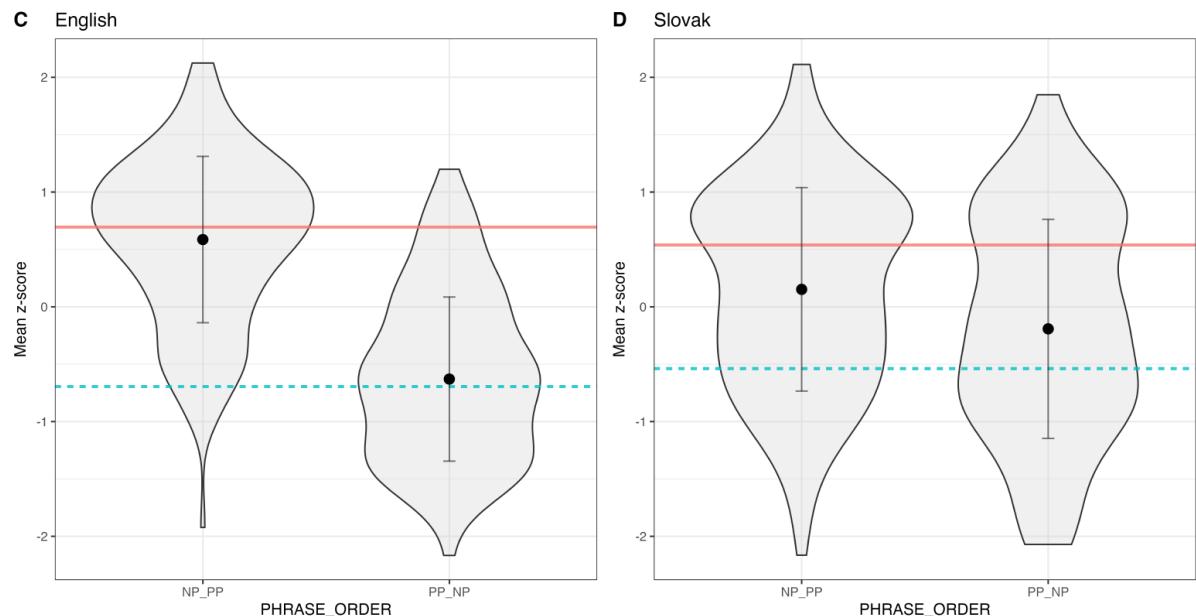


Fig. 2 Z-score means of PHRASE ORDER, English (C) and Slovak (D)

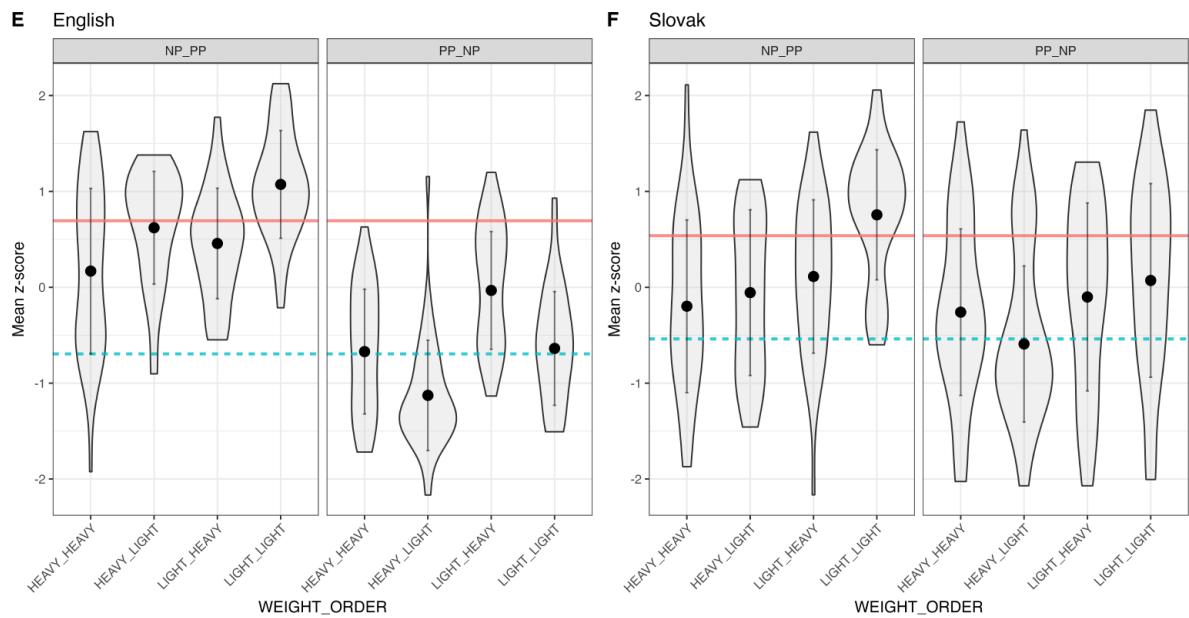


Fig. 3 Z-score means of WEIGHT ORDER:PHRASE ORDER, English (E) and Slovak (F)