Exploring Grammatical Sensitivity in Hungarian:
Insights from an Individual Differences Perspective

Understanding individual variation in linguistic abilities is essential for exploring their relationship with language use and other cognitive functions (Kidd et al., 2018; Hintz et al., 2024). One such ability is grammatical sensitivity—the capacity to detect grammatical patterns and structure in language. Grammatical sensitivity is fundamental to effective verbal communication, allowing speakers and listeners to construct, interpret, and anticipate meaning in real time. Despite its significance, little is known about its individual variation, leaving open questions regarding its extent, the linguistic and cognitive factors influencing it, and the levels of linguistic representation—such as syntax, morphology, and information structure—where it may emerge.

This study investigates individual differences in grammatical sensitivity across three levels of Hungarian: full sentences, verb phrases, and noun phrases. Hungarian allows various syntactic configurations that, while grammatical, differ in speaker preference due to constraints imposed by information structure and semantic features. Furthermore, sensitivity to syntactic structure selection may align with sensitivity to collocation preferences as a possible outcome of shared language learning capacities. To examine these phenomena, we developed three experimental paradigms: a sentence production task, a sentence comprehension task, and a collocation preference task.

In the sentence production task, participants were given predefined sentence chunks (e.g., *Az agarászat lényege, hogy…*) and instructed to construct a sentence using the word order they found most natural (given the words: *a vadász*; *a zsákmányt*; *az agarakkal*; *ejti el*). We hypothesized that syntactic features (definiteness and grammatical case) along with the semantic feature of animacy would systematically influence participants' choices to varying degrees based on individual differences.

The sentence comprehension task combined self-paced reading and lexical decision paradigms (Vani et al., 2021) to examine individual processing speed differences in postverbal argument structures (e.g., *A meditáció természetes módon vezeti vissza* X_1 X_2.). Participants were presented with two sentence fragments (X_1: *az embert* vs *az ingyen*) at a time and instructed to select the one that best continued the preceding context, progressively constructing a complete sentence. The stimuli varied in verb argument structure, including configurations with two obligatory complements and those with one complement plus an optional adjunct. We hypothesized that processing predicted (complement) versus unpredicted (adjunct) arguments would result in measurable individual differences.

The collocation preference task assessed sensitivity to noun collocations based on bigram frequencies. Designed after the words-that-go-together task (Dąbrowska, 2014), this paradigm presented participants with five word pairs that shared an identical second word but varied in the first word (e.g., noun *hős* and adjectives: *magányos*, *egyedüli*, *független*, *egyedülálló*, *remete*). Participants were asked to select the pair that sounded most natural or colloquial. While the collocations were semantically similar, their frequency metrics differed systematically. We expected individual differences in sensitivity to this variation, measured using Mutual Information or logDice scores. In all paradigms, stimuli were selected from a large language

corpus based on GDEX scores, high unigram frequency, and neutral register to ensure naturalness.

Fifty Hungarian native speakers (mostly university students, median age = 20 years) participated in the study in exchange for course credits. Preliminary results revealed different patterns of variation across the tasks. The sentence production task showed minimal individual variation in the production of natural-sounding word orders, indicating a shared preference for specific information-structural patterns among participants. In contrast, the sentence comprehension task revealed substantial individual differences in processing times, influenced by the optionality and frequency of arguments. Similarly, the collocation task showed variations in responses highlighting a gradual increase in preference towards more frequent collocations.

These findings suggest that individual variability in preferences related to information structure—closely linked to grammatical sensitivity—is less apparent in production tasks, where speakers seem more uniformly guided by constraints on preferred word orders. Conversely, in comprehension tasks, speakers are ready to accept a wider range of good-enough structures. Furthermore, the collocation task, which can be viewed as a lower-level production task, showed systematic variation, suggesting that variability increases as linguistic structures rely more heavily on individual lexical building blocks as opposed to more abstract patterns.

These findings highlight the role of grammatical sensitivity in shaping individual differences on different levels of grammar. Further research is needed to investigate how these individual differences are influenced by cognitive and linguistic factors.

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