

## The effect of discourse continuity on information structure persistence

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In language communication, speakers keep track of what has been said in order to maintain coherence between utterances. To do this, they memorize the information structures (e.g., what is given) of the previous utterances. The information structures can be retrieved to guide syntactic encoding in the subsequent production. Evidence for the persistence of information structure comes from studies of structural priming (e.g., Vernice et al, 2012). For instance, Vernice et al. (2012) observed that speakers were more likely to produce a passive sentence (which emphasizes the patient) after an active cleft sentence that emphasizes the patient rather than agent (i.e., information structure priming). However, in these studies, speakers processed prime sentences and target sentences in isolated tasks, leaving it unclear whether such persistence of information structure is driven by the goal to maintain discourse coherence. In the current study, we investigated the effect of discourse coherence on structural priming by examining the effect of connectives that link the prime and target sentences. If structural persistence can be driven by discourse coherence, the presence of a connective would promote the effects of structural priming. We further examined three factors that might modulate the connective effects on structural priming, including 1) the semantic property of connectives (i.e., whether it signals continuation [e.g., *and*] or contrast [e.g., *but*]), 2) verb overlap (i.e., whether the prime verb was the same as the target verb), and 3) the continuation of topics (i.e., whether the prime agent was the same as the target agent).

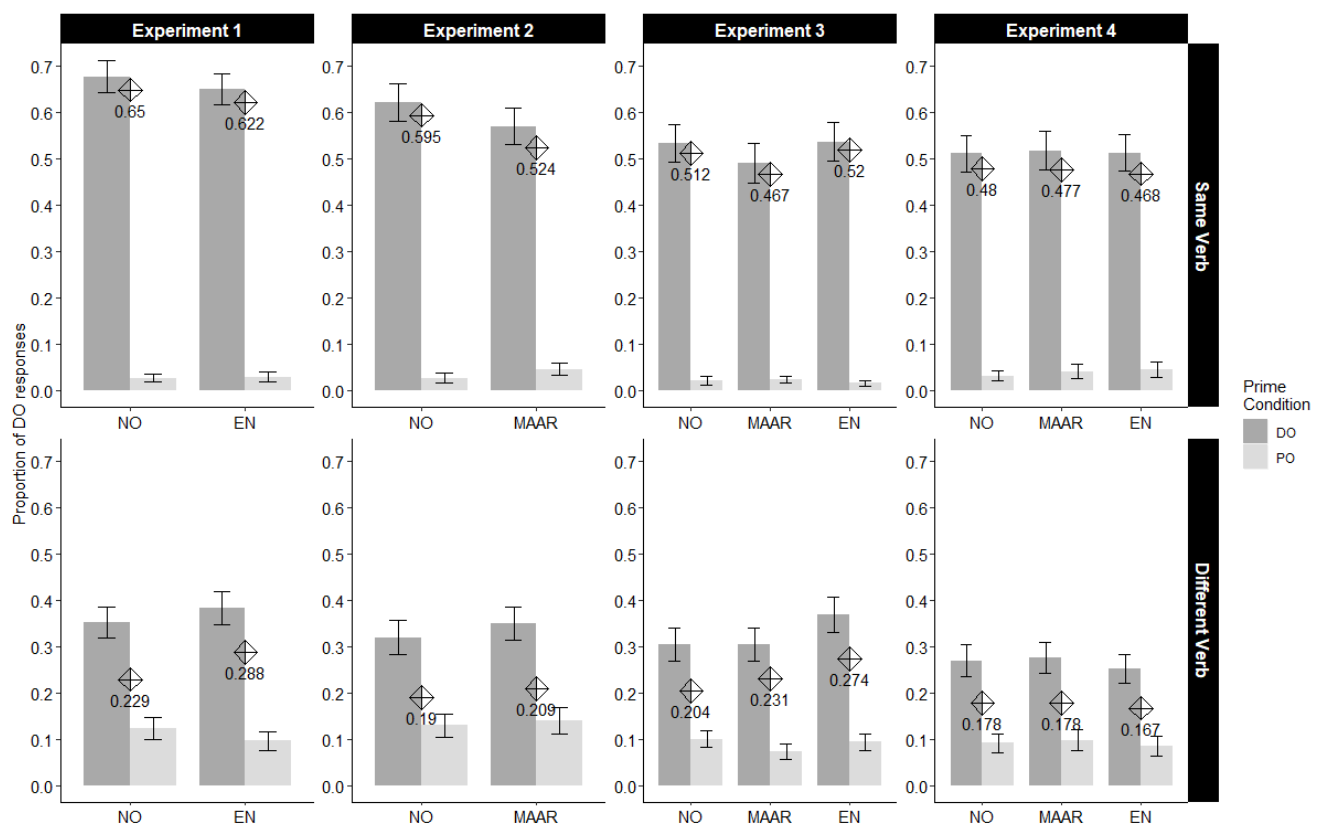
In two structural priming experiments, 192 native Dutch speakers (96 per experiment) read either Dutch double object (DO) sentences (1a and 1c, the examples are illustrated in Table 1) or prepositional object (PO) sentences (1b and 1d) and describe target pictures that depicted ditransitive events. In half of the prime sentences, the verb was the same as that in the ensuing preamble (1a and 1b), and in the other half, the verbs were different (1c and 1d). The target sentence production was prompted by a preamble (2a-c). The preambles started with either a connective (*en* meaning *and* in Experiment 1, *maar* meaning *but* in Experiment 2) or the agent noun phrase. The prime agent and the target agent were always the same (e.g., *danseres* - *danseres*). In both experiments, we found structural priming effects (44.7% in Experiment 1, 38.3% in Experiment 2) and a boost to priming when there was verb overlap (i.e., lexical boost effects: 37.6% in Experiment 1, 35.9% in Experiment 2). Crucially, in Experiment 1, there was stronger structural priming when the connective *en* was presented, but only when the verbs were different (a 5.9% facilitation effect, Figure 1). In Experiment 2, presence of the connective *maar* reduced the effect of structural priming in the Same Verb condition (a 7.0% reduction effect, Figure 1).

In two further structural priming experiments (92 native Dutch speakers in Experiment 3 and 96 in Experiment 4), we manipulated the semantic property of the connectives in a within-subject design. The design of the experimental conditions in Experiment 3 was the same as Experiment 1 except that now the preambles started with either *en*, *maar*, or the agent noun phrase. The only difference between Experiment 4 and Experiment 3 was that in Experiment 4 the prime agent was different from the target agent (*leraar* - *danseres*). Again, there were significant structural priming effects (36.9% in Experiment 3, 32.6% in Experiment 4) and lexical boost effects (26.3% in Experiment 3, 30.1 in Experiment 4). Importantly, in Experiment 3, we replicated the significant facilitation effect of connective *en* in the Different Verb condition (a 7.0% facilitation effect, Figure 1) and a trend of reduction effect of connective *maar* in the Same Verb condition (a 4.5% reduction effect, Figure 1). No connective effects were found in Experiment 4 (Figure 1).

The findings in four experiments show that discourse continuity status influences the persistence of information structure (e.g., the relative givenness of theme and recipient). The continuity effects vary across semantic properties of the connectives, verb overlap, and topic continuity, which suggests that the persistence of information structure is modulated by the expectation of parallel information of topic and event between consecutive utterances.

Table 1: Exemplar items in each condition of Experiment 1-3

	Example sentence/fragment	Condition
Prime sentence	1a) De danseres overhandigt de non een boek. [Literally: The dancer hands the nun a book.]	DO, Same Verb
	1b) De danseres overhandigt een boek aan de non. [Literally: The dancer hands a book to the nun.]	PO, Same Verb
	1c) De danseres toont de non een boek. [Literally: The dancer shows the nun a book.]	DO, Different Verb
	1d) De danseres toont een boek aan de non. [Literally: The dancer shows a book to the nun.]	PO, Different Verb
Target preamble	2a) En de danseres overhandigt _____. [Literally: And the dancer hands _____.]	Connective En
	2b) Maar de danseres overhandigt _____. [Literally: But the dancer hands _____.]	Connective Maar
	2c) De danseres overhandigt _____. [Literally: The dancer hands _____.]	No Connective



**Figure 1** The proportion of DO responses as a function of prime condition, verb overlap, and connective condition in Experiment 1 - 4. The error bars indicate the standard error aggregated over subjects. The diamond plus between the two bars indicates the priming effect (DO responses in DO condition minus that in PO condition). NO = No connective, EN = Connective En, MAAR = Connective Maar.

## References

Vernice, M., Pickering, M. J., & Hartsuiker, R. J. (2012). Thematic emphasis in language production. *Language and Cognitive Processes*, 27(5), 631-664.