The role of case marking and word order in cross-linguistic priming

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Several studies found cross-linguistic priming of syntactic structures with a wide variety of language combinations. Arguably, this priming effect reflects the sharing of syntactic representations between prime and target language. However, most previous studies have tested etymologically related languages, thereby leaving it unclear how similar the languages need to be for such sharing to arise. Here, we investigated the role of two important domains of language variation: case marking and word order. We varied these language features in an artificial language (AL) learning paradigm, which enabled us to manipulate these language features while keeping constant all other factors that might influence structural priming across languages.

A previous study used the same paradigm to investigate structural priming in spoken sentence production between a natural language (Dutch) and an AL (Muylle et al., in preparation). The AL – baptized "PP02" – consisted of intransitive, transitive, and ditransitive sentence structures. Crucially, the transitive and ditransitive sentences could be formulated respectively in two alternative ways: active vs. passive and double-object (DO) dative vs. prepositional-object (PO) dative. Native Dutch speakers (with English and French as L2) acquired the AL in the lab during five sessions by means of a battery of tasks. Each session ended with a sentence priming task, in which participants first evaluated whether a sentence matched an action (depicted in a movie clip), and then described a new movie clip with a sentence. Primes could be in Dutch or PP02, while target sentences could be in the same language or in the other language, involving the same action (i.e. related priming) or a different action (i.e. unrelated priming). There was structural priming between Dutch and PP02 in both directions already at the end of the first session, but only for the transitive sentences. Cross-linguistic priming of ditransitives emerged only from the third session on.

The current study tested three versions of PP02 (Table 1): a) a baseline version with subject- verb-object (SVO) word order (i.e. similar morphological marking and word order as Dutch), b) a case marking version with SVO word order (i.e. different morphological marking, similar word order compared to Dutch), and c) a version with SOV word order (i.e. similar morphological marking, different word order compared to Dutch). This design enabled us to disentangle morphological marking from word order. A single learning session was administered in which 144 native speakers of Dutch were equally distributed across the three versions. The data were analyzed using generalized linear mixed effects models.

The within-language and cross-linguistic priming effects were similar in all language versions for the transitive sentences (Figure 1), indicating that variations in morphological marking and word order do not necessarily prevent structural priming between languages. In contrast, for the ditransitive sentences (Figure 2) there were similar within-language priming effects for all versions, but none of them showed evidence for cross-linguistic priming. This is in line with the findings of our previous study and suggests that it is relatively time-consuming to develop shared representations of ditransitive structures across languages. A remarkable difference between the different versions is the absence of a PO-dative bias in the SOV targets (only 45% of the ditransitive responses), whereas this bias is very strong in Dutch and also transfers to the other PP02 versions (over 70% of the ditransitive responses). This suggests that a different word order might prevent the transfer of structural preferences from the native language to another language.

Our findings are compatible with studies using cross-linguistic priming in natural languages with altering morphological systems or word order, such as English-Greek (case-marking; Salamoura & Williams, 2007) and English-Korean (SOV; e.g., Hwang et al., 2018).

Table 1. Examples of transitives and ditransitives for each PP02 version.

	Baseline	Case marking	SOV	Translation
active	Dettus zwifsi fuipam *Clown kisses cook*	Dettus zwifsi fuipamni *Clown_NOM kisses cook_ACC*	Dettus fuipam zwifsi *Clown cook kisses*	De clown kust de kok
passive	Fuipam nast zwifo ka dettus *Cook is kissed by clown*	Fuipam nast zwifo dettuska *Cook_NOM is kissed clown-by*	Fuipam ka dettus nast zwifo *Cook by clown is kissed*	De kok wordt gekust door de clown
DO-dative	Dettus heufsi fuipam sifuul *Clown gives cook hat*	Dettus heufsi fuipamda sifuulni *Clown_NOM gives cook_DAT hat_ACC*	Dettus fuipam sifuul heufsi *Clown cook hat gives*	De clown geeft de kok de hoed
PO-dative	Dettus heufsi sifuul bo fuipam *Clown gives hat to cook*	Dettus heufsi sifuulni fuipambo *Clown_NOM gives hat_ACC cook-to*	Dettus sifuul bo fuipam heufsi *Clown hat to cook gives*	De clown geeft de hoed aan de kok

Figure 1. Priming effects for the transitives.

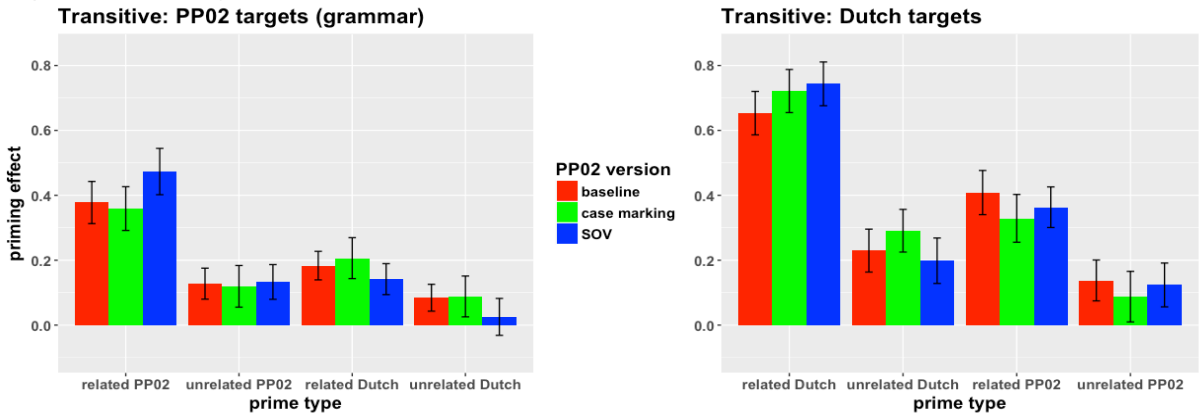
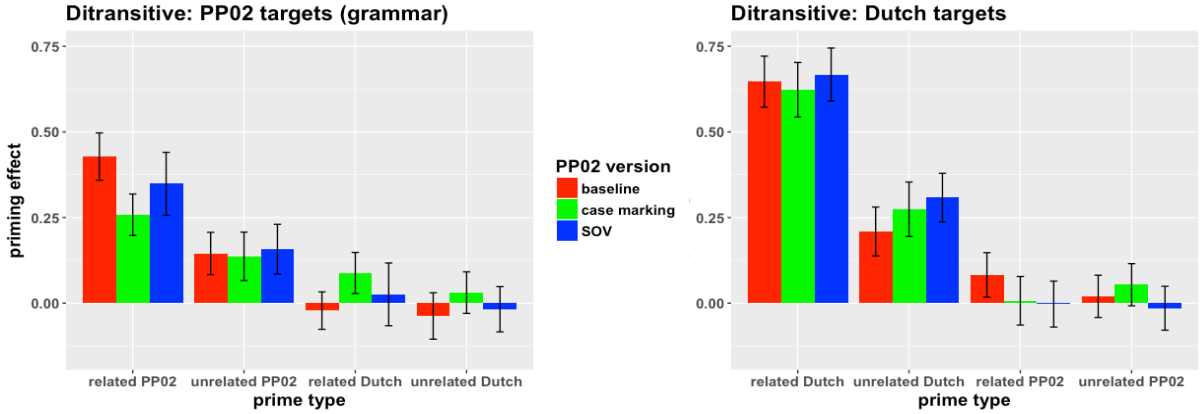


Figure 2. Priming effects for the ditransitives.



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