

Enhancing cross-linguistic influence through across-language priming

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Abstract

We investigate whether it is possible to prime a structure from a bilingual's one language (A) to the other (B), if this structure is grammatical in A, but not in B. Specifically, we focus on the use of the verb-subject-object word-order (VSO) in broad-focus sentences, which is allowed in Greek, but not in Italian. We use an across-language priming experiment to enhance the activation of VSO in Greek and observe whether this leads to the use of VSO in Italian. The results show an increase in the production of VSO in Italian following a Greek VSO prime. Overall, the study accounts for cross-linguistic effects in terms of the activation of a certain syntactic structure in a bilingual's processing system.

Keywords: cross-linguistic influence, structural priming, activation, ungrammatical structure, Greek-Italian bilinguals

Introduction

Cross-linguistic influence in bilingual language production has been interpreted in terms of activation of a certain syntactic structure in a bilingual's processing system: A structure with a high degree of activation in one language exhibits the greatest tendency to appear in the other language (Serratrice 2016; Sharwood Smith and Truscott 2014). Structural priming experiments provide a privileged viewpoint to test the hypothesis that cross-linguistic influence from Language A to Language B is due to the activation of a certain structure in Language A. One can enhance activation of the target structure in Language A and observe whether this leads to an increased use of this structure in Language B. Across the literature, cross-linguistic priming experiments have mainly considered linguistic structures that are possible in a bilingual's both languages. For example, Hartsuiker et al. (2004) show that the use of passive sentences may be primed from Spanish to English. The aim of these studies is to understand whether the target structures have a common underlying representation across a bilingual's two languages (see also Vasilyeva et al. 2010). The aim of our study is to investigate whether structures that are grammatical in Language A but ungrammatical in Language B can be primed, too, in order to shed some new light on the cognitive mechanisms underlying cross-linguistic effects. We investigate the possibility to prime verb-subject-object structures (VSO) from

Greek to Italian. In Greek, both subject-verb-object (SVO) and VSO are possible word-orders in a broad-focus context, while in Italian VSO is not allowed (Roussou and Tsimpli 2006; Torregrossa et al. 2020).

Methods

Participants

36 Greek-Italian bilingual children (15 females, age range 7;5-11;10, M: 9;5) participated in the study. The children were all simultaneous or early sequential bilinguals (with an age of onset to Italian ranging between 0 and 3 years). At the moment of testing, they were attending an Italian immersion school in Athens (Greece), where Italian was the main medium of instruction. We refer to Baroncini & Torregrossa (in preparation) for further details concerning children's language exposure to Greek and Italian across different contexts over time.

Materials and procedure

We designed an across-language priming experiment to investigate whether Greek-Italian bilingual children would produce an ungrammatical VSO sentence in Italian (target) after hearing a VSO sentence in Greek (prime).

The task was designed as a picture-description task in a bilingual mode: Children were asked to look at a picture appearing on the computer screen, listen to a sentence in Greek describing this picture (prime) and repeat it. Then a question in Italian appeared on the screen (*E adesso cosa succede qua?* "And what happens here?"), followed by a new picture. At this point, children had to describe the new picture in Italian. In order to keep the children more engaged in the task, all pictures were connected in a narrative.

As primes, we used VSO sentences and SVO sentences. Overall, children had to produce 40 target sentences in Italian, 20 preceded by a Greek SVO prime and 20 by a Greek VSO prime. Both primes and target sentences involved transitive verbs. We employed different lexical items in the prime and the target sentences. The verb to be used in the target sentence was provided in uninflected form in the picture, in order to prevent the results to be affected by children's lexical knowledge. We avoided the repetition of the subject and object constituents across the stimuli, in order to control for information structure.

Results

First, we excluded the target sentences that were produced following an absent or incorrect repetition of the prime. This was done in order to make sure that the child listened to the prime properly and understood it correctly. Furthermore, we excluded sentences that were neither SVO nor VSO. The excluded sentences represent 27.29% of the total amount of targets.

Figure 1 shows the mean percentage of VSO sentences produced in Italian following a SVO and a VSO prime in Greek, respectively. After a SVO prime, the percentage of VSO sentences amounts to 4.47%. After a VSO prime, the percentage of VSO sentences increases by 3.23%, reaching 7.70%. Most of the produced target sentences were SVO, independently of whether the prime was SVO or VSO (95.53% and 92.30%, respectively).

We used R (R Core Team, 2012) and lme4 (Bates et al. 2012) to perform a Generalized Linear Mixed Model (GLMM) to model the probability of producing a VSO target as a function of the type of prime (SVO vs. VSO). We considered the production of SVO vs. VSO as the dependent variable, choosing the production of SVO as the reference level. As fixed effect, we used the type of prime (SVO vs. VSO). We specified random effects for participant and item. The GLMM-analysis reveals a significant effect of type of prime, indicating that participants tend to produce more VSO following a VSO prime, as reflected by the positive estimate ($\beta = 3.33$, $SE = 1.23$, $z = 2.70$, $p < .001$).

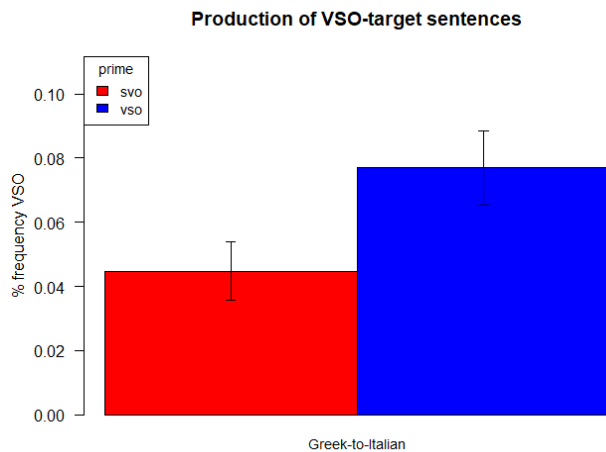


Figure 1. Mean percentage of VSO target sentences produced after a SVO- and a VSO-prime, respectively.

Discussion

The results show that Greek-Italian bilingual children may produce VSO sentences in Italian, although VSO is not possible in broad-focus contexts in this language. Greek VSO primes enhance the production of VSO in Italian.

The enhanced production of VSO sentences after Greek VSO primes suggests that the activation of a structure in Language A (Greek) may motivate the use of the same structure in Language B, even if the structure is not available in Language B. This suggests that the activation of VSO in Greek motivates cross-linguistic influence from Greek to Italian in the use of VSO. Notably, some

instances of VSO are produced following a Greek SVO prime, too. We propose that this is due to the activation of the Greek language. In other words, the activation of the Greek language *per se* combined with the activation of VSO has a cumulative effect on the production of VSO in Italian, as observed in Figure 1. At this point, this is just a speculation. In Baroncini & Torregrossa (in preparation), the results of the present study are compared to the results of a within-language priming experiment involving the use of Italian only. This will allow us to understand whether VSO sentences are produced also if Greek is not activated.

Finally, it should be noticed that the production of VSO sentences is very limited compared to the production of SVO sentences. This may be due to children's sensitivity to the ungrammaticality of VSO in broad-focus contexts in Italian. However, it is not excluded that children prefer to use SVO in Greek, too. In Baroncini & Torregrossa (in preparation), we aim to solve this issue, by comparing the results of this study with a within-language experiment involving the use of Greek only.

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