Syntactic priming may not lead to language change

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Abstract

This study examines the hypothesis that syntactic priming can lead to language change among bilingual speakers living in language contact areas. A group of second-generation immigrants (Spanish-English bilinguals) living in the United States completed one within-language and one cross-linguistic priming experiment designed to prime participants with overt subject pronouns in Spanish. Each experiment consisted of a pre-test, a treatment, and a post-test task. Participants showed a significant priming effect in both treatment tasks, but the effect did not extend to any of the post-tests. Results suggest that syntactic priming might not be driving language change at the individual level, contrary to what previous studies have proposed.

Keywords: syntactic priming, language change, subject pronoun expression

Introduction

The mechanisms that drive language change are still unknown, although some potential factors have been proposed in the literature. In this regard, Jäger and Rosenbach (2008) claimed that syntactic priming, the psycholinguistic mechanism whereby a speaker repeats the syntactic structure of a previous utterance, could be one of the mechanisms of language change at the individual level. Some studies have tested this hypothesis by examining bilingual speakers living in language contact areas. A good example of this are the studies conducted by Torres-Cacoullos and Travis (2011, 2016) with Spanish-English bilinguals from New Mexico. These studies found that there was a significant priming effect during spontaneous conversations, both in monolingual and in bilingual (code-switching) mode. Furthermore, the studies showed that within-language priming yielded a stronger effect than cross-linguistic priming.

However, in order to claim that syntactic priming leads to language change, it is important to examine whether speakers continue to use the target structure outside of the priming task itself or in a different conversation (Chang 2008, Pickering and Garrod 2019). If the priming effect does not extend beyond the task or conversation, it would constitute evidence that priming cannot be one of the triggers of language change at the individual level. Despite this evidence being crucial to accept the hypothesis that syntactic priming can lead to language change, no study up to date has included any type of post-test in its experimental design.

Method

The present study seeks to investigate the hypothesis that syntactic priming can lead to language change. To do this, two experiments were designed (one within-language and the other cross-linguistic) consisting of a pre-test, a treatment, and a post-test each.

The target structure chosen for the study was overt subject pronoun expression in Spanish. Overt subject pronouns are grammatical but pragmatically redundant in Spanish, so speakers usually omit them. On the contrary, English requires overt subject pronouns. Therefore, this structure is ideal to test whether exposure to overt subject pronouns in Spanish (within-language priming) or overt subject pronouns in English (cross-linguistic priming) affects participants' rates of overt pronoun usage in Spanish.

Participants

A group of 33 Spanish-English bilingual speakers completed the study. These were all second-generation immigrants raised and currently living in the U.S. Midwest.

Materials

A total of 160 short stories (2-3 sentences long each) were created for the priming experiments. Out of those 160 stories, 120 were in Spanish and 40 were in English. The stories described daily situations in the 2nd person singular form. However, none of the stories contained any overt subject pronouns. Thus, all subjects were either lexical or were omitted (this latter only applied to Spanish). Stories were then divided into 8 lists of 20 items each.

Four of those lists (containing only stories in Spanish) were used in the pre-test and post-test tasks of the experiments. Since there were two pre-test and two post-test tasks total, the 4 lists were counterbalanced across participants so that they all went over each of the lists once. Additionally, every story in these lists was complemented by a set of 3-4 keywords.

The remaining 4 lists (2 containing stories in English and 2 in Spanish) were used for the treatment tasks. Here, the stories in English were in fact translations of the stories in Spanish. Thus, there were only two unique lists of stories in this set of four. The lists in Spanish were used in the treatment task of the within-language experiment and the lists in English were used in the treatment task of the cross-linguistic experiment. These lists were also counterbalanced so that participants went over each unique list once. Furthermore, because these stories were used in the treatment tasks, each story was complemented by a prime sentence in the form of a prompt containing an overt subject pronoun (either 'tú' in Spanish or 'you' in English, depending on the experiment).

Design and procedure

Participants completed the study individually in two experimental sessions. In the first session, participants completed the within-language experiment (pre-test, treatment, and post-test). In the second session, participants completed the cross-linguistic experiment (pre-test, treatment, and post-test). All participants were given a short 10-minute break between tasks and there were at least 2 weeks in between experimental sessions.

During the priming experiments, participants were exposed to the stories one by one on a computer screen and were asked to produce a sentence to continue each of the stories by using either the keywords provided (pre-test and post-test tasks) or the information in the prompt (treatment tasks). All responses had to be produced out-loud in Spanish and were recorded in a computer using Audacity (i.e., a popular audio software).

Results

All sentences produced in the priming experiments were transcribed and entered into a spreadsheet where additional codes were included to facilitate the analysis process (i.e., experiment, task, participant, item, and response).

Descriptive results showed that participants produced a higher rate of overt subject pronouns in the treatment tasks than in the pre-test and post-test tasks (Figure 1). Furthermore, the rate of overt subject pronouns was numerically higher in the within-language priming experiment than in the cross-linguistic priming experiment. Lastly, overt pronoun production in the post-test tasks did not differ much from that of the pre-test tasks.
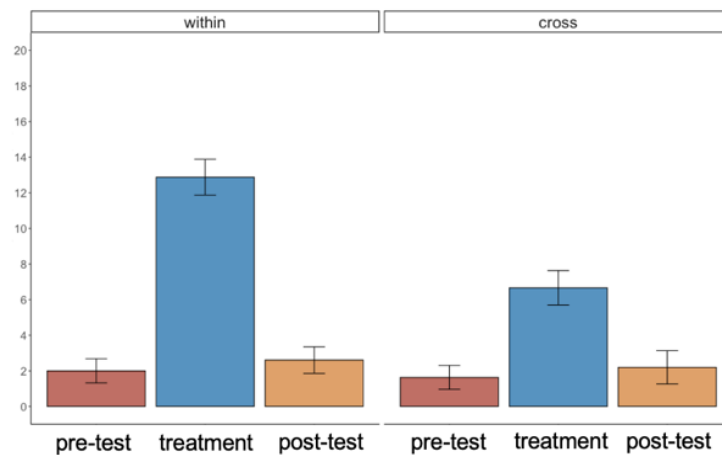

Figure 1. Mean use and *SE* of overt subject pronouns by experiment and task.

In order to confirm whether these observed differences were statistically significant, a mixed-effects binomial logistic regression model was ran using the

lme4 R package (Bates et al. 2015) with response as the binomial dependent variable and experiment and task as independent variables. Participant and item were entered in the model as random effects. The model confirmed that there was a significant priming effect in both treatment tasks (β = 4.04, χ = 19.75, *p* <.001) and that the effect was significantly stronger in the within-language experiment than in the cross-linguistic experiment (β = 1.75, χ = 11.93, *p* <.001). Moreover, rates of overt pronoun production from the post-test tasks were not significantly different from those of the pre-test tasks (β = -0.53, χ = -2.11, *p* = .087).

General discussion

The purpose of this study was to assess the hypothesis that syntactic priming leads to language change. Two priming experiments including post-tests were designed (one within-language one cross-linguistic) and a group of Spanish-English bilinguals was tested. It was hypothesized that if the priming effect did not extend to the post-test tasks, priming could not be one of the mechanisms driving language change at the individual level. Results showed that this was indeed the case, as there was a significant priming effect in both treatment tasks which did not extend to any of the post-test tasks. Results demonstrated that syntactic priming is a short-lived phenomenon unlikely to impact future language production, at least in the case of the construction tested in these experiments.

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