

Priming during real-time comprehension of code-switched utterances



David Nahmias, Daniel Grodner & Malathi Thothathiri
Department of Psychology, Swarthmore College



Introduction

Syntactic priming refers to facilitation in using a syntactic structure after recent exposure to the same structure. In studies of monolingual language processing, this technique has been used to shed light on the abstractness of syntactic representations, the ontogeny of such representations, and the possible architectural differences between language comprehension and production [1, 2, 3].

Parallel studies in bilingual language processing have shown that abstract syntactic representations can be shared between languages. Use of a syntactic structure in one language facilitates the use of a similar structure in the other language [4, 5].

The current study explores priming of code-switched structures. Such structures might place a special burden on comprehenders. We ask:

1. if structures constructed “on the fly” and not found in either constituent language can be primed.

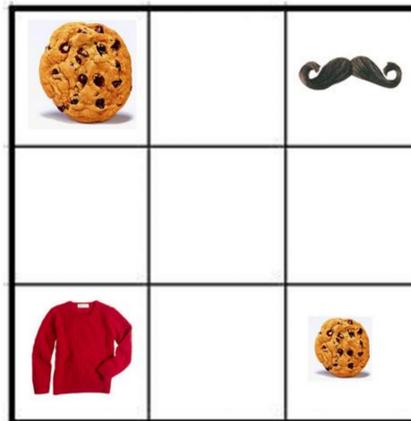
1. whether such priming will facilitate online comprehension in bilingual listeners.

Methods (contd.)

On critical trials, the word following the carrier phrase was temporarily ambiguous, and roughly phonetically compatible with an English adjective and a Spanish noun.

E: “Click on the big cookie” or CS: “Click on the bigote largo”

English match
“big cookie”



Spanish match
“bigote largo”

Distractor

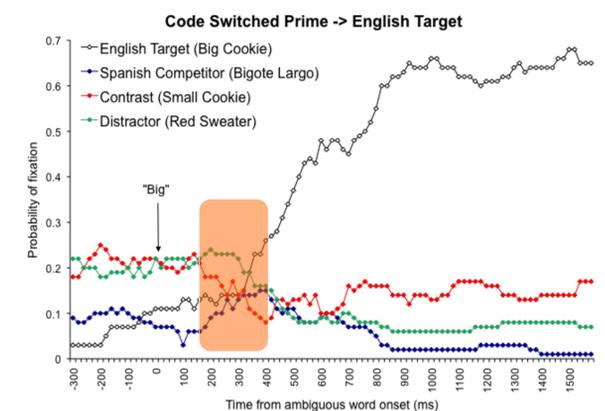
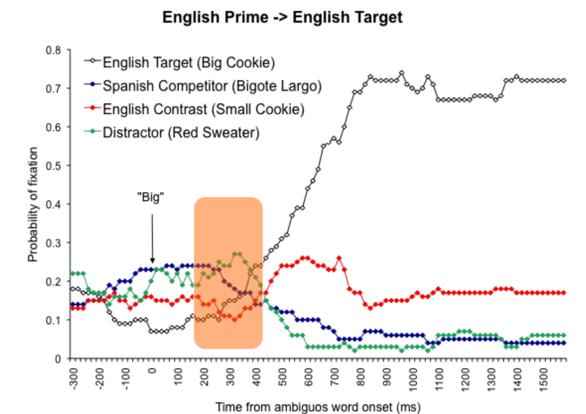
Contrast

We measured looking time to the four items on the computer screen.

DV = $\frac{\text{looking time to target}}{\text{looking time to target} + \text{competitor}}$ in 200-400 ms interval following ambiguous onset

Priming would be reflected by larger proportion scores in E-E and CS-CS conditions than in E-CS and CS-E conditions.

Results: English Targets



No effect of prime on looking to target or proportion DV. Looking to competitor going opposite to predicted direction.

Methods

Twenty-four Spanish-English bilinguals from Swarthmore College participated. All indicated early age of acquisition and native fluency in both languages in a pre-screening survey.

Participants were first familiarized with the English and Spanish labels for picture stimuli. Then they followed auditory instructions and clicked on matching objects on a computer screen.

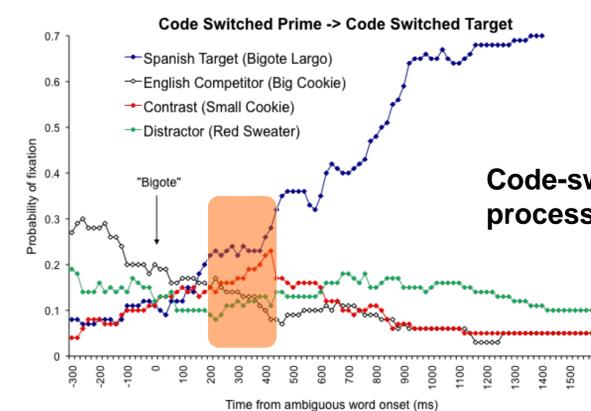
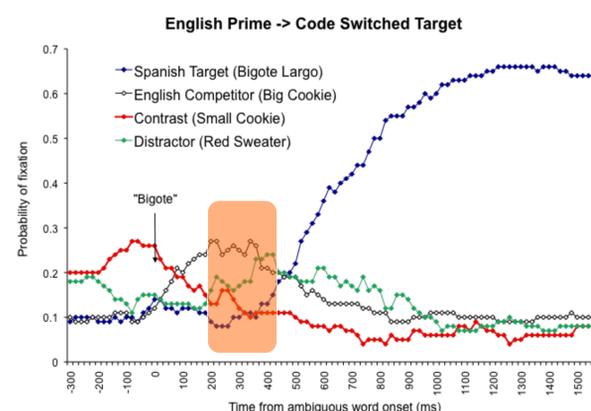
Instructions always began with “Click on the” and continued with either an English adjective-noun phrase (E) or code-switched into a Spanish noun-adjective phrase (CS).

64 instructions (16 fillers, 32 primes, 16 targets)
Within-subjects 2 x 2 design (Prime x Target)

1. E prime – E target
2. CS prime – E target
3. E prime – CS target
4. CS prime – CS target

Pseudorandom order (2 primes before each target).
Four counterbalanced lists.

Results: Code-switched Targets



Code-switched primes facilitate processing of code-switched targets.

Looking to target
CS prime > E prime
 $F(1,23)=9.89, p<.01$
 $F(1,15)=7.79, p<.01$

Looking to competitor
CS prime < E prime
 $F(1,23)=2.7, p=.057$
 $F(1,15)=3.96, p<.05$

Proportion DV
CS prime > E prime
 $F(1,23)=11.12, p<.01$
 $F(1,15)=12.4, p<.01$

Conclusions / Future Directions

- Priming of structures built from phrases in multiple languages
- Facilitation in real-time processing of code-switched utterances from prior exposure to code-switched utterances.
- Differential effects for English and code-switched targets could be either because participants were highly proficient in English (ceiling effect) or because single language utterances benefit less from priming compared to code-switched utterances.

- Future studies could test using Spanish carrier phrases.
- Future studies could also further investigate whether syntactic structures or code switching is primed.

References

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Please contact dnahmia1@swarthmore.edu or dgrodner1@swarthmore.edu for more information.