WHAT COGNATES REVEAL ABOUT DEFAULT-LANGUAGE SELECTION IN BILINGUAL SENTENCE PRODUCTION

Chuchu Li & Tamar H. Gollan (University of California, San Diego)
chl441@health.ucsd.edu

We investigated cognate effects on language switching in sentence context in Spanish-English bilinguals. Previous research showed smaller switch-costs for cognates than noncognates in bare picture naming, a cognate switch-facilitation effect (Li & Gollan, 2018). In Experiments 1 and 2, bilinguals (N = 32 in each experiment) read sentences aloud word-by-word in either English or Spanish, and a cognate (e.g., *lion-león*) or a noncognate (e.g., *tooth-diente*) in the middle of each sentence was replaced by a picture with a language cue (e.g., *The boy pretended to be a [león] at the Halloween party*; **[león]** refers to the picture that is cued to be named in Spanish). Each picture was presented four times, twice in each language, once as a switch trial, once as a nonswitch trial, and in Experiment 1 sentences also repeated each time the same picture appeared, while in Experiment 2 every sentence was different (see Table 1 for examples). In Experiment 3, bilinguals (N = 32) were cued to name the same pictures the same number of times in each language but without sentence context. The same pictures (24 cognates and 24 noncognates) were used in all three experiments, and bilinguals named each picture once in each possible condition (crossing language by trial type: switch-nonswitch).

We assumed that reading sentences aloud would lead bilinguals to select the language of the sentence as the default language, for which activation would be boosted (Starrvelved et al., 2014), and leading switch costs to be larger in sentence context. Of greatest interest, if default language selection also leads bilinguals to globally inhibit the nondefault language, then cognate facilitation effects should at least be smaller on nonswitch trials in sentence context (because inhibition would decrease dual-language activation), which might in turn lead to larger cognate switch-facilitation.

Experiments 1 and 2 showed similar results, but we conducted cross-experiment comparison between Experiments 2 (sentence context) and 3 (bare picture naming) only given that repeated sentence context may allow participants to predict the picture in a sentence toward the end of the experiment. As predicted, switch costs were larger in sentence context than in bare picture naming ($p = .022$), but cognates facilitated production to the same extent in versus without sentence context on both switch and nonswitch trials (ps > .42). Of further interest, switch costs were larger in the dominant than in the nondominant language in sentence context ($p = .004$) but were symmetrical in bare picture

naming ($p = .49$). In addition, language dominance effects were significant in sentence context ($p = .048$) but not in bare picture naming ($p = .64$), suggesting greater reliance on global inhibition of the dominant language in bare picture naming than in sentence context, which also led to asymmetrical cognate facilitation in sentence context ($p = .020$) but symmetrical cognate effects in bare picture naming ($p = .43$).

Thus, while language selection in sentence context appears to primarily be driven by activation of the default language instead of the inhibition of the nontarget language, global control of the dominant language is relaxed in sentence context, resulting in greater reliance on reactive control. These results illustrate dynamic tradeoffs in the cognitive mechanisms underlying bilingual language selection and control depending on the context (Abutalebi & Green, 2013).
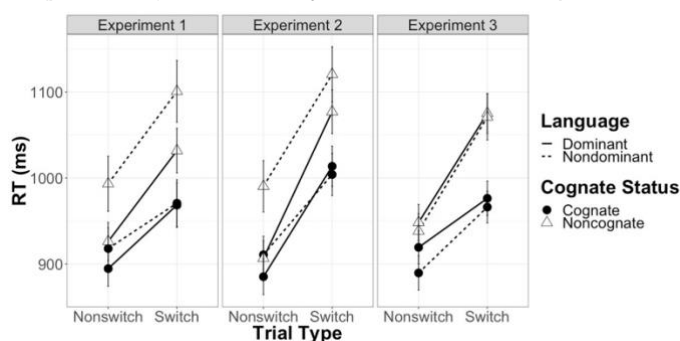
Table 1. Examples of critical sentences in Experiments 1 and 2. The word in brackets is presented in the form of the picture to be named.

	Condition	Cognate Status	Example Sentence
Exp 1	English Nonswitch	Cognate	The boy pretended to be a **[lion]** at the Halloween party.
		Noncognate	I want to print a picture of a **[tooth]** and use it in the next class.
	English Switch	Cognate	El niño fingió ser un **[lion]** en la fiesta de Halloween.
		Noncognate	Quiero imprimir la imagen de un **[tooth]** y usarla en la próxima clase.
	Spanish Nonswitch	Cognate	El niño fingió ser un **[león]** en la fiesta de Halloween.
		Noncognate	Quiero imprimir la imagen de un **[diente]** y usarla en la próxima clase.
	Spanish Switch	Cognate	The boy pretended to be a **[león]** at the Halloween party.
		Noncognate	I want to print a picture of a **[diente]** and use it in the next class.
Exp 2	English Nonswitch	Cognate	The boy pretended to be a **[lion]** at the Halloween party.
		Noncognate	I want to print a picture of a **[tooth]** and use it in the next class.
	English Switch	Cognate	El niño quiere que el pintor dibuje un **[lion]** en su mano izquierda. *(The boy wants the painter to draw a **[lion]** on his left hand.)*
		Noncognate	La pesadilla era sobre la extracción de su **[tooth]** por una bruja. (*The nightmare was about his **[tooth]** being removed by a witch.*)
	Spanish Nonswitch	Cognate	Fue desafortunado que no pudimos ver un **[león]** en el safari. *(It was unfortunate that we couldn't see a **[lion]** on the safari.)*
		Noncognate	Yo tengo un nervio dañado en mi **[diente]** que me causa dolor. *(I have a damaged nerve in my **[tooth]** that causes me pain.)*
	Spanish Switch	Cognate	The hunters used a net to trap the **[león]** even though it was illegal.
		Noncognate	I promise to not touch your **[diente]** until the pain goes away.