

Intrasentential Code-switches Enhance Recall in Bilingual Listeners

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In daily life, bilinguals often switch between their languages when conversing. Psycholinguistic research has traditionally found that these “code-switches” induce processing difficulty (e.g., Altarriba et al., 1996). However, recent evidence suggests that hearing a switch may also enhance listeners’ predictive processes, attention, and recognition memory (Blair & Morini, 2022; Salig et al., preprint 2023; Tomić & Valdés Kroff, 2022). This raises the possibility that code-switches might influence memory when participants must actively retrieve information, offering new insights into how language switches affect comprehension, learning, and memory processes.

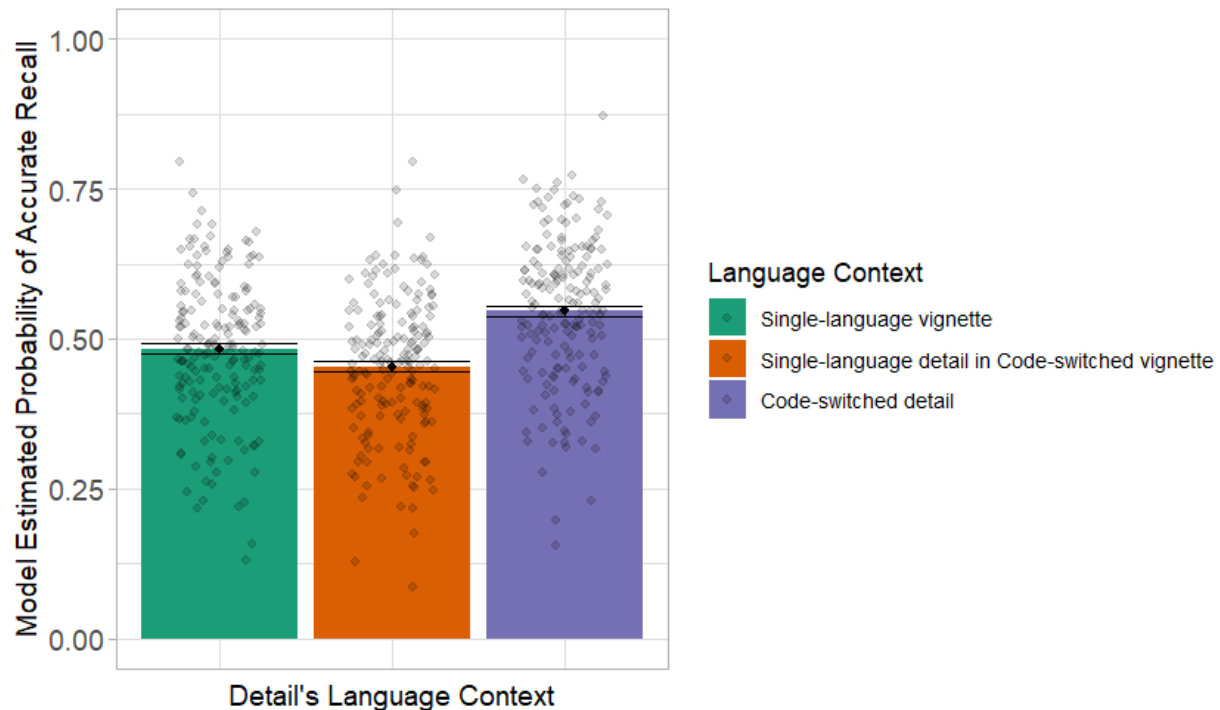
Code-switches could affect bilinguals’ recall of information due to bilinguals’ experience-driven sensitivity to the communicative significance of switches (e.g., switches can emphasize information or qualify statements; Myslín & Levy, 2015; Gumperz, 1982). If bilinguals have learned that code-switches are communicatively meaningful, then they may better attend to and encode information occurring near code-switches. Thus, we predicted that bilinguals would recall details heard in code-switched contexts more effectively than those heard in single-language contexts. Additionally, we predicted that bilinguals with greater code-switching experience would show stronger recall advantages for code-switched information.

In this pre-registered study, 177 Spanish-English bilinguals from the U.S. listened to 5 vignettes, each containing 14 key details, and were asked to verbally recall them. Their retellings were coded for gist accuracy for each detail (Fraundorf & Watson, 2011). For example, if the vignette described how “the Circus Juggler threw pebbles at a girl named Caroline,” participants were credited for accurate recall if they remembered the juggler throwing pebbles, even if they did not recall Caroline’s name. Participants heard three single-language vignettes (two in English, one in Spanish) and two vignettes featuring intrasentential English-to-Spanish switches for 7 of the 14 details. Vignettes’ language condition was counterbalanced across participants.

Results confirmed our hypothesis: Bilinguals recalled more details from code-switched sentences ($M=54.59\%$) than single-language sentences ($M=45.41\%$; $p=0.02$; see Figure 1). This recall advantage was not driven by the presence of Spanish in the code-switches or by participants employing more effort when listening to their less-dominant language. If this were the case, we would expect higher recall for single-language Spanish vignettes compared to single-language English vignettes. However, participants showed the opposite pattern ($p<0.01$), suggesting that the observed memory benefits are tied to the presence of a code-switch rather than the use of Spanish as the less-dominant language. Furthermore, an exploratory analysis revealed a significant correlation between bilingual code-switching experience (measured with the Bilingual Code-switching Profile; Olson, 2024) and the recall benefit of code-switches ($r=0.46$, $p<0.01$).

These results suggest that hearing code-switches can enhance memory, reflecting bilinguals’ sensitivity to their communicative value. This memory-enhancing effect of code-switching points to its potential utility as a tool for improving retention and learning outcomes. It also challenges the idea that code-switching imposes comprehension difficulty, proposing instead that the additional time required to process a code-switch (as shown in prior research) may reflect the effort needed to encode the information more deeply—ultimately leading to better memory for it later.

Figure 1. Bilinguals' Recall Accuracy by Language Context of Detail



Note. The y-axis represents the probability of accurate recall based on estimates from a pre-registered model. Each dot represents an individual's average estimated recall accuracy for each language context of the details. Bars represent standard errors.

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