

# Does native language affect a speaker's ability to recall details from photos? A comparison between monolingual English and Japanese adults

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The question as to whether native language shapes the way speakers view the world has been debated in the cognitive sciences for decades. Slobin's (e.g., 2003) *thinking for speaking* view holds that structural differences between languages can affect speakers' non-linguistic cognition.

Previous research has shown that native language can have an effect on speakers' general cognitive processes for example when it comes to figure-ground orientation (Tajima & Duffield, 2012), source evidence information (Tosun et al. 2013) and grammatical gender (Boroditsky et al. 2003). The current paper contributes to this body of research and presents a study investigating whether structural characteristics of English and Japanese affect speakers' ability to recall details from photos.

Japanese has an elaborate counting system for nouns, but importantly, nouns generally themselves do not take number markers and can stand alone. Thus, for example, the sentence *Inu ga aruiteimasu* is ambiguous as to whether it refers to 'A dog is walking' or 'Dogs are walking'. Japanese speakers can thus refer to scenes without overtly expressing whether there are one or >1 entity in the scene. On the other hand, English requires speakers to express whether they are referring to one or >1 entity. For example, *A dog is walking* vs. *Dogs are walking* mean different things, and using the former sentence to describe the latter scene would be considered ungrammatical and false. Following Slobin's *thinking for speaking* view, this structural difference between Japanese and English, whereby one language necessitates attention to and recall of number (English) and the other one does not (Japanese), we hypothesised that Japanese speakers would show a lower response accuracy than English speakers in recalling the number of entities they had seen.

In an experimental setting, we showed English (N=30) and Japanese (N=33) adults a sequence of 110 photos after which we asked them questions about the photos. We found that even though the two groups recalled answers to control questions equally well, the English participants showed a significantly higher accuracy rate for questions testing recall for number than Japanese participants. Furthermore, when recalling number information, the Japanese group gave significantly more correct answers to questions for which the correct answer was 1 than when the correct answer was 2, while no such difference was observed in the English-speaking group. These results suggest that obligatory grammatical encoding of number information or the lack of it in a language affects speakers' ability to recall number information.

We will discuss our results in relation to language and non-linguistic cognition and suggest reasons for the effects found.

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