Exploring the Effect of Syntactic Alignment on Chinese-English Bilinguals’ Code-switched Sentence Production

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ABSTRACT

As one of the most common language phenomena in bilingual settings, code-switching has been studied widely to explore its nature and features. In the current study, the author set out to explore the effect of syntactic alignment on Chinese-English bilinguals’ code-switched sentence production using a picture-describing task with a structural priming paradigm. The structural priming paradigm has been frequently used to explore the mechanisms of sentence production. The effect of syntactic alignment was observed, indicating Chinese-English bilinguals were inclined to produce code-switched sentences with the same syntactic structure between Chinese and English. The findings provide empirical evidence not only supporting structural priming during bilingual code-switched sentence production, but also extending the interactive alignment model (Pickering and Garrod, 2004) to interpret code-switching during bilingual sentence production. Implications for code-switching and bilingual sentence processing are discussed.

KEYWORDS

Chinese and English Code-Switching, Interactive Alignment Model, Sentence Production, Shared Word Order, Syntactic Alignment

INTRODUCTION

During the past two decades, as one of the most fascinating behaviors of bilinguals, code-switching has been widely investigated according to interdisciplinary approaches, such as grammatical (e.g., Poplack, 1980; MacSwan, 2000; Muysken, 2000; Myers-Scotton, 2002), socio-pragmatic (e.g., Blom & Gumperz, 1972; Li et al., 1992; Myers-Scotton, 1993; Auer, 1998), cognitive (e.g., Meuter & Allport, 1999; Costa & Santesteban, 2004), and neurocognitive (e.g., Paradis, 1997; Abutalebi & Green, 2007; van Hell & Witteman, 2009) (see Isurin et al., 2009 for a review). Also, as a hotly debated topic in the literature, the nature and mechanism underlying code-switching has been studied in terms of switching cost (e.g., Green, 1998; Costa & Caramazza, 1999; Thomas & Allport, 2000; Kroll et al. 2008), asymmetry of switching cost (e.g., Kroll & Stewart, 1994; Spinks & Gelder, 1994; Cheung & Chen, 1998; Meuter & Allport, 1999), time dimension (e.g., Costa & Santesteban 2004; Orfanidou & Sumner, 2005; Ziedl et al. 2006), and bilingual language representation (e.g., Francis, 1999; Hernandez et al., 2001; Abutalebi & Green, 2007; Salamoura & Williams, 2007). The Inhibitory Control Model
(IC model, Green, 1998) has been proposed to interpret switching cost during code-switching, suggesting that in line with language tags, inhibition mechanism activates lexical representation of one language while inhibits lexical representation of another language at the same time. In this way, it requires additional time for bilinguals to inhibit current activated lexical representation, and to relieve current inhibited lexical representation during code-switching. So, switching cost is produced. In addition, compared with inhibiting lexical representation of proficient language, inhibiting lexical representation of non-proficient language is relatively weak, which results in asymmetry of switching cost. The IC model has been supported by behavioral and neuroimaging studies (Meuter & Allport, 1999). Not assuming the inhibition mechanism, the language-specific selection hypothesis (Costa & Santesteban, 2004) postulates that lexical representation of the non-responding language does not enter into competition during lexical selection, the selection mechanism only accesses to target words by lexical representation of the responding language, although both of two languages are activated during language production of proficient bilinguals. So, asymmetry of switching cost does not exist (Costa & Santesteban, 2004). Based on this hypothesis, researchers have proposed that the selection mechanism is different between proficient and non-proficient bilinguals. On the one hand, proficient bilinguals use the language-specific selection mechanism during code-switching between two proficient languages or between proficient language and less-proficient language. They select words by different mechanisms according to different proficiency of the responding languages during language production (Costa, Santesteban and Ivanova, 2006). On the other hand, non-proficient bilinguals use the inhibitory control mechanism during code-switching between proficient and non-proficient languages. Hence, this language-specific selection hypothesis successfully explains the equivalent switching cost of two responding languages during code-switching of proficient bilinguals. However, asymmetry of switching cost still exists between proficient language and unfamiliar new-learned language during code-switching of proficient bilinguals, which could not be explained. Costa, Santesteban and Ivanova (2006) has further proposed the language-specific selection threshold hypothesis, suggesting that each language has its own threshold for mental lexicon such as activation level of the responding languages, and independent selection threshold of different languages. In order to deal with proficiency imbalance between the responding languages, speakers are more active and effective to mental lexicon representation of less proficient language during code-switching. Therefore, compared with the proficient language, it is much easier for the less proficient language to reach selection threshold. In short, proficiency imbalance among two responding languages results in faster selection of the less proficient language. This language-specific selection threshold hypothesis not only explains the equivalent switching cost of between two proficient languages (L1-L2), and/or between proficient and less proficient language (L2-L3) during code-switching of proficient bilinguals, but also explains the greater switching cost from non-proficient language to proficient language. As was noted above, a handful of studies have examined code-switching at lexical and/or sub-lexical level of language processing, studies address code-switching at sentence-level of language processing, however, are quite scarce. In daily language communication, code-switching happens frequently as bilinguals spontaneously and effortlessly use two and/or more different languages among coherent sentences in rich discourse situations (Wei, 2007; Gullberg, et al., 2009). Hence, an understanding of code-switching at sentence-level of language processing seems necessary.

According to the view that dialogue is the most nature and fundamental way of language usage in people’s daily life, and the purpose of dialogue is not only to code information, but also to express ideas for mutual understanding, Pickering and Garrod (2004) have proposed the interactive alignment model to explain the cognitive mechanisms of dialogue processing. During dialogue processing, two interlocutors coordinate and interact with each other on the basis of their languages, and unconsciously build situation models (see Zwaan & Radvansky, 1998 for details) to understand utterances. Two interlocutors’ activated linguistic representations (semantics, lexicon, syntax, phonology, articulation) directly connect with situation models, and resonate during language processing, increasing the likelihood of activated linguistic representations to be selected again. The
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