Form and meaning in L1 and L2 lexical selection

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Abstract

The present study examines how competing phonological, pragmatic and morphosyntactic cues influence L1 and L2 lexical selection. We used a novel text completion task which involved rhyme priming; the aim was to activate a target rhyming completion which, if produced, would violate either pragmatic or morphosyntactic constraints. In a pilot study, we tested 41 L1 English speakers and 45 L1 Greek L2 English speakers. Results showed that morphosyntactic constraints pre-empted erroneous rhyming completions, whereas pragmatic constraints did not, especially in L1 speakers. L2 speakers were not as susceptible to errors caused by phonological interference, consistent with previous literature suggesting reduced reliance on form and preferential reliance on meaning in the L2.

Keywords: L1-L2 lexical selection, phonological interference, rhyme, pragmatics

Introduction

The question of how we choose our words when we speak (a process known as lexical selection) has been debated in the language production literature, and different theoretical accounts have been proposed (see Kerr et al., 2023 for a recent review). For instance, serial models (e.g., Levelt et al., 1991; 1999) view lexical selection as a top-down, stage-based process. Firstly, semantic-conceptual and syntactic considerations in a given context lead to the activation of a lemma in the mental lexicon. This is followed by form encoding, which involves morphophonological specification, then phonetic encoding and, ultimately, articulation. Hence, the serial view holds that lemma selection is constrained by semantic and syntactic factors, and it is only after this selection has occurred that phonological information becomes available. In the words of Levelt et al. (1991), "a (lexical) item's semantic-syntactic makeup is accessed and used before its phonological makeup becomes available" (p. 122).

By contrast, interactive models (e.g., Dell, 1986; Dell & O'Seaghdha, 1991) argue that the flow of activation can be bidirectional, such that information at lower levels (e.g., activated phonological representations) can feed back up to affect lemma selection. Supportive evidence for the interactive view has come from analyses of speech errors which have shown mixed-error effects, i.e., that lexical errors share both semantic and phonological properties with target

words (e.g., saying "rat" instead of "cat") (e.g, Dell et al., 1997). Similarly, in a sentence completion study by Rapp & Samuel (2002), lexical selection was influenced by phonological features of preceding words in context. Participants were more likely to produce rhyming completions when rhyme prime words were present in the sentence fragments as opposed to when they were absent.

In the present study, we empirically test these models. Specifically, we explored whether a phonological competitor cue (rhyme) can override semantic and syntactic constraints and bias lexical selection in a novel text completion task. We tested both L1 and L2 speakers to examine if competing cues are weighted differently, leading to divergent production outcomes. Given that L2ers have been argued to show reduced sensitivity to form and overreliance on meaning when processing the L2 (e.g., Clahsen & Felser, 2006; Talamas et al., 1999), we hypothesised that a formal phonological cue would influence lexical selection to a lesser extent in L2 than in L1 speakers.

Methods

Forty-one L1 English university students based in the UK (52% female; Mean age = 21.4; SD = 2.14), and forty-five L1 Greek L2 English university students based in Greece (80% female; Mean age = 22.4; SD = 2.57) participated in this pilot study. The L2 participants' knowledge of English was at an intermediate or higher level, as was established through the British Council's English Level Placement Test (Mean score = 21.2; SD = 1.71, out of 25 max).

During the study, participants silently read two types of texts (N = 7 per type), as shown in Table 1. They produced a completion to fill in a blank space at the end of the texts. Both text types contained end rhyme to prime a target rhyming completion which would violate morphosyntactic (Text Type A) or pragmatic, world knowledge constraints (Text Type B). Participants produced a completion with no time limit, and responses were audio recorded for analysis.

Table 1. Examples of the two text types.

Text types	
A (morphosyntactic violation)	**B** (pragmatic violation)
Having pests at home is never nice. If you do, dispose of cheese and rice. That's of course if you have seen a ...	I didn't look above my head. I tried to cross the street instead. Thank god my mother thought ahead In fact, without her I'd be dead. So "Check the traffic lights", she said, "And wait until the man turns ..."
Completion targets	
Incorrect (rhyming) target: mice Correct (nonrhyming) target: mouse	Incorrect (rhyming) target: red Correct (nonrhyming) target: green

Responses were grouped into different categories (e.g., one-word or multiword, rhyming or nonrhyming, related or irrelevant completions). Out of all the completions produced, more than 50% contained one of the targets in both the L1 and L2 group, suggesting that the targets were quite predictable in the textual contexts we designed. For analysis, we focus only on one-word completions consisting of one of the target words (i.e., the correct and nonrhyming target or the incorrect and rhyming target), which represent 57% of the collected data. Data were analysed in R through generalised linear mixed effects models using the formula: glmer(Completion ~ Group*Text_Type + (Text_Type | participant) + (Text_Type | item).

Results

Results are plotted in Figure 1. Analyses revealed an effect of Text Type (beta = -4.19; p = 0.007; OR = 0.02); the odds of producing the correct (nonrhyming) target were lower when the texts involved a violation of pragmatics compared to morphosyntax. The effect of Group was significant (beta = 1.19; p = 0.002; OR = 3.27); L2 participants produced the correct target to a greater extent than L1 participants. The Group*Text Type interaction was nonsignificant, although the L1 participants produced numerically more incorrect target completions in the pragmatic violation texts (68.07%), whereas L2ers produced the correct target more often (55.25%).

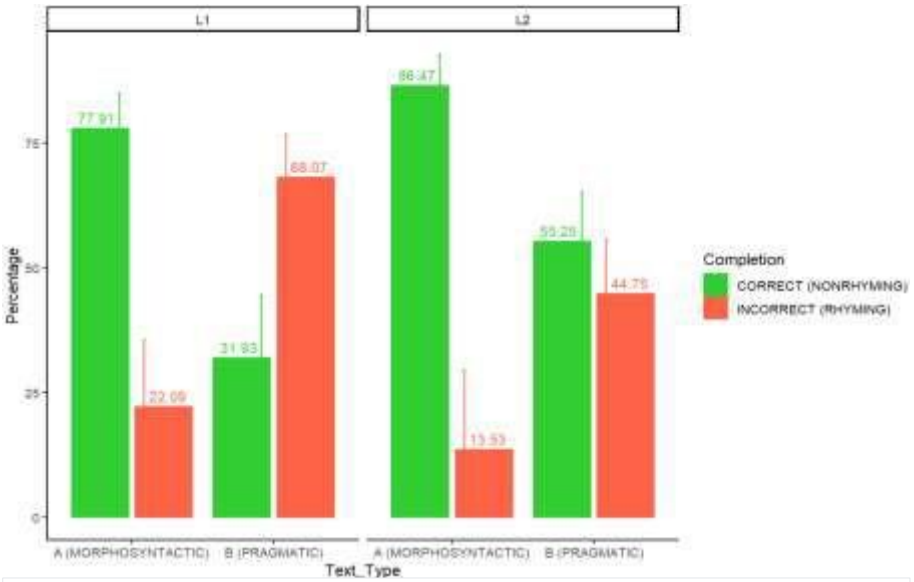

Figure 1. Mean % of correct and incorrect completions by Group and Text Type.

Discussion

Results partly support serial models, since phonological cues did not affect lexical selection in all contexts. Participants produced morphosyntactically well-formed completions more often than infelicitous rhyming responses, indicating that grammatical knowledge is more entrenched and thus accessible to block inappropriate phonological forms. Yet, we also found some support for interactive activation models, since participants, and particularly L1 rather than L2 speakers, were more likely to be influenced by rhyme and produce pragmatically infelicitous responses. These results align with previous work showing that phonological cues can affect lexical selection (e.g., Rapp & Samuel, 2002); they also extend it by providing preliminary, yet novel evidence that phonological cues can override top-down pragmatic constraints. Moreover, results indicated that, compared to L1 speakers, L2ers were overall less susceptible to errors caused by phonological interference, which may be due to unequal weighting or reduced sensitivity to formal cues, consistent with previous literature (e.g., Clahsen & Felser, 2006; Talamas et al., 1999). Finally, the development of this novel task may prove useful for future studies studying phonological influences on lexical selection in other contexts and populations.

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