



Brief article

Rhythmic alternation and the optional complementiser in English: New evidence of phonological influence on grammatical encoding

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Abstract

In a recall-based spoken production experiment, native English-speaking participants' variable use of the complementiser *that* to introduce the sentential complement in sentences like *Henry knew (that) Lucy/Louise washed the dishes* was found to be related to whether *that* inclusion/omission resulted in an alternating sequence of stressed and unstressed syllables between the verb of the main clause and the subject of the complement clause. This finding is discussed in relation to the question of whether and how phonological encoding can influence grammatical encoding in spoken language production.

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1. Introduction

Sentence formulation involves grammatical encoding and phonological encoding (Levelt, 1989). Grammatical encoding maps a conceptual structure onto a surface

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structure in which lemmas are ordered and grouped into phrases. Phonological encoding maps a surface structure onto a phonetic plan in which the segmental and prosodic contents of an utterance are specified. It is uncontroversial that grammatical encoding begins before phonological encoding. What is less obvious is whether phonological encoding can influence grammatical encoding. Research on phonological influences on grammatical processes has produced mixed results: Bock (1986; also Cleland & Pickering, 2003) found no phonological priming effect on grammatical encoding as indexed by the choice of word order variants, but Bock (1987; also Levelt & Maassen, 1981) reported such an effect; Bock and Eberhard (1993) found no morphophonological transparency effect on grammatical encoding as indexed by the accuracy of subject-verb agreement computation, but Hartsuiker, Schriefers, Bock, and Kikstra (2003) and Haskell and MacDonald (2003) reported such effects. What the reported effects tell us about the mechanism of phonological influence on grammatical encoding is also open to interpretation. The present study seeks to contribute to this research area by investigating a new kind of phonological influence and a new kind of syntactic choice.

2. Optional complementiser in sentential complement structures

English speakers may or may not use *that* to introduce the sentential complement in sentences like (1):

- (1) Henry knew (that) Lucy washed the dishes.

In the psycholinguistics literature, the inclusion/omission of the complementiser *that* is assumed to involve a syntactic choice made during grammatical encoding (Ferreira & Dell, 2000 [F&D hereafter]; Ferreira, 2003; see Jaeger, *in press*, for attempts at empirical testing of this assumption). In a corpus-based study, Roland, Elman, and Ferreira (2006) found that semantic, length and frequency information about the embedded subject and the main subject and verb conditions the inclusion/omission of *that*. Other possible factors include the presence/absence of material between the main verb and embedded subject (Hawkins, 2001), the embedded subject's availability (F&D), structural priming (Ferreira, 2003), avoidance of adjacent identical elements (Jaeger, *in press*), and modality/register/style differences (e.g., Huddleston & Pullum, 2002).

Does any of these factors constitute evidence of phonological influence on syntactic choice? The length, frequency and availability effects can be construed as effects of the accessibility of lexical–phonological information – the choice to omit *that* is promoted when the words in the incipient sentence have high lexical–phonological accessibility (i.e., when they are short, of high-frequency or repeated in some way). Phonological encoding can clearly be affected by lexical–phonological accessibility, so the three effects can be seen as evidence of phonological influence on syntactic choices made at grammatical encoding. However, lexical–phonological accessibility is often confounded with lexical-semantic (lemma) accessibility or inherent or derived conceptual accessibility (see Prat-Sala & Branigan, 2000), and lemma selection on the basis of conceptual acti-

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