

correlational MEG study

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Abstract

We employ a single-trial correlational MEG anal

1. Introduction

An extensive psycholinguistic tradition has scensitca rcci

procedural memory system putting the pieces of the word together (see the recent critique of this view in Baayen, Wurm, & Aycok, 2007).

Evidence from, e.g., m

5 0 Tm (e) Tj 50 0 48 0 50 909 0 Tm () Tj

transition probability between stem and affix and affix frequency — and compare them to strictly orthographic but related (and correlated) variables — the orthographic transition between the last letters of the stem

parallel with whole word recognition, and in which distinct processing stages leading up to word recognition are recognized, allowing contextual task variables to influence processing at different levels.

The evoked r

claims from a parallel dual route model, since variables correlated with surface frequency (e.g., the transition probability between stem and affix and that between affix and stem) play a role at various stages in processing. In this experiment, we do not attempt to distinguish between dual-route theories that propose

MEG study of Zweig and Pylkkänen (in press) supports this interpretation of the masked priming literature. They find an effect of morphological complexity at the M170 response to visual

never appears without the particular suffix, “able.” Groups of words from each of these thr

for each suffix, generating 162 target words (6 words x 3 categories x 9 suffixes). A detai

2.1.1. Stimulus Properties

Various characteristics of the affixed words wer

As a contrast to the morphological variable TPL, another variable was calculated as a measure of the orthographic transition between the r

Table 1: Orthographic and mo

2.2. Experimental Procedures

Participants were nine right-handed native English speakers, ranging in age from 19 to 29, with a mean age of 23.3. All subjects provided informed consent, and were paid for their participation.

The subjects were prior participants of an MRI exper

hemisphere, and another for the right hemisphere: these subjects lacked a negative peak in the 100-190ms time range in the isola

analysis. The remaining mean activation va

For the purpose of behavioral response time

t

rise, height and fall of the peak. Affix frequency was

surface frequency was found for the affixed or control word groups. The effect of lemma frequency, contrasted with that of surface frequency, can be see

response components — the M130, M170 and M350 — were isolated to test for the effects

divergence at the M170 was substanti

Evidence for morphological decomposition of the complex words was al

are accessed via their parts, given the relevance of lemma frequency rather than surface frequency at this stage in procegi

5. Conclusion

Our findings throughout the stages of word recognition provide evidence that morphological decomposition is, at the very least, attempted, in the processing of all three classes of complex words: free-stems, bound-roots, and unique root words. We suggest

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Appendix A: Word-Choice Algorithm

The target words were selecte

Table A1: Bins for

