

ELECTROPHYSIOLOGICAL STUDIES OF MASKED TRANSLATION PRIMING

Phillip J. Holcomb¹, Katherine J. Midgley^{1,2}, Noriko Hoshino¹,

Sofie Schoonbaert³, & Jonathan Grainger²

¹Tufts University, USA

²Université de Provence, France

³Ghent University, Belgium

Over the past several years our lab has been using the masked priming technique combined with the recording of event-related potentials (ERPs) to examine the time-course of visual word recognition (e.g., Holcomb & Grainger, 2006). In this talk I will start by presenting ERP data from monolingual subjects reading words in their L1 to illustrate how a cascade of ERP effects starting as early as 90 ms post-target onset and continuing on through the N400 (~500 ms) can be used to augment traditional behavioral approaches to studying visual word processing. I will then go on to report on several experiments that have extended this approach to the study of bilingual word recognition. I will discuss in detail a study by Midgley et al (in press) which examined the time-course of form and meaning activation during word recognition in university second language learners. In this study targets words were repetitions of, translations of, or were unrelated to the immediately preceding masked prime word. In one experiment all targets were in the participants' L2 (English) and in a second experiment targets were in the participants' L1 (French). With L2 targets both within-language repetition and L1-L2 translation priming produced effects on the N250 component (a measure of early orthographic and lexical processing) and the N400 component (a measure of lexical and semantic processing). In the second experiment only within-language repetition produced N250 effects while both types of priming

produced N400 effects. These results suggest rapid involvement of lexical/semantic representations during on-going form-level processing of printed words. Data from two further ERP translation priming studies, one with Japanese-English bilinguals (Hoshino et al.) and one using longer prime durations (Schoonbaert et al.) will also be presented.