

BUCLD 37 Proceedings
To be published in 2013 by Cascadia Press
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Gender Concord and Semantic Processing in French Children: An Auditory ERP Study

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1. Introduction

The present study used event-related brain potentials (ERPs) to investigate language processing in young children, focusing on gender agreement (determiner-noun and noun-adjective) and conceptual semantics in French. Electrophysiological measurement techniques provide a valuable addition to our methodological toolkit for studying agreement processing in this population, in particular concerning noun-adjective agreement (concord), since other traditional sources of data have tended to be uninformative. Although children arguably exhibit systematic constraints on their linguistic behavior, this is not always evident in the laboratory (e.g., where task demands may mask the

violations (Kutas

morphosyntactic violations might be too subtle for young language users to process). Relying on her study of latency differences between 14-

2.1 Method

2.1.1. Participants

Fifty-two French-speaking children aged 4-8 (29F and 23M, aged from 4;6 to 8;9, $M=6;8$, $SD=1;2$) participated in the experiment, which was run at the *Institut universitaire de gériatrie de Montréal Research Centre* (CRIUGM). Children were recruited through advertisements posted at local schools, daycare centers, public libraries and sport centers in the area nearby the research center. They came to two separate recordings at the lab, and were paid for their participation. Their hearing was tested before the first recording. Testing protocols were approved by the internal review boards of the *Sainte-Justine Research Centre* and the CRIUGM. Parents signed a consent form allowing children to participate in the study, and filled a demographic questionnaire that included questions about the child and mpe p72ipatio

Conceptual semantic processing was investigated by creating semantic violations where the image did not correspond to the noun presented in the
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and to stay still during the presentation of stimuli (i.e., when something was shown on the computer screen and when hearing Zilda the alien speak).

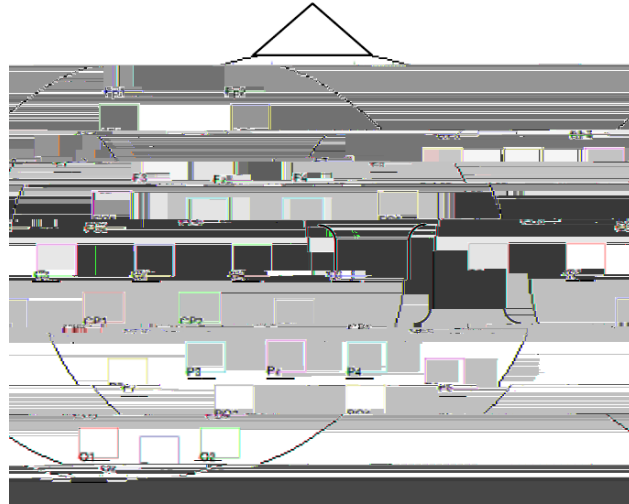


Figure 2.

electrodes F7, P7, T7, F3, C3, P3, O1, Fz, Cz, Pz, Oz, F4, C4, P4, O2, F8, T8 and P8 were entered in the analyses (see Figure 2).

Separate analyses were run for the three conditions. Using a baseline of 300 ms, data was analyzed for each condition starting at the onset of the determiner (lasting approx. 100 ms) and up to 1500 ms (for determiner-gender and semantic mismatch conditions) and 2000 ms (for adjective-gender mismatch conditions). Ungrammatical and incongruent conditions were compared to matched correct conditions. Repeated measures ANOVAs were conducted separately for midline and lateral electrodes with the factors CONDITION (C) (2 levels: congruent/grammatical, incongruent/ ungrammatical), ANTERIORITY (A) (2 levels: anterior, posterior) and ELECTRODE (E) (4 levels) in the midline and lateral analyses. The lateral analysis included the additional topographical factors HEMISPHERE (H) (2 levels: Left and Right) and LATERALITY (L)(2 levels: more vs. less lateral). An alpha of .05 was used for all statistical analyses and a Greenhouse-Geisser correction for sphericity was used for conditions where there was m

French children studied here. They seem to rather be going through the following pattern: Early posi
we will have to analyze a larger set of data with different age groups and check whether these changes do in fact occur.

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