Language order effects in letter fluency in Dutch-English bilinguals
Eva Van Assche<sup>1</sup>, Tamar H. Gollan<sup>2</sup> and Wouter Duyck<sup>1</sup>
<sup>1</sup>Ghent University  <sup>2</sup>University of California, San Diego
Contact: eva.vanassche@ugent.be

Research on bilingual language processing has shown that lexical representations from both languages become activated even when the task requires processing in one language (e.g., Van Assche, Duyck, Hartsuiker, & Diependaele, 2009). This dual-language activation could result in a processing disadvantage for bilinguals compared to monolinguals in production studies. For example, bilinguals have slower picture-naming times (e.g., Ivanova & Costa, 2008) and reduced verbal fluency scores (e.g., Gollan, Montoya, & Werner, 2002) than monolinguals. The verbal fluency task is becoming increasingly important as a measure to investigate cross-language interference in bilinguals. In this task, participants are given 1 min to verbally generate as many members of a specified semantic category (e.g., animals) or words beginning with a specific letter (e.g., words that begin with the letters F). Previous studies have typically considered performance of bilinguals compared to monolinguals (e.g., Gollan et al., 2002), but few studies have contrasted L1 and L2 performance within participants (e.g., Sandoval, Gollan, Ferreira, & Salmon, 2010).

In the present study, we tested the hypothesis that between-language interference influences bilingual fluency performance in dominant L1 and non-dominant L2 language production. More specifically, we investigated the effects of language order (L1-L2 versus L2-L1) and of letter repetition (same or different letters in both languages) in the fluency task. Sixty relatively proficient but unbalanced Dutch-English bilinguals performed a verbal letter fluency task. The effect of language order was investigated by testing half of the subjects in L1 (Dutch) first and then in L2 (English), while the other half was tested in L2 first and then in L1. The effect of letter repetition was investigated by testing the same (i.e., F A S) and different letters (i.e., B I L in L1-fluency and M O N in L2-fluency) in L2- and L1-fluency. The letters in L1 and L2 were selected so that the number of words that begin with that letter in L1 and L2 was matched (based on the CELEX lexical database, Baayen, Piepenbrock, & Van Rijn, 1993). The results for L1-fluency showed significantly fewer correct responses for the same letter trials (i.e., the letters F A S tested in both L1 and L2) when L1-fluency was tested after the L2 block than when L1-fluency was tested before the L2 block. There was no significant difference in number of correct responses for the different letter trials (i.e., the letters B I L were tested in L1 and the letters M O N in L2). There were no significant effects of language order or letter repetition for L2-fluency results. The graph below shows the mean number of correct responses in L1 and L2 for the same and different letters in the two presentation orders.
The results of this study show that only the dominant L1 suffers between-language interference. Moreover, this interference is specific because we only observed an effect of language order when the same letters were repeated in the fluency trials. This seems to indicate that the locus of interference is not the activation of the whole language. Instead, the results provide evidence for cross-language interference in the form of direct competition between lexical representations from both languages. The data show that bilinguals are strongly affected by recent production and that this effect is asymmetrical by language. An interpretation of the results is provided within the framework of current models of language production.

References: