

# Visual Identification of Primary Language Spoken by Canadian Anglophones, Francophones, and French-English Early Bilinguals – Abstract

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**Overview:** This study examined the ability of two groups of Canadians (monolinguals ( $n = 12$ ) and French-English bilinguals ( $n = 12$ )) to distinguish anglophone and francophone faces. This ability was hypothesised to be possible based on previous studies that showed evidence for bilinguals gaining cognitive advantages in the realm of language-related processing tasks, including face processing (Fu et al., 2007, Matsumoto and Assar, 1992, Pascalis et al., 2014, Sebastián-Gallés et al., 2012, Weikum et al., 2013). It was hypothesized that in line with the bilingual cognitive benefit observed in other language-related tasks, bilinguals would be capable of distinguishing anglophone and francophone faces, at a minor cost to reaction time (RT) in line with the slower RTs generally shown in bilinguals during cognitive tasks (Deary, Johnson, and Starr, 2010). These hypotheses were not supported. Both bilinguals and monolinguals performed at chance levels for accuracy. While there was a significant difference in response times, bilinguals performed on average 84.4 milliseconds *faster* than monolinguals ( $p < .001$ ).

**Experimental Design:** There were two phases to this experiment. In phase 1, neutral expression photos were collected of anglophones ( $n = 26$ ) and francophones ( $n = 24$ ) in the Ottawa-Gatineau region. These images were integrated into experimental software made with PsychoPy for use in phase 2 of the experiment. This software presented the photographs onscreen for 2 seconds, with a blank screen interstimulus interval of 1.5 seconds. Monolingual and bilingual participants were recruited from the Ottawa-Gatineau region for phase 2. Participants in this phase were tasked with responding by button press whether they believed the face photo presented depicted an anglophone or a francophone. They also completed the linguistic history questionnaire and task practice.

**Results:** Accuracy was not significantly affected by phase 2 participants' bilingualism ( $t(11) = 0.417$ ,  $p = 0.67$ ; monolingual  $M = 46.8\%$ ,  $SE = 2.338$ , bilingual  $M = 48.2\%$ ,  $SE = 3.306$ ). Response times, however, were significantly impacted by participants' bilingualism, with bilinguals' response times averaging 84.4 ms faster than monolinguals' ( $p < .001$ ; monolingual  $M = 996.64$  ms,  $SE = 11$  ms, bilingual  $M = 912.24$  ms,  $SE = 16$  ms).

**Implications:** If Canadians are capable of visually distinguishing anglophones and francophones, it is not an ability that was solicited by this study's design. Because of this, bilinguals' faster RTs do not indicate faster access to the correct answer, but instead being faster to submit a guess response. The authors theorize that this is because bilinguals were systematically more confident in their responses than monolinguals, and therefore spent less time deliberating, resulting in faster RTs. The experimental design may have increased the language-related confidence of bilinguals by drawing attention to their linguistic accomplishments during the pre-task questionnaire. It will be important for any future studies into this topic to avoid eliciting a confidence-increase effect. The lack of accuracy effect found in this study's participants does not conclusively mean that the ability to distinguish advantageous to use a more naturalistic design (eg. using video or live confederates) to better solicit this ability, if it is present.

### Accuracy (%) by Group

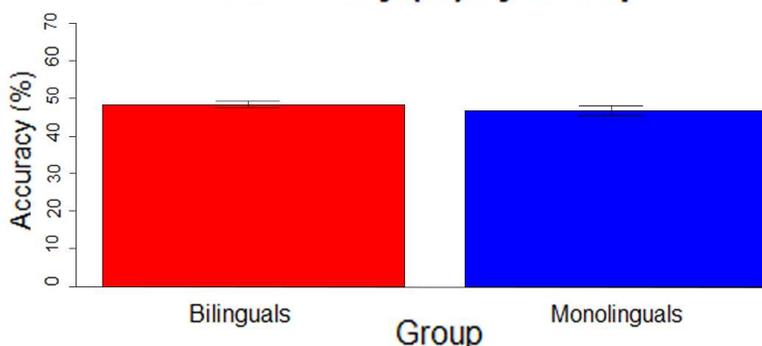


Figure 1. Accuracy (%) by group. Error bars based on SE.

### Mean Response Times by Group

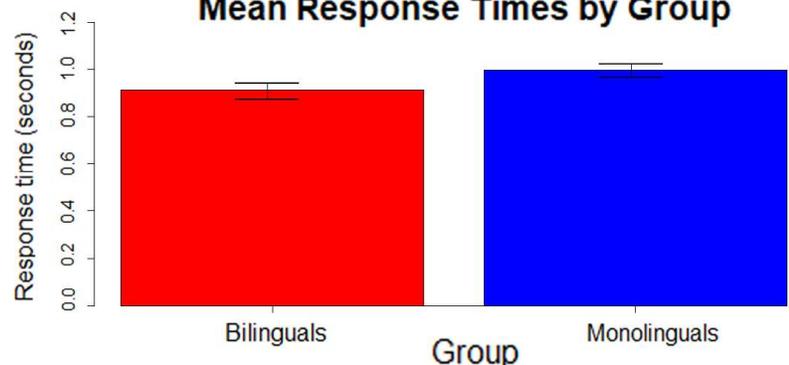


Figure 2. Mean RTs (seconds) by group. Error bars based on SE.