A Language-Specific Form of Attention that Underlies L2-Proficiency

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Introduction

This research investigated the role of a specific form of attention underlying second language (L2) proficiency. Some cognitive linguists have proposed that a principal function of language, beyond referring to events, objects and their properties, is to *direct attention* to relationships between elements in a message (Talmy, 2000). Grammaticized elements (grammatical morphemes, inflections, and word order patterns) refer to categories that are not "experienced directly in our perceptual, sensorimotor, and practical dealings with the world" (Slobin, 1996, p. 91). Instead, their meanings derive from how they relate various message elements to each other. In *The boy was holding a red ball,* the grammaticized elements (*the/a, was, ing*) refer to definiteness, time, and how actions unfold. These meanings are not directly available to perception as are those of *boy, hold, red,* and *ball*. Languages vary in the use of grammaticized elements -- a potential challenge for L2 learners. For example, not all languages mark definiteness (*the/a*) in the same way, if at all. Slobin suggested that in L2-proficiency, grammaticized elements *obligatorily* (*automatically*) direct attention to such relationships.

We hypothesized that L2 proficiency would correlate positively with efficiency of attention control with L2 grammaticized elements, after taking into account attention with non-grammaticized elements. The grammaticized stimuli were pronouns, prepositions, conjunctions and verb forms. The non-grammaticized stimuli were concrete nouns (e.g, *apple*) with clear perceptual referents but otherwise unrelated to language structure, and abstract nouns (e.g., *hour*) naming concepts lacking clear perceptual referents but that otherwise resemble concrete nouns.

Method

Bilingual undergraduates (n=24; L1=English; L2=French) performed the following proficiency and attention tasks.

Proficiency was operationalized as efficiency of accessing word meaning in a lexical categorization task. In separate L1 and L2 blocks, bilinguals were required to panel press to indicate whether a word referred to a living or non-living object (120 trials each). Coefficient of variation (CV) of reaction time was the measure of processing efficiency (automaticity - Segalowitz & Segalowitz, 1993). L2-specific measures were obtained by partialling out L1 from L2 CVs.

Attention control was operationalized as efficiency of attention shift judgments in a non-matching-to-sample task. On each trial, participants saw a sample word at the bottom of the screen and 4 words across the top. They had to press one of 4 buttons to indicate the position of a word belonging to a different category than the sample. L1 and L2 versions of the task were created to measure attention control for grammaticized words (GRAM), concrete nouns (CONC), abstract (ABST) nouns (40 trials each). Baseline performance (no attention shift required) was measured using a matching-to-sample task. CVs again provided the measure of processing efficiency. Attention control indices were computed by partialling out match CVs from non-match CVs. L2-specific measures were obtained by partialling out L1 from L2 attention indices.

Results

The data were submitted to hierarchical multiple regression with L2-specific proficiency as the dependent measure. In Step 1, measures of L2-specific attention control for abstract (ABST) and concrete (CONC) nouns were entered. In Step 2, measures of attention control for grammaticized words (GRAM) were entered. For Step 1 (CONC, ABST), R^2=.061 (*n.s.*). For Step 2 (GRAM), R^2 change = .192 (p = .035). With data from the 12 most proficient Ss, R^2 for CONC and ABST was .084 *(n.s.)* and R^2 change for GRAM was .512 (p=.013). For the 12 least proficient Ss, total R^2 =.065 *(n.s.*).

Discussion

The main hypothesis was supported. Efficiency of attention control for L2 grammaticized elements accounted for a significant amount of unique variance of L2 proficiency whereas attention control for non-grammaticized elements did not. Because all L2 measures had been residualized against L1, the results reflect a language specific form of attention and not general processing abilities. Implications for understanding skill acquisition in general are discussed.

References

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