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Within-Language Attention Control and Second Language Proficiency

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Introduction

This study investigated the role linguistic attention control might play in second language (L2) proficiency. Cognitive linguists have proposed that language, beyond referring to events, objects and their properties, also *directs attention* towards relationships between elements in a message (e.g., Slobin, 1996). This is especially true of function words, grammatical morphemes, etc. For example, in *The book is under the table*, the meaning of the preposition *under* is not represented by sensori-motor/perceptual experiences in the same way as it is for *book* and *table*. Instead, *under* directs attention to the relationship between *book* and *table*. Such grammatical elements pose challenges for L2 learners due to these attention-directing functions (Slobin, 1996).

This research used the *alternating runs paradigm* (Rogers & Monsell, 1995) to study attentional control when processing grammatical elements. This paradigm requires responses to two tasks that repeat and alternate predictably (e.g.,...AABBAA...), creating a sequence of repeat and shift trials. Typically, reaction times (RTs) are slower on shift than on repeat trials, resulting in *shift costs* that reflect the burden that shifting places on the attention system.

Decontextualized simple stimuli are often used to investigate attentional task shifting processes. Recently, Taube-Schiff and Segalowitz (2003) found significant shift costs during performance of first language (L1) grammatical judgment tasks involving contextualized sentence-like stimuli. The current two experiments aimed to clarify the specificity of linguistic attention in the grammatical domain by asking the following questions: (1) Does degree of grammatical similarity between tasks affect shift costs? (2) Does attention control in L2 differ for shifts between grammatical elements versus non-grammatical elements? (3) Are linguistic attention shift costs similar in L1 and L2?

Method

Bilingual undergraduate participants (Expt. 1: N=24; M=24 years and Expt. 2: N=32; M=22 years; L1=English; L2=French) performed an *alternating-runs task* involving 2-alternative forced choice conditions, with trials predictably alternating between repeat and shift trials. Stimuli were displayed on a computer screen and consisted of target words embedded in sentence-like fragments, appropriately counterbalanced for their occurrence in specific sentence contexts. In Experiment 1, participants were tested in two conditions in L1, each involving the following two tasks: In a Grammatically-Different (GDIFF) condition, verb targets were judged for temporal meaning (past versus present

tense) and prepositions for location meaning (above versus below). In a Grammatically-Similar (GSIM) condition, prepositions were judged for either one type of location meaning (above versus below) or another type (near versus far). In Experiment 2, participants were tested in L1 and L2 in the GSIM condition (same as in Expt. 1) and in a Non-Grammatical (NOUN) condition in which noun targets were judged with respect to non-grammatical category membership (air versus water craft, and 2- versus 4-wheel vehicles).

Results

Repeated measures ANOVAs were conducted comparing shift and repeat trials to obtain shift costs. In Expt. 1, shift costs were significantly greater for the location task in the GDIFF versus the GSIM condition. In Expt. 2, a significant interaction effect revealed shift costs were significantly greater in L2 in the GSIM condition than in the NOUN condition. Finally, shift costs were significantly greater in L2 than L1, in the GSIM and not in the NOUN condition.

Discussion

The main findings from these studies were: (1) Increased grammatical similarity between tasks decreased shift costs, suggesting a lower attentional burden. (2) There was a greater impact on attention control in L2 when shifting attention between grammatical versus non-grammatical elements, and (3) Linguistic attention shifts costs were greater in L2 than L1, but only significantly so in the grammatical judgment tasks. Results speak to psychological distinctions within the grammatical system and provide additional support for the idea that grammatical elements are more difficult to master in L2 (Slobin, 1996).

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