Interface difficulties? L2 processing of syntactic-semantic and syntactic-pragmatic interfaces. Grace deMeurisse and Edith Kaan (University of Florida)

The Interface Hypothesis (IH) is a theory of second-language (L2) sentence processing which suggests L2 speakers will have difficulty processing on linguistic interfaces, i.e., the syntax-semantics, syntax-pragmatics, semantics-pragmatics interfaces (Sorace & Filiaci, 2006). Negative polarity items (NPIs) are one example of an interface phenomenon, which can be used to investigate the IH. NPIs are items such as 'ever' in English which may only appear in negative or non-positive environments. Compare, for instance, the sentences (1a) vs. (1b). Sentence (1a) licenses the NPI 'ever' via the canonically negative licensor 'no'. In contrast, sentence (1b) lacks a suitable licensor, because the quantifier 'most' is positive.

Importantly, the licensor present in 1a is not the only suitable licensor for NPIs; even negative implicature can license NPIs when the surface interpretation is otherwise true or "veridical" (Giannakidou, 2006). In sentence (1c), the surface interpretation appears to be "true": young athletes have won the regional marathon. The NPI in this context may be *rescued* (Giannakidou, 2006) by negative implicature, i.e., 'young athletes but *no others*...' Given their licensing mechanisms (semantic scope and negative implicature), NPIs provide a unique testing ground for the interface hypothesis, which has primarily been investigated utilizing anaphora resolution (e.g., Sorace et al., 2009) and other similar structures (e.g., Serratrice et al., 2009).

We present the results of two experiments testing the IH using NPIs. We asked whether L1 English and highly proficient L1 Spanish-L2 English speakers were comparably sensitive to NPIs in English, and whether licensor ('no' or 'only') modulated this sensitivity. If L2 speakers have problems integrating across linguistic interfaces on the whole (reduced sensitivity to NPIs), we expected them to exhibit lower grammaticality judgments and slower RT collapsed across licensor than L1 speakers (grammaticality by group interaction). Should L2 speakers differentially struggle per linguistic interface (syntax-semantics, syntax-pragmatics), we expected to see a significant group by licensing condition ('no' vs. 'only') interaction, wherein compared to L1 speakers, L2 speakers exhibit slower RT and reduced z-scored judgments on the licensor 'only' (syntax-pragmatics interface) than the licensor 'no' (syntax-semantics interface).

In our acceptability judgment task (n=82 L1, n=86 L2), we observed a significant grammaticality by language group interaction (b=-0.62, SE=0.04, p<0.01); L2 speakers judged grammatical sentences (1a, 1c) as less grammatical than L1 speakers, but gave higher z-scored judgments for ungrammatical sentences (1b) than L1 speakers (see figure 1). However, no group by licensor ('no' vs.'only') interaction was observed (b=0.02, SE=0.04, p=0.6), nor a main effect of licensor (b=0.02, SE=0.02, p=0.41).

We observed a comparable interaction at the word following "ever" in a self-paced reading study (n=90 L1; n=90 L2) (b=0.03, SE=0.01, p<0.05); L2 speakers did not exhibit any significant differences in RT between ungrammatical sentences (418ms) and grammatical sentences (422ms), whereas our L1 speakers exhibited significantly faster RT in grammatical sentences (367ms) than ungrammatical sentences (381ms) (see figure 2). At no word position was a group by licensor interaction observed, nor a main effect of licensor.

Our findings suggests that L2 speakers do not have difficulty processing on linguistic interfaces – at least differentially per the syntax-semantics and syntax-pragmatics interfaces – though they may exhibit slightly less sensitivity to NPIs, as evidenced by their overall z-scored judgments and RT between grammatical and ungrammatical sentences. Our findings marginally support the interface hypothesis, in that L2 speakers exhibit some difficulty with semantic-pragmatic integration on the whole given their reduced performance compared to L1 speakers, although their comparable performance between the syntax-semantics and syntax-pragmatics interfaces raises questions for the interface hypothesis

Examples of the conditions:
(1a) 'No$_{LIC}$ young athletes have ever$_{NPI}$ won the regional marathon'
(1b) *'Most young athletes have ever$_{NPI}$ won the regional marathon'
(1c) 'Only$_{LIC}$ young athletes have ever$_{NPI}$ won the regional marathon'.

The Effect of Licensing Condition on Z-Scored Jugments by Language Group
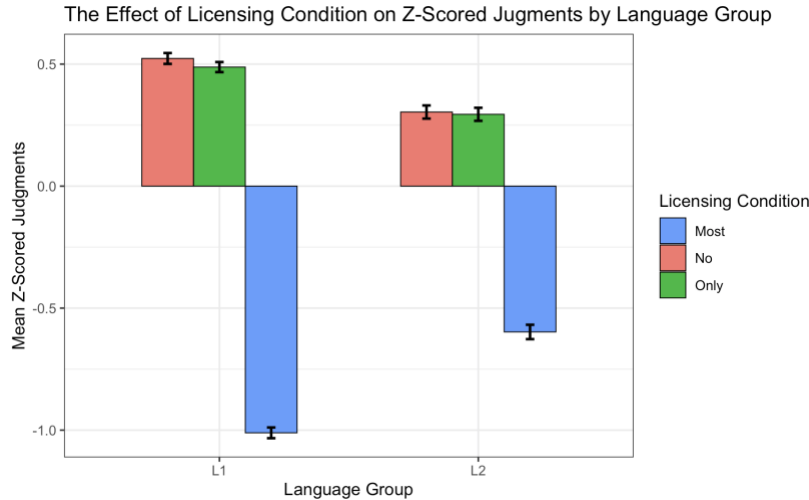
Figure 1. L2 speakers exhibited higher z-scored judgments of ungrammatical sentences, but lower z-scored judgments of grammatical sentences, than L1 speakers. No significant main effects or interactions were found for licensing condition ("no (red) vs. "only" (green) and language group)

Reading Times Per Group per Licensing Conition
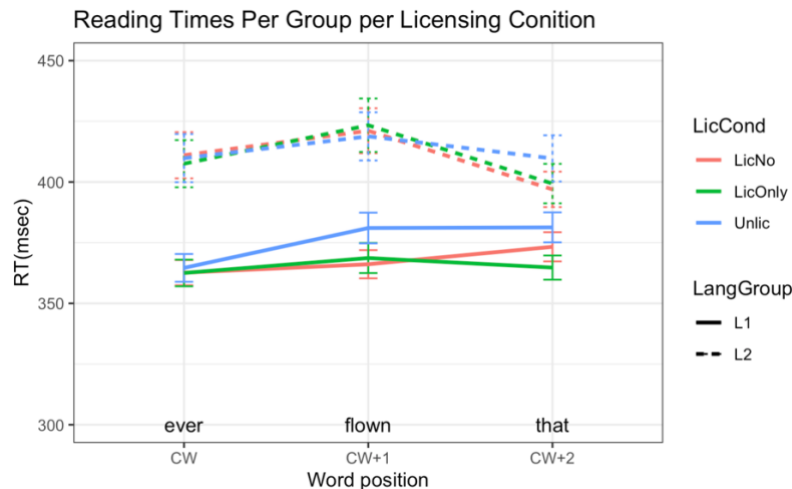
Figure 2. L2 speakers (dotted lines) did not exhibit any significant RT differences at the word following "ever" between grammatical (red and green) and ungrammatical sentences (blue), although L1 speakers (solid lines) did. No significant main effects or interactions were found for licensing condition (no (red) vs. only (green)) and language group; effects at other word positions were not significant.

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