Ungrammatical but comprehensible. Intrusive resumptives and the nature of acceptability judgments
Andrea Beltrama and Ming Xiang (University of Chicago, andremormora@uchicago.edu)

Overview - The nature of acceptability judgments and their implications for a syntactic theory are at the center of a lively debate. On the one hand, these measures are seen as a window into speakers’ competence: ungrammatical sentences should be unacceptable, or less acceptable than grammatical ones. On the other hand, processing-based factors have also been claimed to play a role in determining acceptability (Chomsky & Miller 1963, Klüender 1991, Hofmeister & Sag 2010, Sprouse 2008 among others). In light of this debate, a much needed task is to provide an account of how the division of labor between structural and processing constraints works in determining the outcome of this measure. In the current study, drawing on experimental evidence on intrusive resumptive pronouns, we argue that, although the impact of processing constraints on acceptability is clearly present, processing factors have a much stronger influence on semantic comprehensibility. We propose a separation between acceptability and comprehensibility judgments, and argue that the latter measure is a more precise assessment tool for processing difficulties than the former.

Intrusive resumption - In English and Romance languages, resumptive pronouns (RPs), despite being ungrammatical (or intrusive, Sells (1984)), have been claimed to facilitate processing in challenging situations, such as islands and long dependencies (Kroch 1981, Prince 1990, Asudeh 2004 among others). However, the exact status of RPs as processing facilitators is still debated. On the one hand, experimental studies (Heestand & al. 2011, Alexopoulou & Keller 2007, Han & al. 2012), revealed no improvement of island constructions with RPs, casting doubt on the claim that RPs aid processing at all; on the other hand, Hofmeister and Norcliffe (2013) showed that RPs, while failing to improve acceptability, still led to faster reading times in long dependencies, and suggested that processing facilitation may not directly translate into improved acceptability. To reconcile such discrepancy, we need a better understanding of what acceptability is measuring and the division of labor between grammar and processing factor in determining acceptability.

Hypothesis - We propose that speakers’ evaluation of a sentence is often multi-dimensional and contains both judgments on its acceptability and semantic comprehensibility. The effects of processing factors largely target the latter kind of judgment. When a sentence is ungrammatical, reducing processing load will not help improving acceptability, but it will improve semantic comprehensibility; however, with a grammatical sentence, reduced processing load may improve both acceptability and comprehensibility.

Expt 1 (in Italian, n=43) – Departing from past experiments on intrusive RPs, we elicited comprehensibility (as opposed to acceptability) judgments, and employed a background context sentence in our stimuli, which will help establish co-reference between the RP and its antecedent (consistently with Sells’ (1984) claim that intrusive RPs are not interpreted as bound variables). The target sentence always contained a relative clause and came in 8 different conditions (see Table I), based on a 2x2x2 factorial design: a) Island (Island vs Non island); b) Resumption (Gap vs Resumptive Pronoun); c) Embedding (2 vs 3 embeddings). 64 sets of stimuli were distributed into 16 lists with a Latin Square design (40 fillers). Participants were presented the items auditorily, and after each item, they assessed how easy it was to comprehend the target sentence on a 1 to 7 scale (1= completely incomprehensible; 7 = perfectly comprehensible).

Table 1 - C=condition, NI=Non island, I=Island, E=Embedding, G=Gap, R=Resumptive Pronoun

<table>
<thead>
<tr>
<th>Isl</th>
<th>E</th>
<th>Res</th>
<th>Context sentence (same across conditions):</th>
<th>Critical Sentence:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NI</td>
<td>2/3</td>
<td>G/R</td>
<td>Questo è il ragazzo che (il giornale riporta che) il poliziotto che guidava le operazioni</td>
<td>“This is the guy that (the paper reports that) the cop who was leading the operation beat him up”</td>
</tr>
<tr>
<td>I</td>
<td>2/3</td>
<td>G/R</td>
<td>Questo è il ragazzo che (il giornale riporta che) il poliziotto che</td>
<td>“This is the guy that (the paper reports that) the cop who beat him up must be suspended”</td>
</tr>
</tbody>
</table>

Expt 1 Results and Discussion (n=43) – The results for Exp. 1 are plotted in Figure 1. We found a main effect of Resumption (p<.0001) and significant interaction effects Resumption/Island (p<.001). Outside of islands gaps always turned out to be more comprehensible than RPs, (5.2 vs 4.3, ps<.001). However, within islands, RPs resulted in higher comprehensibility, both with 2 and 3-level embedding (2-emb: 3.65 vs 3.24, p<.05, 3-emb: 3.92 vs 3.40, p<.001). Our results suggest that in Italian RPs do operate as processing facilitators in the presence of islands, improving the comprehensibility of the sentence.
Expt 2 English (n=64) – We replicated Expt1 in English to test whether the result above is due to language-specificities of Italian or due to our new design. The design of Expt 2 was largely identical with Expt1, although the stimuli (directly translated from Italian) were presented in written form on Amazon-MTurk. The results are plotted in Figure 2. Again, within islands, sentences with RPs were more comprehensible than those with gaps, showing that English RPs also facilitate processing (4.48 vs 3.98 for 2-Emb and 4.00 vs 4.29 for 3-Emb; all ps <.01). We therefore propose that the discrepancy between our findings and those from the studies based on acceptability is due to (i) use of comprehensibility questions and (ii) presence of a context sentence.

Exp 3 and 4 English (n=40) – In order to assess the effect of each of these two design factors, we ran two additional follow-ups in English. In Expt3 we kept everything unchanged, but we asked subjects to rate the acceptability of the target sentence on a 1 to 7 scale, a task used in past experiments. In Expt4, we restored the comprehensibility task, but presented the target sentence in isolation (i.e. with no context). In both cases, we observe that RPs failed to rescue islands anymore, as have been shown by previous studies on RPs.

General discussion – Three observations are worth noting. First, in the presence of an island violation, RPs only rescued islands (i.e. islands with RPs were rated higher than islands with gaps) when the rating task specifically targeted at semantic comprehensibility, and at the same time the discourse context made it easier to comprehend the antecedent of the RP. Second, in the absence of an island, grammatical sentences with gaps were consistently rated higher than ungrammatical sentences with RPs, regardless of task, context, and processing load (i.e. length). And finally, longer length only reduced ratings on grammatical sentences with gaps (when there are no island violations), while it had no effect on ungrammatical sentences, under any measures. We conclude that (i) ungrammatical sentences could be made more comprehensible, but not more acceptable, with manipulations that facilitate comprehension (e.g. RPs and appropriate context); and (ii) increased processing load (e.g. longer length) could reduce acceptability/comprehensibility on grammatical sentences (this is also well-known from center embedding sentences, Chomsky and Miller 1963), but has little effect on ungrammatical ones. These results provide initial evidence to show that the effect of grammatical and processing factors on sentence rating can be separated in principled ways.