Antilocality in Ungrammaticality:
Nonlocal grammaticality violations are easier to process

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Are non-local violations more acceptable than local ones? If so, are they also easier to process than local ones?

Grammaticality violations can be more or less local depending on the distance between the elements that produce the violation. For example, the locality of violations that stem from repeated function words depends on the number of words intervening between the two instantiations of the function word. Grammaticality violations are known to incur processing costs; however, the relationships between grammaticality, acceptability and processing difficulty are far from straightforward. Local and non-local violations are equivalent according to most competence theories of grammar. However, if acceptability judgments are a combination of competence and performance factors, non-local grammaticality violations might be less noticeable and thus incur lesser penalties than local ones. If they do, then non-local violations should be easier to process.

Preposition Doubling

Experiment 1 investigated a repeated function word phenomenon, preposition doubling, in a masked, self-paced reading time study of sentences with a pied-piped preposition in an extracted prepositional phrase. Half of the sentences also had an in-situ copy of the same preposition, and the two prepositions were separated by either nine or fifteen words:

one prep
1. I asked from which teacher my son had gotten the bad grade at the end of the quarter at the new school he attended.
2. I asked from which teacher my son had gotten the bad grade from at the end of the quarter at the new school he attended.
two preps
3. I asked from which teacher at the new school he attended my son had gotten the bad grade at the end of the quarter.
4. I asked from which teacher at the new school he attended my son had gotten the bad grade from at the end of the quarter.

first prep   extra prep   intervening material
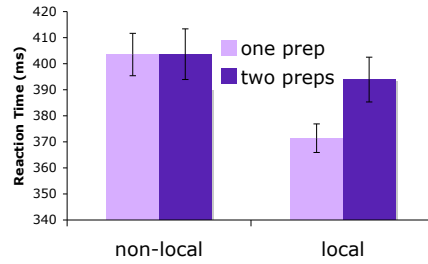
The extra preposition made reading time for whole sentence significantly longer when the violation was local (p=.004), but not when the violation was non-local, yielding a marginally significant interaction between locality and grammaticality (p=.06).

Multiple That

Experiment 2 was an acceptability study of Multiple That sentences. Each sentence contained an adverbial between the complementizer and the beginning of the complement clause that was either **short** (one word long) or **long** (seven words long); in addition, each sentence contained **one THAT** (before the adverbial) or **two THATs** (before and after the adverbial). Staum and Sag (2007a) reported results of a masked, self-paced reading study of the same sentences (reproduced here).

one that
John reminded Mary that soon his brother would be ready to leave.
John reminded Mary that soon that his brother would be ready to leave.
two thats
John reminded Mary that after he was finished with his meeting his brother would be ready to leave.
John reminded Mary that after he was finished with his meeting that his brother would be ready to leave.

first that   intervening material   second that   subject of CC
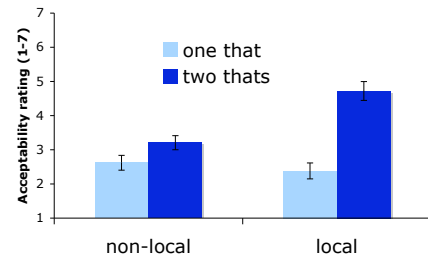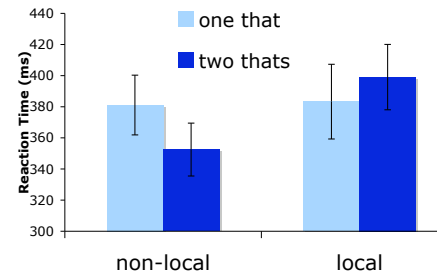

The non-local violations were more acceptable than the local ones (p=.00004), but there was no difference in the corresponding one-*that* conditions, again yielding an interaction between locality and grammaticality (p=.0003).

There is a penalty for extra THAT when the violation is local (p=.001), but a *benefit* from extra THAT when the violation is non-local (p=.02) yielding a significant interaction between locality and number of that's (p=0.025).
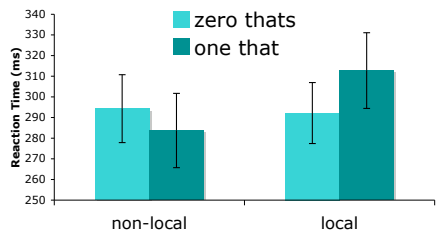
That-trace effect

Staum and Sag (2007b) reported results of a masked, self-paced reading study of That-trace violations (reproduced here). Each sentence contained an adverbial between the complementizer and the beginning of the complement clause that ranged in length from 0 to 8 words long; in addition, each sentence contained one THAT (a THAT-trace violation) or zero THATs.

(0) Robin is someone who I think (that) likes ice cream more than other sweets.
(2) This is a demographic the editors believe (that) most likely would have been put off by the original working title of the magazine.
(5) My mother ignored the sound my dad said (that) when the car makes it is the most important thing to tell the mechanic about.
(8) The doctor told the nurse which patient he had decided (that) given how many medications he was already on should not be given any more unless absolutely necessary.

length of intervening material   intervening material   extra that

Extra THAT creates more difficulty when the violation is local (p=.06), but not when the violation is non-local, producing a significant interaction between locality and number of that's, (p<.05).

Grammaticality violations make structures harder to process, and when the violation is more local, it may be more noticeable, producing more difficulty. This is supported by both the interaction in the acceptability judgments for Multiple *That* sentences and the interaction in the reading times for all three phenomena (Preposition Doubling, Multiple *That* and *That*-Trace sentences). Locality influences both the acceptability and the processing difficulty of grammaticality violations. The existence of antilocality effects for grammaticality violations suggests that **the process of responding to a violation is a combination of competence and performance factors.**