Antilocality in ungrammaticality: nonlocal grammaticality violations are easier to process

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. Are non-local violations more acceptable than local ones? If so, do non-local violations incur lesser processing costs than local ones (an antilocality effect)?

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.

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:

(2a) 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.
(2b) 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.

The extra preposition made reading time per word (averaged over the whole sentence) significantly longer when the violation was local (t1(1,37)=2.75, p=.004, t2(1,23)=2.27, p=.016), but not when the violation was non-local (t1<.1, t2<), yielding a significant interaction between locality and grammaticality (F1(1,36)=3.74, p=.03, F2(1,22)=4.59, p=.02).

This is consistent with Staum and Sag (2007), which showed that sentences with extra complementizers (Multiple *That* sentences) are easier to process when the complementizers are farther apart. But do these processing effects reflect a difference in acceptability? In Experiment 2, participants rated the acceptability of 20 Multiple *That* sentences with either one complementizer (before an adverbial) or two complementizers (before and after an adverbial) in their embedded complements, separated by either one word (local violation) or seven words (non-local violation):

(1a) John reminded Mary **that** soon (**that**) his brother would be ready to leave.
(1b) John reminded Mary **that** after he was finished with his meeting (**that**) his brother
    would be ready to leave.

The non-local violations were more acceptable than the local ones (t1(1,29)=4.58, p=.00004, t2(1,19)=4.43, p=.0001), but there was no difference in the corresponding one-*that* conditions (t1(1,29)=.96, ns, t2(1,19)=.71, ns), again yielding a significant interaction between locality and grammaticality (F1(1,27)=16.78, p=.0002, F2(1,18)=17.58, p=.0002).

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.