

The Advantage of the Ungrammatical: Processing 'Extra THAT'

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Sentences containing THAT-trace violations are famously ungrammatical, yet such sentences appear in spoken and written language, especially when they contain an adverbial between THAT and the gap site:

1) Anna heard who the professor decided THAT (after the term) __ would fail.

Unacceptability of these sentences is known to be ameliorated by the presence of this adverbial, but there is no satisfying explanation for this difference in the grammar. If these two sentences are equally (un)grammatical, then perhaps the second is judged more acceptable because the violation is non-local, making the sentence is easier to process. If the amelioration is due to the separation between THAT and the gap, then longer adverbials should result in faster processing in the embedded clause.

Experiment 1 investigated the effects of these adverbials on processing the embedded VP. We reasoned that with a short intervening adverbial, the embedded VP should be read more slowly in the presence of a THAT-trace violation than without the extra THAT. This effect should diminish for longer adverbials, because they increase the distance between THAT and the gap site.

As predicted, reading times in the embedded VP were faster without an extra THAT when the adverbial was short, but this effect reversed when it was long ($F(1,22)=8.17, p=.009$).

To test whether non-local violations are generally easier to process than local ones, we considered another extra THAT phenomenon (Multiple THAT):

2) I told him THAT for sure THAT I would go.

Experiment 2 varied the length of the adverbial between the two instances of THAT. Again, we reasoned that longer adverbials should yield faster reading times in the complement clause (CC) when there was a violation.

As predicted, reading times showed that the CC subject was read faster after an extra THAT when the adverbial was long, but not when it was short ($F(1,27)=5.60, p=0.03$).

Another locality effect also predicts the above interaction. Because the extra THAT is closer to the CC subject than the first THAT, its presence should reduce integration costs in the CC. Importantly, unlike violation locality, integration locality further predicts that when the adverbial is long, the ungrammatical extra THAT should actually be beneficial compared to the one-THAT condition.

Confirming this integration-based prediction, when the adverbial was long, reading times on the CC subject were faster after the extra THAT than in the standard one-THAT sentences ($t(1,27)=2.2, p<0.02$). Results suggest that ungrammatical constructions can aid processing.