AN EXEMPLAR MODEL OF SYNTACTIC PRIMING

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A key question in language processing is the extent to which lexical and structural processing are similar. Some exemplar models and Construction Grammar models (Fillmore *et al.* 1988; Kay & Fillmore 1999; Goldberg 1995; Goldberg 2006) predict similarities between lexical and syntactic processing. This thesis presents two exemplar models of syntactic production that both predict similar processing effects for words and multi-word structures and tests their predictions for syntactic priming: the TIMBL Spreading Activation Model (TSAM; Krott *et al.* 2002), which represents exemplars as points in a feature space, and the Data-Orented Parsing - Local Activation Spread Theory (DOP-LAST; inspired by Bod 1992 and Kapatsinski 2006), which represents exemplars as construction-like tree fragments.

Lexical production and comprehension experiments have shown that words are recognized or produced faster when preceded by another (similar) word. This phenomenon is called priming. These lexical priming experiments have shown that high frequency words are primed less by their orthographic and semantic neighbors (Scarborough *et al.* 1977; Forster & Davis 1984; Norris 1984; Perea & Rosa 2000). Also, the more similar the prime and target words, the greater the magnitude of the priming effect (Ratcliff & McKoon 1981). Finally, words that are orthographically (Perea & Rosa 2000) or semantically (Anaki & Henik 2003) similar to many other words have less of a priming effect.

Bock (1986) first showed that a priming effect occurs on the scale of syntactic structures, as subjects are more likely to produce a structure when they have processed it previously. For example, a speaker is more likely to produce a prepositional dative after hearing another prepositional dative. The TSAM and DOP-LAST exemplar models of representation predict that structural priming should show the same frequency and similarity effects as lexical priming, because essentially the same representations are being accessed. DOP-LAST further

predicts structural priming should be affected by the neighborhood density of the prime. In this thesis, a data set of the passive alternation was created using spoken data, and priming factors were added to the Bresnan *et al.* (2007) database of ditransitives in order to test the predictions of the exemplar model for syntactic priming. The data were analyzed using mixed-model logistic regression.

Inverse frequency effects were found in structural priming similar those in lexical priming: prime structures that contain verbs that occur very frequently in that structure are less likely to prime it. This effect was found in priming of passives ($p < 0.05$) and ditransitives ($p < 0.04$)

Similarity between prime and target was also found to increase the likelihood of structural repetition, using a similarity measure from the Tilburg Memory-Based Learning model (Daelemans *et al.* 2001). This metric was found to significantly predict likelihood of priming in both passives ($p < .001$) and ditransitives ($p < .005$).

Finally, the effect of neighborhood density on structural priming was tested in both passives and ditransitives. Primes were defined to be in dense neighborhoods if their verbs occur in many different constructions, while low density constructions have verbs that occur in few constructions. There was no effect of neighborhood density in either data set ($p > .25$).

These studies provide further evidence that structural priming is sensitive to some of the same factors as lexical priming: high frequency structures prime less, and more similar prime and target structures prime more. This is consistent with both the construction-like DOP-LAST exemplar model as well as the TSAM model, which uses clouds of exemplars in a feature space. However, DOP-LAST predicts neighborhood density effects in priming and these are not found, so the evidence is more consistent with the TSAM model. These results indicate that both lexical and syntactic production are sensitive to frequency and similarity effects, but only lexical production is sensitive to neighborhood density effects. They also support exemplar models that use clouds of exemplars represented in a feature space, as opposed to those that use construction-like representations.

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