

Interaction of lexical and grammatical aspect (and frequency) in verb processing

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Aspect contributes important temporal information for the construction of situation models in the human mind. Previous studies examining the effect of grammatical aspect show that perfective sentences are processed faster than imperfective ones (e.g. Madden & Zwaan, 2003; Chan et al., 2004; Yap et al., 2006). These studies indicate that telicity (i.e. temporal endpoint focus) has a significant effect on event representation and processing. However, these studies used only accomplishment verbs (e.g. *bake a cake*).

In a subsequent Cantonese study, Yap et al. (2005) showed that, with activity verbs, imperfective sentences were processed faster instead. This finding points to an interaction between grammatical aspect and lexical aspect (i.e. verb type), and can be explained in terms of prototype theory. That is, accomplishment verbs combined with perfective aspect (e.g. *knitted a sweater*) form prototypical representations for telic situations (i.e. situations with an anticipated endpoint), while those combining with imperfective aspect (e.g. *knitting a sweater*) form less prototypical representations for telic situations. In the case of activity verbs, the situation is reversed. Combinations of activity verbs with imperfective aspect (e.g. *is skating*) constitute prototypical representations for atelic situations, while combinations with perfective aspect (e.g. *skated*) constitute less prototypical representations. Essentially, for both verb types, prototypical combinations are processed faster than non-prototypical ones. This is consistent with findings in both usage and acquisition studies (e.g. Rosch & Mervis 1975; Shirai & Andersen, 1995; Li & Shirai, 2000; Wagner, in press). However, it has yet to be established whether this prototype account holds for verb types other than accomplishments and activities.

The present study extends this investigation to more verb types, including achievement verbs in Japanese. The prototype analysis predicts that, all things being equal, accomplishment verbs marked with perfective aspect *-ta* (e.g. *kowaretta* ‘broke’) would be processed faster than those marked with imperfective aspect *-teiru* (e.g. *kowaretteiru* ‘is broken’).

A sentence-picture matching task was used to measure the response time for processing perfective *-ta* and imperfective *-teiru* sentences in Japanese, using activity and achievement

verbs, for comparison with earlier work done with accomplishment verbs (Yap et al., 2006). The results show that the mean reaction time for processing activity verbs is faster for imperfective than for perfective sentences ($p < .0001$). However, for achievement verbs, no difference in mean reaction time was observed between the perfective and imperfective sentences ($p = .506$). The insignificant difference between imperfective and perfective sentences for the achievement verbs is incongruent with the predictions of the prototype account. However, this interaction effect appears to be sensitive to frequency factors. Findings from a recent corpus study (Shirai & Nishi, 2005) supports the possibility of a usage frequency effect in favor of imperfective achievement sentences in Japanese.

References

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