

Object animacy effects in more or less transitive sentences

Anna Czypionka, Katharina Spalek (Humboldt-Universität zu Berlin & Berlin School of Mind and Brain), & Isabell Wartenburger (Universität Potsdam & Berlin School of Mind and Brain)

anna.czypionka@hu-berlin.de

Object animacy; Idiosyncratic case marking; Eye-tracking; Parafoveal-on-foveal; Self-paced reading; Event Related Potentials (ERPs); German

German verbs that assign idiosyncratic dative case to their direct objects are “less transitive” than the standard accusative-assigning verbs¹. The relationship between their arguments is not quite accurately described by the thematic role labels “agent” and “patient”, being less hierarchical than these imply². Does this difference between structural and lexical case marking verbs affect the use of another type of hierarchy, namely animacy, in parsing? Compared to “standard transitive” sentences with an animate subject/agent and an inanimate object/patient³, sentences with two animate arguments cause well-known processing difficulties in the absence of morphosyntactic cues about “who did what to whom”^{4,5,6,7}. We aimed to answer the question whether the use of animacy hierarchies interacts with the degree of transitivity of the sentences processed. We present data from reading time, eye movement and EEG measurements, comparing object animacy effects in verb-final embedded sentences with either prototypically transitive acc.-assigning or non-prototypically transitive dat.-assigning verbs. Subjects and objects are bare plural NPs without overt morphological case marking. Thus, readers have to rely on word order and semantic / lexical information in case assignment and parsing. Unlike previous studies on animacy hierarchies and case marking⁷, we used grammatical, plausible sentences:

Condition 1a/b: accusative verb with (a) inanimate or (b) animate object NP

Condition 2 a/b: dative verb with (a) inanimate or (b)animate object NP

Peter sagt, dass Studentinnen (a) Vorlesungen / (b)Professoren begeistert (1) loben / (2)applaudieren, und Ida sagt das auch.

Peter says that students-fem.pl(nom) lectures-pl(inanim,acc=dat) / professors-pl(anim,acc=dat) enthusiastically praise/applaud and Ida says that too.

“Peter says that students enthusiastically (1) praise / (2) applaud (a)lectures / (b)professors, and Ida says so, too.”

Self-paced reading times indicate differences in the effect of object animacy between verb classes, with reading times on the postverbal word (*und*) about 15 ms longer in 1(b) than in 1(a), but no difference between 2(a) and 2(b). Eye movement measures showed that the first pass reading times on the preverbal adverb (*begeistert*) were lengthened about 13 ms after animate objects, again only in condition 1. This suggests that the interplay between the two types of information starts already during preview processing in natural reading. Preliminary analyses of our EEG data suggest a more negative-going waveform in the 400-700 ms time window on the critical verb for animate compared to inanimate object sentences in condition 1, while not showing object animacy effects in condition 2. All reported effects and interactions are statistically significant. We conclude that the information on animacy hierarchies is used differently in the processing of sentences depending on the degree of transitivity of the verb. The interaction between a verb’s case assignment pattern and the animacy of its arguments causes significant behavioural and physiological effects, even when case marking is not morphologically overt. Thus, the notion of transitivity as a gradable semantic property encoded in the syntax is not only useful in describing idiosyncratic case marking patterns, but also in gaining insight into language processing behaviour.

References

- 1) Blume, K. (2000): Markierte Valenzen im Sprachvergleich: Lizenzierungs- und Linkingbedingungen, Niemeyer Linguistische Arbeiten, 411
- 2) Dowty, D. (1991): Thematic Proto-Roles and Argument Selection, *Language*, 67, (3)
- 3) Comrie, B. (1989): *Language Universals and Linguistic Typology*, University of Chicago Press, 2nd edition
- 4) Weckerly, J., Kutas, M. (1999): An electrophysiological analysis of animacy effects in the processing of object relative sentences, *Psychophysiology*, 36
- 5) Tanenhaus M.K., Trueswell J.C., Garnsey S.M. (1994): Semantic influences on parsing: Use of thematic role information in syntactic ambiguity resolution, *Journal of Memory and Language*, 33
- 6) Bornkessel, I., Schlesewsky, M. (2004): On incremental interpretation: degrees of meaning accessed during sentence comprehension, *Lingua* 113
- 7) Frisch, S., Schlesewsky, M., (2001): The N400 reflects problems of thematic hierarchizing; *NeuroReport* 12