Testing of the Transitivity Hypothesis: Negation, Participants, and Punctuality

Radek Čech (University of Ostrava), Jan Štěpánek (Charles University in Prague)

The aim of the study is to test empirically predictions formulated in the Transitivity Hypothesis framework (Thompson & Hopper 1980, Hopper & Thompson 2001). According to the authors of the Transitivity Hypothesis, transitivity is a crucial relationship in language, having a number of universally predictable consequences in grammar. Transitivity is viewed as a property of a sentence which comprises ten parameters (number of participants, kinesis, aspect, punctuality, volitionality, affirmation, mode, agency, affectedness of object, individuation of object) – each parameter involves a different facet of the effectiveness or intensity with which the action is transferred from one participant to another. Particular parameters consist of two opposite features, each of them is viewed as a symptom of high or low transitivity; for instance, high transitivity feature of the parameter "number of participants" is represented by the presence of two or more sentence participants, while low transitivity feature is represented by the presence of just one participant.

The most important aspect of the Transitivity Hypothesis lies in the prediction which hypothesizes the relationships between the parameters: it is predicted that high transitivity features of particular parametrs co-vary extensively and systematically in a sentence. More concretely, the Transitivity Hypothesis predicts that, for instance, if the verb is punctual (i.e., expresses high transitivity feature of the parameter "punctuality"), the sentence containing this verb should have two or more participants (high transitivity feature of the parameter "number of participants"). Obviously, the co-variation between particular features has to be viewed not in the strict sense, but as a tendency, which is well measurable in language corpora (cf. Thompson – Hopper 2001).

Surprisingly enough, although predictions given by the Transitivity Hypothesis brought a new view on relationships among different grammatical and semantic facets of language, the Transitivity Hypothesis has been tested empirically very rarely (e.g., Olsen & Macfarland 1996, Otani 2008, Newman & Rice 2006) and the results have not always corroborated the predictions.

The goal of this study is to test relationship among three parameters: number of participants, negation, and punctuality. Because the Transitivity Hypothesis predicts universal property of the language, the hypotheses are tested on different languages. Language corpora are used as a material for the testing, namely the Prague Dependency Treebank (Czech), Tiger Treebank (German), Ancora (Catalan, Spanish), Penn Treebank (English), Penn Chinese Treebank (Chinese).

As for the testing itself, distributions of particular features are observed and predictions derived from the Transitivity Hypothesis are tested, for instance: *there are more affirmative predicates in two or more participant clauses than in one participant clauses.*

In each of our experiments, we test a pair of properties, assuming a null hypothesis stating that the two properties are independent. Such a test can either reject the null hypothesis in favour of the alternative hypothesis that there is some correlation between the observed properties, or fail to reject the null hypothesis. The usual statistical method for performing this type of tests, the Pearson's chi-square test, is used.

(491 words)

References

Hopper, P., Thompson, S. (1980). Transitivity in Grammar and Discourse. Language 56, 251-299.

Newman, J., Rice, S. (2006). Transitivity schemas of English EAT and DRINK in the BNC. In: Gries, S.T., Stefanowitsch, A. (eds.), Corpora in Cognitive Linguistics: Corpus-based Approaches to Syntax and Lexis. Berlin, New York: Mouton de Gruyter, 225–260.

Olsen, M.B., Macfarland, T. (1996). Where's Transitivity? Paper presented at the Seventh Annual Formal Linguistic Society of Mid-America conference, May 17–19 1996, The Ohio State University.

Otani, N. (2008). The Transitivity Hypothesis and Object Case-marking in Japanese: On the Transitivity of oyogu (Swim) in Japanese,"Workshop on East Asian Linguistics, Santa Barbara, February 23, 2008.

Thompson, S., Hopper, P. (2001), Transitivity, clause structure, and argument structure: Evidence from conversation. In: Bybee, J., Hopper, P. (eds.): Frequency and the Emergence of Linguistic Structure. Amsterdam, Philadelphia: John Benjamins, 27– 56.