Factors influencing referential choice: cross-linguistic study and neural-network modeling

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When speakers decide to mention a referent they choose a particular linguistic expression, thus making referential choice. This choice depends on the activation level of the referent in mental representation of the speaker. Numerous studies have shown that this level depends on various factors such as grammatical and information-structural roles of the antecedent, distance to antecedent, presence of other referents in discourse etc. However, the results of the studies are often controversial, and the impact of each factor still remains undefined - mostly because factors are manipulated separately. Moreover, experiments on different languages emphasize the impact of different factors. In the present study we analyze the influence of several factors in coherent oral discourse on the material of two languages. The subjects (25 English-speaking, 25 Russian-speaking) were asked to watch a short black-and-white film at the same time describing the events happening there to a partner, who was unable to see the screen. The referential expressions chosen by the speakers were analyzed with respect to the list of aforementioned factors. Cross-linguistic comparison showed a difference in goal and source thematic roles. English speakers tend to use pronouns more frequently for goal referents than source referents in contrast to Russian speakers. The neural network (NN) modeling of referential choice (only Russian-speakers’ texts were used) showed that no single factor plays the decisive role in the process. The effectiveness of NN learning process depends on the coherent interplay of all these factors, which underlines the complicated dynamic nature of the referential choice process.

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