Implicit causality in Romanian interpersonal verbs

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Abstract

Natural languages display a great variety of devices that may be used to speak of causal relations, ranging from prepositions, sentence connectives and verbs. This paper focuses on the way in which different classes of verbs affect the subsequent discourse in terms of implicit causality. We report on an offline sentence-continuation study that tested next mention preferences triggered by four Romanian classes of verbs and compare them these results with verbal biases observed in other languages.

Keywords: implicit causality, verbs, pronoun resolution, next mention, Romanian

Introduction

Natural languages display a great variety of devices that may be used to speak of causal relations, such as prepositions, sentence connectives (e.g. *because, so*), or verbs, as for example *impress* or *hit*. The present paper focuses on implicit causal relations expressed inter-clausally by verbs. Implicit causality (IC) refers to the property of interpersonal verbs to relate two human or animate entities in such a way that one of the entities is "implicated as the assumed locus of the underlying cause of the action or attitude (Garvey and Caramazza 1974: 460)".

The literature distinguishes between three classes of verbs in terms of their effect on the subsequent discourse: some, such as *telephone* or *approach* assign the cause of the event to the first noun phrase (NP1), the subject, while other verbs, such as *fear* or *praise* attribute the cause to the second noun phrase (NP2), the object. The third class of verbs, such as *see* or *hear*, are considered neutral towards the assignment of the cause. The proportion of continuations picking up the subject or the object referent is referred to as IC bias (e.g. Crinenan & Garnham 2006). These biases towards the subject or the object referent are manifestations of an expectation about who will be mentioned next in the discourse, but they can also affect the resolution of a subsequent pronoun or the coherence relation used in the next sentence (Garvey et al. 1974, Kehler, Kertz, Rohde & Elman 2008, Hartshorne & Snedeker 2014Chiriacescu 2011, Lindemann & Homană 2019). It was argued that this property is rooted in the argument structure properties of verbs. In the current paper, we focus on next-mention biases triggered by interpersonal verbs.

One central question in the literature on IC pertains to the cross-linguistic and cross-cultural validity of these biases. Moreover, those studies comparing IC biases in different languages found that even though IC effects display similar patterns, the strength of these effects differs among languages. This paper reports on an off-line sentence-continuation study in which we tested the implicit causality biases of four classes of interpersonal verbs in Romanian.

The experimental study

The aim of the study was to examine the implicit causality biases of 48 Romanian verbs in terms of their next-mention preferences. We furthermore investigated the coherence relations used to introduce the event in the immediately following sentence.

Participants

56 monolingual native speakers of Romanian from the Transilvania University of Brasov, Romania, took part in the experimental study (age range: 18–45 years, mean age 28 years, 29 female). It took about twenty minutes to complete each version of the study.

Design, materials and procedure

We selected 48 verbs according to two criteria: (i) they belong to one of the four classes of verbs discussed in Rudolph & Försterling (1997): Agent-Patient (AP), Patient-Agent (PA), Stimulus-Experiencer (SE), Experiencer-Stimulus (ES); and (ii) they were tested in other languages with respect to their IC biases (e.g. Goikoetxea, Pascual & Acha 2008; Bott & Solstad, 2014).

Two same-gendered human referents were mentioned in each experimental item. We manipulated the verb class, by choosing verbs form the four main classes of verbs discussed in the literature on implicit causality (IC): AP, PA, ES, SE verbs, as illustrated in Table 1. Participants were instructed to write one sentence continuation to each item, which did not end in a (pronoun or connective) prompt. The resulting corpus of 1886 continuations was annotated with respect to choice of subsequent mention, i.e. whether participants opted to continue the next sentence re-mentioning the initial subject (NP1) or the initial object (NP2).

Predictions

In light of previous findings (e.g. Goikoetxea et al. 2008; Hartshorne & Snedeker 2013), we expect IC to affect the choice of subsequent mention, such that we obtain more subject continuations for SE verbs (i.e., NP1 biasing) and more object continuations for ES verbs (i.e., NP2 biasing). For AP and PA verbs, we expect more heterogeneous results (e.g. Ferstl et al., 2011).

Table 1. Sample experimental items with English translations

Agent-Patient	Marian l-a iertat pe Sorin. Marian forgave Sorin.
Patient-Agent	Adela a recompensat-o pe Irina. Adela recompensated Irina.
Stimulus-Experiencer	Paul l-a speriat pe Mihai. Paul scarred Mihai.
Experiencer-Stimulus	Diana a plăcut-o pe Gabriela. Diana liked Gabriela.

Preliminary results

Results show that implicit causality influences reference in terms of subsequent next mention. First, as expected, SE verbs were significantly more subject-biased (at least 70%) than the ES verbs, which showed a clear preference for the initial direct object (at least 81%). The AP verbs showed a similar pattern, as the initial subject referents were more prone to be picked up in the immediately following matrix clause.

Second, the distribution of the discourse relations associated with the four verb types following a full stop reveals differences in terms of strength and coherence type. Overall, participants preferred more explanation relations than any other type of continuations. PA verbs prefer explanations in 92% of cases, while ES and SE verbs prefer them in 66% and 52% of cases respectively. For AP verbs, participants preferred elaborations (47%) and results (23%) rather than explanations (25%). We will discuss these results in light of cross-linguistic findings on implicit causality.

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References

Bott, O., Solstad, T. 2014. From verbs to discourse – a novel account of implicit causality. In Hemforth, B., Mertins, B., Fabricius-Hansen, C. (eds.), 2014, Psycholinguistic approaches to meaning and understanding across languages, 213–251. New York, Springer.

Chiriacescu, S.I. 2011. Effects of reference form on frequency of mention and rate of subsequent mentio. In Devi, S.L., Branco, A., Mitkov, R. (eds.), 2011, Anaphora Processing and Applications. Lecture Notes in Computer Science, 132-142. Heidelberg, Springer.

Crinenan, M., Garnham, A. 2006. Implicit causality, implicit consequentiality and thematic roles. Language and Cognitive Processes 21, 636-648.

Garvey, C., Caramazza J., Yates, F. 1974. Factors influencing assignment of pronoun antecedents. Cognition 3, 227-243.

Goikoetxea, E., Pascual, G., Acha, J. 2008. Normative study of the implicit causality of 100 interpersonal verbs in Spanish. Behavior Research Methods 40, 760–772.

Hartshorne, J. K., Snedeker, J. 2013. Verb argument structure predicts implicit causality: The advantages of finer-grained semantics. Language and Cognitive Processes 28 (10), 1474–1508.

Ferstl, E. C., Garnham, A., Manouilidou, C. 2011. Implicit causality bias in English: a corpus of 300 verbs. Behavior Research Methods 43(1), 124–135.

Kehler, A., Kertz, L., Rohde, H., Elman, J. L. 2008. Coherence and coreference revisited. Journal of Semantics 25(1), 1–44.

Lindemann, S.I., Homană, S. 2019. The implicit causality in verbs. Scientific Bulletin of the Politehnica University of Timisoara 18 (1), 14-22.

Rudolph, U., Forsterling, F. 1997. Zur impliziten Kausalität in Sprache: Kriterien zur Selektion von Stimulusmaterial. Zeitschrift für Experimentelle Psychologie 44, 293–304.