

THE ROLE OF AGENCY IN CAUSAL SELECTION

Elitzur Bar-Asher Siegal¹, Noa Bassel¹ and York Hagmayer²

1. Hebrew University of Jerusalem; 2. Universität Göttingen

SETTING THE SCENE: Since the philosopher David Hume, causality is generally assumed to be a binary relation between a cause and an effect. It is evident, however, that the occurrence of any particular effect depends on the realization of a **set of conditions**. For example, the effect of a house burning down may depend upon a discarded cigarette bud, but also on oxygen, flammable material and the absence of fire fighters. Consequently, expressing causal statements based on a single condition involves **Causal Selection**, i.e. teasing apart causes from mere background/enabling conditions. Accounts of causal selection maintain that causes and conditions hold similar logical relationships to the effect (necessity/counterfactuality (Lewis 1973)) and therefore, the choice of *the* cause should be accounted for via other types of criteria, such as normality (Icard, Kominsky & Knobe 2017 *inter alia*), or knowledge/interest based conversational principles (Beebe 2004 *inter alia*).

Following insights from Dowty (1979), we argue that causal selection is a linguistic phenomenon, under which causative expressions pose restrictions on what can appear as “the cause”. In other words, we rephrase the philosophical question of causal selection as a linguistic puzzle, asking **for each condition under what terms can it be represented as the cause in a given causative construction**. This question relates to the ongoing effort by linguists to capture the semantics of lexical causative verbs (*open*, *break*) vs. periphrastic causative constructions (e.g. *cause to*), (Fodor 1970, Neeleman & Van de Koot 2012, Maienborn & Hertfelder 2017, Lauer & Nadathur 2020, *inter alia*). It has been noted since at least Hall (1965) that lexical and periphrastic causatives have different semantics, given that configurations that are close paraphrases of one another such as (1-2) exhibit asymmetrical entailment relations:

(1) *Mary closed the door.* \models *Mary caused the closing of the door.*

(2) *Mary caused the closing of the door.* $\not\models$ *Mary closed the door.*

This contrast is commonly ascribed to the lexical causative having a prerequisite of “direct causation” (Fodor 1970, Katz 1970, Shibatani 1976, Wolff 2003, Martin 2018, Bar-Asher Siegal & Baglini 2020 *inter alia*). It is in this context that the role of agency becomes significant, since among the various characteristics of direct causation, the notion of agency was invoked. Cruse (1979), for example, argues that “we must understand ‘direct’ to mean that no agent intervenes in the chain of causation between the causer (represented by the subject of the verb) and the sufferer of the effect (represented by the object)”. This claim should be contextualized in the association, often made among linguists, between causation and agency, as for example DeLancey (1984) states that “ultimate cause can only be an act of volition on the part of a (thus defined) prototypical agent” – and it has been repeatedly claim that causation/agency plays a significant role in the grammatical relations represented by the syntax.

GOALS: We use an experimental approach to examine the role of linguistic construction in causal selection, and its interaction with temporal order and various properties considered in the psychological and philosophical literature as factors for normative conventions – and therefore as contributors to causal selection. In this context we examine to what extent agency plays a significant role in determining the identity of “the cause” in causative expressions.

DESIGN: In a series of four experiments, participants were presented with scenarios in which two causes conjunctively generate an effect, i.e., both causes were individually necessary and jointly sufficient for the effect to occur. Participants were asked to rate, on a scale of 1-7, the level of adequacy of two types of causal statements: one featuring a lexical causative (e.g., *Mary opened the door*) and the other a periphrastic causative (e.g., *Mary caused the door to open*). The linguistic construction was the primary factor, with each trial manipulating an additional factor: (i) Temporal order (Exp.1-4); (ii) Event vs. Agent (Exp 2) ;(iii) deviation from social norms (Exp.3); (iv) Foreseeability (Exp.4). All experiments were designed in English and conducted online. Samples sizes for each experiment were chosen to yield an adequate power for a moderate effect of causative construction.

RESULTS: Figure 1 shows mean ratings of the causal statements and their confidence intervals. Temporal order had an effect on both types of constructions, contra the common claim relating direct causation only with lexical causatives. Norm violation and foreseeability showed variable interaction with construction and order. Event/Agent manipulations did not affect judgments when the Agent could not have anticipated the effect, suggesting that when it comes to causal selection, agency can be reduced to foreseeability. Tables 1 summarizes the interaction of order, norm violation and foreseeability with linguistic construction.

DISCUSSION: The results show that speakers’ evaluations of the adequacy of different causal statements vis à vis a particular state-of-affairs vary systematically, depending on the type of linguistic expression employed to describe them. This variation indicates that causal selection depends on linguistic facts (i.e. the choice of constructions) and not merely on the metaphysical or cognitive characteristics of the relata. While these

findings are in line with the “direct causation” analysis of lexical causatives, the effect of temporal order on periphrastic causatives is unexpected. Following the reported results, as well as further ongoing trials, we suggest to revise the constraints on both types of constructions with respect to causal selection, as follows: For *cause to* constructions, the higher sensitivity to norm-violation (trial 3) and the ability of the participants to foresee the effect (trial 4) pertains to the degree of **responsibility** attributed to the condition *wrt* to the effect. In addition, an event is perceived as responsible for the effect, if it is the last to complete the set of sufficient conditions. With respect to the lexical construction, we define two modes of completion of the sufficient set: **Objective take**, where the last event to complete a sufficient set is the cause of the effect. **Subjective take**, in which the last event that is unexpected by involved participants is perceived as the cause (foreseeability).

So far these results demonstrate that the selection of events and agents as “the cause” of the causative constructions is based on similar principles. An ongoing trial examines casual selection when only one condition in a set is an agent, and the extent this factor affects judgments comparing to the parameters tested in trials 1-4.

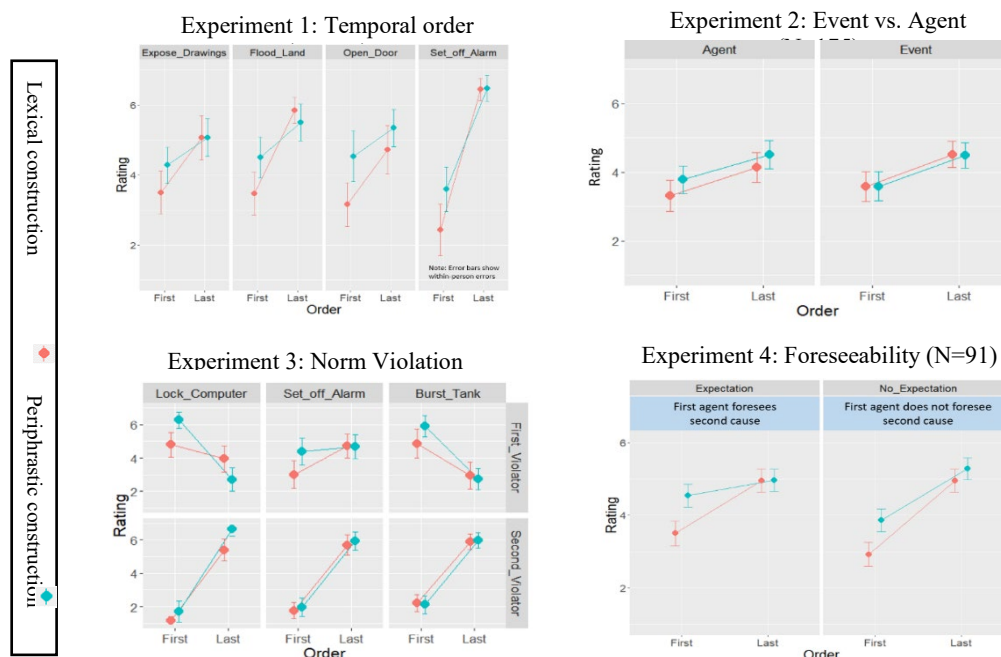


Figure I: Compatibility judgment per cause and linguistic construction in Trials 1-4

	Lexical construction		Periphrastic construction (<i>cause to</i>)
Order (completion of a sufficient set)	Always a factor	=	Always a factor
Violation of Norms	Sometimes a factor	>	Always a factor
Foreseeability	Always a factor	>	Always a factor

Table 1: Interaction of factors and linguistic constructions

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