WHAT YOU('D) SAY IS WHAT YOU FOCUS ON:
LANGUAGE EFFECTS ON MOTION EVENT CONCEPTUALIZATION

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How much is event cognition guided by language? It is well established that speakers of different languages describe motion events in different ways, especially with respect to how path and manner information is syntactically realized (Talmy, 2000). However, the issue of whether these linguistic differences affect nonverbal event conceptualization remains unsettled (e.g., Papafragou, Massey, & Gleitman, 2002 for no language effects; Gennari, Sloman, Malt, & Fitch, 2002; Papafragou, Hulbert, & Trueswell, 2008; Papafragou & Selimis, 2010 for effects only under certain conditions; and Kersten et al., 2010; Lai, Rodriguez, & Narasimhan, 2014 for clear language effects). Moreover, motion events can be described in different ways within the same language. Will short-term exposure to contrasting ways of describing events result in similar contrasts in how they are conceptualized nonverbally?

A series of studies explored the connection between how events of caused motion are described and how similar these events are perceived to be, focusing on Spanish and Swedish, two languages that lexicalize motion in contrasting ways. Caused motion (e.g., 'the boy rolled the tyre into the barn') adds a layer of complexity in event structure compared to spontaneous motion (e.g., 'the boy ran into the barn') and has received less attention in the Talmy-inspired literature. The stimulus set consisted of 32 video animations that systematically cross different paths (e.g. into, up) with different manners of manipulating objects (e.g. rolling, dragging). To test how speakers judge event similarity we implemented a novel similarity arrangement paradigm (based on Goldstone, 1994), see Figure 1.

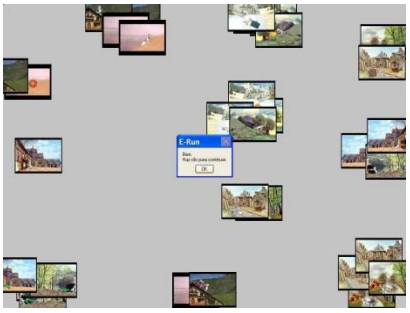

Figure 1. Example of final arrangement in nonverbal task. Stills represent events. Similarity is based on pixel distance.

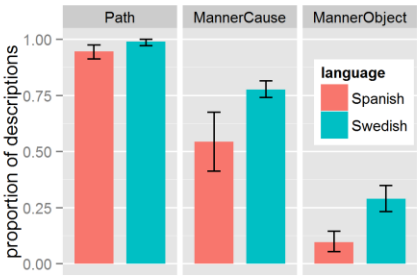

Figure 2. Study1: Proportion of descriptions mentioning path (e.g. into), manner of cause (e.g. push) and manner of object (e.g. roll). Error bars = by-subject 95% C.I..

Study 1 first sought to establish whether Spanish (N=18) and Swedish (N=19) speakers differ in how they *describe* caused motion events. In line with previous findings on spontaneous motion, Swedish speakers were more likely to include information about manner, such as whether the agent pushed the object (manner of cause) or whether the object rolled (manner of object); speakers of both languages were equally likely to include path information (Figure 2). Do these linguistic differences correlate with nonverbal event conceptualization?

Study 2 probed whether Spanish (N=47) and Swedish (N=47) speakers perceive event similarity differently. Participants were randomly assigned to one of two conditions. In the *linguistic* encoding condition participants described the events prior to carrying out the nonverbal task, while in the *free* encoding condition they were simply familiarized with the events before the nonverbal task. In both conditions Swedish speakers were more likely than Spanish speakers to base their similarity arrangements on the manner of object motion (rolling/sliding). There was no significant difference in how much speakers of either language relied on the manner of cause (push/pull) or on the path of motion (e.g., into or up), see Figure 3. Interestingly, in the linguistic encoding condition participants of both languages were more likely to rely on the path of motion (left panels Figure 3). That is, describing the events

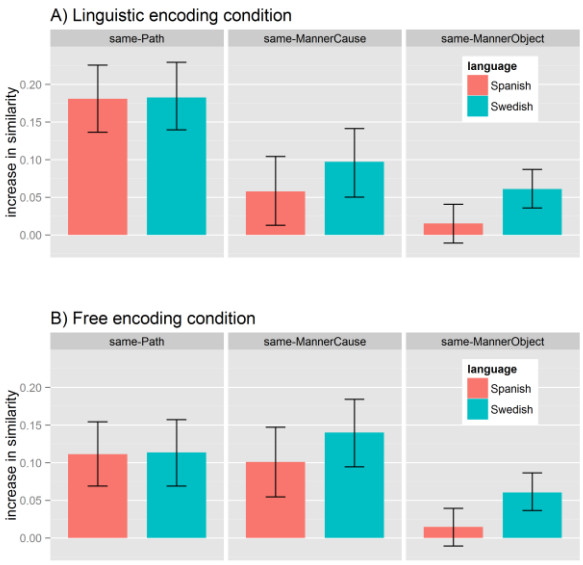

Figure 3 . Study2: Increase in similarity due to shared path, manner of cause and manner of object in each language, by language (colour) and encoding condition (upper/lower figure). Error bars = 95% C.I.

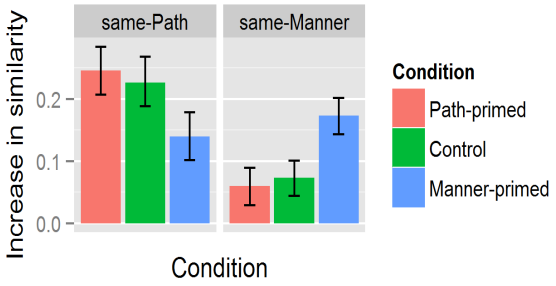

Figure 4 . Study3: Increase in similarity due to shared path and manner by priming cond. Error bars = 1 SE.

prior to judging their similarity had the same effect on Spanish and Swedish speakers. Is this correlation between native language and conceptualization resistant to linguistic manipulation in a second language (L2)?

Study 3 tested whether native Swedish learners of L2 Spanish (N=60) could be led to rely on different event components in event similarity judgments, by manipulating their recent L2 experience. Three between-subject conditions manipulated whether participants were path-primed in L2, manner-primed in L2, or did not receive any priming, during an encoding phase in which they described animations of caused motion events in their L2. In the subsequent test phase, participants engaged in the same nonverbal task as in Study 2. Manner-primed participants relied significantly more on the manner dimension than path-primed participants (Figure 4 right panel), but they only showed a trend towards relying less on the path dimension (Figure 4 left panel). Participants that had not been primed patterned overall like path-primed participants (Figure 4 middle bars).

Together these results contribute with several insights to the relation between linguistic expression and nonverbal event conceptualization:

1. Speakers of different languages may vary in how they linguistically encode events of caused motion (Study 1).
2. Cross-linguistic differences partly correlate with how event similarity is perceived: Swedish speakers pay more attention than Spanish speakers to the object manner of motion, but both rely equally on agent manner and path (Study 2).
3. Describing the events before judging their similarity (as opposed to just watching them) makes the path dimension more salient in both languages (Study 2).
4. Effects of language on event similarity perception can be modulated by linguistic priming, suggesting that event conceptualization relies on *ad hoc* categories (Study 3).
5. Path seems to be a more central feature than manner, both in descriptions and in similarity judgments (Studies 1–3).

This suggests that the way events are usually described in one's language partly affects how one perceives them – what you('d) say is what you focus on. This is because linguistic categories map onto conceptual categories that can be recruited during tasks that do not overtly involve language. While this mapping is influenced by our native language, it is also flexible and can be modulated by recent linguistic experience that clashes with habitual lexicalization patterns. Conversely, preliminary analyses also suggest an effect in the opposite direction: carrying out a nonverbal similarity task seems to affect subsequent event descriptions (what you focus on is what you say).