Discourse effects on the source-goal asymmetry

Monica Do (University of Pennsylvania), Anna Papafragou (University of Delaware), & John Trueswell (University of Pennsylvania)
monicado@sas.upenn.edu

Many events of motion involve movement of a Figure from a _source_ (The butterfly flew _from a lamppost_…) to a **goal** (…**to** a chair). In language, speakers are much more likely to mention goals of motion events than they are to mention sources (Lakusta & Landau, 2012; Papafragou, 2010). What underlies this linguistic asymmetry, however, is under debate. Some (e.g., Regier & Zheng, 2007) argue that the linguistic goal-bias reflects a more basic cognitive bias in event representation. But this proposal is complicated because the goal bias is more robust in language than in non-linguistic tasks like memory (Lakusta & Landau, 2012).

The present work investigates the possibility that the goal-bias in _language_ is at least partially driven by discourse/pragmatic factors: Typically, for a person describing a motion event, the starting point (source) is information that is given/old, while the endpoint (goal) is new. The discourse status of the goal as new information could explain the previously-observed goal bias, since speakers prioritize new information over old in their utterances (Arnold et al., 2000). This discourse-status asymmetry and resulting prioritization would have been present in past work since speakers in those studies described motion events either to (i) no one in particular or (ii) a conversationally unengaged experimenter who had full visual access to the initial setting and unfolding event. A speaker in such situations might reasonably assume that the initial scene and starting point of the figure should be treated as given, and the motion of the figure to the goal is new and informative to communicate.

The current study tests this discourse/pragmatic hypothesis by manipulating whether the starting point of the event is within common ground or not. Speakers described 18 motion clips to an interactive confederate addressee in one of two conditions. In the _Common Ground_ condition (n=27) addressees were shown only the first frame of each to-be-described motion event on the speaker's computer screen (Fig.1). The speaker's screen was then turned away from the addressee so that _only the speaker_ saw the event unfold. Having visual access to the first frame of the event means that sources are old information already known to addressees. We thus expect speakers to only consider the goal as relevant information to communicate. In the _No Common Ground_ condition (n=27), addressees sat opposite the speaker and had no visual access to the motion clip. Because addressees did not see any element of the event, _both sources and goals_ constituted relevant, discourse-new information. A discourse/pragmatic account predicts that the Common Ground condition should replicate the source-goal asymmetry observed in prior work, but the asymmetry should decrease in the No Common Ground condition.

We analyzed whether speakers' utterances included mention of source and/or goal across the two conditions. As predicted by the discourse/pragmatic account but not the cognitive-bias account, the goal-bias (i.e., preference to mention the goal) was greater in Common Ground than in No Common Ground (Fig.2), resulting in a reliable interaction between Mention Type (Source, Goal) and Common Ground (yes, no) (ß= .76, SE= .11, |z| = 6.92).

After describing all the events, speakers given a surprise change detection task assessing how well they remembered sources vs. goals. Memory for sources was better for speakers who had mentioned sources (ß= 1.72, SE= .83, |z| = 2.73). But, in both conditions goals were remembered better than sources (Fig.3; ß= .90, SE= .22, |z| = 4.19) – i.e., the goal-bias persisted.

Thus, the strength of the source-goal asymmetry in both language and memory was severely weakened, but not eliminated, when we changed the knowledge state of the addressee. This is consistent with prior work showing that the addressee's visual access – and by extension, the extent of the addressee's knowledge – affects what information speakers choose to include in their utterance (e.g. Clark & Wilkes-Gibbs, 1986). We conclude that discourse factors should have a central role in theories of how language connects to event cognition.
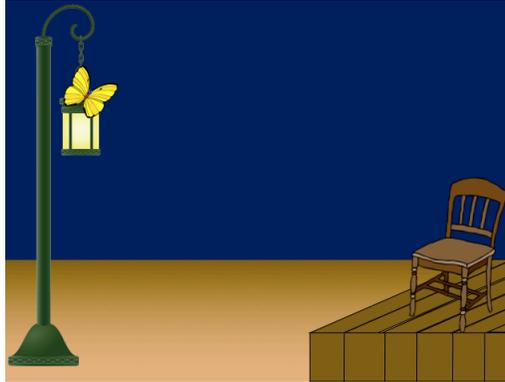
Figure 1: First frame of to-be-described event in the Common Ground condition. In the Common Ground condition, both speaker and addressee see this initial frame. After this first frame, the addressee turns screen towards the speaker and the motion unfolds (The butterfly flies from the lamppost to the chair.). In the No Common Ground condition, the addressee has no visual access to the screen at all and is not shown the event. Only the speaker sees the initial frame and unfolding event.
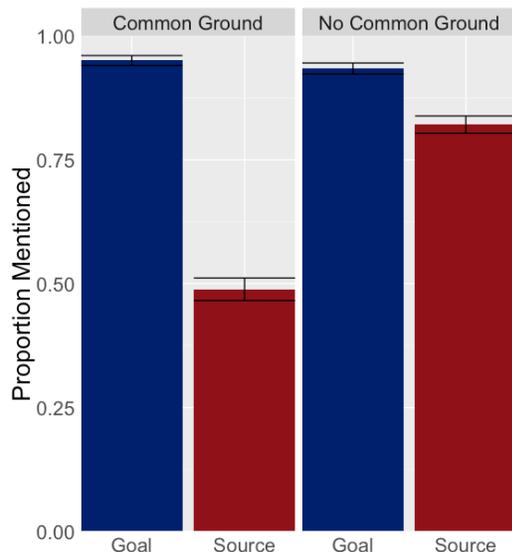

Figure 2: Proportion of source vs goal mentions in each condition. Error bars indicate +/- 1 SE.
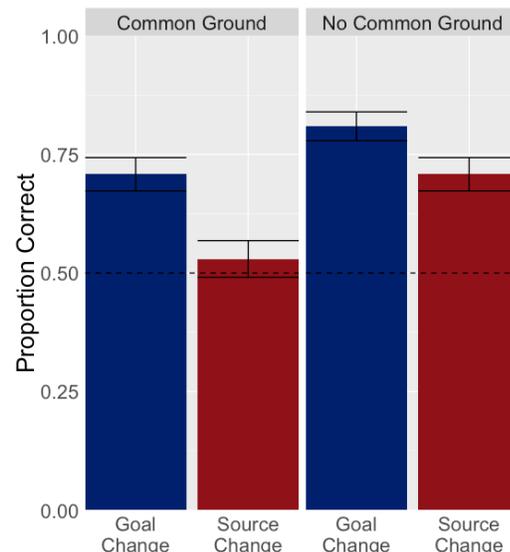

Figure 3: Proportion of source vs goal remembered correctly in each condition. Error bars indicate +/- 1 SE. Dashed line represents chance performance.

References

Arnold, J., Wasow, T., Losongco, A., & Ginstrom, R. (2000). Heaviness vs. newness: the effects of complexity and information structure on constituent ordering. *Language*, 76, 28-55.

Clark, H. H. Clark & Wilkes-Gibbs, D. (1986). Referring as a collaborative process. *Cognition*, 22, 1-39.

Lakusta, L., & Landau, B. (2012). Language and Memory for Motion Events: Origins of the Asymmetry Between Source and Goal Paths. *Cognitive Science*, 36, 517–544.

Papafragou, A. (2010). Source-goal asymmetries in motion representation: Implications for language production and comprehension. *Cognitive Science*, 34, 1064–1092.

Regier, T., & Zheng, M. (2007). Attention to endpoints: A cross-linguistic constraint on spatial meaning. *Cognitive Science*, 31, 705–719.