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Language and Cognition

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Goals and scope

The question of how language is related to cognition has always been at the forefront of cognitive science. Recently this topic has generated novel interest among many researchers and new experimental methods have been devised to approach the language-thought interface. This panel contributes to this discussion by addressing the following questions:

- a) Does the presence of language affect the solution of cognitive tasks?
- b) Do people who speak different languages think differently about the world?
- c) Can certain concepts develop at earlier ages in learners of languages which grammatically encode these concepts?

The panel also addresses mechanisms whereby language connects to thought processes such as memory and categorization.

Dedre Gentner

One specific way in which language may influence cognition is in potentiating relational concepts—a class of concepts that is central in human cognition but notoriously slow in acquisition. In two lines of research, we first devised a mapping task that was difficult for preschool children, and then tested whether hearing language for spatial relations could improve performance (Gentner & Rattermann, 1991; Loewenstein & Gentner, in press). The idea is that hearing language that names the common relational structure would bolster children’s spatial representations, and that this would facilitate their ability to carry out spatial mapping tasks. The results bore out this hypothesis: relational language greatly improved children’s performance on the task, and these benefits persisted when the actual terms were withdrawn and over delays of days or, in one case, weeks. I speculate more broadly on how relational language may interact with relational cognition.

Lila Gleitman

Benjamin Whorf’s (1956) iconic tale of Eskimos and their putative wealth of snow terms launched the modern era of inquiry into the linkages between language, thought, and environment. Acknowledging these close and culturally crucial links, the questions of interest concern the causal flow among these factors. In this talk, I discuss the case of

reasoning about spatial relations, especially under conditions of rotation (cf Restle, 1957; Levinson, 2003). The populations considered cross-cut factors of environment-culture (e.g., Mayan farmers and Manhattan Islanders), and presence-absence of egocentric terms such as “left” both within (Tzotzil vs. Tzeltal Mayan) and across cultures (Tzeltal versus English and Dutch speakers).

Barbara Landau

Having a language allows us to talk about what we see, easily transforming visual-spatial representations into linguistic representations. This capacity implies that there must be some consistent mapping between the two quite different kinds of representation. But is there more to the relationship between language and space? In this paper, we explore the hypothesis that language allows us to bind together spatial properties that the visual-spatial system does not bind automatically on its own. The case we consider is binding of color and location, which has been shown to require focused attention among adults. In a series of experiments, we asked whether language could effectively bind together these properties, and whether it was more effective in doing so than highlighting by visual attention (Dessalegn & Landau, 2004). Our results suggest that language manages to go beyond the visual-spatial system by recoding visual-spatial properties into a format that is more durable, more portable, and hence more powerful.

Anna Papafragou

How do linguistic and conceptual representations make contact during language learning? This paper addresses this question by investigating the acquisition of evidentiality (the linguistic encoding of information source) and its relation to children’s evidential reasoning. Specifically we ask whether learning a language which systematically (e.g. grammatically) marks evidential contrasts (such as Korean) might serve as a pacesetter for early reasoning about sources of information. In a series of experiments (Papafragou, Li, Choi & Han, 2005), we compare American and Korean children’s reasoning about evidence and information. Our data suggest that, contrary to relativistic expectations, children’s ability to reason about sources of information precedes the acquisition of the linguistic markers of evidentiality in the exposure language.