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COMMENTARY

Resilient properties of thought and experience

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The resilient properties of the language-like gestural systems created by deaf children of hearing parents and the gestures of normal children that occur during language acquisition are interesting and require explanation. This commentary offers the suggestion that these gestures reflect robust properties, not so much of language, but of thought and experience.

Keywords: experience; thought; gesture

For them [the generative semanticists] ... language was a window to the mind, a way to enter that black box, to see how people actually worked. (R. Lakoff, 1989, p. 945)

The target article describes several interesting aspects of the home sign system invented by deaf children of hearing parents, as well as some interesting aspects of hearing children's gesturing as they are learning language. For me the most interesting elements of Goldin-Meadow's findings from deaf of hearing home sign are these (Section 1.1, ms p. 8):

- The emergence of the tendency in home sign to separately designate objects with a handshape *and/or* point, before then gesturing the action or path of motion taken by the object, in a way that does not vary with context (agent vs. no agent contexts, such as "she put the book down" vs. "book fell down").
- The tendency for the handshape used in signs depicting actions to reflect the same contextual distinctions (*handling* handshapes for agent context, *object* (book-shaped) handshapes for no-agent contexts).

From Goldin-Meadow's findings on hearing children's gesturing during early stage of language learning, the most interesting element for me is this (Section 3.1, ms p. 28):

- The occurrence of gesture-speech combinations such as pointing at a bird while saying *nap*, as precursors to the acquisition of the word for the object of the point.

Accepting Goldin-Meadow's claim that the home sign elements are not based on models provided to the child by others, along with the further claim that the separate

specification of objects is not necessary for successful communication, we can then consider how to understand what these observations might be telling us about the nature of the child's thought and language. My suggestions in this regard are based on the idea that language may be a medium through which aspects of thought are conveyed, and that the characteristics noted reflect characteristics of the child's underlying thoughts. This idea comes from the tradition of generative semantics (Lakoff, 1989), a tradition grounded in the view that language ultimately reflects an underlying system of thought, including concrete thoughts about objects and relations among them. This is not to say that these structures are not highly conventionalised within established language systems including spoken and signed languages that come to be shared by a community, but only that the underlying core structure of utterances is heavily determined by how we think about the things we ultimately talk about. I will even go further and suggest that separate treatment of objects and actions might reflect extremely general aspects of the structure of our experiences and so need not be construed necessarily as innately specified characteristics of thought. I don't want to insist on this latter point – after all, it would be natural to suppose that evolution would find ways of pre-shaping our cognitive systems so that we are prepared to think in ways consistent with the most robust aspects of events in our experienced world.

The separate designation of objects may reflect a key characteristic of many things in the world – things like books and people, for example. These things have independent existence apart from each other and apart from the events or states they participate in. Although there are constraints, people and books can act *and/or* undergo actions of many different kinds, and can be in different places at different times independent of each other. If we

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think a central function of cognition is to keep track of information about the characteristics and states of objects, the activities they participate in, and the relations among them, then the separate delineation of the particular objects that are under consideration in a particular situation might be a reasonable starting place for a framework for thinking. These ideas have something in common with the ideas of Treisman (1988) about *object files* and of Carey and Spelke (1994) about a core knowledge system for treatment of objects, though without the claim that this knowledge system is innate.

In the context of these ideas, the occurrence of early gesture-speech combinations is (as Goldin-Meadow notes) consistent with the idea that children entertain thoughts they cannot fully express. Such thoughts provide a basis on which communication partners can build, providing further information such as the name of the object (*the bird is taking a nap*) in response to the gesture-speech combination. In this case the communication is primarily linguistic (providing a word for the cognized objects), but it also communicates other information such as category membership (*the bird*), an important clue for organising different kinds of objects into a cognitive taxonomy.

Finally, how are we to understand the tendency of the handshape used in signs representing actions or motions to reflect contextual distinctions not incorporated into the representations of objects themselves? Here, I find myself asking for more details, beyond those in the (necessarily) brief presentation in the target article. In that presentation (p. 8) the actions themselves are glossed differently in English (*put down* vs. *fell down*). One idea, then, is the actions in question are actually cognized differently (noting

that putting down, dropping, and knocking down are all different ways an agent could act on a book or other object). Thus, unlike the situation with objects, it is not obvious in the case of actions that there is an underlying sameness that would motivate treating the actions in the cases in question as fundamentally the same.

In my view, the issues Goldin-Meadow raises are foundational for the cognitive science of thought and language: the work provides an outstanding service in bringing out interesting findings that can be considered within a broader consideration of the relationship between language and thought. While I think there is merit in the view that what Goldin-Meadow calls resilient properties or language are actually reflections of robustness of the cognitive structures underlying language, and perhaps even of the world these cognitive structures reflect, it seems likely that others will see the evidence as supporting alternative perspectives. Further work will likely be needed to resolve these important questions.

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