Breaking New Ground in Relationship of Language to Thought

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Jürgen Bohnemeyer, assistant professor in the Department of Linguistics in the University at Buffalo College of Arts and Sciences, has received a 42-month $250,000 grant from the National Science Foundation to fund a comparative study of the representation of space in 15 indigenous languages of Guatemala and Mexico, many of which are severely under-documented and endangered.

Bohnemeyer says his team will focus on two unusual traits of spatial language in Mesoamerica: its highly productive terminology for object parts defined in geometric terms, and its preference for allocentric, or non-observer-based, frames of reference.

Their findings will address issues of great interest to cognitive sciences.

He explains that the research is in the very new field of "semantic typology," which seeks to isolate universals of the language-cognition interface to determine what properties of linguistic representations are specific to particular languages and cultures.

Bohnemeyer notes that, from a cognitive perspective, the way people describe an object by using comparison (for instance talking about the "front" and "back" of a car) is metaphorical and that this project will address the major question of to what extent languages differ in the spatial metaphors they use and how they use them.

"For example, when English speakers talk about the "front" and "back"

of a car or TV set," he says, "what they have in mind are parts that are determined, not so much in terms of shape, but in terms of function: the front of the car is the first part in the direction in which the car canonically moves and the front of the TV is that part through which the appliance delivers its 'output.'"

Mesoamerican languages have been reported to be different in this respect, Bohnemeyer says, in that they use precise geometrical algorithms for labeling the parts of even the most complex or unconventional objects on the basis of body part metaphors.

"What this means in practice," he says, "is that even if you create a weirdly shaped novel object, native speakers of Mesoamerican languages will tell you with great confidence which parts are the ears and nose and the butt of the object, and speakers of the same language will converge on pretty much the same solutions.

"We're trying to work out how they do this," Bohnemeyer says, "and our most important clue is going to come from comparisons across the different languages of the region to see to what extent they apply the same strategies and to what extent they differ from one another."

The research team also is interested in what makes Mesoamerican languages so different from English or Dutch or Russian or Japanese in terms of their descriptions of the location of an object in space.

"Whereas the other languages mentioned describe an object's location relative to the location of the speakers' own bodies in space (e.g., 'The ball is left of the chair'), that is, egocentrically, Mesoamericans locate objects relative to some fixed, if arbitrary, direction in space ('The ball is north of the chair') or relative to the geometry of other objects ('The ball is at the back of the chair') -- allocentrically.

This linguistic difference is of great interest to cognitive scientists. It has been shown that speakers of different languages prefer to use the same strategies for memorizing a given spatial configuration that their native languages mandate for talking about it. The question is now whether this alignment is the result of language influencing cognition (a "Whorfian effect," after linguist Benjamin Lee Whorf) or rather of cultural biases influencing both language and spatial memory.

Bohnemeyer's team will test the hypothesis that the ability to label the parts of arbitrary objects based on their shape favors allocentric over egocentric reference in Mesoamerican languages. If confirmed, this would lend support to the view of language rather than culture as the "prime mover" in determining strategies of spatial reference.

The project will contribute to the training and academic advancement of seven graduate students, six of whom are women and six of whom are Guatemalan or Mexican citizens. Four of them are native speakers of indigenous languages.

Prior to coming to UB, Bohnemeyer was a senior member of the scientific staff of the Max Planck Institute for Psycholinguistics in Nijmegen, The Netherlands, where he previously had been a post-doctoral fellow.

He is widely published and a frequent invited speaker at conferences and linguistic colloquia on such topics as semantic typology and semantic theory, in particular, event encoding, temporal and spatial reference, argument structure and causality, the semantics-pragmatics interface, the language-cognition interface and the structure of Native American languages.

Source: University at Buffalo