962-S1-1301 **Eric Hsu*** (erichsu@math.utexas.edu), University of Texas at Austin, 2901 North IH-35, DEV 2.200, Austin, TX 78722, and **Michael Oehrtman** (oehrtman@math.utexas.edu), University of Texas at Austin, 2901 North IH-35, DEV 2.200, Austin, TX 78722. *Mixed Metaphors: Undergraduate Language and Understanding in Calculus.* Preliminary report.

We describe our findings from an exploratory study on the use of metaphors in learning calculus among college freshmen. By metaphor, we mean any set of cognitive tools used as a referent system to assist in understanding and employing a mathematical concept. What are the core metaphors that students use to comprehend and work with essential calculus concepts? How are these metaphors used and how do they develop? Eight interviews, lasting two hours each, were conducted with pairs of students in second semester calculus. The students worked on a problem dealing with position, velocity and acceleration. This was a planning study for a large-scale study currently under way with over a hundred students in a first-year calculus course. We are tracking the development of their use of mathematical metaphors in weekly written work, tests, in-class "snapshots," and interviews. In the full study, we are tracking student language and understanding in several content strands central to understanding calculus in which to monitor students use of metaphors: covariational reasoning, function as a process, the concept of limit, and the relationship between accumulation and rate of change. (Received October 03, 2000)