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Cameron Byerley* (cameron.byerley@asu.edu), P. O. Box 871804, Tempe, AZ 85287-1804, and **Neil Hatfield, Marilyn Carlson** and **Patrick W Thompson**. *Assessing high school teachers' Mathematical Meanings for Teaching secondary mathematics*. Preliminary report.

Research on Mathematical Knowledge for Teaching elementary mathematics (MKTem) blossomed in the 1980's and 1990's. Assessments of MKTem evolved naturally from this work, culminating in Hill and Ball's assessments of teachers' MKTem. Delineations of teachers' Mathematical Knowledge for Teaching secondary mathematics (MKTsm) have been less focused, concentrating mostly on the teaching of lower algebra. This is due to the sophistication and interconnections of higher math concepts. Attempts to capture MKTsm must focus on mathematical meanings behind teachers' instructional actions. We will report a study of secondary teachers' mathematical meanings.

We focused on meanings that undergird the pre-calculus curriculum—variation, quantity, function, and representational equivalence. Thirty-six paper items were given to 141 teachers in four MSP summer workshops. The items were distributed across three forms—9 items common to each form and 9 items unique to each form. In addition, each teacher responded to three animated items. The animated items' foci were (a) proportionality and functions, (b) functions, graphs, and equations, and (c) constant and average rate of change.

We will illustrate our method for discerning teachers' meanings and convey preliminary findings. (Received September 25, 2012)