1116-Q5-1847 **Harrison E. Stalvey*** (hstalvey1@gsu.edu) and **Draga Vidakovic**. *Water coolers and parametrizations.*

This report is on a portion of an investigation of fifteen second-semester calculus students' understanding of the concept of parametric function. In particular, we will present an adaptation of the popular bottle problem in which we asked students, during an interview, to sketch relationships between the volume and height of water in two identical coolers that are being emptied at different rates. By investigating students' reasoning about a relationship between variables in a real-world problem, we hoped to gain insight into how students reason about parametrization. We will present our results in terms of APOS theory and make connections to existing literature on covariation. Our findings indicate that conceiving an invariant relationship described by two parametrizations is nontrivial and involves various complementary ways of reasoning. (Received September 21, 2015)