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James H Fife* (jfife@ets.org), Educational Testing Service, Mail Stop 11-R, Rosedale Road, Princeton, NJ 08541. *Using SP Analysis to Detect Unexpected Test Item Performance.*

Student response data for 48 constructed response algebra questions were analyzed to compile a list of common misconceptions and to determine if, based on a student's response, we could identify the particular misconception that led to that response. Our research suggests that, for most items, we can identify from student response data a small number of common incorrect responses, and from the incorrect response isolate the probable misconception that led to that response. We also performed an SP analysis on the data to obtain some qualitative information about how well the items functioned, and we were able to draw some conclusions about how some of the problematic items could be improved when administered via computer. The talk will include an explanation of SP analysis and a discussion of some of the mathematical issues with it. (Received September 20, 2007)