Meeting: 1003, Atlanta, Georgia, MAA CP X1

1003-X1-147   **Rachel Belinsky*** (`rbelinsky@gsu.edu`), Department of Mathematics and Statistics, Georgia State University, University Plaza, Atlanta, GA 30303. *An Example of Applied Calculus in Behavioral Psychology.*

The topic of my talk relates to the matching law in behavioral Psychology which is based on experiments. One issue concerning matching that has interested investigators is the relation between matching behavior and optimal behavior, that is, whether by matching a subject produces the maximum number of reinforcements that the experimental procedure can yield during the session. This topic was offered me by Dr. Gonzalez from Psychology Department at Morris Brown College. Since we found that equations that describe an optimal behavior are incompatible with the matching law, we offered a slightly different form of the matching law, involving so called matching function, found range of the matching function and described some interesting properties of this function. The results may help experimenters to answer the question of how close an animal behavior on two concurrent schedules is to optimal behavior. These results are published in Journal of Mathematical Psychology (R. Belinsky, F. Gonzalez, J. Stahl, JMP Vol. 48, No 4, 2004, p. 247-262). Fragments of this paper use various theorems of Calculus and may be presented to undergraduate students. (Received August 11, 2004)