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Mary J Riegel* (riegelmj@mso.umt.edu), Department of Mathematical Sciences, University of Montana, Missoula, MT 59812. *Adding Complexity to Playing Tic-Tac-Toe*. Preliminary report.

Tic-Tac-Toe is a well know, often played, and frequently studied game. As the prototypical positional game, its analysis highlights many of the characteristics that one looks for in the study of positional games. Many variations to the game exist, and in this talk we will explore a new one. It is very rare in a two player game that one player would wish to help his opponent. In this new variation a player will in a single turn be able to improve his own position and forced to improve his opponent's position. It would seem that this would be detrimental to both players; however we will see that playing the variation on the traditional Tic-Tac-Toe board results in the surprising ability of the first player to always win under optimal play by both players. We will also prove the game result on two infinite classes of boards: affine and projective planes. Finally we will describe a second more restrictive variation and some preliminary results for its use. (Received September 22, 2011)