

1145-VT-1477      **Robert W Vallin\*** ([robert.vallin@lamar.edu](mailto:robert.vallin@lamar.edu)), Department of Mathematics, Box 10047,  
Beaumont, TX 77706. *Probabilities for Penney's Game with an Unfair Coin.*

Penney's Game is a two-player coin flipping game that serves as a real-life example of a non-transitive game. Players A and B each take turns announcing a choice of three outcomes of flipping a coin (e.g. HTH) with Player B going first. An umpire then tosses a coin recording the outcomes and the Player whose sequence appears first wins. Regardless of Player B's choice, Player A always has a choice that tilts the odds in his/her favor. In this talk we look at playing this game with an unfair coin. We will present formulas for the probability of winning for various sequences and see some surprising result. (Received September 22, 2018)