1016-00-111 **Audrey L De Guire*** (adeguire@nd.edu), 219 Pasquerilla West, Notre Dame, IN 46556, and **Allison B Cuttler** (acuttler@haverford.edu) and **Sara K Rowell** (skrowell@xavier.edu).

Using Sets of Winning Coalitions to Generate Feasible Banzhaf Power Distributions.

In his paper, John Tolle enumerates the possible Banzhaf power distributions in a 4-player weighted voting system [1]. Expanding on Tolle's ideas, we construct sets of winning coalitions in the n-player system by organizing them into a rooted tree, utilizing the partially ordered lattices of weighted coalitions. By counting the nodes of the tree, we enumerate all possible sets of winning coalitions and all possible Banzhaf power distributions. We characterize these distributions by identifying the possible denominators and the necessary conditions on the numerators.

[1] J. Tolle, Power Distribution in Four-Player Weighted Voting System, Mathematics Magazine. (Received February 06, 2006)