1035-91-1185

Josep Freixas* (josep.freixas@upc.edu), Av. Bases de Manresa, 61-73, 08242 Manresa, Spain, and William S Zwicker (zwickerw@union.edu), Schenectady, NY 12308. Anonymous voting games with multiple levels of approval: classification and counting.

In this paper we consider symmetric or anonymous (j,2) simple games, in which each voter chooses from among j ordered levels of approval and the outcome is 'yes' or 'no.' Symmetric (j,2) simple games model some natural decision rules, such as pass-fail grading systems. The most conspicuous case arises for j = 3 which serves to model anonymous voting systems in which each voter may vote 'yes,' abstain, or vote 'no'.

Each symmetric (j,2) simple game is determined by the set of anonymous minimal winning profiles. This makes it possible to count the possible systems for small values of n and j, and the counts suggest some interesting patterns. The first concerns the number of anonymous voting rules with 3 levels of approval. The second exhibit a surprising symmetry certain for anonymous simple games.

In contrast to the situation for ordinary simple games, (2,2) simple games in our model, these results reveal that the class of simple games with 3 or more levels of approval remains large and varied, even after the imposition of symmetry. We consider several real-world examples, suggesting some attractive alternatives supplied by the general theory. (Received September 19, 2007)