Axioms And Values On Partition Function Form Games

Patrice McCaulley

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Introduction

Games in partition function form were first introduced in 1963 by Lucas and Thrall as a way of generalizing games in characteristic function form. In 1977, Myerson uncovered a value for games in partition function form which satisfies the extensions of the basic axioms which characterize the Shapley value in characteristic function form. Bolger derived a class of efficient values for partition function form games in 1987. Lastly, in 1989 Bolger arrived at a unique, recursively defined value for partition function form games which is characterized differently ~~than~~ from Myerson's value.

The outline of this paper is as follows:

1) a review of the basics of partition function form notation and meaning.
2) a description of thirteen axioms and six definitions in partition function form.
3) a derivation of N = 1,2,3,4 player value(s) using the axioms of efficiency, additivity, symmetry, and dummy.
4) an explanation of what, if any, effect other axioms have when applied to the values derived in part three, including how the values derived by Myerson(1977) and Bolger(1989) relate to the values derived in this paper.