Net Borda rules with desirability

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Abstract

To choose the social choice, we correct voters' preference rankings over the alternative set. However, we also consider the desirability of alternatives (or an absolute evaluation for the alternatives), such as 'an alternative is desirable' or 'another alternative is undesirable'. We define the desirability of alternatives and use both preference and desirability when we find the social choice by using the Borda rule. We employ a linear order over the finite set including all alternatives and the outside option (which indicates that 'choosing nothing' and is equivalent to the empty set), and define desirability as follows: each alternative is (un)desirable if and only if it is better (worse) than the outside option. Additionally, we assume that each voter assigns the Borda scores to all alternatives and the outside option. Thus, there is a gap of one point between desirable and undesirable alternatives. We provide characterisations of the new Borda rules called `net Borda rules' by using certain requirements of neutrality, reinforcement, faithfulness, and cancellation. Furthermore, we show the advantages of net Borda rules by comparing with the original Borda rule.