ON THE PRICE OF DIVERSITY FOR MULTI-WINNER ELECTIONS UNDER (WEAKLY) SEPARABLE SCORING RULES

MOSTAPHA DISS

We consider a model of multi-winner elections, where each voter expresses a linear preference over a finite set of alternatives. Based on voters' preferences, the primary goal is to select a subset of admissible alternatives, forming what is referred to as a committee. We explore (weakly) separable committee scoring rules, the voting mechanisms that assess each alternative individually using a scoring vector and select the top k alternatives, where k represents the committee's size. Furthermore, we operate under the assumption that alternatives are categorized based on specific attributes. Within each attribute category, there exists a targeted minimum number of alternatives that the selected committee should encompass, emphasizing the necessity for diversity. In this context, we assess the cost associated with imposing such a diversity constraint on the voting process. This assessment is conducted through two methodologies, referred to as the ``price of diversity'' and the ``individual price of diversity''. We set the upper bounds for both prices across all (weakly) separable committee scoring rules. Additionally, we show how the maximum price of diversity can be used to discriminate between different voting rules in this context. Ultimately, we illustrate that concentrating on the candidates' performance yields a more accurate estimation of the price of diversity compared to a focus on the enforced diversity constraint.