OPEN ACCESS Freely available online

ISSN: 2167-0358
Journal of Socialomics

Commentary

Role of Voting Increase in Social Welfare despite of Communication Barriers

Jiang Changmin*

Department of Social Welfare, Southern Methodist University, Dallas, USA

DESCRIPTION

The aggregate of the agent's preferences is a significant difficulty in the design and implementation of multiagent systems. By offering incredibly well-researched methods of preference aggregation, voting theory shows a clear answer. Particularly within the AI field and the numerous references therein, the theoretical elements of computational voting have been intensively researched in recent years. Additionally, voting has been used to aggregate preferences in a variety of fields, including computational linguistics, collaborative filtering, recommender systems, planning, scheduling, and recommender systems. Even while voting has obvious appeal in the context of diverse, competing multiagent systems, some multiagent systems are centrally planned and entirely cooperative (e.g., systems for planning and scheduling, recommender systems, collaborative filtering, and so on). It was unclear what would be gained by using voting in these areas. In fact, it is typically expected that agents will calculate the utility of each potential choice. If the agents work together, they may simply communicate their utility values for the various options before choosing the one that maximises societal welfare, or the sum of utilities. However, it may be quite expensive in terms of communication to precisely transmit an agent's utility function for each possibility. In fields where communication is restricted, this can prove to be a significant barrier. Physical characteristics of the system (such as sluggish or error-prone transmitters, systems with low energy needs, etc.) may restrict communication, or the representation of all utility functions may necessitate a significant quantity of data. Cite more compelling arguments for why communication should be limited in multi-agent environments. Fortunately, a few well-known voting rules functions that choose an option based on the preferences of the agents incur a relatively light communication load and are moreover resilient to communication mistakes. Think of the classic cooperative multiagent system domain as an illustration: Many rovers surveying a region on Mars (which are known to have limited communication capabilities). Let's say there are a million options and the rovers needed to choose or update their unified strategy (this may happen frequently). Additionally, imagine that each rover calculates a utility for each option on a scale from one to one million (this is, in fact, a very coarse scale).

A rover only has to communicate 20 bits when using the Plurality voting rule, in which each agent votes for a single alternative and the option receiving the most vote's wins. Even though current applications might only utilize a few rovers, research in wireless communication systems already foresees large-scale applications (such as those for environment monitoring, disaster relief, battlefield operations, and surveillance) utilising a large number of ultra-small, potentially mobile, wireless devices, such as sensors or mini-robots, that work together to achieve a common objective. These gadgets are anticipated to be entirely autonomous, which necessitates low energy consumption and, as a result, reduced communication needs. An actual illustration of such a system may be seen in the Harvard micro air vehicles. In this study that, in some co-operative in multi-agent systems, relatively basic voting procedures can take the role of accurate social welfare maximization (given an extra ingredient that we present below). The cost, a decline in the social welfare of the result, will be demonstrated to be very minimal in some circumstances, despite the advantage of a significant decrease in communication stress.

Correspondence to: Jiang Changmin, Department of Social Welfare, Southern Methodist University, Dallas, USA, E-mail: jiangchangmin564@gmail.com

Received: 02-Sep-2022, Manuscript No. JSC-22-18421; **Editor assigned:** 05-Sep-2022, PreQC No. JSC-22-18421 (PQ); **Reviewed:** 19-Sep-2022, QC No. JSC-22-18421; **Revised:** 26-Sep-2022, Manuscript No. JSC-22- 18421 (R); **Published:** 03-Oct-2022, DOI: 10.35248/2167-0358.22.11.142

Citation: Changmin J (2022) Role of Voting Increase in Social Welfare despite of Communication Barriers. J Socialomics. 11:142