

Homework #2

Deadline: Tuesday, 20 September 2022, 19:00
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Exercise 1 (10 points)

We have seen two domain restrictions for judgment aggregation that ensure that the majority rule produces a consistent outcome. The purpose of this exercise is to understand how these two restrictions relate to one another. Show that every profile that is unidimensionally aligned is also a profile that is value-restricted.

Exercise 2 (10 points)

Prove that, when restricted to agendas including a tautology, every judgment aggregation rule that is neutral, consistent, and complete also satisfies the axiom of simple unanimity. Then show that the same is not true for agendas in general.

Exercise 3 (10 points)

The rule of *approval voting* is a voting rule where voters do not vote by reporting rankings of the alternatives but rather sets of alternatives. The idea is that you vote for all the alternatives you approve of. The winning alternative is the alternative that is approved by the highest number of voters. As always, there might be ties. (Note that approval voting is quite different from and should not be confused with k -approval positional scoring rules.)

In class we discussed how to simulate certain voting rules for standard (ranked) ballots in judgment aggregation. Provide a similar analysis for approval voting. Questions you'll need to answer include the following: What's the agenda? What rationality and feasibility constraints do you use? What judgment aggregation rule do you use? You do not need to provide a fully worked out proof for your claim regarding the simulation of approval voting, but you should make sure that all the components of your solution are clearly defined and that the intuitions underlying your claimed simulation result are well explained.