Homework #3

Deadline: Tuesday, 4 October 2022, 19:00

Exercise 1 (10 points)

Recall that RATIONALITY, the problem of deciding whether a given judgment set is complete and consistent, is tractable for the model of binary aggregation with integrity constraints but intractable for the model of formula-based judgment aggregation. So the choice of formal model sometimes can have unexpected consequences. Can you think of a natural decision problem where it is the other way round, i.e., a problem that is tractable for formula-based judgment aggregation but intractable for binary aggregation with integrity constraints?

Your answer should include a formal specification of your decision problem, a brief justification for why you consider it relevant, and proofs of the claimed (in)tractability results.

Exercise 2 (10 points)

We saw in class that any judgment aggregation rule that is both independent and monotonic must be strategyproof for all closeness-respecting preferences (and the converse is true as well). It follows that any judgment aggregation rule that is both independent and monotonic must be strategyproof for Hamming preferences. Is the converse of this statement true as well? Either show that it is or provide a counterexample.