June Project on Judgment Aggregation
Homework 3

June 6, 2018

For this question, restrict attention to judgment aggregation scenarios with an odd number of agents and an agenda without tautologies. In class we have proved that an agenda Φ is safe for the family of aggregation rules that are anonymous, neutral, independent, complement-free, and complete if and only if Φ has the simplified median property (SMP). Clearly, the left-to-right direction must hold also for every larger family of rules, including those families we obtain when we drop some of these axioms. For the right-to-left direction, inspection of the proof reveals that we have in fact only invoked two of the axioms (neutrality and complement-freeness), so we could have dropped all the others for this direction as well. Thus, we know that an agenda Φ is safe for the (much larger) family of aggregation rules that are neutral and complement-free if and only if Φ has the simplified median property. (Of course, the version proved in class is the more interesting result.) The purpose of this question is to investigate what happens when we lower our requirements even further, from two axioms to just a single one:

(a) Characterise the class of agendas that is safe for all complement-free aggregation rules.

(b) Characterise the class of agendas that is safe for all neutral aggregation rules.