

1086-91-1184

Marcus Pivato* (marcuspivato@gmail.com), Department of Mathematics, Trent University, 1600 West Bank Drive, Peterborough, Ontario K9J 7B8, Canada, and **Klaus Nehring** (kdnehring@ucdavis.edu), Department of Economics, University of California, Davis, 1 Shields Ave, Davis, CA 95616. *The median rule in judgement aggregation.*

Let \mathcal{K} be a set of logically interdependent propositions. Suppose a group of people must form a collective view on the truth/falsehood of each element of \mathcal{K} . This is the problem of *judgement aggregation* (JA). Arrovian preference aggregation is one special case (where each element of \mathcal{K} represents a ranking of two alternatives), but JA problems also include resource allocation, committee selection, and taxonomic classification. If the voters take a majority vote for each proposition separately, then the result may be logically inconsistent. (In preference aggregation, this is the Condorcet paradox.) Thus, we need another JA mechanism.

The *median rule* chooses the logically consistent view which minimizes the average Hamming distance to the voters. (In preference aggregation, this becomes the Kemeny rule.) We axiomatically characterize the median rule as the unique JA rule which satisfies *reinforcement* (consistency under amalgamation of two sub-populations), *decomposition* (consistency under combination of two JA problems), *upper hemicontinuity* (stability under small perturbations), and *supermajority efficiency* (roughly: it is “as majoritarian as possible” while being logically consistent). (Received September 19, 2012)