

Majority Judgement : A Theory and Method for Electing and Ranking

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Competitions are as old as the hills. The winners and rankings among competitors in some - for example, running, high-jumping or javelin throwing - are clear: measures of time, height or length determine them. The winners and rankings among competitors in many areas, however, depend on factors that are not unambiguously measurable. Examples abound: sports competitions (figure skaters, gymnasts, divers, ski jumpers), competitions among products (wines, cheeses, paintings, new technological creations), competitions among musicians (pianists, flutists, orchestras), rating services (restaurants, hotels), etc. In these, and other instances, the winner and the ranking among the competitors are determined by several judges, expert jury members or an electorate.

There are very many different mechanisms by which the evaluations of the judges, jury or committee members, and voters are amalgamated into a decision that designates the winner and the order of finish. The traditional model - which dates to 1299 - and the “theory of social choice” imagines that each judge or voter has in his/her mind a rank-ordering of the competitors or candidates and that these must be amalgamated into a rank-ordering of the jury or the electorate. Mathematicians, economists and political scientists have extensively studied methods based on the traditional model of voting - beginning with the seminal work of Condorcet, Borda, Laplace, and many others. Condorcet’s paradox, Arrow’s paradox and Gibbard- strategic manipulation - encountered in theory and in practice - show that there is no satisfactory solution to this problem. The paradoxes and strategic manipulations have had very important effects: the election of George W. Bush in 2000, the elimination of Lionel Jospin in 2002, the repeated scandals in sporting competitions over the years (e.g., figure skating and gymnastics).

On the other hand, the procedures used to amalgamate the evaluations of judges and jury or committee members in many practical situations, invented by those who need them - the musicians, sports associations, or politicians - are not based on the traditional paradigm. Judges are asked to evaluate the merits of all the competitors in a well established scale of measurement (such as Excellent, Very good, Good, Insufficient and Bad) and rank the competitors almost always according to the average, or the trimmed average after the highest and lowest scores are eliminated.

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30mn is, of course, insufficient to present our book of 500 pages (forthcoming, MIT University Press). We will present the new model, which encompasses the traditional model but also contains the methods observed in practice. The model asks all voters to evaluate the merit of each candidate in a common language of grades (an absolute scale of measurement familiar to all voters). We characterized one method -the majority judgement- that satisfies the paradoxes of Condorcet and of Arrow, and which best counters strategic manipulations in many well defined senses. Basically, majority judgement first ranks the competitor with respect to their majority-grade (the median in statistics). Hence, if the true evaluation of a voter is over the majority-grade of a candidate, cheating by increasing his input grade does not help the candidate (the median remains the same) and similarly if he is below the majority grade he cannot decrease the median. More generally (to break ties), majority judgement first ranks according to the set of grades in the middle of the distribution.

Majority Judgement has been tested in the 2007 French presidential elections, and in wine competitions (Les Citadelles du vin in Bordeaux) and has been officially used to rank applicants for university positions (in the mathematics department in Montpellier in 2008) and to designate the winner of the 2009 Louis Lyons Award for Conscience and Integrity in Journalism given by the Nieman Foundation of Harvard University. The context and results of the 2007 Orsay experiment will be used to explain the concepts.

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