

Discussion of Christian List's paper
**"Collective Wisdom: Lessons from the Theory of
Judgement Aggregation"**

COLLECTIVE WISDOM: PRINCIPLES AND MECHANISMS
COLLEGE DE FRANCE, 22 MAY 2008

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Rough overview of the paper

- The paper explores lessons about collective wisdom from the theory of judgment aggregation and work on Condorcet's jury theorem.
- List suggests that collective wisdom entails (at least):
 - **correspondence**—the group judgment should correspond with the facts, and;
 - **coherence**—the group judgment should be logically coherent.
- He considers a group tasked with forming binary “acceptance/rejection” judgement/s (possibly on non-trivially interconnected propositions).
- List specifies three seemingly reasonable conditions that an aggregation procedure (minimally) should satisfy:
 - **universality**—“The aggregation procedure admits as input any possible combination of consistent and complete individual judgments;”
 - **decisiveness**—“The aggregation procedure generates as output complete judgments on the propositions on the agenda;”

- **systematicity**—“The collective judgment on each proposition on the agenda depends only on the individual judgments on it, and the pattern of dependence is the same across propositions.”
- A whole host of aggregation procedures satisfy these conditions ...
- ...however, only degenerative dictatorial procedures both satisfy these conditions *and* guarantee a consistent collective judgement (coherence).
- Thus, meaningful collective wisdom not possible when these conditions hold.
- Possible to overturn the result by relaxing one or more of the conditions, e.g.:
 - Some groups may be able to afford some indecisiveness (UN Security Council may suspend judgment until consensus achieved) though many others will not;
 - A group may treat propositions differently in the agg. procedure, regarding some as premises and others as conclusions and then assigning priority to one group or the other (relaxing systematicity).

- What about correspondence of the collective judgment to the facts?
- Regarding correspondence (low probability of errors) List identifies three principles of organizational design that can promote collective wisdom. Possible benefits from:
 - **democratization**—indicative gains from adopting a majoritarian democratic structure in terms of raising positive and negative reliability;
 - **decomposition**—where agenda comprises non-trivially interconnected propositions it may pay to decompose the agenda into premises and conclusions and encourage group to focus on premises (from which conclusions can be derived);
 - **decentralization**—could use a distributed premise-based procedure where collective judgment on each premise is made by taking a majority vote within the subgroup specializing on the given premise. Tradeoff gains from specialization and losses from lower number of individuals in subgroups.
- **Unlikely to be a “one size fits all” aggregation procedure that dominates regardless of group and task. Overall, some optimism for collective wisdom.**

A few reflections on the paper

- New focus on dimensions of coll. wisdom—correspondence *and* coherence.
- New perspective on conditions for crowd to be wise in this twin sense.
- = a motivating contribution to Page’s “crowd of models” of collective wisdom.
- **Interesting to try to relate this paper’s results to insights elsewhere (e.g. Page’s work on microfoundations).** E.g., relation to expertise and diversity of the competence and independence conditions in Condorcet’s jury theorem.
- Paper touches upon a rationale for deliberation—tool for pre-aggregation harmonization of individual positions. Interesting to consider **theoretical roles of deliberation vs. aggregation (substitutes/complements?)**.
- **Real-world heterogeneity in agg. procedures resonates with “one size does not fit all” message.**

- **Interesting discussion of prospects for “positive reliability” and “negative reliability” under different aggregation procedures**—that is, avoidance of errors of Type I (false positive) and Type II (false negative).
- **Fuller consideration of correspondence offers an important perspective**—current discussion of, for instance, prediction markets is too narrowly focused on average accuracy (calibrations etc.). **Someone relying on a collective judgment may be less concerned with average accuracy and more with incidence of type I and type II mistakes**—in the extreme, may wish to avoid one or other at all cost.
- **Could consider explicitly the optimal mechanism choice of a decision-maker seeking to rely on the collective judgment. Could take a statistical decision-theoretic perspective** (Croxson, Jewitt, and Leaver). We consider the optimal choice of agg. mechanism by a decision-maker with a loss function which depends in some way on type I and type II errors.