Market Scoring Rules Act As Opinion Pools For Risk-Averse Agents

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Main contribution: We single out the role of the price-update rule in aggregating the beliefs of risk-averse traders, agnostic to how these personal beliefs are formed.
**Main Theorem**

- **Well-behaved Market Scoring Rule (MSR)**
- **Myopic one-shot agents with smooth risk-averse utility functions**

Market environment

Market Price = *Valid Opinion Pool* of agents' beliefs and market baseline
Two Special Cases: **Bayesian Interpretation**

**Logarithmic MSR**
- **CARA utility** agent

**Logarithmic opinion pool**:
  - Aggregation weight $\leftrightarrow$ risk tolerance

Updated price $\equiv$ posterior point probability;
agent belief $\equiv$ observation

**Logarithmic MSR**
- **Atypical, DARA utility** agent

**Linear opinion pool**:
  - Aggregation weight $\leftrightarrow$ budget

Updated price $\equiv$ posterior expectation of beta-binomial inference;
agent belief $\equiv$ MLE