

Higher order elicibility

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Elicibility of a statistical functional means that it can be obtained as the minimizer of an expected loss function. Such a loss function leads to a natural way of forecast comparison or model selection, and allows for M-estimation and generalized regression.

Prime examples of elicitable functionals are the mean or quantiles of a random variable. Independently, Weber (2006, *Mathematical Finance*) and Gneiting (2011, *JASA*) have shown that expected shortfall (ES), an important risk measure in banking and finance, is not elicitable. However, it turns out that ES is jointly elicitable with a certain quantile, that is, it is elicitable of second order.

In this talk, we present our results on higher order elicibility of ES and some other functionals, and we provide characterizations of the associated classes of consistent scoring functions. We illustrate the usefulness of scoring functions for forecast comparison.

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