Discussion on 'Concentration and robustness of discrepancy-based ABC' by Pierre Alquier

Anirban Bhattacharya
Department of Statistics, Texas A&M University

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Recap

- Approximate Bayes Computation (ABC) popular approach for intractable likelihoods
- Only requires ability to *sample* from the model; no likelihood evaluations required
- Sample from the prior — propagate through the generative model to create synthetic data – *compare* with observed data
- Traditionally, the comparison is based on suitable distance-metric between summary statistic of observed and synthetic data
- Questions: choice of summary statistic, choice of threshold

Recap

- Summary-free ABC based on discrepancies – growing literature
- Uses measure of discrepancy between the empirical distributions (of observed data) and the synthetic samples
- Various discrepancy measures used (MMD, KL, Wasserstein, Energy statistic etc.)
- MMD, Wasserstein, Energy Statistic etc. are all special examples of Integral Probability Semi-metrics (IPS)
- General concentration theory? Focus of present work
- Technical tool: Rademacher complexity of a function class

Questions

- Connection with literature on posterior concentration for well-specified and mis-specified models?
- Choice of tolerance level informed by theory?
- Uncertainty quantification? Connection with Bayesian empirical likelihoods?