

Discussion of Pericchi et.al. and Casella et.al.

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Differences approaches and different applications...

- Bayesian methods designed for **different applications**
 - Pericchi: robust priors for treatment effects in clinical trials
 - Casella: random effects models for social science applications
- How prominent are Bayesian analyses for clinical trials?
- How accepted are Bayesian methods (especially non-parametric ones) in the social sciences?
- **Different approaches** in model specification
 - Pericchi: emphasis on flexible but **parametric** prior families
 - Casella: **non-parametric** approach with Dirichlet process

...but still some common ground

- Both projects: **flexible prior distributions** are a key component of applied Bayesian models
- Attentiveness in specification of prior, not just likelihood: the **easy path** (conjugacy) may not be the best path
- **Casella** → **Pericchi**: interesting to see how non-parametric prior approaches compare to C/B and B/N?
- **Pericchi** → **Casella**: what is lost in social science application if using a parametric prior approach?

Specific Comments: Pericchi et.al.

- Clear motivation for bounding influence of priors: conjugate priors are **not necessarily robust**
- Focus on **worst-case scenario**: you think you have prior information, but it is wrong!
- Strong connection between Cauchy/Binomial results and recent work by Gelman et.al.?
 - Gelman et.al. (AOAS 2008): Cauchy used as **weakly informative prior** for logistic models

Specific Comments: Casella et.al.

- **Parameter expansion** for DP-based modeling: real improvement over the usual MCMC sampling strategies
- Great contribution since mixing is real issue in DP-based nonparametric Bayesian models
- Posterior mode estimates used for **precision parameter m**
- Why not use one of existing **MCMC sampling** strategies for precision parameter?
 - Gibbs sampling (Escobar and West, 1995)
 - Slice sampling (Wallach, 2008)
- Sampling of m is mentioned as future work

A Future Direction: Hierarchical Modeling?

- Much of my own research: hierarchical modeling in **biological applications**
- Sometimes real prior information available, sometimes not
- Need for intelligent **non-informative priors** at multiple levels of sophisticated models

- Could methodology be extended to **hierarchical models**?
- Clinical trials: covariates, multiple arms, etc ?
- Social sciences: hier. DP for clustering grouped data