

Some Comments on GLMM Talk by Damian Collins

Matt Wand, 8th October, 2008

Dimension of Intractable Integrals

Damian's data sets and problems seem to be such that his GLMMs involve

involve low-dimensional integrals

PQL versus Heirarchical GLMs (HGLM)

I think that Damian is using the HGLM methodology to do approximate maximum likelihood....

... even though my understanding of HGLM is that it has a different set of targets.

Sorting out HGLM versus ordinary likelihood and prediction approaches remains a goal of at least Steel and Wand in this group.

We could (and have mooted) discussions aimed at sorting this out.

BUGS versus PQL etc

This is something of an

apples versus oranges

issue here, since BUGS involves a Bayesian approach.

What are your estimates and standard errors for the BUGS approach?

Side Issue re Bayesian Approach

Gelman, A. (2006). Prior distributions for variance parameters in hierarchical models. *Bayesian Analysis*, 1, 515–533.

makes case for not using Inverse Gamma priors for variance components.

Check that $MSE(PQL) < MSE(AGHQ)$ Result is 'Kosher'

The

$$MSE(PQL) < MSE(AGHQ)$$

result is a bit alarming.

But is the MSE measure appropriate – given large bias?

Spatial GLMMs Quote

“no need for MCMC for spatial GLMMs”

To me this a bit of a glib throw-away line.

Spatial GLMMs is a very wide and complex area.

It seems difficult to claim that MCMC is uniformly beatable by this new Rue/Martino/Chopin technology.

Agreement about Laplace

Adverse findings re Laplace approximation in keeping with Wand research/viewpoint.

Current Ormerod/Wand research is investigating alternative analytic (non-MCMC) methods based on **variational approximation** ideas.

