
Data Analysis

— Last day! —

Write for Astrobites!!!!

astrobites@gmail.com

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Evaluating your model

- You need to find a good test statistic to test if your model does fit your data well.
 - One such statistic is reduced χ^2
- What if I have more than one model?
 - χ^2 values give you a good idea...but they're **not** made for model comparisons! Instead use something like the Bayesian Information Criteria

More on MCMC

- MCMC is a great tool for your kit...but if you use it in your research, do you research first!
- How do we know if an MCMC has “converged?”
 - The Gelman-Rubin metric is a great start...and so are your eyes!

Choosing your Model, Metric and Methods

- Models
 - Look to the literature and don't reinvent the wheel
 - We didn't talk about graphical models, but your "statistical model" also needs to be chosen
- Metrics
 - As we saw, these don't change the answer too much, so look to the literature!
 - If you're going Bayesian, think carefully about your priors and likelihood
- Methods
 - Your method depends on the quality of data and accessibility to the model