To Do List

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- Read intros to listed texts (See Thesis section 2.1 Why Predictive Inference?) and summarize answers to that question in WhyPredictiveInference.Rnw
  - Nate Silver's book (1st chapter or intro)
  - ~~Hoff's book~~
  - Geyser's book (1st chapter or intro)
  - Aitchison and Dunsmore (1st chapter or intro)
  - ~~Dean's paper~~
  - maybe some googling
- ~~Create example comparing predictive inference result with plug in parameter result~~

  ~~Dean's suggestion: 1-sample binomial with small sample size. E.g. 3 successes, 7 failures (Pr(success) < 0.5). Difference will be more pronounced with smaller sample sizes.~~
- (1) Combine rpredNormIG(), rpredNormIG2(), and rpredNormIGk() into one function
- Read up on convergence in probability and justification for MCMC (Hoff, Casella & Berger)
- Compare variance computations: var() function on MCMC sample vs direct computation from theory ($EX^2 - (EX)^2$)
- (2) General guidance: Read up on "How to write a thesis in Latex," for example https://www.overleaf.com/learn/latex/How_to_Write_a_Thesis_in_LaTeX_(Part_1)%3A_Basic_Structure
- (3) Figure formatting: save figures as .png files and insert? Or what? Need better control over how figure appears in resulting pdf.
- (0) Incorporate any guidance from Dean.
- Write up explanation of how each function works
- Exponential-Gamma random sampler: draw a single theta from posterior or draw a new one for each prediction? (Can't tell the difference from histograms)

- Beta-Binomial: Use posterior of theta (which is a gamma) and then make prediction based on draw(s) of theta (like I'm doing for Exponential-Gamma?) Why did I go to the trouble of using the inverse transform method before?

Dean's Notes 1/4/2022

1. ~~Remove the "Chapter 1" and "Chapter 2" from the chapter titles.~~

2. question sent back to Dean 1/5
   p 4, Abstract - You know that Bayesian inference need not be predictive.

3. p 4, section 2.1
   I think you may need a citation for that first sentence.
   I feel like you need several citation in this first paragraph.
   How many of these assertions are your original ideas, and how many are borrowed?

4. sent update to Dean 1/5/2022 p 5 What are the take-aways from this example?

5. p 8 Ch3 intro paragraph
   Yes - add an intro paragraph
   What about these problems makes them unique? or simple?
   Also, describe (list) the problems you are going to address.

6. p9, bottom - The random sampling should work the same either way.

7. p10, bottom
   The likelihood is a function of the parameter conditional on the data.

   The conventional use of upper and lower case values for variables you know that Y is unobserved, y is observed.

   Switching to the likelihood notation is a little less cumbersome.
   For discrete PMFs (like the binomial), the expression would be
   $\Pr(Y1 = y1, ..., Yn = yn|\theta)$

   For continuous pdfs its trickier.

   You can use whichever notation you like - but you have to define it if it's unusual. It needs to be clear what you are conditioning on, and what is unknown (or random)

8. p 11 - first para. For the sentences above, I presume you want some censoring value and not a parameter theta?

9. p17 - section 3.3.3 I also don't know where you got this example.

10. p21 3.4.1.3 - I don't think you need other values for kappa or nu.

11. p24. 3.4.2.3 - I would probably just say that Hoff provides the following example and we reproduce his description.

12. p27. The two-column format would be more standard, and would fit better with the "tidy" data format. It would be easier to use.

13. p 33. "Comparing the values of ßˆols to their standard errors:"
    This is the usual regression t-statistic for regression parameter estimates.

14. This is as far as I got.
    dean