* Random walk Metropolis – explain in the chapter on Metropolis, that really what we are discussing is ‘Random Walk Metropolis’. In the chapter on HMC we will extend Metropolis to allow the proposals to be less random, and more directed, for example.
* Change the section on ELPD to discuss the Vehtari paper.
  + In particular, must make clear that it is dangerous to use the LOO package when k-hat>1 occurs.
  + Prefer to do *real* cross validation when comparing between different models.
  + Choice of type of cross validation to use matters – we should use a type of cross validation that is appropriate to the problem at hand. Just think of the example of NIR. In other words, don’t use LOO-CV when it would be more appropriate to do k-fold.
  + Explain that we probably prefer leave-one-group out/fold out for hierarchical models, and how cross validation for these types of model works (we first draw a parameter from the hyper distribution, then another conditional on the first etc.)
  + Discuss how the standard errors work (using pairwise comparisons) for the Vehtari paper, and (if it is available) how we can use methods from ANOVA to determine this optimally.
* Evolution of descriptions of space and time: from flat earth – to string theory/LQG with many dimensions, on discrete space. Perhaps even have a fork between these two. The idea here is to use this figure to illustrate the subjective nature of knowledge.
* Description of Kant’s description of analytic and synthetic knowledge. Of course, here we seek to explain the latter, since the former are true by definition. Only the latter type of knowledge is what we look at here. Perhaps we want to explain as well *a priori* vs *a posteriori* knowledge, and how this is different to the definitions in Bayesian statistics.
* Video of evolution of Leapfrog in video. Make this interactive? Would be excellent to see the individual trajectories in motion!
* Discussion of big and small world philosophies.
* Mention QM randomness vs epistemic uncertainty.
* Update book with stuff from the lectures:
  + Oxford rainfall PPC -> replace old.
  + Big world vs small world.
  + Posterior predictive variation as sum of variation due to sampling + uncertainty in theta.
* Read Bob’s baseball example for curvature vs divergence ideas.
* Change the discrete posterior expression to be same as in lectures; more obvious the differences with integration.
* Adapt the Robinson fishing example to include the memory statement I included in the lectures.
* Add note about WLLN to the rescue in terms of MCMC.
* Adapt lectures’ bees to include animations from Mathematica
* Change transition operator to be a conditional distribution.
* Add discussion of bias/variance trade-off to Metropolis Step size section.
* Add a figure showing NLP space vs posterior space.
* Change Charles Greyer -> Geyer.
* Change non-academics benefit of Bayesian statistics to be same as in lectures.
* Change prior and posterior predictive distributions to be sampling from sampling distribution **not** likelihood.
* Remove any integrals that can be! Replace with sampling.