

**From:** Shimony, Joshua [shimonyj@mir.wustl.edu](mailto:shimonyj@mir.wustl.edu)  
**Subject:** RE: technical questions re. your logprob\_exp.m  
**Date:** March 25, 2015 at 6:55 AM  
**To:** John Lee [jjlee.wustl.edu@gmail.com](mailto:jjlee.wustl.edu@gmail.com)

JS

I figured one thing out:

The Jeffrey prior line in the logprob\_exp.m

$$lprob = -0.5 * N * \log(0.5 * lprop)$$

is simply the logarithm of equation 10 in your MRM paper. so its not that mysterious.

It is not a log of a log since up to that point the lprob variable is actually just the Q parameter.

Let me know if this makes sense to you.

Josh

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From: John Lee [jjlee.wustl.edu@gmail.com](mailto:jjlee.wustl.edu@gmail.com)  
Sent: Monday, March 23, 2015 8:04 PM  
To: Shimony, Joshua  
Subject: technical questions re. your logprob\_exp.m

Josh,

I have some questions regarding your Matlab Bayesian codes. I've attached a copy of the matlab functions in question for your reference.

1. When is it useful to assign a non-zero parameter penalty in logprob\_exp (PARPEN, lines 13, 43)?
2. Function logprob\_exp branches between Jeffreys' prior and a sigma fit, the latter when  $\text{par}(1) < 0$ . Presumably,  $\text{par}(1)$  was used in testing, but for production runs should all the proposed parameters  $\text{par}(1:N)$  be assessed for negativity? Jeffreys' prior isn't always valid, but for all the uses I've made so far of logprob\_exp (and derivative functions), I've effectively used only Jeffreys'.

Thanks,  
John

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