Dakota(Jiawen) Fan
Professor Weiji Ma
Computational neuroscience
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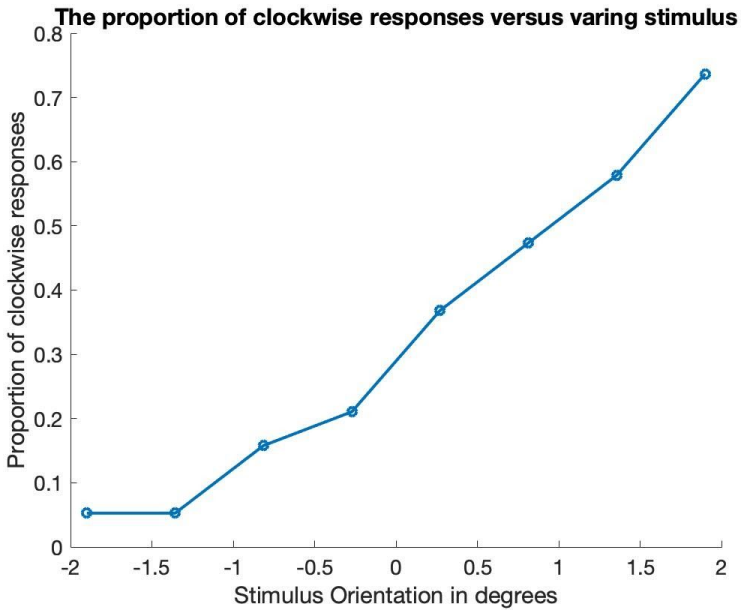
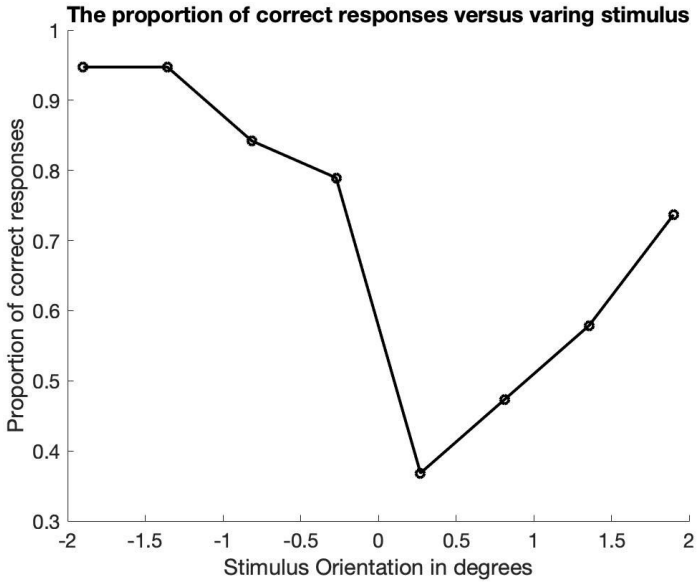
Homework 5

a. Unique values: -1.9000 -1.3571 -0.8143 -0.2714 0.2714 0.8143 1.3571 1.9000

b.




c.



d. $$p(r=1|s)=\frac{\lambda}{2}+(1-\lambda)\Phi(s;\mu,\sigma),$$

Lambda is the probability of making a random choice, and it could either be “right-tilted” or “left-tilted”. Here we are looking at the probability of “right-tilted” response given a stimulus. Therefore, lambda/2 is the probability of making a random choice that is “right-tilted”. And then we add it with the probability of making a informed decision(right-tilted)-- $(1-\lambda)\Phi(s;\mu,\sigma)$ . Subtracting lambda from 1 is to make sure the cumulative normal distribution could not reach 1 due to the noise level

e. Lambda_estimate = 0.0215

Mu_estimate =0.9315

Sigma_estimate =1.5517

f.