

**PSY 628: Perceptual Processes**  
**Homework 5: Excess Success Analysis**  
**Due: Thursday, 07 November at 5 pm**

This homework has you apply the excess success analysis to the article:

Ongchoco, J. D. K. & Scholl, B. J. (2019). How to create objects with your mind: From object-based attention to attention-based objects. *Psychological Sciences*, 30(11), 1648-1655.

Which you can find on the class web site.

To compute power, you might find it useful to use an online app at

[http://www2.psych.purdue.edu/~gfrancis/EquivalentStatistics/index\\_oneSample.html](http://www2.psych.purdue.edu/~gfrancis/EquivalentStatistics/index_oneSample.html)

Do the following.

1. For each of the seven experiments, identify the weakest test that is related to the claims of the manuscript. Typically, this is either the object-based attention effect (e.g., a RT difference for same vs. different conditions) or an interaction. The weaker test is going to have the larger (but still significant) p-value.
2. Compute power for each of the test statistics assuming the same sample size used in the original study. If you use the online app, use the value from “Post hoc power (from  $g$ )”. This calculation gives you an upper bound on the success rate for each experiment.
3. Multiply the power values to compute the probability that experiments like these would be uniformly successful.
4. The manuscript reports several direct replications for their experiments. What do you conclude given the excess success analysis?
5. The supplemental material provides the raw data along with exclusions. The Open Practices statement indicates that many of the experiments were preregistered. How does this influence your conclusions about the published results?

Send your completed homework to Dr. Francis at [gfrancis@purdue.edu](mailto:gfrancis@purdue.edu)