Summary December 5, 2017

**What went wrong with the previous study**

**Prior estimation does not match the first offers made by participants**

* Due to insufficient sampling in the most informative range of binary decisions?
* Due to insufficient understanding of instructions by participants?
* Due to difference in binary choice versus continuous choice?
* Due to difference in psychological experience between knowing no feedback will occur and expecting feedback?

How can we deal with this?

In current dataset

* Estimate priors as fixed effect from the first decision made by each participant in the feedback UG
* Estimate priors (intercept) per individual as an additional free parameter in the model
* Incorporate fairness function from dictator games into prior estimation
* Run additional MTurk study with more binary choices in most informative range in order to optimize future design?

**Exposure to opponents was randomly drawn instead of randomization of fixed number of trials**

* Bug in stimulus scripts, will fix in the future

How to deal with this in the current experiment?

* It seems that subjects converge after ~25 trials, which is the minimum number of trials we have for each subject against each opponent, so learning should still be estimable
* For this reason, we may want to reduce number of trials in the next experiment, and increase number of opponents (e.g. have a block of square, triangle, circle, followed by a block of different shapes).
* Can still use all the trials for each subject to estimate reinforcement learning parameters

**What went right**

Although the priors were not optimally estimated, we did still found the difference in intercepts that we anticipated (namely, lower intercept for non-social than social).

Model-free analyses have yielded exactly as we predicted

* Offers are higher in social than non-social
* Participants better differentiate opponents in non-social than social (socialXopponent interaction)
* This effect is eliminated in explicit condition

Plots to come

**Potential other changes for the (fMRI) study**

* Only use explicit condition/instructions
* Add one additional responder-distribution that has a mean-acceptance threshold >50% (to balance design).
  + Additional potential hypothesis: People learn to adapt to upward deviations in fairness equally well in, both, social and non-social condition, but learn slower / exploit downward deviations in fairness less in the social vs. non-social condition.
* Have multiple blocks of social / non-social (with shuffling labels?)
* (?) Measure acceptance threshold of proposers in the role of responders at the very end (i.e. simple strategy method with 0 starting endowment). Provides a proxy for personal willingness to punish unfairness next to social preferences (dictator game).