Running IPD NOTeS:

7/2/18

* ~~Enter All New records into excel~~
* ~~Make matlab vectors of raw choice and outcome data~~
* ~~Make matlab vectors of outcome variables~~
* nEED ~~124~~ + 125SR behavior files from scanner.
* Ideas with Eti for fMRI modeling – Create cooperation index (1-4; DC, DD, CC, CD, increasing pro-sociality), to parametrically weight either subsequent choice trials and/or outcome trials.
  + NOTE: if you use outcome parameter to weight choice periods, you need to use the outcome from the previous trial, not the current.

7/9

~~Discovered 106 was copied twice. SD and SR are identical. Currently have session 2/27/16~~

* The smoothed-choice time series has no significant (SD vs SR) rounds. Matt wondered why this was and how to justify using this kind of series in an fMRI model.
  + The raw choices series are maximally different (n=25 subjects updated) at the beginning of the game (trials 2 and 3)
  + Note: the differences were not huge (PRO-0.04 at round 3; ANTI-0.003 at rounds 2/3)
  + Note2: Comparing the smoothed and raw time series, the sliding window successfully smooths the raw data. Looks like smoothed out version of raw, suggesting explanation:
    - The averaging of the first 4 trials (where there is maximal difference) spreads the differences across subsequent trials. The fact that trial 1 is identical between SR and SD suggests we **try a different treatment of trials 1-4 (the learning trials).**
    - Suggestion1 – do not smooth the first 4 trials, begin smoothing/averaging with Round5 = mean(Rounds2-5)
* Discovered mistake on raw choices – You need to turn the column vecs in Choices into row vecs in Raw\_Choices and/or Smoothed Choices
  + ~~Fixed~~
  + ~~Updated slides~~

To Do tomorrow: update behavioral overview powerpoint with n25, cross checking with google doc.

7/10/18

* Given the weak differences using the sliding average, Matt asked me to
  + Add the original “data figure” for main comparisons to the sliding average slides (maybe also the n=25 summary I am now creating as well).
  + Matt suggests we split the data (first half second half), just doing bar graphs, to guide fMRI. So do all bar plots all rounds, first half second half, using t.tests, but then also do anova interaction (factor1 = 1st half/2nd half; factor2 = SD/SR)
* Call with Matt
  + To do by mid day tomorrow
  + 2 versions of conditional probability
    - Previously completed version needs updating with n=25 subjects. What is the probability of cooperation given prior defection/cooperation (for now, combining PRO/ANTI, comparing SD/SR overall).
    - Version 2 replicates this but extends to previous 2 trials. So, 3 types (CC, CD, DD – order not mattering). Combining PRO/ANTI, comparing overall SD and SR chance of cooperating given prior two partner choices.
* Call with Matt 7/17/18
  + 1. Look for outliers in 2-back. Plot and send histograms for each bin
  + Calculate per subject SD-SR C given 100% prior partner C for 1back and 2back separately.
    - Use raw and % (relative to total rounds OR relative to total instances of 0/50/100% outcomes)
    - Check correlation between 1-back and 2-back
  + After above, calculate 3 and 4-back, repeat above.
    - Plot a curve representing the p-value SR-SD for each n-back.
* Set up presentation for Ming including summary of task and analyses.

*11am 7/18 -- ~~Working on re-implementing the 1-back as a script. Not sure I trust the means, and need to separate by ANTI/PRO first/second half.~~*

* 7/19/18 – Creating 3-back conditional choice.
* From Matt: “best step for you to examine before then is RT. I think processing time may also hold additionally interesting information that will tell us more about the impulsivity hypothesis, or in addition, processing speed angle. Can you work up the RT data, first just replicating slide 8, but as RT, rather than cooperation proportion.”
  + Working up RT data

1. ~~Make vectors for SR(PRO, ANTI, ANTIPRO); SD(PRO, ANTI, ANTIPRO).~~

~~Player.choice onsettoonset time?~~

Could you take a look at your autonomic measures — perhaps just in a spread sheet first across the varied HR, HRV and VLF, LF and HF for the different grip and rest sessions.

1) how are you thinking of modeling these RT effects in fMRI on the basis of past studies using PID and RT as the factor in the fMRI analysis? and 2) Can you think about correlating RT with choice type. I have thoughts, but best if you take the lead and think about how you can explore the relationship between RT and choice type. Thoughts on both?

fMRI and RT

Bereczkei et al., 2013 – Fig 6.

Plot the RT analysis correlation between choices and RT.

Working on normalizing 1-back choices. I am dividing the count of Coops (or defects) following Coops (or defects) and dividing by the number of coops offered by partner . Expressing 1-back conditional choice as a percentage that is normalized to the total number of partner cooperations/defections, respectively.

Question: how to treat NANs (these are subs for whom the divisor equals 0. So partner either never coop’d or defected. I think Harlene treated these as zeros, but they are not zeros. They should truly be nans, but this reduces number of subjects in ttest. >I tried replacing nans with 0s, makes no difference to significance.

Todo:

~~Remove round 1 from next analyses. Try 2-trial moving average across round 2-16.~~ no sig. diff.

Average in to 3rds, nonoverlapping (2-6; 7-11; 12-16;)

Try 5 trial moving average across round 2-16

Checking missing regressors

2nd level mean of all missing paramters -- compare to baseline

Make Full spm model with NaNs, but also build full spm model where missing regressors are simply removed. Then compare a **common** contrast across these two models. If the NaNs made no difference, these contrasts should be very close to identical.

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11/26/18

Made RT choice parametric modulator model, but failing to estimate the 2nd level SR<>SD model.

Please check your data: There are no significant voxels.

This has something to do with non-sphericity. When I have model set to non-independent, equal variance, it reports ‘no sig voxels’ until I change the default threshold for sphericity test from 0.001 to 0.05.

Working on new Choice model design a la Eti. – left off: ran all subs with complete models. Need to make model flexible to handle exceptions with unique model shapes

**Check high pass filter frequency – does it overlap with choice frequency?**

**High Pass = 0.007hz**

**Choice = 0.05Hz**

**::: should be okay.**

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**11/28/18**

**Discovered potential ordering errors of pro/anti**

Check for all subjects – might require preprocessing again.

Fixed/Checked (still need to update all other models, but order is now correct and basic bichoice model is accurate): 102; 104; 105; 106; 108; 114; 115; 117; 119; 121; 128;

**12/4/18**

Working on monochoice script. Making scripts for unique groups.

Making this script add compcor by default….to do for both basic and unique subjs.

1. Need to re-do the Physio\_reg script to remake the PCs in correct PRO/ANTI order and re run all models.

a. delete PCs.mat in anatomy folder

b. delete PCs.mat in run\_00X folders.

All basic subjs :

a. Physio fixed – 102, 104, 105, 106, 108, 114, 115, 117, 119, 121, 128

b. basicmodel rerun (to get R16, then rerun monoChoice)

Unique subs monochoice – [103], [107, 118, 124],[112, 120, 122], [123, 126], [113] --redo these with physioregs.

**12/13/18**

Slight error in specification of monochoice contrasts. Remaking.

To do: remake basic choice contrast and compare to monochoice. Make monochoice with RT paramod.