Start from step 1 if this is the first time running the experiment, otherwise go to step 15.

(For new observers)

1. Turn on the CRT (luminance values stabilize after 20 minutes)
2. Turn on the EyeLink computer (before powering up the Mac Pro)
   1. Select “Right eye”. If you are confident tracking the left eye is better than the right, select “left eye”.
   2. Select “ellipse”. Make sure we’re using the centroid, which is the default selection.
3. Turn on the Mac Pro
4. Open MatLab (2018) from the dock
5. Double-click the “yoon.mlapp” icon. This is located in the upper left region of the desktop.
6. Select subject name (e.g. “subject 1”) from the drop-down menu.
7. Press the “run” button
   1. You’ll see PsychToolBox coming up.
   2. Afterwards, the eye-calibration menu will appear.
      1. Hit the “enter” key to verify if EyeLink is properly tracking your “Right” eye with the ellipse.
      2. Gaze to all four corners to see if the ellipse is tracking your pupil. Adjust your chin rest or the orientation of the eye tracking camera. This might be necessary as the eye tracker is rather close to the chin rest and can cause unstable performances.
      3. Once you’re comfortable, press “c” to start eye calibration.
      4. After you’re done with the initial 8-point calibration, verify this by pressing “v”.
      5. After two rounds of the 8-point calibration, hit “esc” twice and wait for PLDAPS waking up.
8. If this is your initial run, you will go through two blocks (40 trials each) of warm-up. I customized this warm-up for Goris Lab members only. As a side note, in the past, I ran a “training” session to make sure naïve subjects would perform reasonably well before collecting experimental data (75% correct).
9. Here is the task sequence:
   1. Fixate once the fixation point appears
   2. While you maintain your gaze (within a 3 degree diameter around the fixation point), three consecutive images will appear.
   3. The task is to report if the first or third image matches the middle image.
   4. Hit the left arrow key if the first matches the middle image.
   5. Hit the right arrow key if the third matches the middle image.
10. Once you have completed the initial two warm-up blocks, you will see a menu with some instructions. It will inform you to run a MatLab script to customize your “trial matrix”--the data structure that defines all trials and their conditions. I had to introduce this step to designate individual movies at separate subregions of the visual field.
11. **IMPORTANT**: the menu will say “Hit 3 to abort session”. USE THE NUMBER PAD ON THE RIGHT HANDSIDE OF THE KEYBOARD. The code will crash if you use the number keys on the left side (qwerty keyboard). I understand this is undesirable, but the workaround led me to a deep rabbit hole, and I felt it wasn’t worth wasting time on it. Just use the number pad, please.
12. Go to your data folder in the MatLab workspace (e.g. Desktop > psychophysics > experiments > +NaturalStraightening > data > subject\_1).
13. Run the customization script (e.g. “customize\_trial\_matrix\_subject\_1.m”).
14. Now you’re ready to start the real experiment. Close the yoon.mlapp GUI if it is still active from the initial training session.

(For returning observers)

1. Open MatLab (2018) from the dock (if it is not currently running).
2. Double-click the desktop icon, “yoon.mlapp” (while MatLab is on). It is in the upper left corner of the screen.
3. From here, you will run blocks consisting of 40 trials each. After each block, a menu will appear to offer options to continue (number 1), pause (2), or abort (3) the session. It will automatically continue from where you left off. Again, USE THE NUMBER PAD ON THE RIGHT HANDSIDE OF THE KEYBOARD.

Note: If you need to abort the experiment immediately, press “q”. For the next run, the code will pick up where you left.