Inclusion criteria and sample aims

- 15-20 adults
- 50%-50% male / female
- 25-30 years old
- normal color-vision (NO color blindness of any kind)
- no learning/attention DX
- no anxiety/depression DX
- no psychiatric medications
- no premature birth
- no head injury/trauma/concussion
- English first language

Testing session tasks

- pre-screen (inclusion criteria)
- consent
- practice
- learning
- test
- surprise memory test
- post-test paper questionnaire

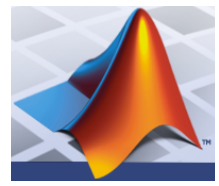
Some additional notes

- in MatLab “clear” the workspace before each task
- the instructions for the game only show up in the practice - do read them to the subject to be sure they actually read them
- stay in the room for the practice, watch their choices (esp on the repeated cues) to see if they get it - explain if they dont
- use the left and right arrow keys for responses in practice/learning/test phases - using pointer and middle finger on right hand
- there are breaks in the learning/test/memory phases and these are self paced, but you should “encourage” subjects to press “t” right away if they do not need to take the break - it will say on the screen what to press to end the break and resume playing so they dont have to remember this
- the memory test is meant to be a surprise, if subjects ask about the images that show up along with feedback in the practice, you can say something like, “you should focus on feedback to help you learn which flower to choose for which butterfly” - you can note in the log if the subject commented about the images
- I framed the “test” phase as a 5th block, with the only difference being that there’s no more feedback about whether they chose right or wrong and remind them that the favorite flower for each butterfly will stay the same - there are short instructions on the screen before the task begins (sometimes this takes a while to load)
- if the keyboard has a “number pad” be aware that subjects MUST use the numbers at the top of the keyboard (i.e. NOT the number pad) to record responses in the memory test
    - i suggest they keep their right hand on ‘7’ & ‘9’ and their left hand on ‘1-4’ to avoid using the wrong number keys
- check that the subject responded to all the Qs on the paper post-test questionnaire, and didn’t accidentally skip a page (if left blank intentionally OK)
- to break out of task: type “command+0” “command+.” “clear screen”
- if you break out of the task and can’t see the mouse type “ShowCursor” and the mouse will come back (you can tab this out, its a psychtoolbox command)

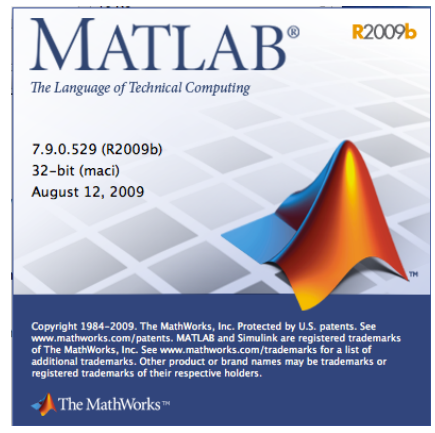
To run the parts of the task

Step 1: Start MatLab

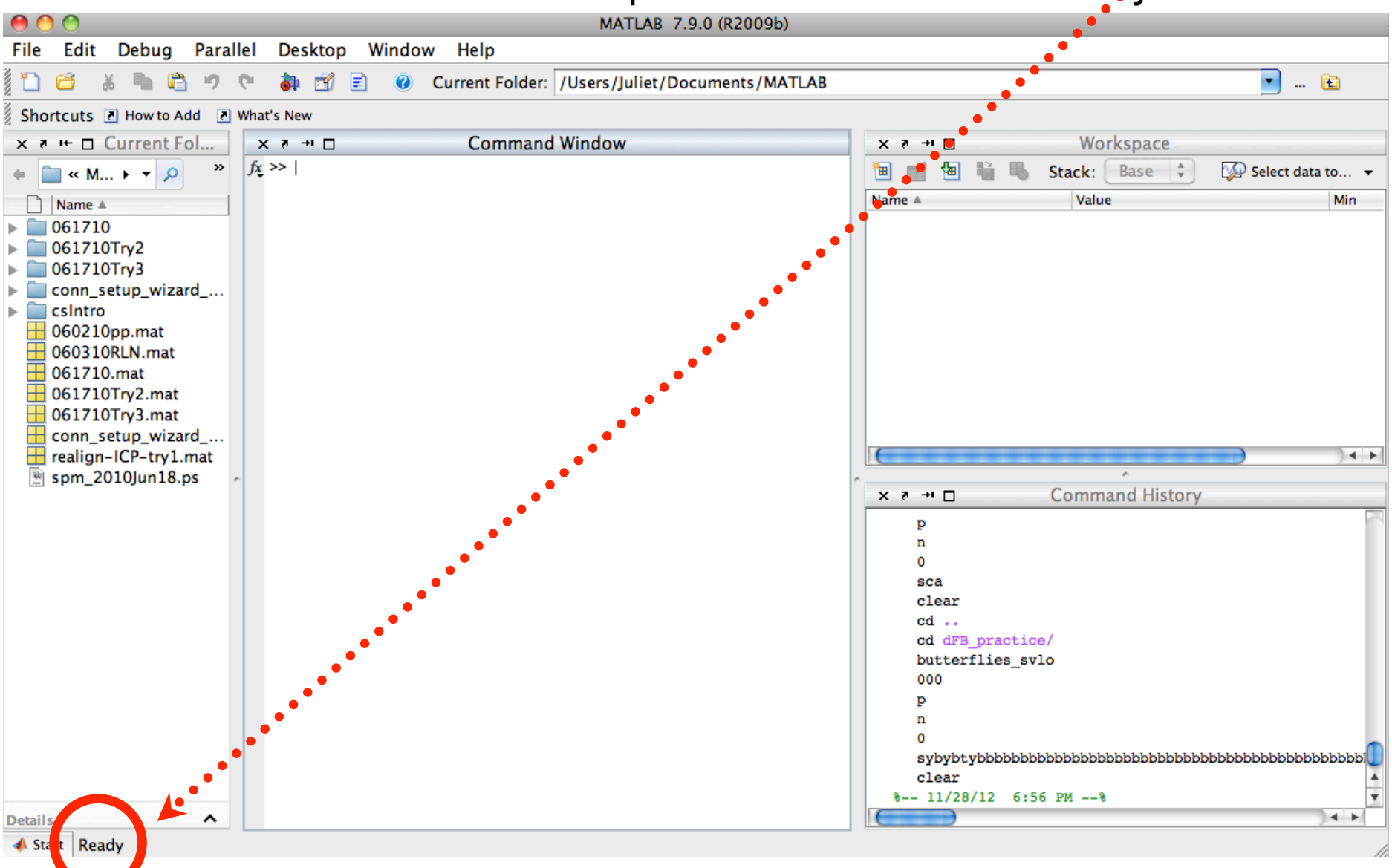
Click on the MatLab Icon on the dock



This MatLab “start window” will pop up



The MatLab GUI will open...wait until it is “Ready”



change directory to the FbMem folder

example: cd ~/Desktop/CurrentStudy/FbMem

Practice

```
>> cd ~/Dropbox/Manuscripts/dFB_adoles/NeuronRevision/FbMem/
>> butterflies_svlo

ans =

/Users/Juliet/Dropbox/Manuscripts/dFB_adoles/NeuronRevision/FbMem

added main
added scripts
added stim1
added lists
Enter subject code: 34##
Is this practice (p)? p
Enter verbal FB (v or n): n
Is this a scan session? 1 if yes, 0 if no: 0
```

Learning Phase

```
>> cd ~/Dropbox/Manuscripts/dFB_adoles/NeuronRevision/FbMem/
>> butterflies_svlo

ans =

/Users/Juliet/Dropbox/Manuscripts/dFB_adoles/NeuronRevision/FbMem

added main
added scripts
added stim1
added lists
Enter subject code: 34##
Is this practice (p)?
Enter verbal FB (v or n): n
Butterfly (X, Y, z, w): w
Flower 1 (a-n): g
Flower 2 (a-n): f
List number (1 or 2): 2
Block number ? 1
Is this a scan session? 1 if yes, 0 if no: 0
```

Test Phase

```
>> edit butterfly_probe.m
>> butterfly_probe

ans =

/Users/Juliet/Dropbox/Manuscripts/dFB_adoles/NeuronRevision/FbMem

added main
added scripts
added stim1
added lists
Enter subject code: 34##
Butterfly (X, Y, z, w): w
Flower 1:
Flower 2:
List number: 2
Block number (enter 1) 1
Is this a scan session? 1 if yes, 0 if no: 0
```

Surprise Memory Phase

```
>> butterfly_svlo_SM_nocolor2
Enter subject code: 34##
Enter FB set (i, o, alli, allo, allmix, svlo): svlo
List number: 2
End Block number (enter 4) 4
```

Input for Practice/Learning Phase

Enter subject code:	***34##*** *from subject run log*
Is this practice (p)?	***p*** *for practice or* ***blank*** *for task*
Enter verbal FB (v or n):	*always* ***n***
Butterfly (X, Y, z, w):	*always* ***w*** *(see subj run log)*
Flower 1 (a-n):	*always* ***f*** *or* ***g*** *(see subj run log)*
Flower 2 (a-n):	*always* ***f*** *or* ***g*** *(see subj run log)*
List number (1 or 2):	*always* ***1*** *or* ***2*** *(see subj run log)*
Block number ?	*always* ***1***
Is this a scan session? 1 if yes, 0 if no:	*always* ***0***

Input for Test Phase

MUST MATCH THE LEARNING

Enter subject code:	***34##*** *from subject run log*
Butterfly (X, Y, z, w):	*always* ***w*** *(see subj run log)*
Flower 1 (a-n):	*always* ***f*** *or* ***g*** *(see subj run log)*
Flower 2 (a-n):	*always* ***f*** *or* ***g*** *(see subj run log)*
List number (1 or 2):	*always* ***1*** *or* ***2*** *(see subj run log)*
Block number (enter 1) ?	*always* ***1***
Is this a scan session? 1 if yes, 0 if no:	*always* ***0***

Input for Memory Phase

MUST MATCH THE LEARNING

Enter subject code:	***34##*** *from subject run log*
Enter FB set (i, o, alli, allo, allmix, svlo):	*always* ***svlo***
List number (1 or 2):	*always* ***1*** *or* ***2*** *(see subj run log)*
Block number (enter 4)?	*always* ***4***
Is this a scan session? 1 if yes, 0 if no:	*always* ***0***

Learning instructions

In this game you will learn which flowers are preferred by different butterflies.

On each trial you will see a butterfly and two flowers on the screen. You should use the left and right arrow keys to predict whether the butterfly prefers the left or the right flower.

Each butterfly is able to feed from both flowers, but prefers one over the other. You should try to predict which flower the butterfly likes to feed from most of the time.

You will get feedback telling you if your predictions are correct. The word CORRECT or INCORRECT will be displayed on the screen along with a picture in a blue frame (CORRECT) or red frame (INCORRECT).

At first you will have to guess, but you will see all the butterflies multiple times, and will improve your predictions as you play the game.

It is important that you give an answer on each trial. You have 7 seconds to make your responses and will be given a warning to respond after 5 seconds. If you don’t respond in time the screen will display TOO LATE.

If you accidentally hold down a key while making responses the screen will display INVALID.

Let’s start with a quick practice.

Press the "s" key to begin

Test instructions

Now you will continue making flower selections, but you will not be told whether you are CORRECT or INCORRECT.

It is still important that you try to give an answer on each trial.

Press the "s" key to begin

Memory instructions

Now you will see some pictures of objects. You will have seen some of these objects from earlier in this game.

On each trial you will be presented with an image.

First you will decide whether the image is OLD or NEW.
Press (7) for an OLD image and (9) for a NEW image.
Then you will indicate how sure you are about that decision.
You will determine how sure you are you are press
(1) Completely certain, (2) Very sure, (3) Pretty sure, or (4) Guessing

Press any key to begin