



# PROGRAMMING FOR PSYCHOPHYSICAL EXPERIMENTS

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## COURSE OBJECTIVES

- Capable of making a practical program for running a psychophysical experiment
- Be fluent on using matlab and psychtoolbox
- Course link -> <https://semoconlab.com/class/2019-2/실험프로그래밍/>



STROOP TASK!!



# MULTIPLICITY OF MENTAL REPRESENTATIONS

빨강

초록

파랑

노랑

검정

노랑

파랑

빨강

검정

초록

# EVALUATION

- Mid term report/presentation and final report/presentation will cover 70% of the scores (20% for mid term report, 10% for mid term presentation, 20% for final report, and 20% for final presentation).
- 20% for homework, 10% for attendance
- Mid term and final reports/presentation will be done by a group (four people compose one group).
- Each group should find/design a simple psychophysical experiment, submit reports (mid term), and perform the experiment using matlab/psychtoolbox (final reports and presentations)
- There will be extra points when someone volunteer for class related service work (ex. Installing matlab and psychtoolbox on the classroom computers).

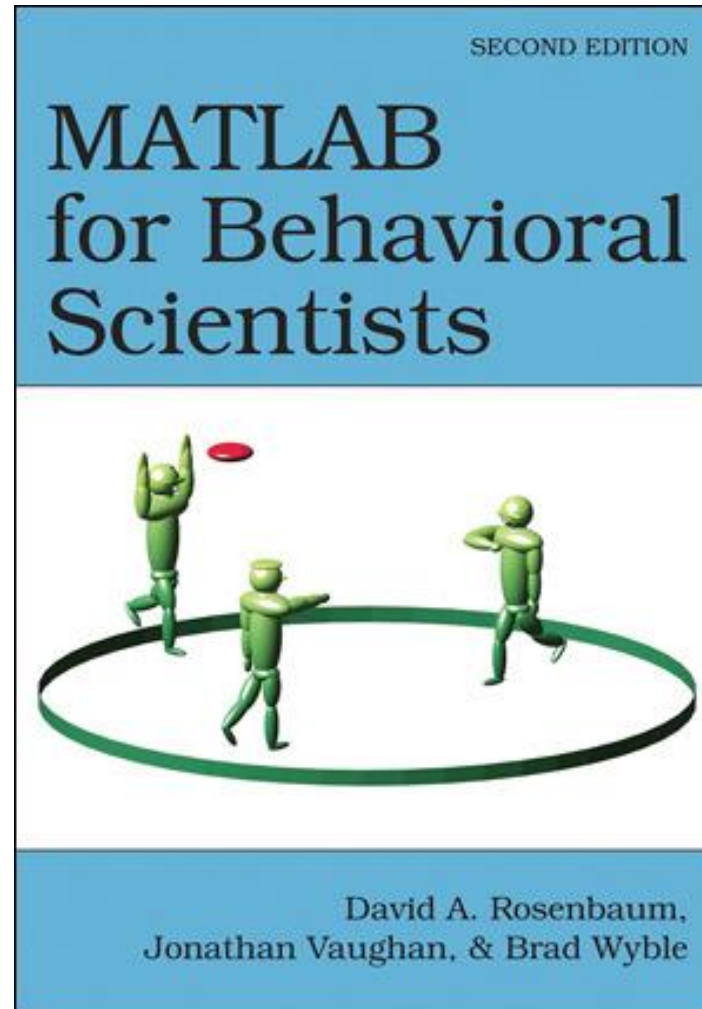
# MATLAB?

- “MATLAB® is a high-level language and interactive environment for numerical computation, visualization, and programming. Using MATLAB, you can analyze data, develop algorithms, and create models and applications. The language, tools, and built-in math functions enable you to explore multiple approaches and reach a solution faster than with spreadsheets or traditional programming languages, such as C/C++ or Java™.
- You can use MATLAB for a range of applications, including signal processing and communications, image and video processing, control systems, test and measurement, computational finance, and computational biology. More than a million engineers and scientists in industry and academia use MATLAB, the language of technical computing.

# PSYCHTOOLBOX?

- Psychophysics Toolbox is a set of Matlab functions for behavioral research
- It runs on Mac, Windows, and Linux
- Allows precise control of your screen, audio, collection of responses
- Controls low-level system events using a high-level language (Matlab)
- Freely available

# TEXTBOOK





# USEFUL LINKS

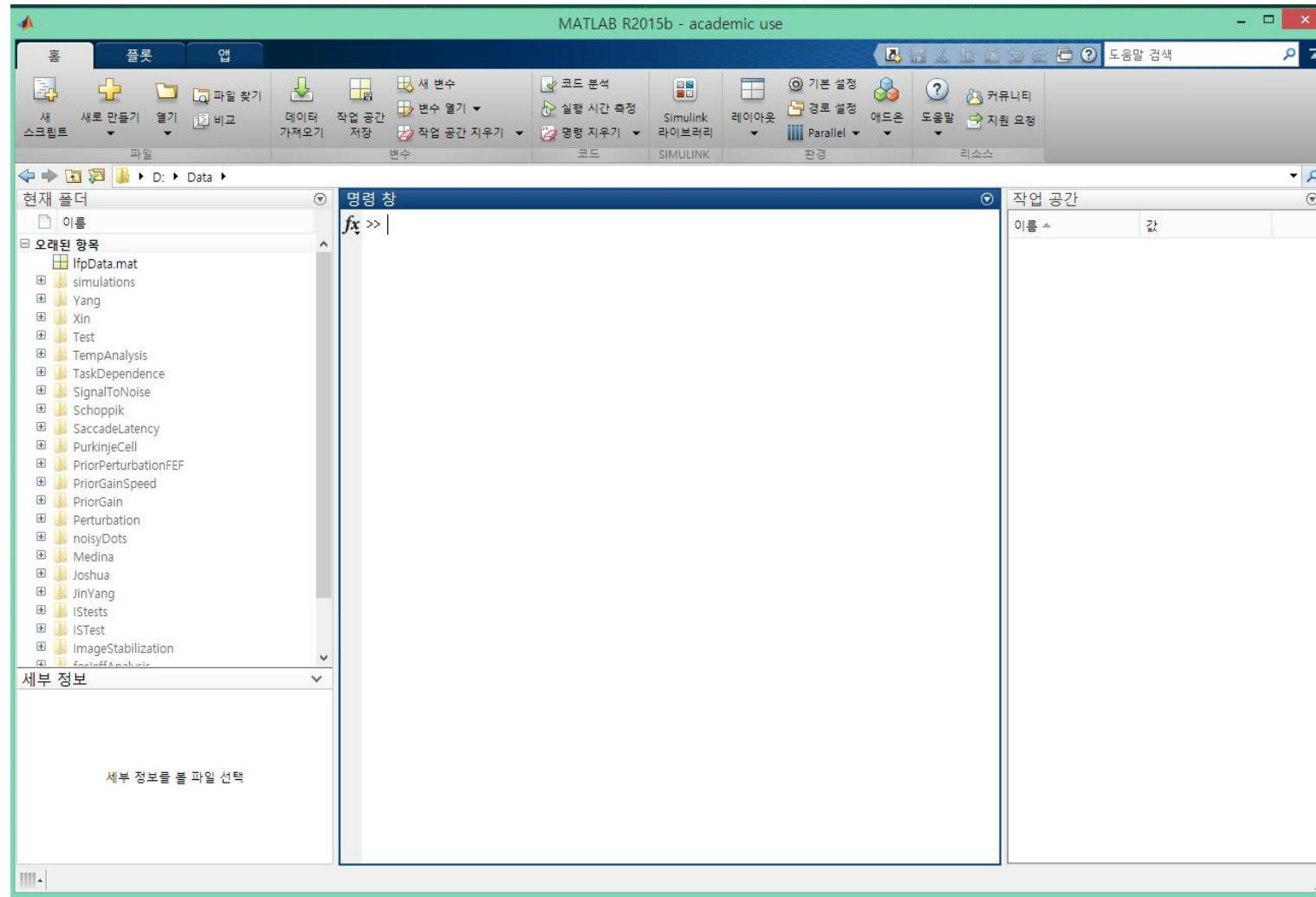
- Matlab -> <http://kr.mathworks.com/>
- Psychtoolbox -> <http://psychtoolbox.org>
- GNU Octave -> <http://www.gnu.org/software/octave/>
  
- Matlab Tutorial -> [https://en.wikibooks.org/wiki/MATLAB\\_Programming](https://en.wikibooks.org/wiki/MATLAB_Programming)
- Psychtoolbox example codes:
- <http://peterscarfe.com/ptbtutorials.html>
- <http://web.mit.edu/kehinger/www/PTBexamples.html>
- <https://github.com/Psychtoolbox-3/Psychtoolbox-3/wiki/Cookbook:-Seitz-Tutorial-Experiments>



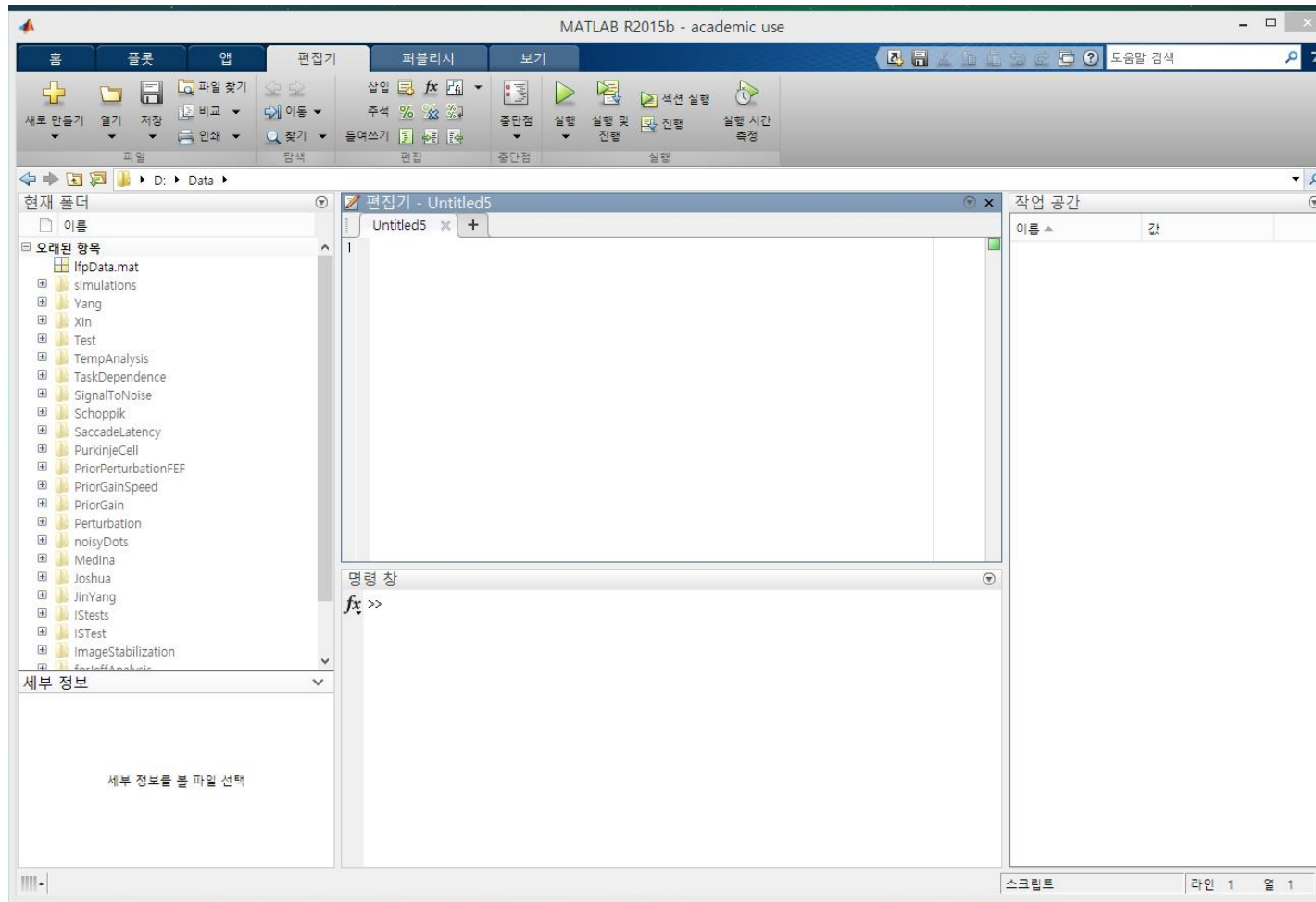
# I. GETTING FAMILIAR WITH MATLAB



# MATLAB INTERFACE



# Matlab interface – current folder, workspace, command window, information, editor



# Getting help

- `help` function
- `doc` function
- pop-up help

```
>> help sin
sin      Sine of argument in radians.
        sin(X) is the sine of the elements of X.

        See also asin, sind.

        Reference page in Help browser
        doc sin
```

# BASIC COMMANDS

- help
- doc
- ver
- date
- disp
- calendar
- pwd
- ls
- open
- close
- who
- whos
- clc
- exit
- quit
- clear

Assignment: run above commands, and explain what they do (send report till next Monday morning (by 09:00 am) via e-mail)

# HOMEWORK SUBMISSION

- Title: group #\_id#\_homework#
- Homework number: (week number)(a or b)
- Must attach a text file with identical name with the e-mail title.