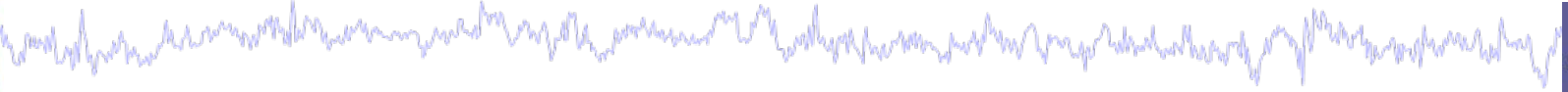


Using EEGLAB history for basic scripting



Task 1

Create a script from 'eegh' output

Task 2

Adapt your script with variables

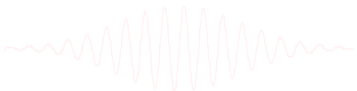
Task 3

Create a Matlab function

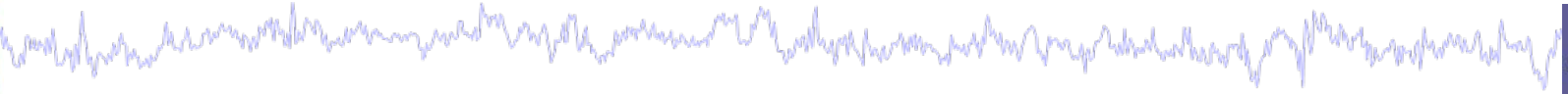
Task 4

Demonstration

Exercise...



Using EEGLAB history for basic scripting



Task 1

Create a script from 'eegh' output

Task 2

Adapt your script with variables

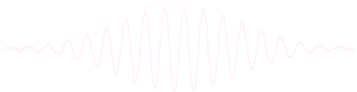
Task 3

Create a Matlab function

Task 4

Demonstration

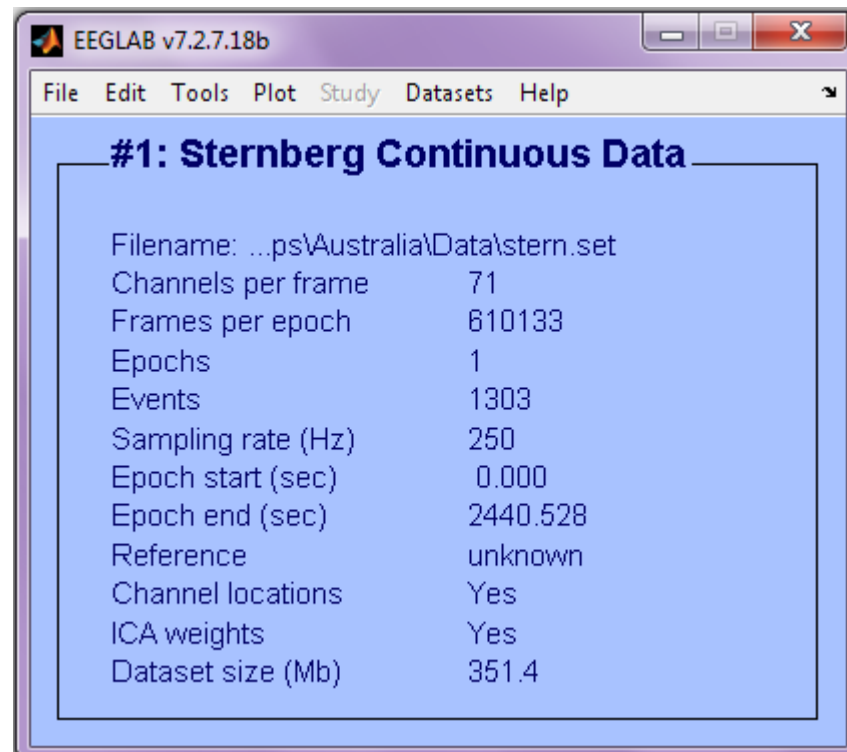
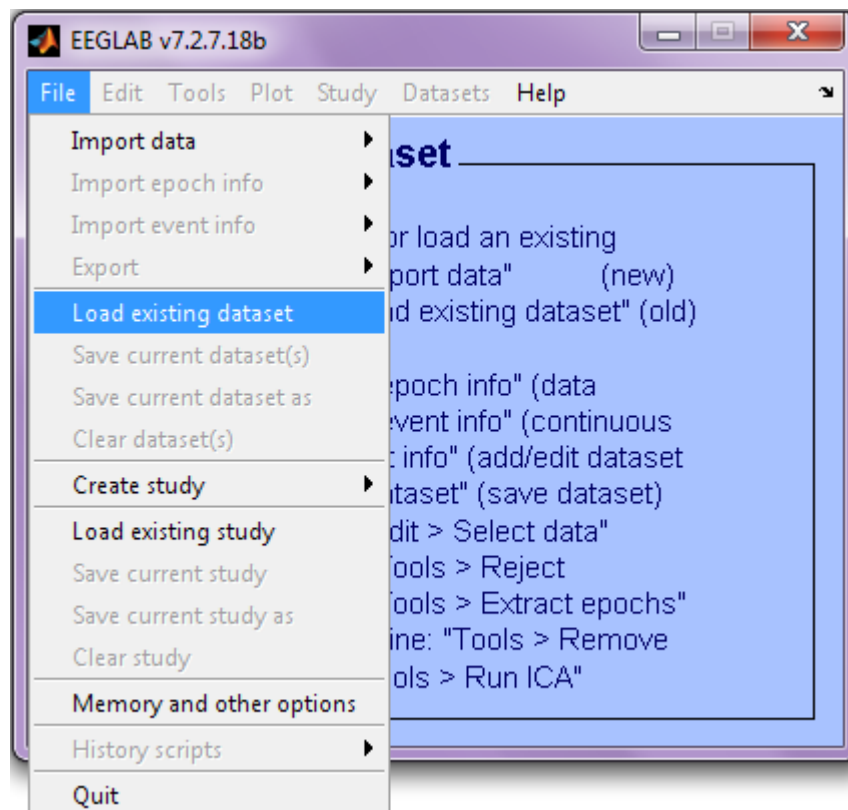
Exercise...



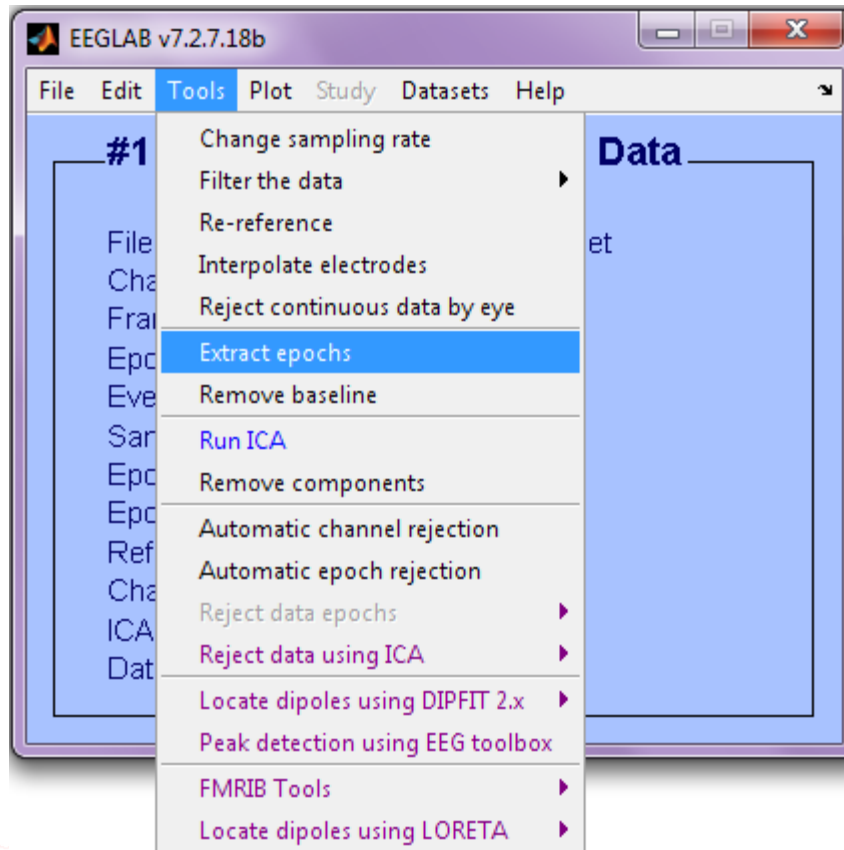
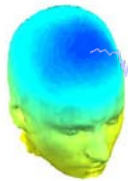
Create a script from 'eegh' output



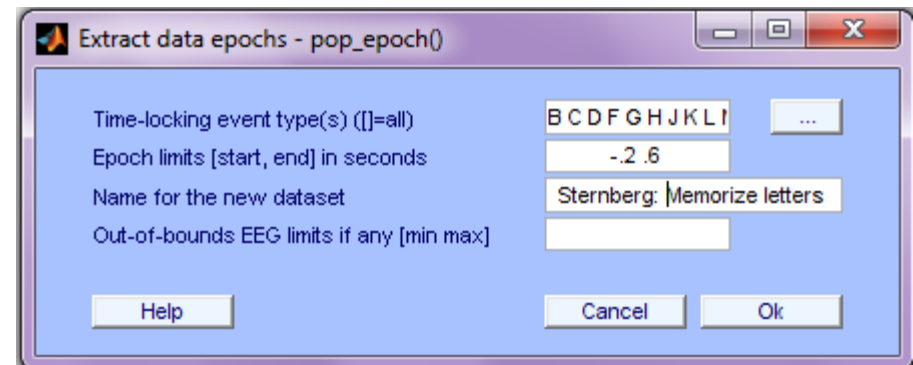
Start by loading a continuous dataset



Create a script from 'eegh' output



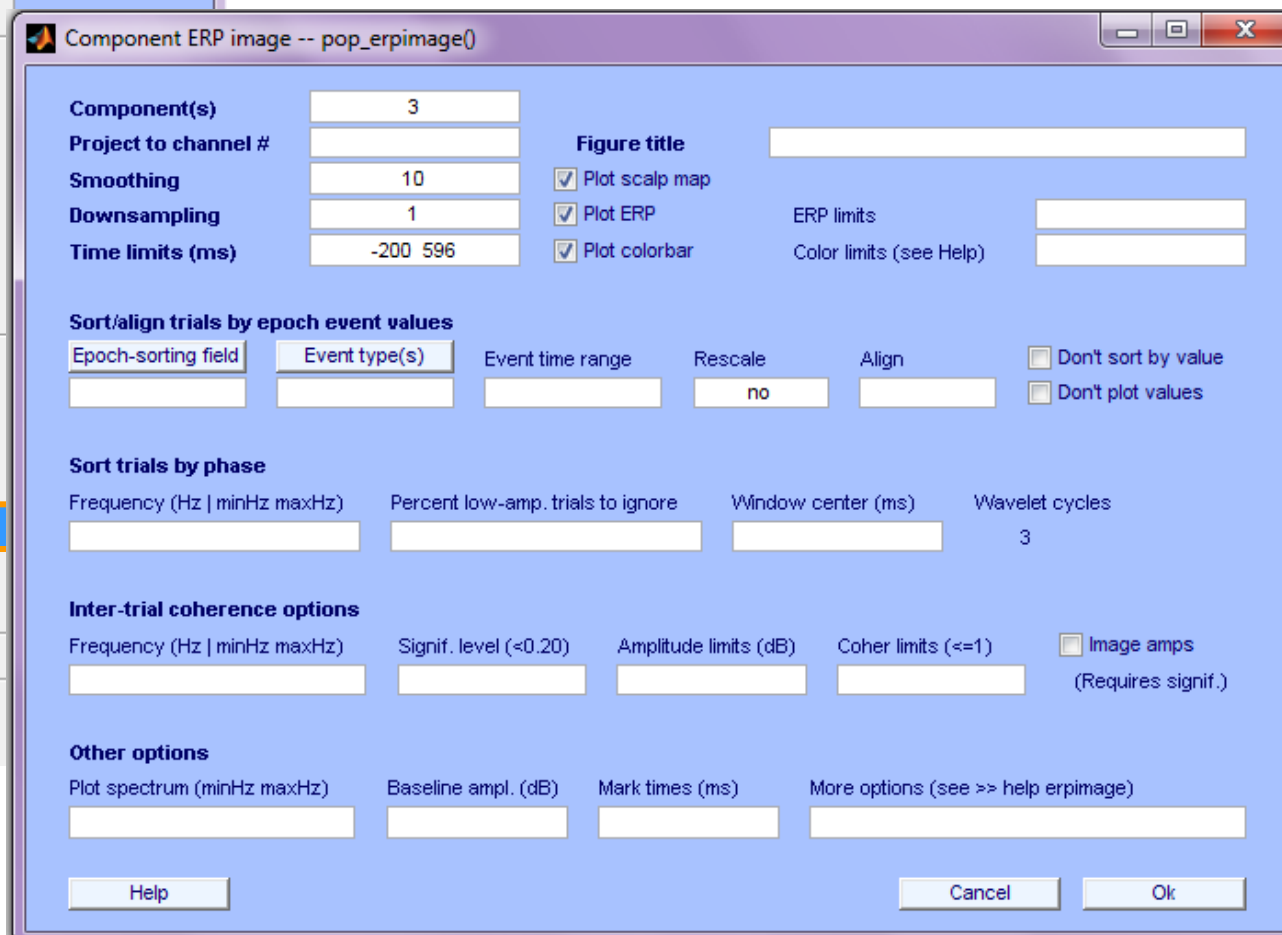
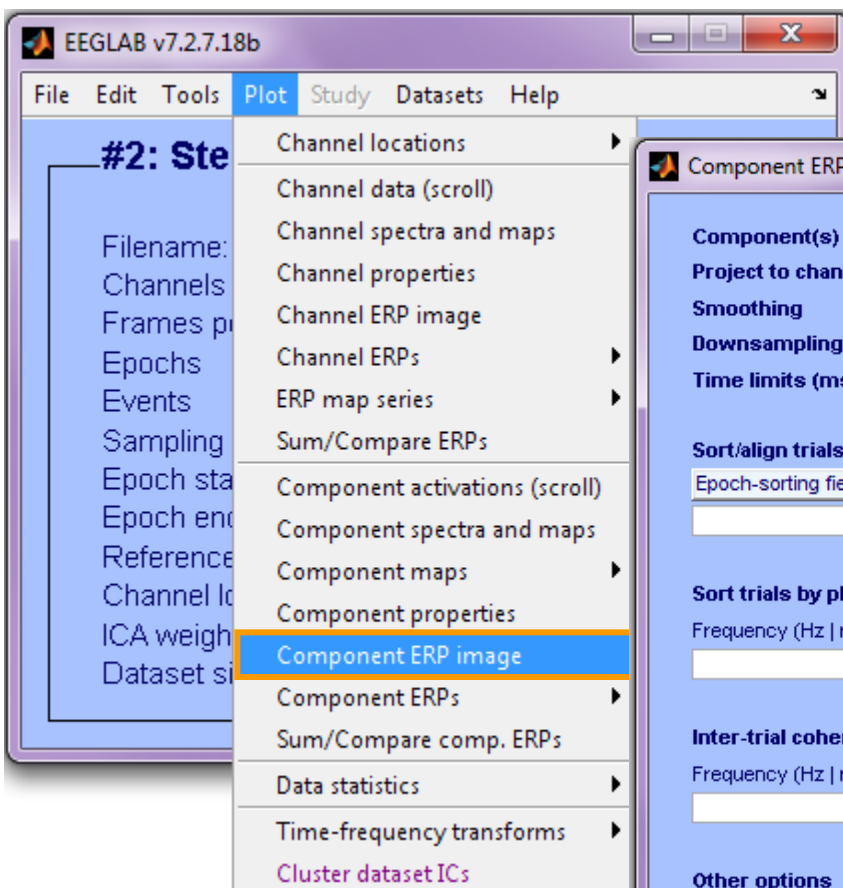
Epoch on Memorize letters



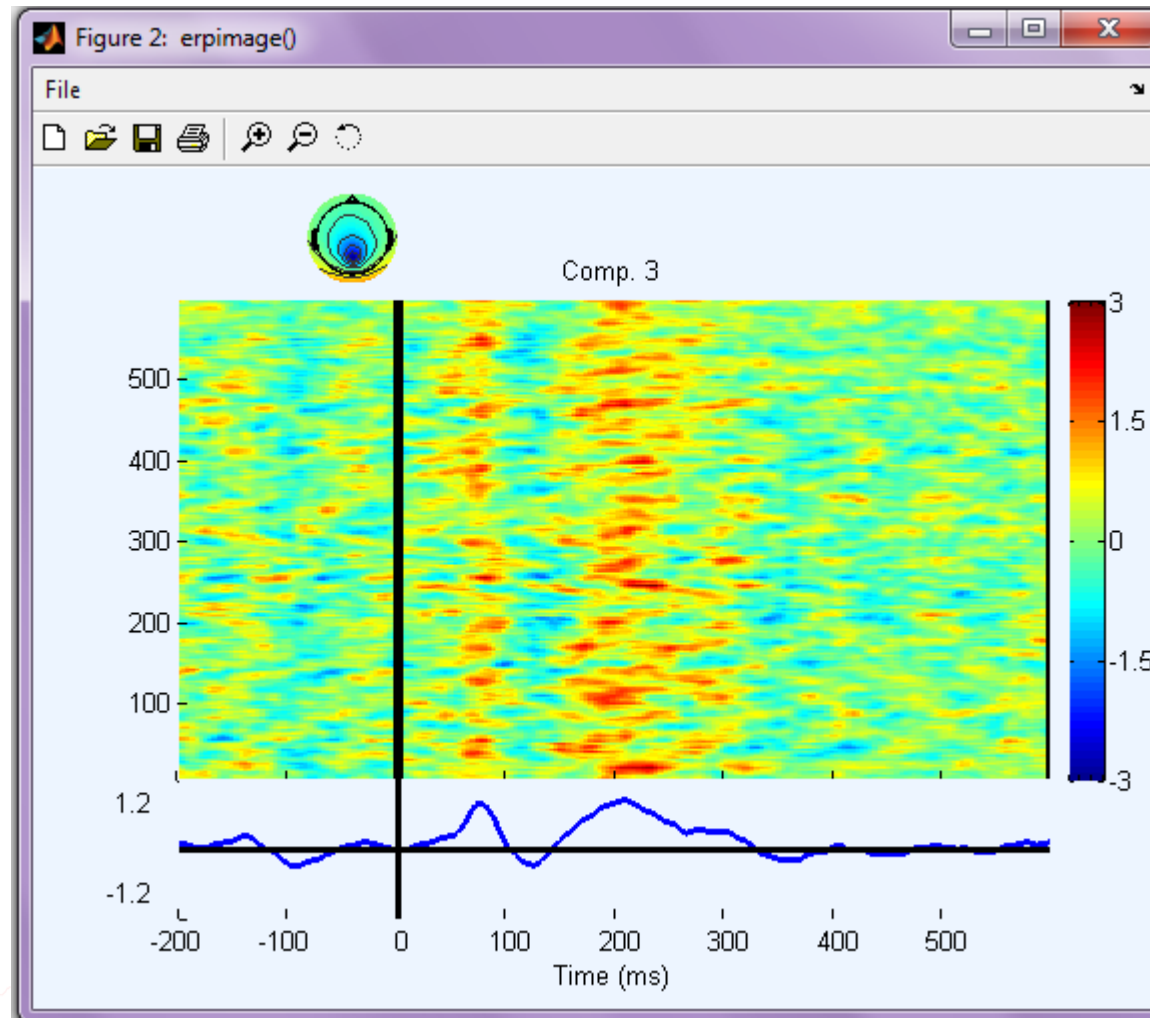
Create a script from 'eegh' output



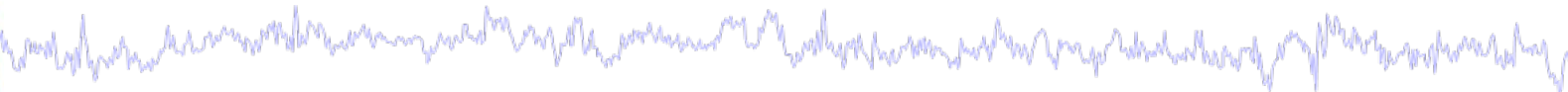
Plot an IC ERP image



Create a script from 'eegh' output

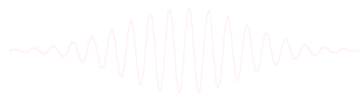


Retrieve commands from eegh



Write a script to do this:

```
>> eegh
```



Retrieve commands from eegh



```
>> eegh
```

```
[ALLEEG EEG CURRENTSET ALLCOM] = eeglab;
```

```
EEG = pop_loadset('filename', 'stern.set', 'filepath', ...  
    '...\Data\');
```

```
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 0);
```

```
EEG = pop_epoch( EEG, {'B' 'C' 'D' ...}, [-0.2 0.6], ...  
    'newname', , 'Memorize epochs', 'epochinfo', 'yes');
```

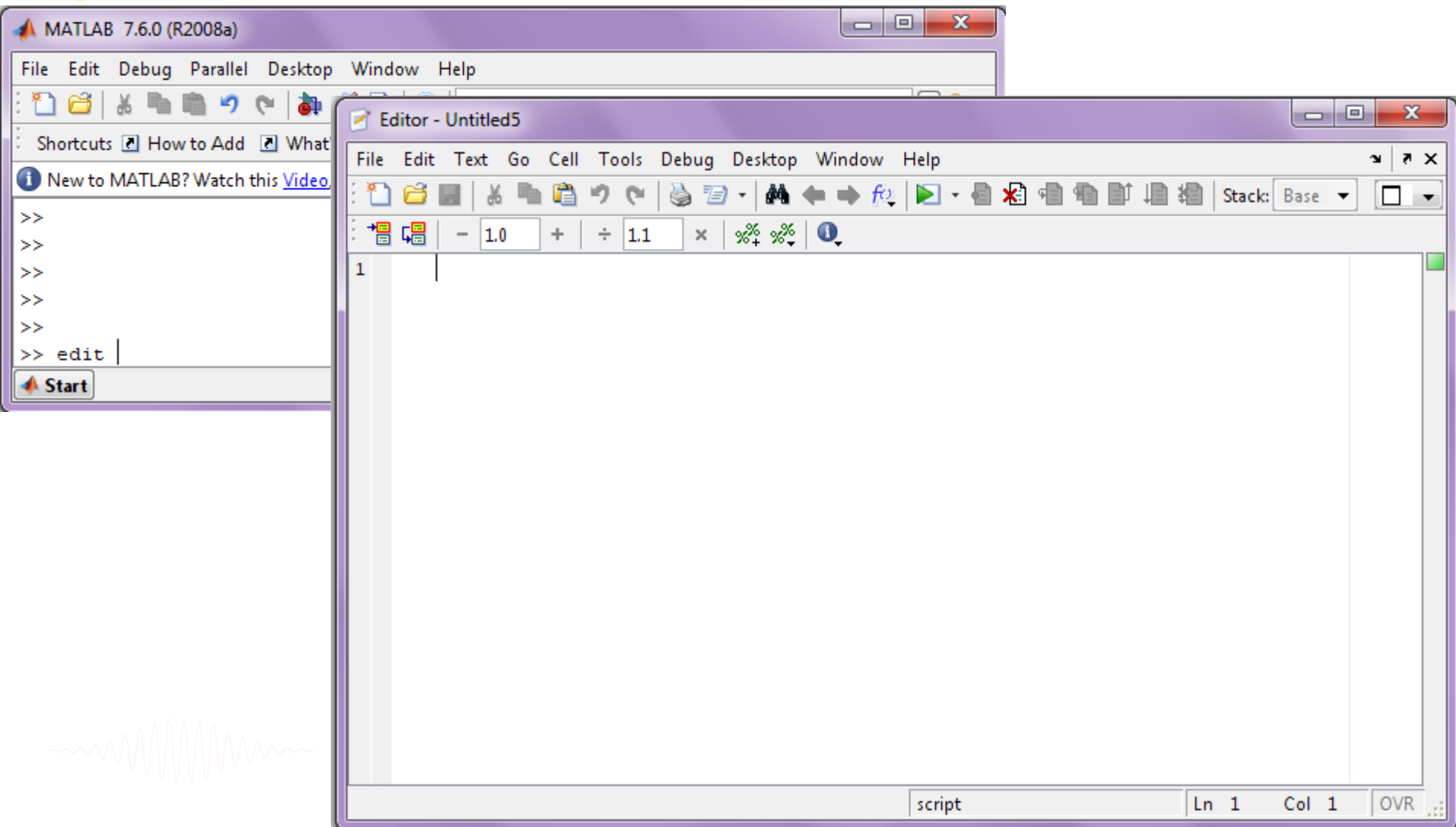
```
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 1);
```

```
EEG = pop_rmbase( EEG, [-200 0]);
```

```
[ALLEEG EEG] = eeg_store(ALLEEG, EEG, CURRENTSET);
```

```
figure; pop_erpimage(EEG,0, [3],[], , 'Comp. 3', 10, 1, {}, [], ...  
    '', 'yerplabel', '', 'erp', 'on', 'cbar', 'on', 'topo', ...  
    {mean(EEG.icawinv(:, [3]), 2) EEG.chanlocs EEG.chaninfo }));
```


Create a Matlab script



Create a Matlab script

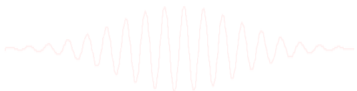
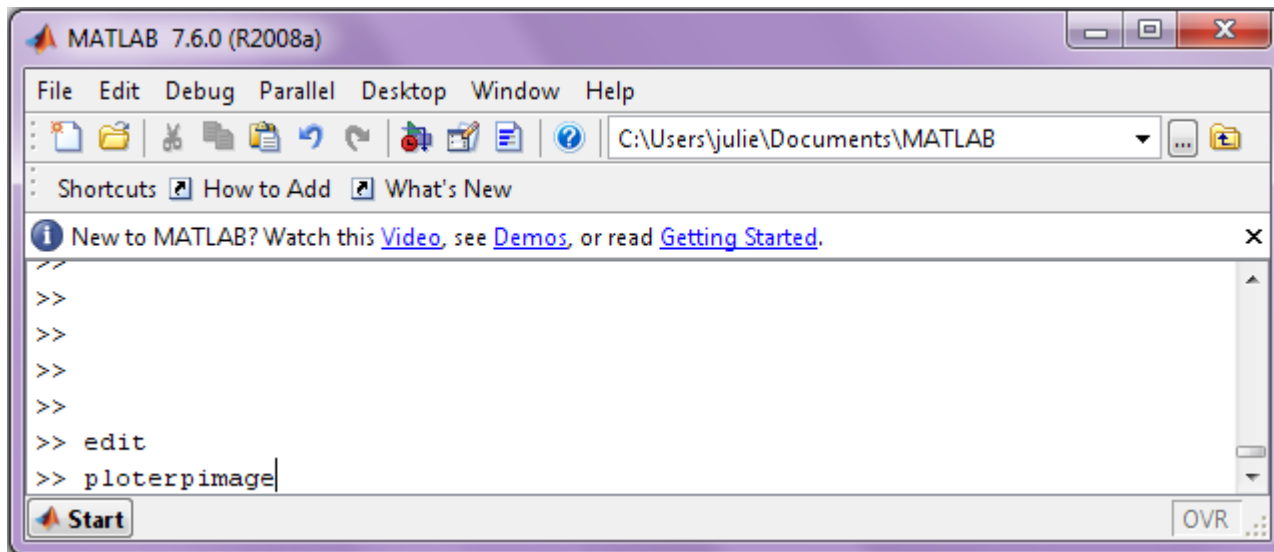
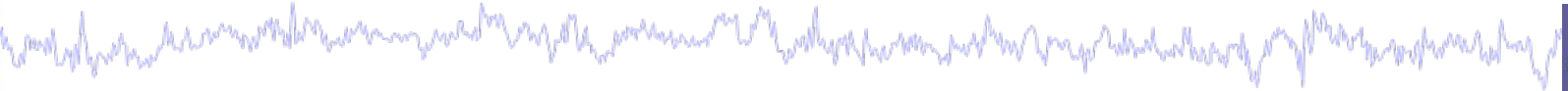


Copy and paste from Matlab window:

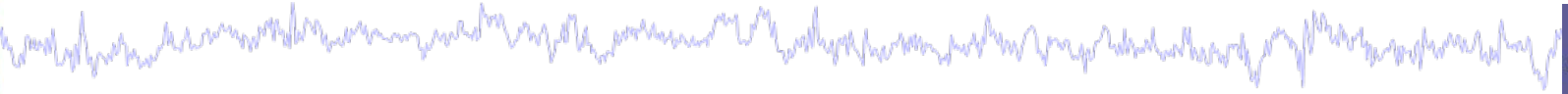
```
1 [ALLEEG EEG CURRENTSET ALLCOM] = eeglab;  
2 EEG = pop_loadset( 'filename', 'stern.set', 'filepath', 'C:\\Users\\julie\\Docum  
3 [ALLEEG, EEG, CURRENTSET] = eeg_store( ALLEEG, EEG, 0 );  
4 EEG = pop_epoch( EEG, { 'B' 'C' 'D' 'F' 'G' 'H' 'J' 'K' 'L' 'M' 'N'  
5 [ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 1, 'gui', 'off');  
6 EEG = pop_rmbase( EEG, [-200 0]);  
7 [ALLEEG EEG] = eeg_store(ALLEEG, EEG, CURRENTSET);  
8 figure; pop_erpimage(EEG,0, [3],[], 'Comp. 3',10,1,{},[], ' ' , 'verplabel', ' ' , 'er
```

Save as 'ploterpimage.m'
In MATLAB folder

Run your new script



Using EEGLAB history for basic scripting



Task 1

Create a script from 'eegh' output

Task 2

Adapt your script with variables

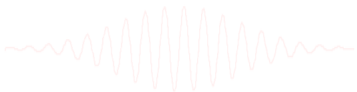
Task 3

Create a Matlab function

Task 4

Demonstration

Exercise...



Matlab basics -- Briefly



Variable = word with an assigned value (type 'whos')

Examples:

% vector of numbers:

```
mynumbers = [1, 2, 3, 5:10];
```

(Square brackets: concatenate anything within)

% access vector elements:

```
>> mynumbers(2)
```

```
ans =
```

```
2
```

% cell array of strings:

```
mylabels = {'stimulus','response'};
```

% access cell array elements:

```
>> mylabels{2}
```

```
ans =
```

```
response
```

Parameterize a script



```
>> eegh
[ALLEEG EEG CURRENTSET ALLCOM] = eeglab;

EEG = pop_loadset('filename', 'stern.set', 'filepath', ...
    '\...\EEGLAB_Workshop\Data\');
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 0);

EEG = pop_epoch( EEG, {'B' 'C' 'D' ...}, [-0.2 0.6], ...
    'newname', 'Memorize epochs', 'epochinfo', 'yes');
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 1);
EEG = pop_rmbase( EEG, [-200 0]);
[ALLEEG EEG] = eeg_store(ALLEEG, EEG, CURRENTSET);

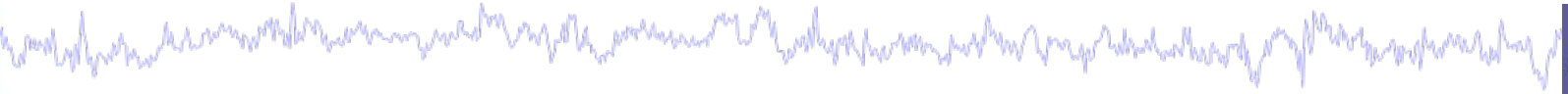
figure; pop_erpimage(EEG,0, [3],[], 'Comp. 3', 10, 1, {}, [], ...
    '', 'yerplabel', '', 'erp', 'on', 'cbar', 'on', 'topo', ...
    {mean(EEG.icawinv(:, [3]), 2) EEG.chanlocs EEG.chaninfo }));
```

Parameterize a script



```
% Variables-----  
dataset = 'stern.set';  
datpath = 'C:\MATLAB\...\EEGLAB_Workshop\Data\';  
epochletts = {'B' 'C' 'D' ...};  
datsetname = 'Memorize epochs';  
comp = [3];  
[ALLEEG EEG CURRENTSET ALLCOM] = eeglab;  
EEG = pop_loadset('filename', dataset, 'filepath', datpath);  
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 0);  
EEG = pop_epoch( EEG, epochletts , [-0.2 0.6],...  
'newname', datsetname, 'epochinfo', 'yes');  
[ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 1);  
EEG = pop_rmbase( EEG, [-200 0]);  
[ALLEEG EEG] = eeg_store(ALLEEG, EEG, CURRENTSET);  
figure; pop_erpimage(EEG,0, [comp],[],['Comp.',int2str(comp)],...  
10,1,{},[],'', 'yerplabel', '', 'erp', 'on', 'cbar', 'on', 'topo',...  
{mean(EEG.icawinv(:,[comp ]),2),EEG.chanlocs EEG.chaninfo});
```

Using EEGLAB history for basic scripting



Task 1

Create a script from 'eegh' output

Task 2

Adapt your script with variables

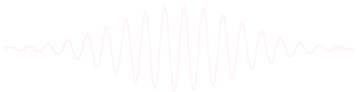
Task 3

Create a Matlab function

Task 4

Demonstration

Exercise...

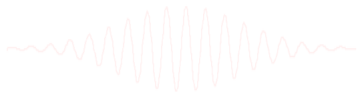


Write a Matlab function



Matlab functions:

1. Take arguments
2. Can return variables
3. Do not draw variables from the global workspace
4. Need all variables called internally or passed as arguments



Example function



```
1 function ploterpfunc(dataset,datapath,epochletts,datsetname,comp);
2
3
4 [ALLEEG EEG CURRENTSET ALLCOM] = eeglab;
5 EEG = pop_loadset('filename', dataset,'filepath',datapath);
6 [ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 0);
7 EEG = pop_epoch( EEG, epochletts , [-0.2 0.6],...
8 'newname', datsetname, 'epochinfo', 'yes');
9 [ALLEEG EEG CURRENTSET] = pop_newset(ALLEEG, EEG, 1);
10 EEG = pop_rmbase( EEG, [-200 0]);
11 [ALLEEG EEG] = eeg_store(ALLEEG, EEG, CURRENTSET);
12 figure; pop_erpimage(EEG,0, [comp],[],['Comp.',int2str(comp)],...
13 10,1,{},[],[], 'yerplabel', ' ', 'exp', 'on', 'char', 'on',...
14 'topo',{mean(EEG.icawinv(:,[comp]),2),EEG.chanlocs EEG.chaninfo });
15
16
```

Save as 'ploterpfunc.m'
In MATLAB folder

Example function



% Variables-----

dataset = 'stern.set';

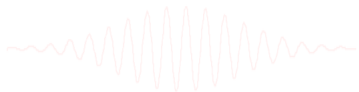
datapath = '...\EEGLAB_Workshop\Data\';

epochletts = {'B' 'C' 'D' ...};

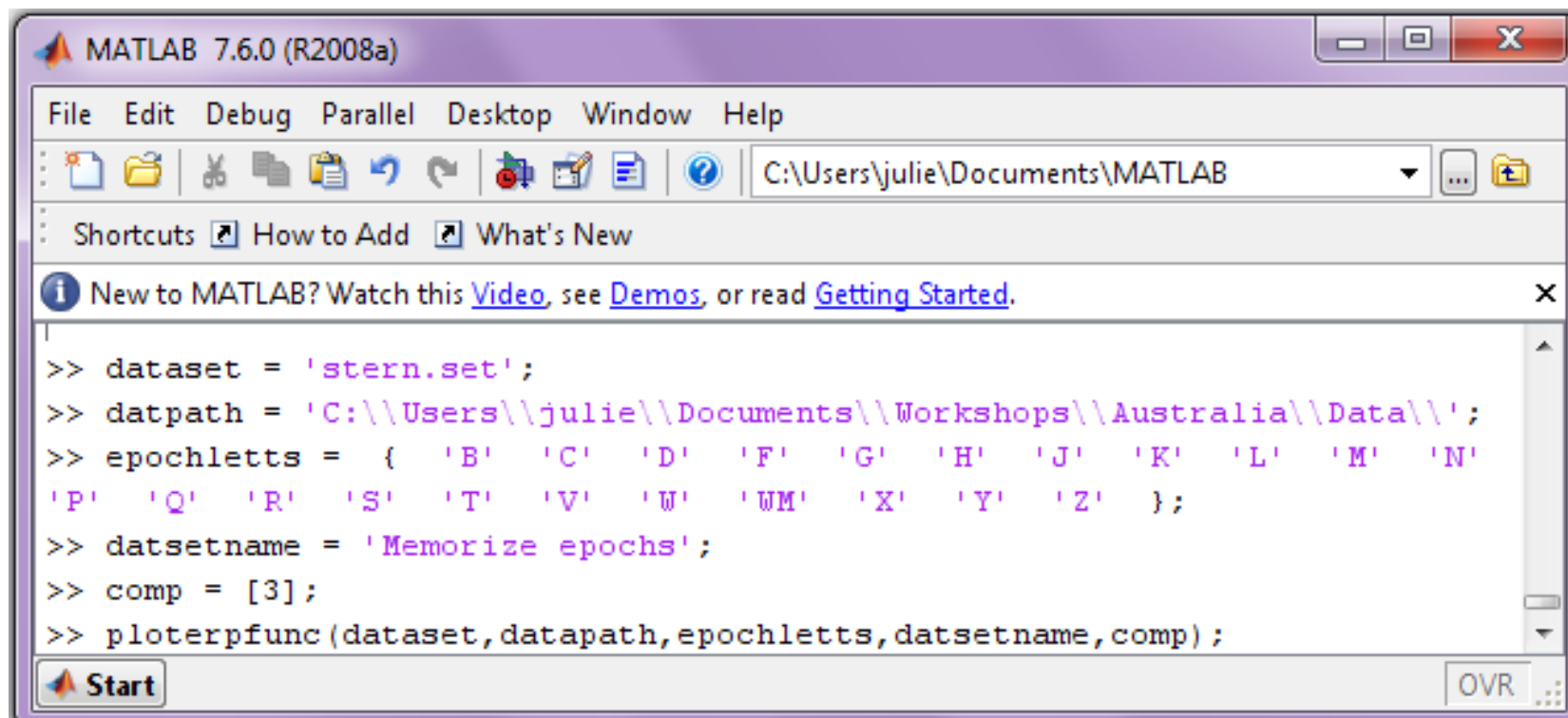
datsetname = 'Memorize epochs';

comp = [3];

ploterpfunc(dataset, datapath, epochletts, datsetname, comp);



Run your function in Matlab

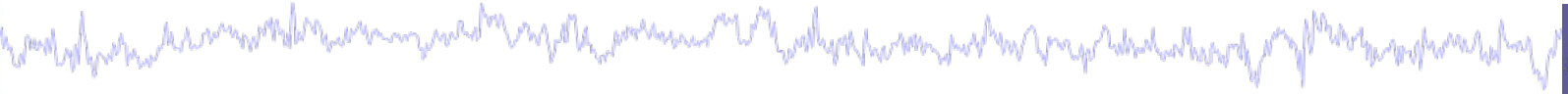


The image shows a screenshot of the MATLAB 7.6.0 (R2008a) software interface. The window title is "MATLAB 7.6.0 (R2008a)". The menu bar includes "File", "Edit", "Debug", "Parallel", "Desktop", "Window", and "Help". The toolbar contains various icons for file operations and debugging. The current directory is "C:\Users\julie\Documents\MATLAB". A message box at the top says "New to MATLAB? Watch this [Video](#), see [Demos](#), or read [Getting Started](#)." The command window shows the following script:

```
>> dataset = 'stern.set';  
>> datpath = 'C:\\Users\\julie\\Documents\\Workshops\\Australia\\Data\\';  
>> epochletts = { 'B' 'C' 'D' 'F' 'G' 'H' 'J' 'K' 'L' 'M' 'N'  
'P' 'Q' 'R' 'S' 'T' 'V' 'W' 'WM' 'X' 'Y' 'Z' };  
>> datsetname = 'Memorize epochs';  
>> comp = [3];  
>> ploterpfunc(dataset, datpath, epochletts, datsetname, comp);
```

At the bottom left is a "Start" button, and at the bottom right is an "OVR" button.

Using EEGLAB history for basic scripting



Task 1

Create a script from 'eegh' output

Task 2

Adapt your script with variables

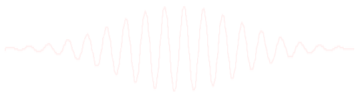
Task 3

Create a Matlab function

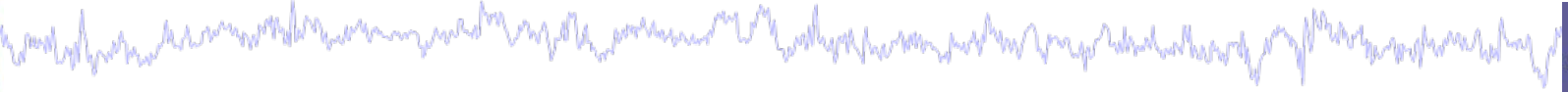
Task 4

Demonstration

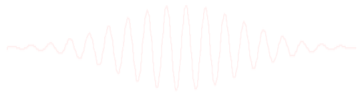
Exercise...



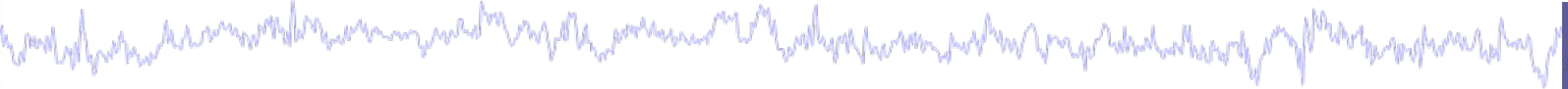
Demonstration: script across multiple conditions



- 1) Open stern.set
- 2) Epoch on memorize letters (dataset 2)
- 3) Epoch on ignore letters (overwrite dataset 1)
- 4) Plot -> Sum/compare comp. ERPs
- 5) Script a loop through some ICs



Exercise



Script it yourself!

Try a similar exercise outlined in:

[.../EEGLAB_Workshop/Scripts/Tutorial_4_BasicScripting.m](#)

