

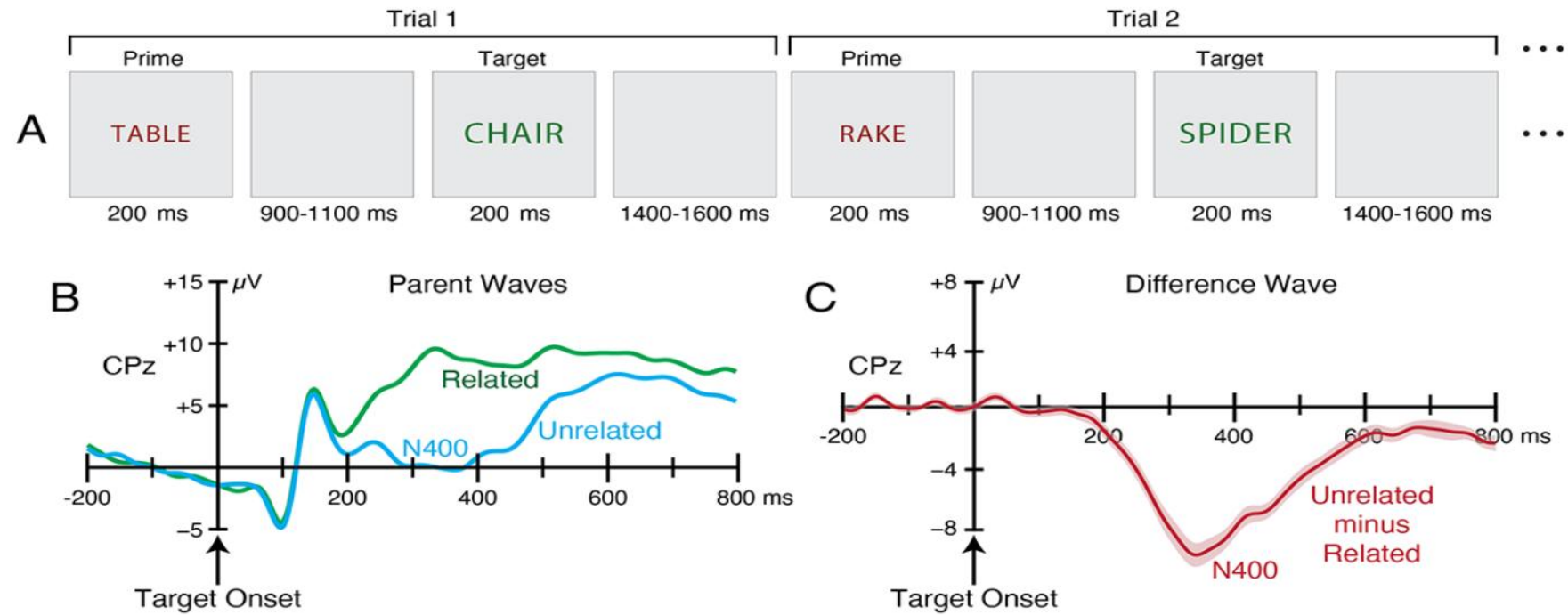
# **EEGLAB and ERPLAB**

Interdisciplinary Schools  
Signal Processing Department  
Parisa Khoorahe

# ERPLAB

ERP CORE N400 Experiment

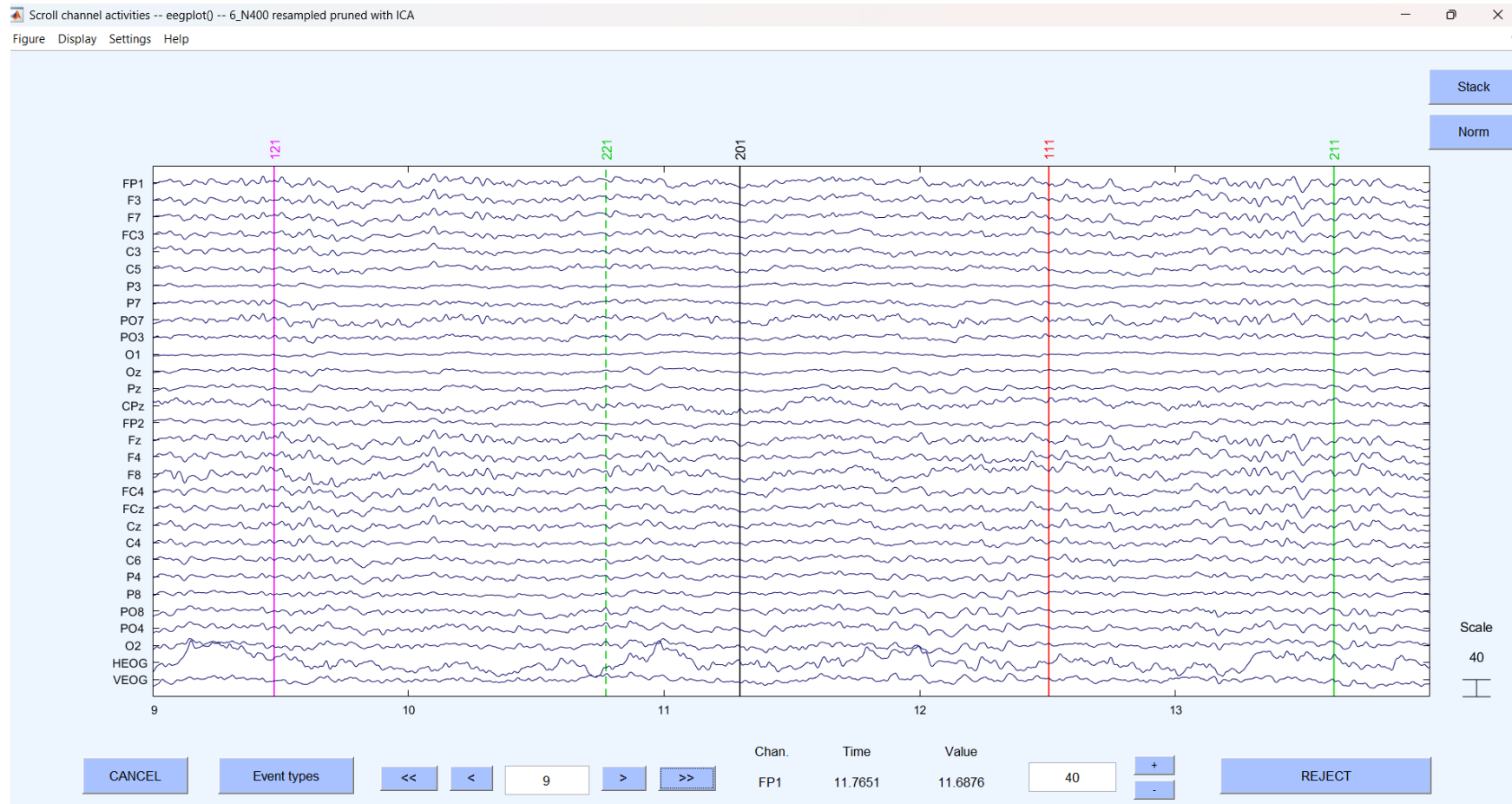
40 participants



# ERPLAB

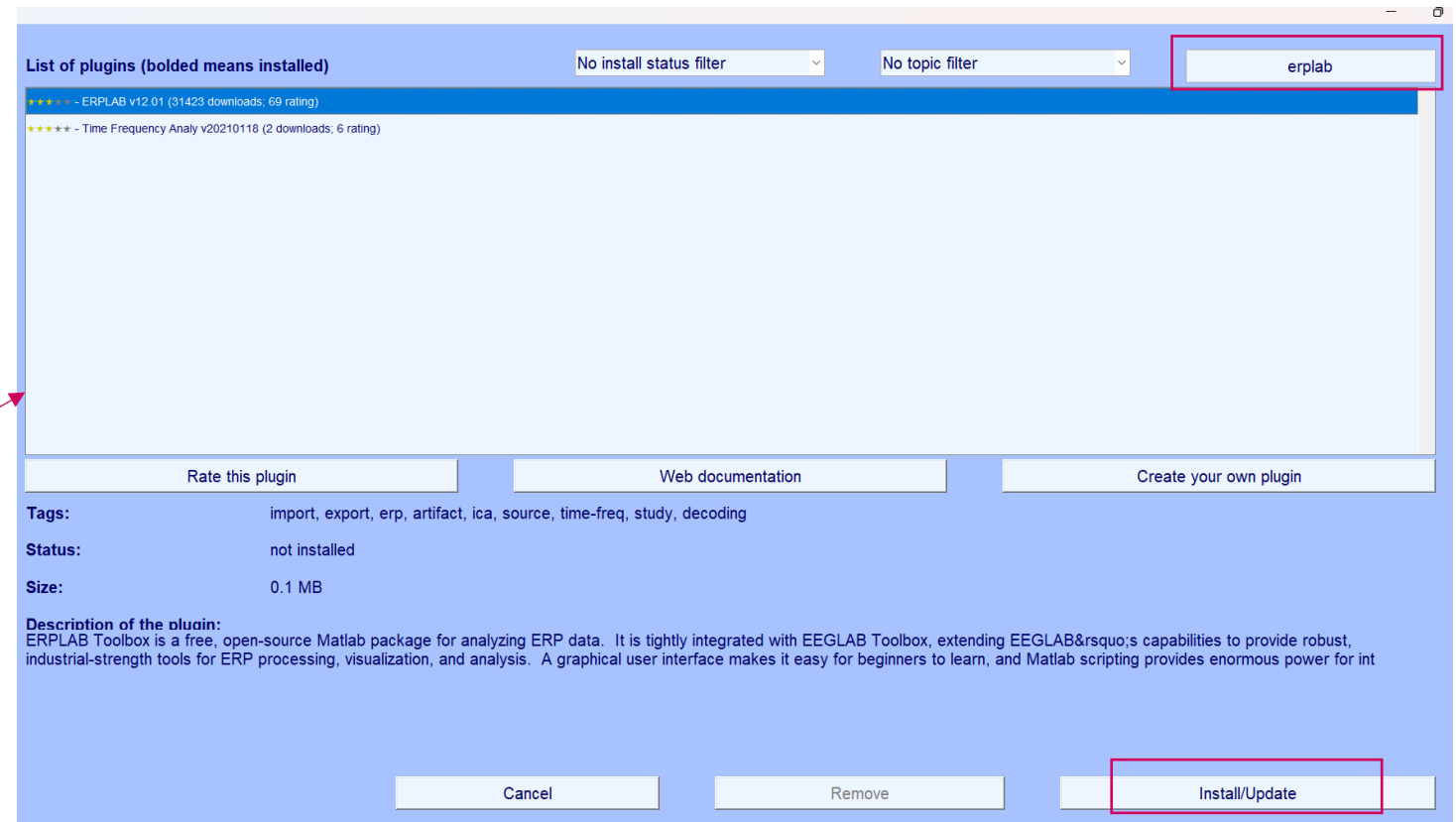
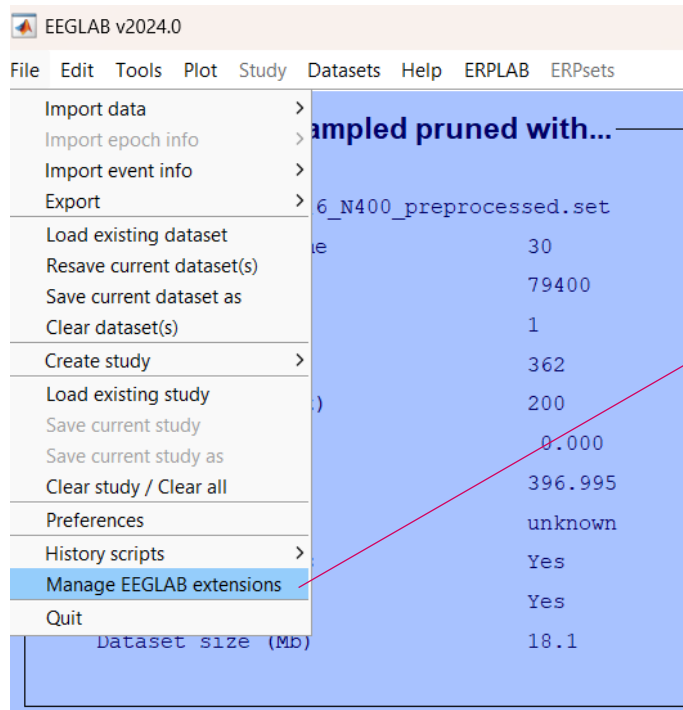
	Word Type	Relatedness	Word List	Event Code	Occurrences
<b>Stimuli</b>	Prime	Related	List 1	111	30
	Prime	Related	List 2	112	30
	Prime	Unrelated	List 1	121	30
	Prime	Unrelated	List 2	122	30
	Target	Related	List 1	211	30
	Target	Related	List 2	212	30
	Target	Unrelated	List 1	221	30
	Target	Unrelated	List 2	222	30
<b>Responses</b>	Correct			201	Variable
	Incorrect			202	Variable

# ERPLAB



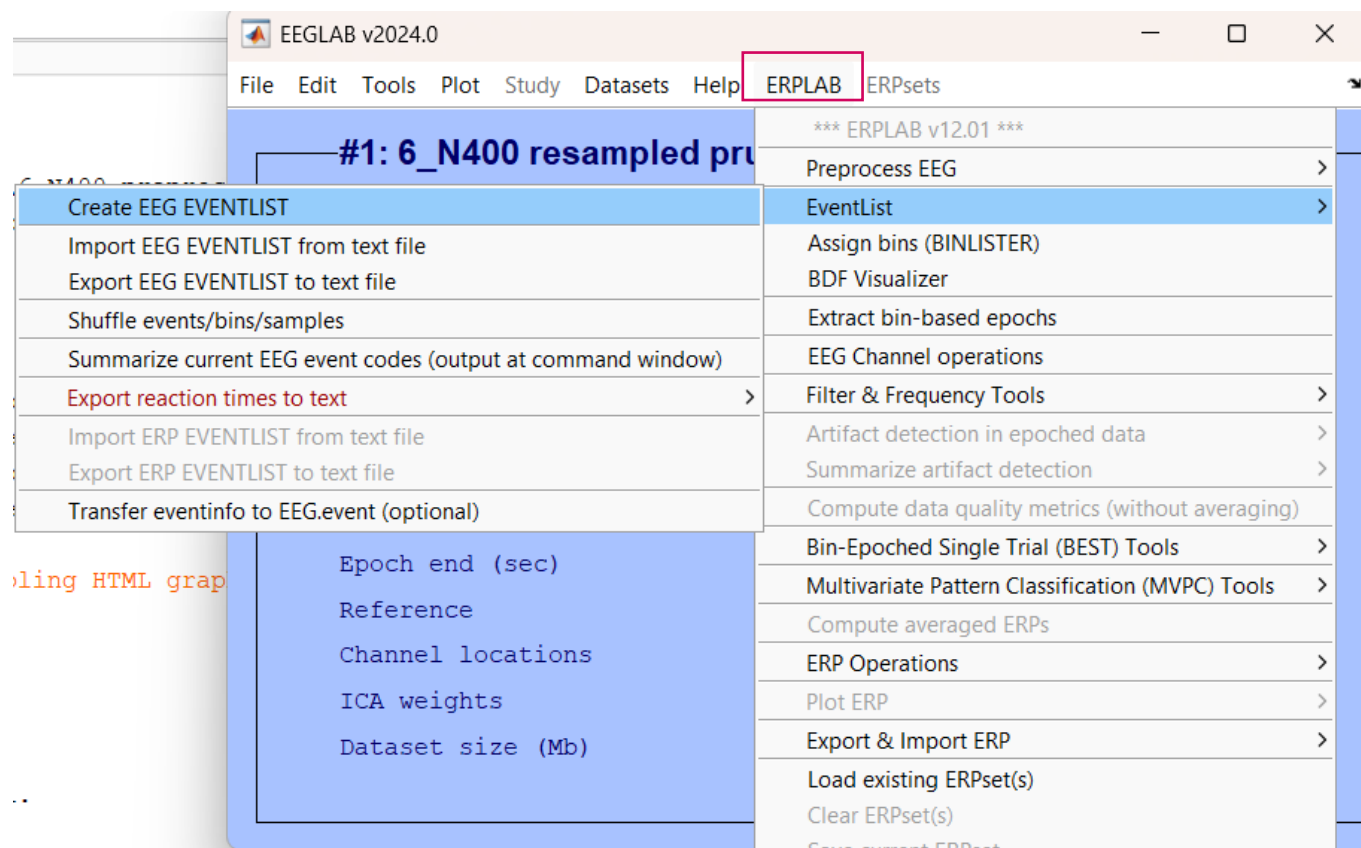
# ERPLAB

## Installing ERPLAB



# ERPLAB

## Eventlist



# ERPLAB

## Eventlist

ERPLAB 12.01 - CREATE BASIC EVENTLIST GUI

Optional

☒ Export EventList to text file Browse

Boundary and alphanumeric events

☒ Add code -99 for '□boundary□' events (strongly recommended)

☐ Convert string code boundary

to numeric code -99

☒ Create numeric equivalents of nonnumeric event codes when possible  
(e.g., '□S12□' becomes 12)

☒ Warn me if an EVENTLIST is already attached to this dataset

CANCEL ? Advanced CREATE

Save EVENTLIST text file as

Documents > MATLAB

Search MATLAB

Organise New folder

Name	Date modified	Type
hermes-20250414	5/11/2025 3:30 AM	File folder
gpfa_v0203	5/9/2015 2:45 AM	File folder
HERMES Toolbox 2020-04-26	2/17/2025 12:21 PM	File folder
libsvm-3.35	3/15/2025 7:05 PM	File folder
spm	8/11/2025 10:10 AM	File folder
ab_task_base	4/24/2024 8:45 PM	Text Document

File name: 6\_N400\_eventlist

Save as type: (\*.txt)

Hide Folders

Save Cancel

# ERPLAB

## Eventlist

ERPLAB 12.01 - CREATE BASIC EVENTLIST GUI

Optional

☒ Export EventList to text file Browse

C:\Users\Parisa\Documents\MATLAB\6\_N400\_eventlist.txt

Boundary and alphanumeric events

☒ Add code -99 for 'boundary' events (strongly recommended)

☐ Convert string code boundary

to numeric code -99

☒ Create numeric equivalents of nonnumeric event codes when possible (e.g., 'S12' becomes 12)

☒ Warn me if an EVENTLIST is already attached to this dataset

CANCEL ? Advanced CREATE

Dataset info -- pop\_newset()

**What do you want to do with the new dataset?**

Name it: 6\_N400\_preprocessed\_elist\_ Edit description

☐ Save it as file: Browse

**Some changes have not been saved. What do you want to do with the old dataset?**

☐ Overwrite it in memory (set=yes; unset=create a new dataset)

☐ Save it as file: C:\Users\Parisa\Documents\MATLAB\6\_N4 Browse

Help Cancel Ok



# ERPLAB

## Eventlist

```
6_N400_eventlist.txt
File Edit View H1  B I  A
# Non-editable header begin -----
#
# data format.....: continuous
# setname.....: 6_N400 resampled pruned with ICA_elist
# filename.....: 6_N400_preprocessed.set
# filepath.....: C:\Users\Parisa\Documents\MATLAB\
# nchan.....: 30
# pnts.....: 79400
# srate.....: 200
# nevents.....: 362
# generated by (bdf).....:
# generated by (set).....: 6_N400 resampled pruned with ICA_elist
# reported in .....:
# prog Version.....: 12.01
# creation date.....: 20-Aug-2025 11:36:21
# user Account.....:
#
# Non-editable header end -----

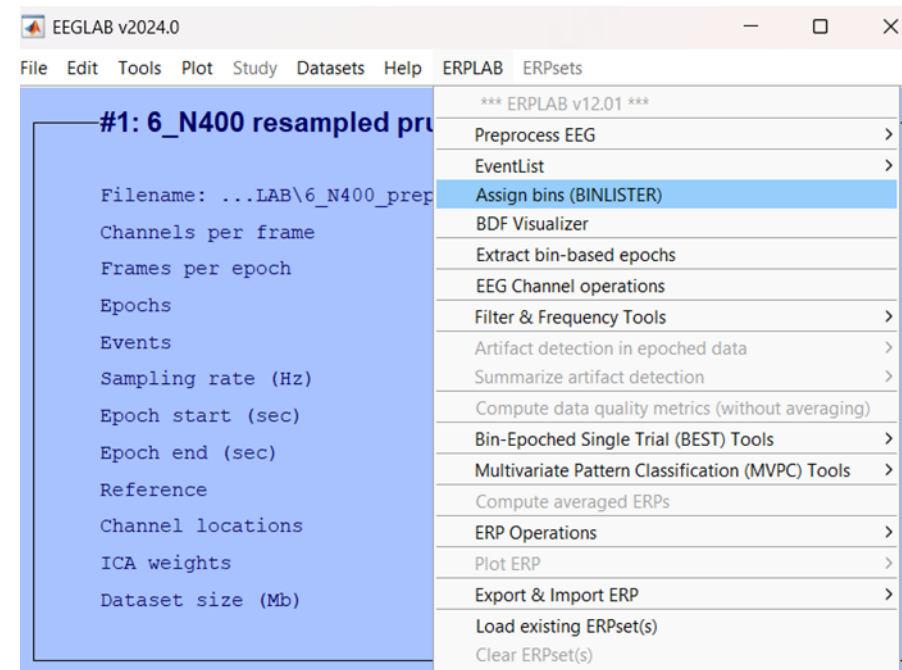
# item bepoch ecode label onset diff dura b_flags a_flags enable bin
#      (sec) (msec) (msec) (binary) (binary)
1 0 202 "" 1.6426 0.00 0.0 00000000 00000000 1 [ ]
2 0 202 "" 2.6504 1007.81 0.0 00000000 00000000 1 [ ]
3 0 121 "" 6.6094 3958.98 0.0 00000000 00000000 1 [ ]
4 0 221 "" 7.7256 1116.21 0.0 00000000 00000000 1 [ ]
5 0 201 "" 8.3145 588.87 0.0 00000000 00000000 1 [ ]
6 0 121 "" 9.4756 1161.13 0.0 00000000 00000000 1 [ ]
7 0 221 "" 10.7744 1298.83 0.0 00000000 00000000 1 [ ]
8 0 201 "" 11.2988 524.41 0.0 00000000 00000000 1 [ ]
9 0 111 "" 12.5078 1208.98 0.0 00000000 00000000 1 [ ]
10 0 211 "" 13.6240 1116.21 0.0 00000000 00000000 1 [ ]
11 0 201 "" 14.2500 625.98 0.0 00000000 00000000 1 [ ]
12 0 111 "" 15.3398 1089.84 0.0 00000000 00000000 1 [ ]
13 0 211 "" 16.5557 1215.82 0.0 00000000 00000000 1 [ ]
14 0 201 "" 17.4102 854.49 0.0 00000000 00000000 1 [ ]

Ln 1, Col 1 | 41,623 characters | Plain text | 100% | Unix (LF) | UTF-8
```

# ERPLAB

## Assign Bins (BINLISTER)

ERPset Header Information	
ERPset Name ('S6_ERP')	
Number of Channels (30) and Channel Locations	
Number of Bins (4) and Bin Labels	
Etc.	
<b>Bin 1:</b> Prime word, related to subsequent target word	
Channel 1 ERP Waveform	
Channel 2 ERP Waveform	
...	
Channel 30 ERP Waveform	
<b>Bin 2:</b> Prime word, unrelated to subsequent target word	
Channel 1 ERP Waveform	
Channel 2 ERP Waveform	
...	
Channel 30 ERP Waveform	
<b>Bin 3:</b> Target word, related to <b>previous prime word</b>	
Channel 1 ERP Waveform	
Channel 2 ERP Waveform	
...	
Channel 30 ERP Waveform	
<b>Bin 4:</b> Target word, unrelated to <b>previous prime word</b>	
Channel 1 ERP Waveform	
Channel 2 ERP Waveform	
...	
Channel 30 ERP Waveform	



# ERPLAB

## Assign Bins (BINLISTER)

ERPLAB 12.01 - BINLISTER GUI

**Load Bin Descriptor File from**

**Browse**  
**Take a look**

**Read EVENTLIST from**

☐ Current dataset : EVENTLIST was not found

☐ No ERPset

EVENTLIST index:

☒ Text file  **Browse**  
**Take a look**

**Write resulting EVENTLIST to**

☐ Current dataset : EVENTLIST was not found

☐ Warn if bins have already being assigned to this dataset

☐ Transfer EVENTLIST info to EEG.event (for plotting and other EEGLAB functions)

☒ Text file  **Browse**

☐ Matlab workspace (as EVENTLIST variable)

Forbidden Code(s)

Ignored Code(s)

☐ Reset Artifact Flags

☐ Reset User Flags

**CANCEL** **?** **RUN**

Dataset info -- pop\_newset0

**What do you want to do with the new dataset?**

Name it:  **Edit description**

☐ Save it as file:  **Browse**

**Some changes have not been saved. What do you want to do with the old dataset?**

☐ Overwrite it in memory (set=yes; unset=create a new dataset)

☐ Save it as file:  **Browse**

**Help** **Cancel** **Ok**

# ERPLAB

## Assign Bins (BINLISTER)

```
6_N400_eventlist2.txt
File Edit View H1  B I  A
# Non-editable header begin -----
#
# data format.....: continuous
# setname.....: 6_N400_preprocessed_elist_bins
# filename.....: none_specified
# filepath.....: none_specified
# nchan.....: 30
# pnts.....: 79400
# scate.....: 200
# nevents.....: 362
# generated by (bdf).....: C:\Users\Parisa\Documents\MATLAB\BDF_N400.txt
# generated by (set).....: 6_N400_preprocessed_elist_bins
# reported in .....:
# prog Version.....: 12.01
# creation date.....: 21-Aug-2025 10:10:08
# user Account.....: Documents
#
# Non-editable header end -----

    bin 1, # 60, Prime word, related to subsequent target word
    bin 2, # 60, Prime word, unrelated to subsequent target word
    bin 3, # 54, Target word, related to previous prime, followed by correct response
    bin 4, # 57, Target word, unrelated to previous prime, followed by correct response

# item  bepoch  ecode      label      onset      diff      dura      b_flags  a_flags      enable      bin
#                               (sec)      (msec)      (msec)      (binary)      (binary)
1      0      202      ""      1.6426      0.00      0.0      00000000      00000000      1  [      ]
2      0      202      ""      2.6504      1007.81      0.0      00000000      00000000      1  [      ]
3      0      121      ""      6.6094      3958.98      0.0      00000000      00000000      1  [      2]
4      0      221      ""      7.7256      1116.21      0.0      00000000      00000000      1  [      4]
5      0      201      ""      8.3145      588.87      0.0      00000000      00000000      1  [      ]
6      0      121      ""      9.4756      1161.13      0.0      00000000      00000000      1  [      2]
7      0      221      ""      10.7744      1298.83      0.0      00000000      00000000      1  [      4]
8      0      201      ""      11.2988      524.41      0.0      00000000      00000000      1  [      ]
9      0      111      ""      12.5078      1208.98      0.0      00000000      00000000      1  [      1]
10     0      211      ""      13.6240      1116.21      0.0      00000000      00000000      1  [      3]

Ln 12, Col 62  42,093 characters  Plain text  100%
```

# ERPLAB

## Assign Bins (BINLISTER)

	Word Type	Relatedness	Word List	Event Code	Occurrences
<b>Stimuli</b>	Prime	Related	List 1	111	30
	Prime	Related	List 2	112	30
	Prime	Unrelated	List 1	121	30
	Prime	Unrelated	List 2	122	30
	Target	Related	List 1	211	30
	Target	Related	List 2	212	30
	Target	Unrelated	List 1	221	30
	Target	Unrelated	List 2	222	30
<b>Responses</b>	Correct			201	Variable
	Incorrect			202	Variable

# ERPLAB

## Assign Bins (BINLISTER)

Bin number

Bin label

Bin descriptor

Bin 1

Prime word, related to subsequent target word  
. {111;112}

Bin 2

Prime word, unrelated to subsequent target word  
. {121;122}

Bin 3

Target word, related to previous prime, followed by correct response  
. {211;212} {t<200-1500>201}

Bin 4

Target word, unrelated to previous prime, followed by correct response  
. {221;222} {t<200-1500>201}

Stimulus-locked

# ERPLAB

## Assign Bins (BINLISTER)

Bin number

Bin label

Bin descriptor

Response-locked

```
BDF_N400_R.txt
File Edit View H1 ⌵ ☰ ⌵ B

Bin 1
Response to related target, correct
{t<200-1500>211;212}. {201}|

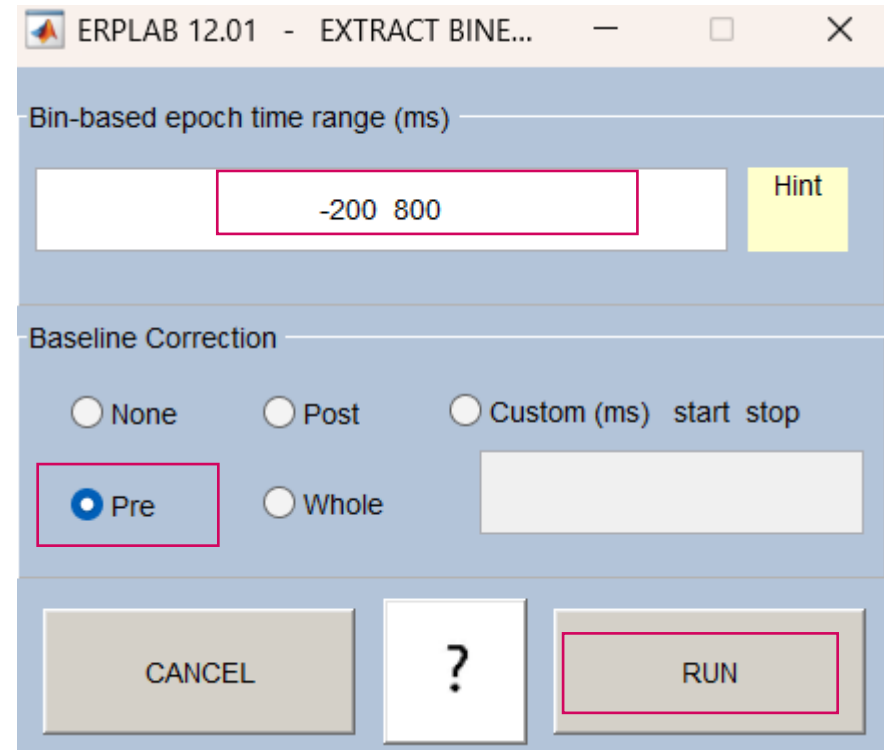
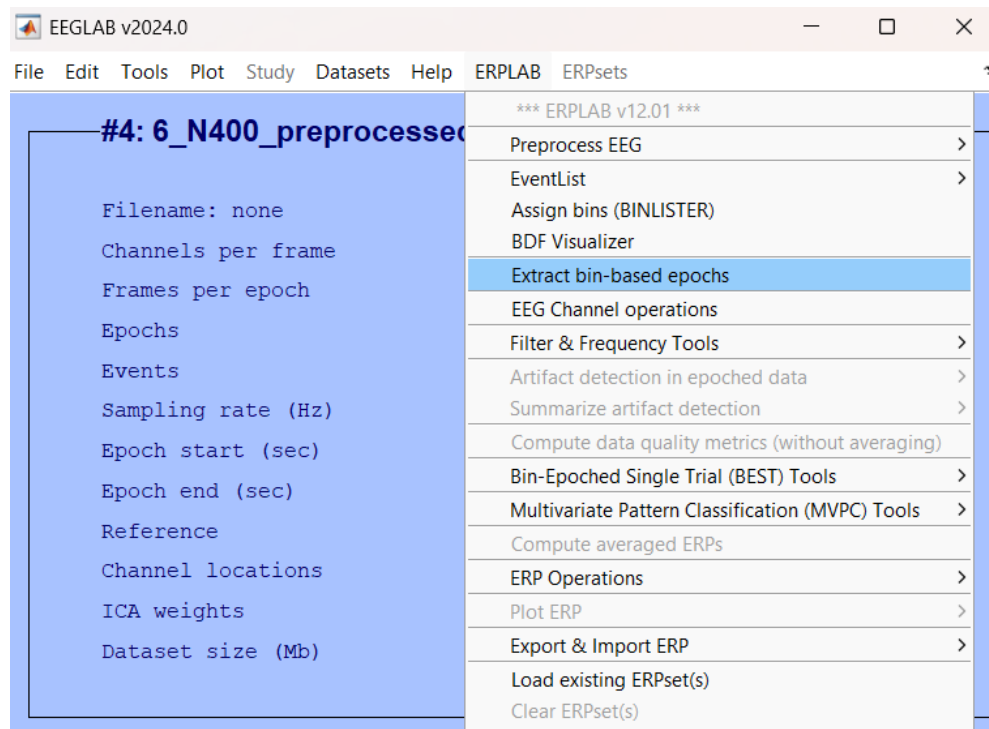
Bin 2
Response to unrelated target, correct
{t<200-1500>221;222}. {201}

Bin 3
Response to related target, incorrect
{t<200-1500>211;212}. {202}

Bin 4
Response to unrelated target, incorrect
{t<200-1500>221;222}. {202}
```

# ERPLAB

Extract bin-based epochs





# ERPLAB

Extract bin-based epochs

Dataset info -- pop\_newset()

What do you want to do with the new dataset?

Name it:

☐ Save it as file:

Some changes have not been saved. What do you want to do with the old dataset?

☐ Overwrite it in memory (set=yes; unset=create a new dataset)

☐ Save it as file:

EEGLAB v2024.0

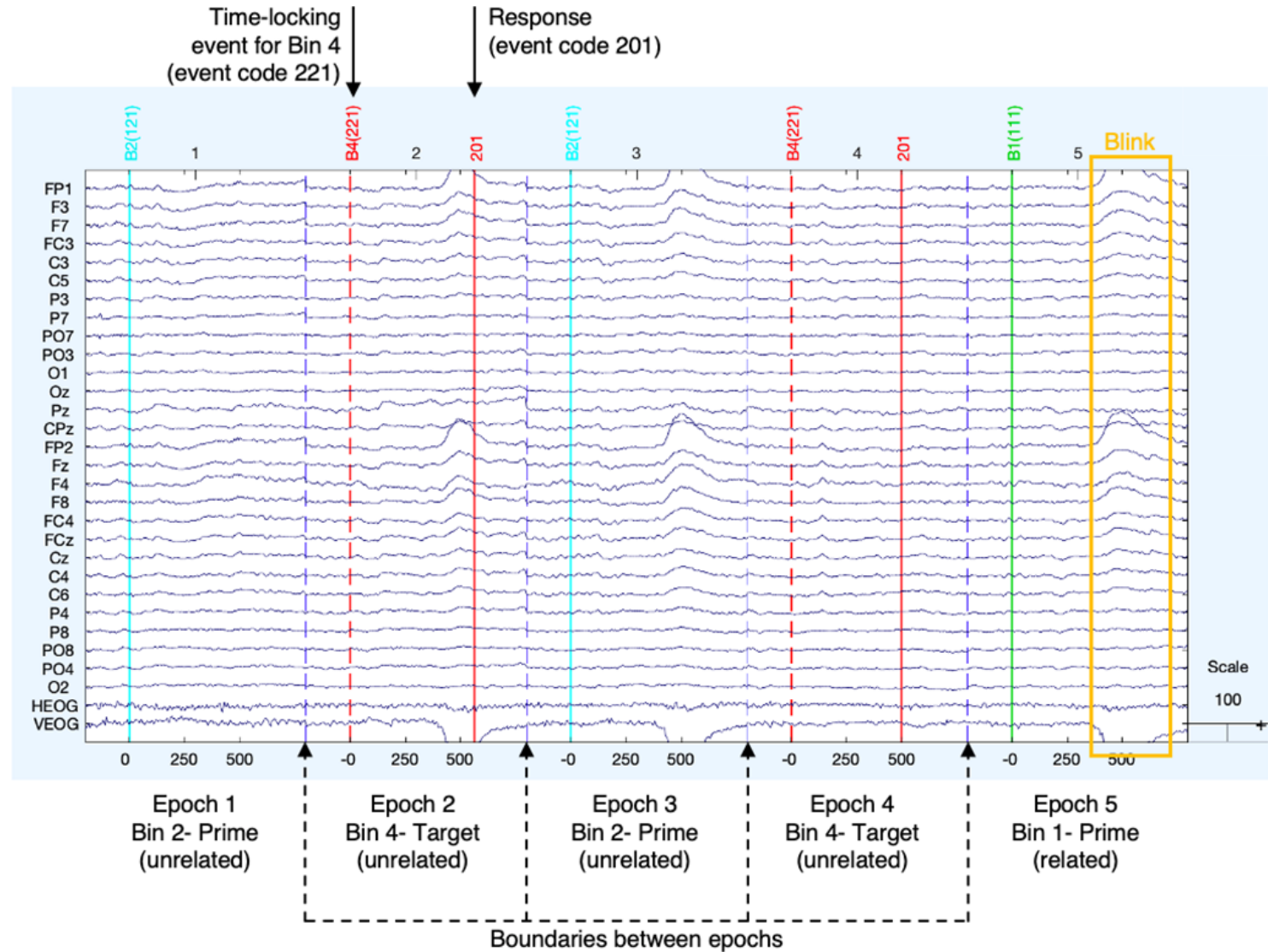
File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

#5: 6\_N400\_preprocessed\_elist\_bi...

Filename:	none
Channels per frame	30
Frames per epoch	200
Epochs	231
Events	341
Sampling rate (Hz)	200
Epoch start (sec)	-0.200
Epoch end (sec)	0.795
Reference	unknown
Channel locations	Yes
ICA weights	Yes
Dataset size (Mb)	11.6

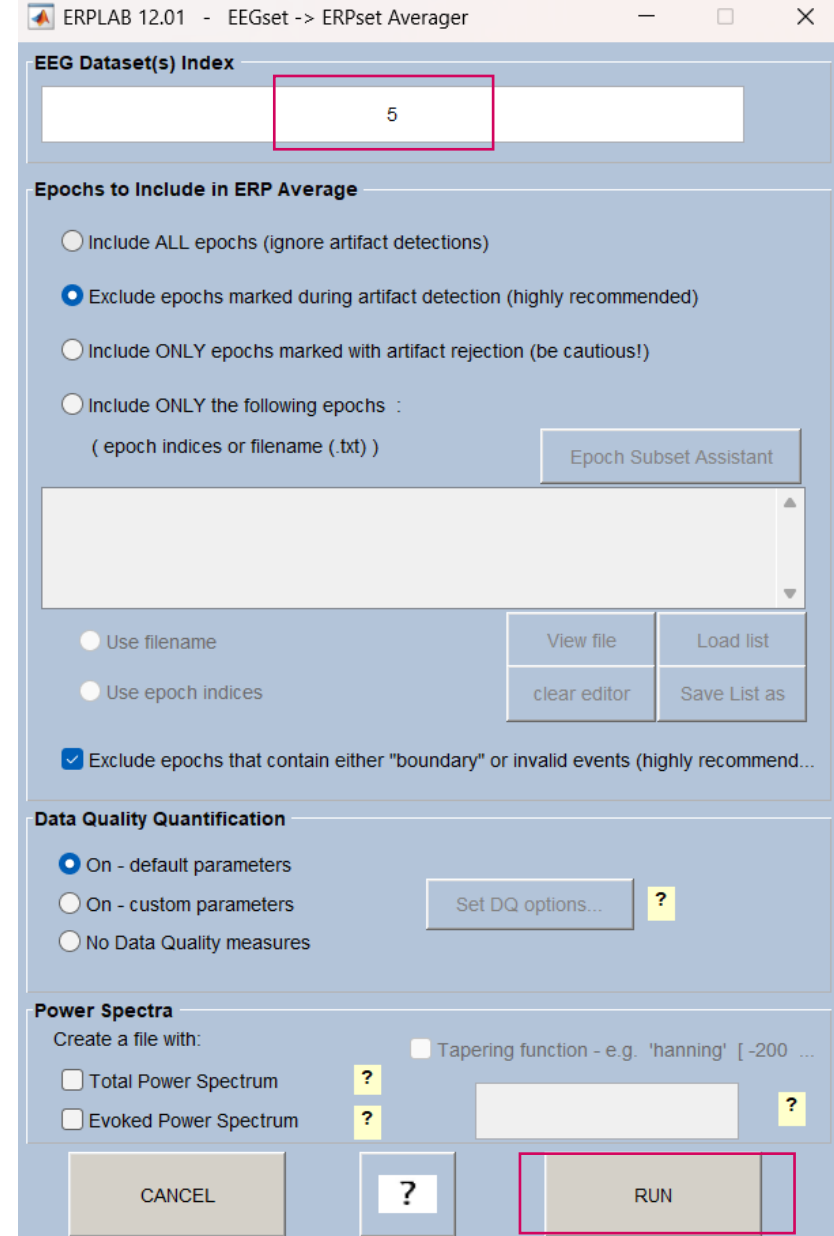
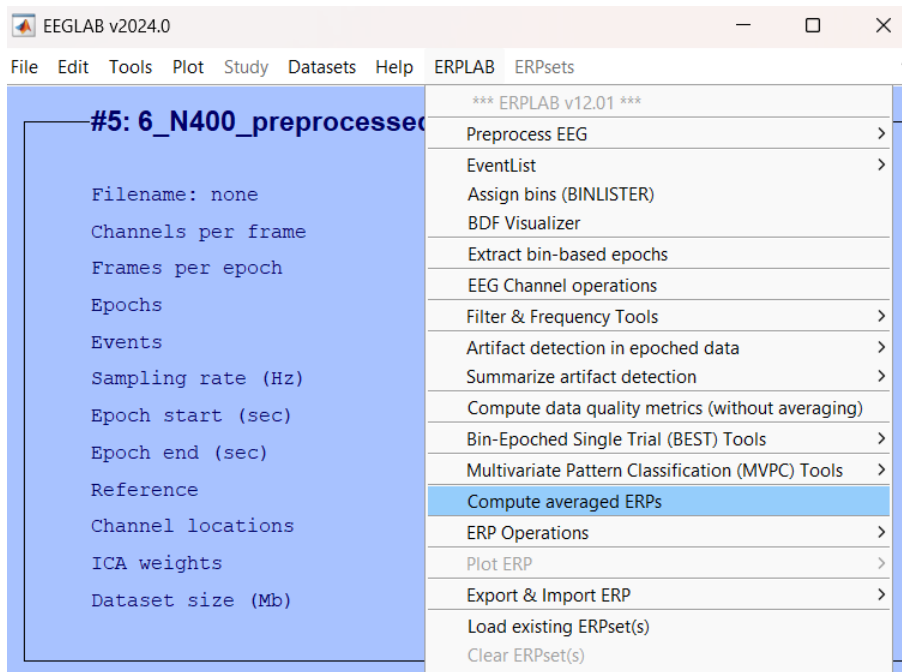
# ERPLAB

Extract bin-based epochs



# ERPLAB

Extract bin-based epochs



# ERPLAB

Extract bin-based epochs

ERPLAB 12.01 - Save Erpset GUI

You are creating a new erpset

What would you like to do with it?

☐ Overwrite in memory

☒ Create a new erpset # 1

same as filename

ername 6\_N400

Optional

☒ Save ERP as

Browse

C:\Users\Parisa\Documents\MATLAB\6\_N400.erp

same as erpname

Cancel OK

EEGLAB v2024.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

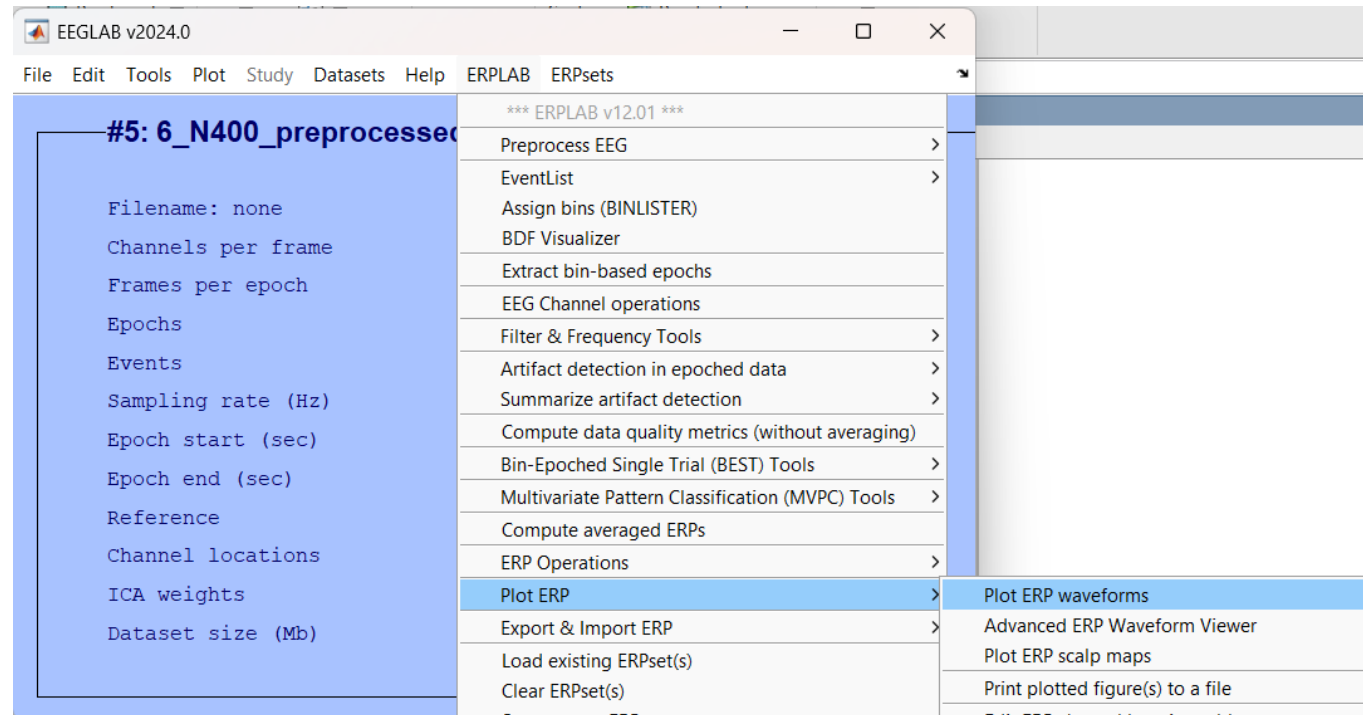
Erpset 1: 6\_N400

#5: 6\_N400\_preprocessed\_elist\_p...

Filename:	none
Channels per frame	30
Frames per epoch	200
Epochs	231
Events	341
Sampling rate (Hz)	200
Epoch start (sec)	-0.200
Epoch end (sec)	0.795
Reference	unknown
Channel locations	Yes
ICA weights	Yes
Dataset size (Mb)	11.6

# ERPLAB

## Plot ERP



# ERPLAB

## Plot ERP

ERPLAB 12.01 - ERP Plotting GUI - 6\_N400

**Bins to plot**

☒ include number of bin in legends

☐ all bins

Browse

3 4

**Scales**

Time range (min max, in ms)

-200.0 795.0

time ticks

☒ auto time-ticks

Y range (min max, e.g. -10 20)

-13.7580 7.3369

Y ticks

☒ auto Y-ticks

☒ auto Y-scale

☐ show standard error x 0

transparency 0

positive is up

LINE SPEC

**Channels to plot**

☐ show number of channel instead of label

☒ all channels

Browse

1:30

☐ include MGFP from these channels: same

**Baseline Correction (only for plotting purpose)**

☐ None ☐ Post ☐ Custom (min max, in ms)

☒ Pre ☐ Whole

-200.0 0

**Style**

Classic ERP

w 0.050

h 0.080

☒ maximize figure

**Legend pos**

bottom

**Background**

White

**Set Font Size**

Channel(s) 10

Legend(s) 12

Axis tick labels 10

**Set frame(s)**

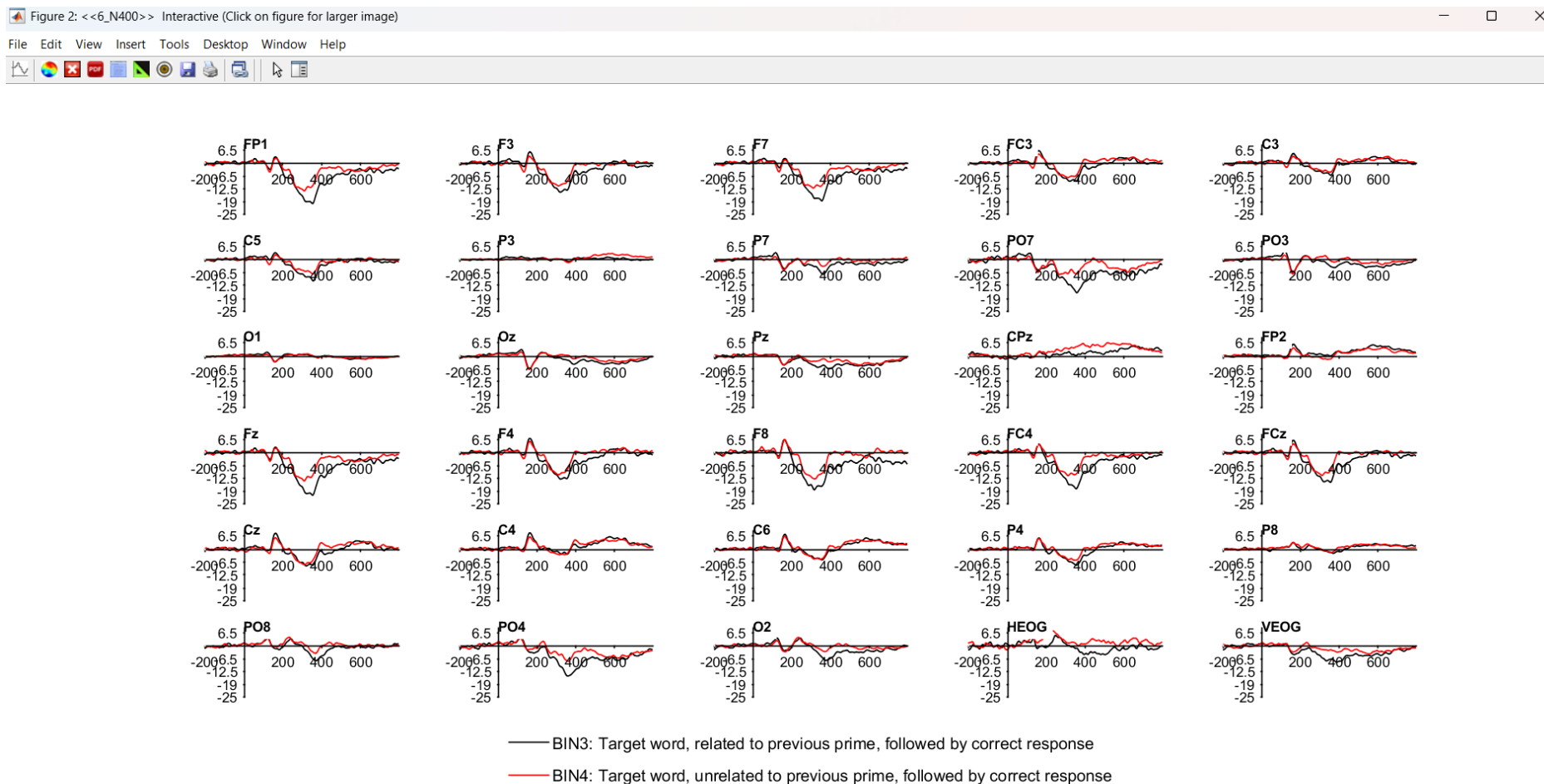
Row(s) 6

Column(s) 5

CANCEL Close Figures RESET ? Scalp map PLOT

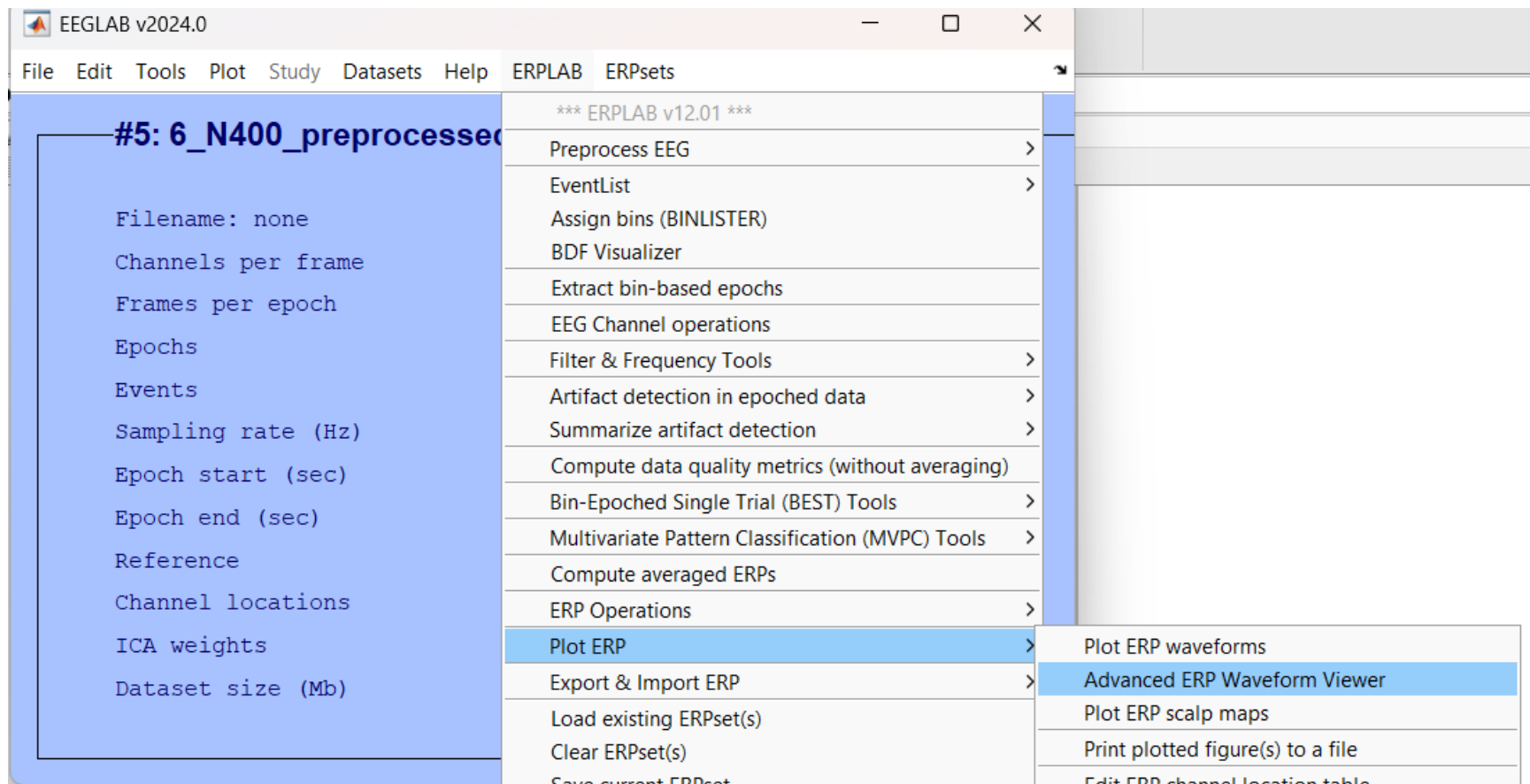
# ERPLAB

## Plot ERP



# ERPLAB

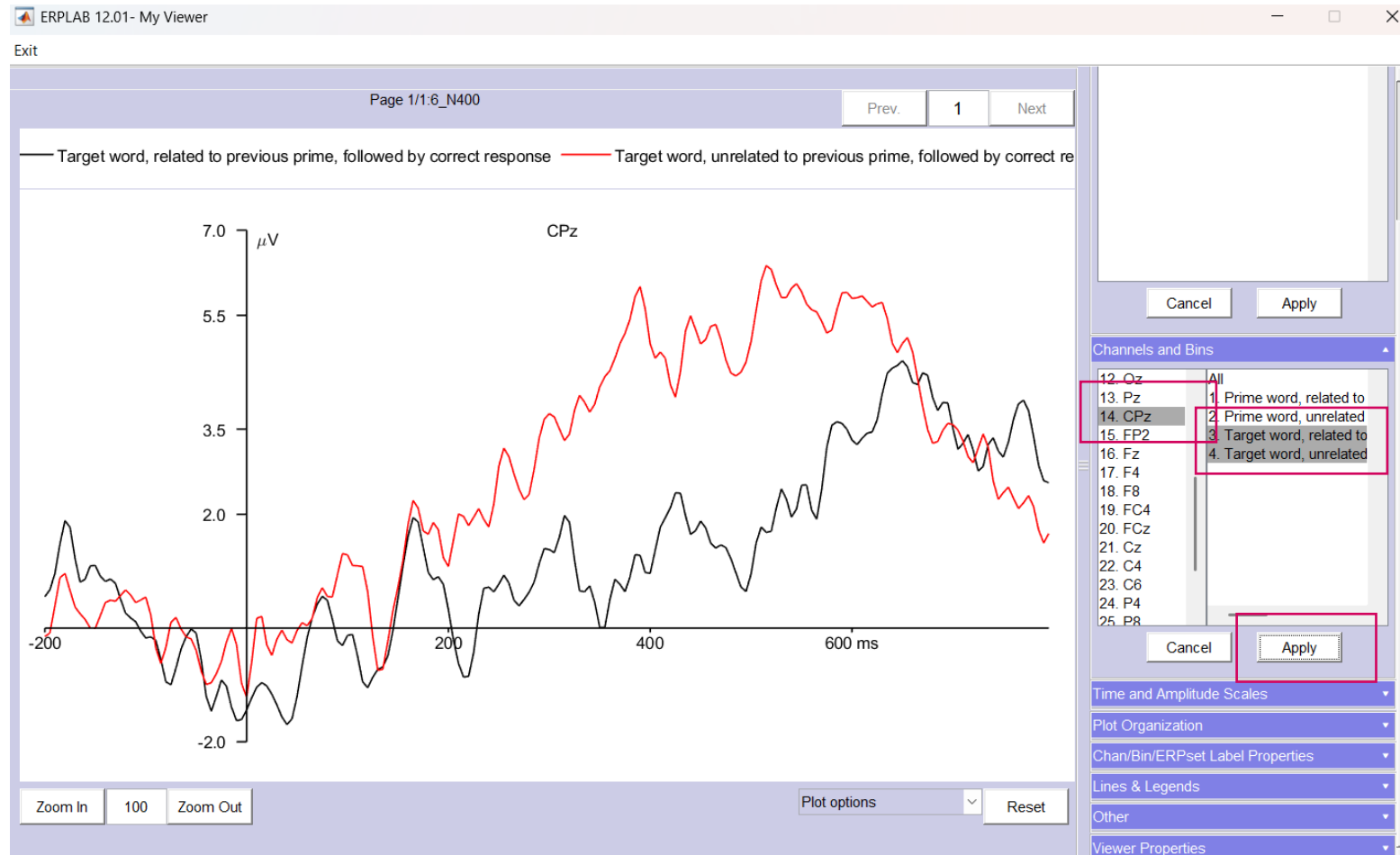
## Plot ERP





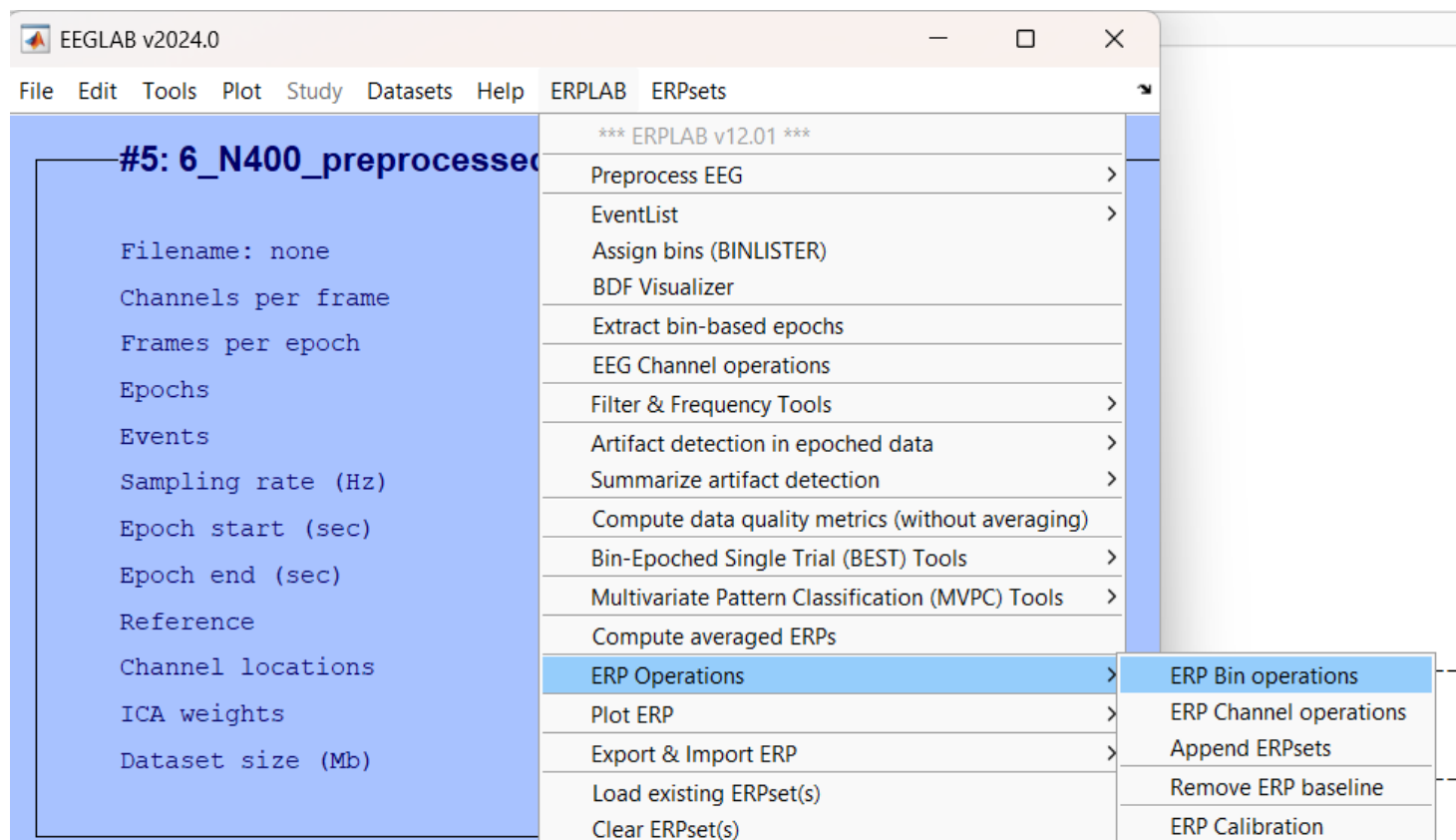
# ERPLAB

## Plot ERP



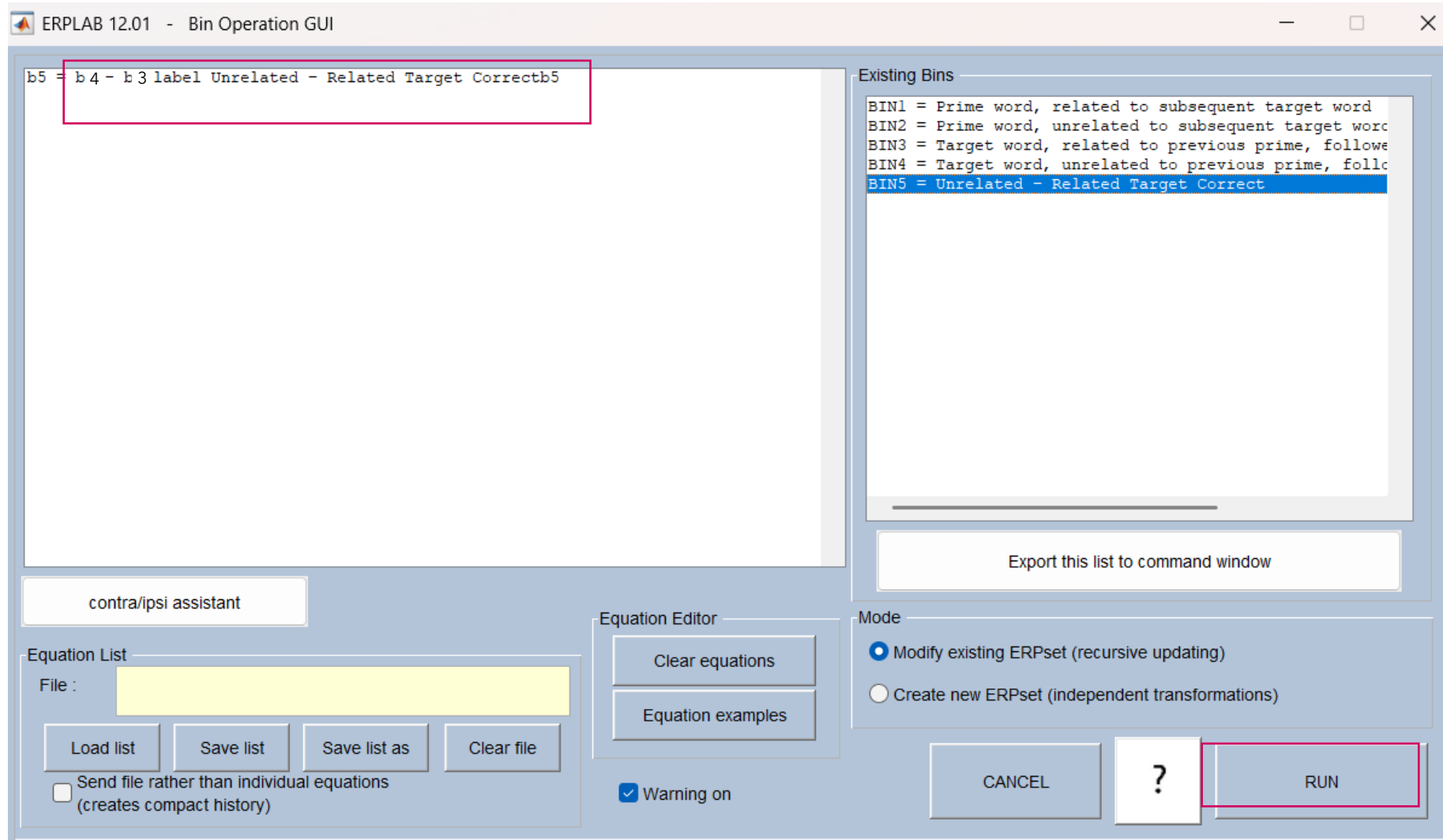
# ERPLAB

## ERP operations



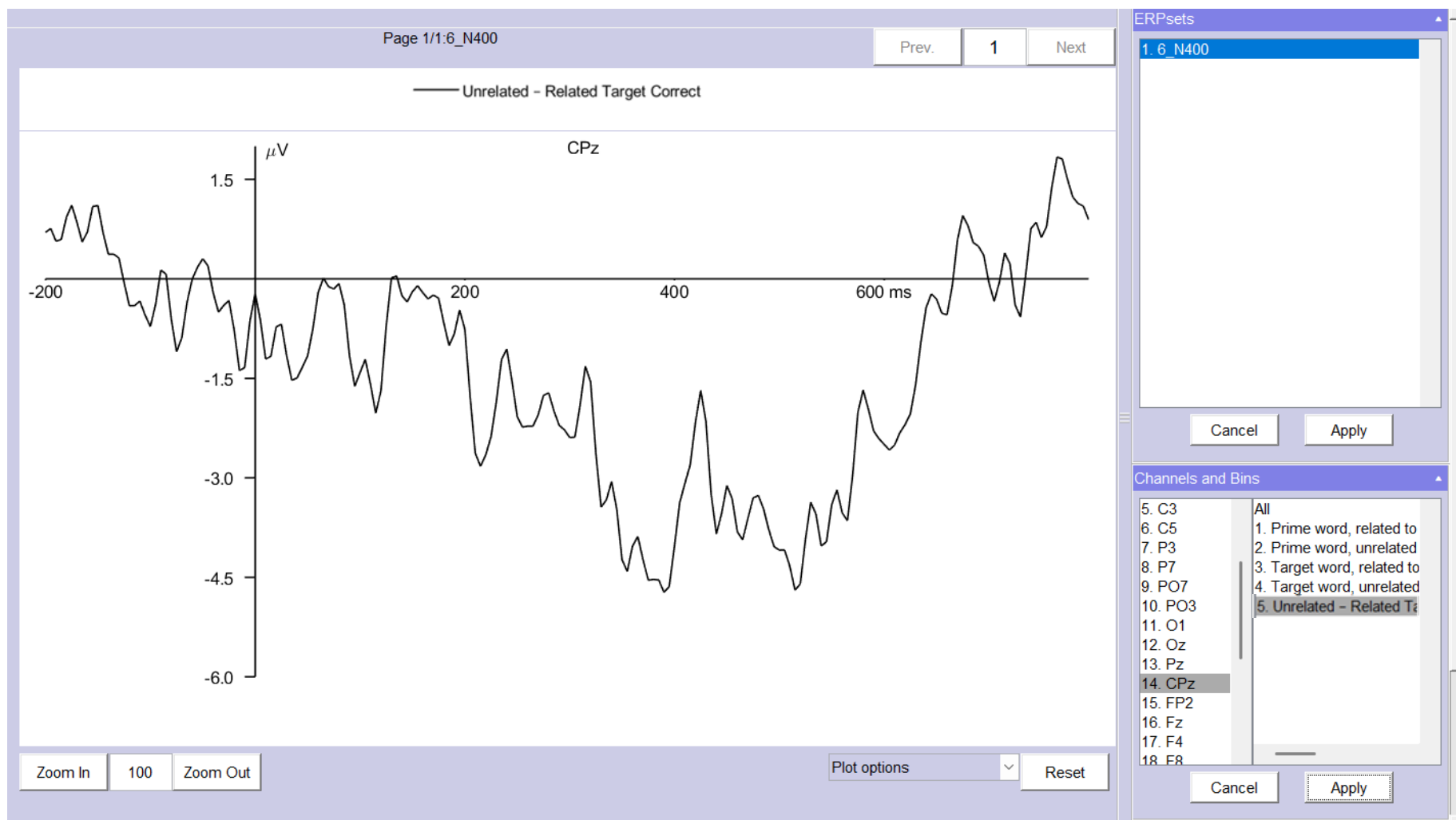
# ERPLAB

## ERP operations



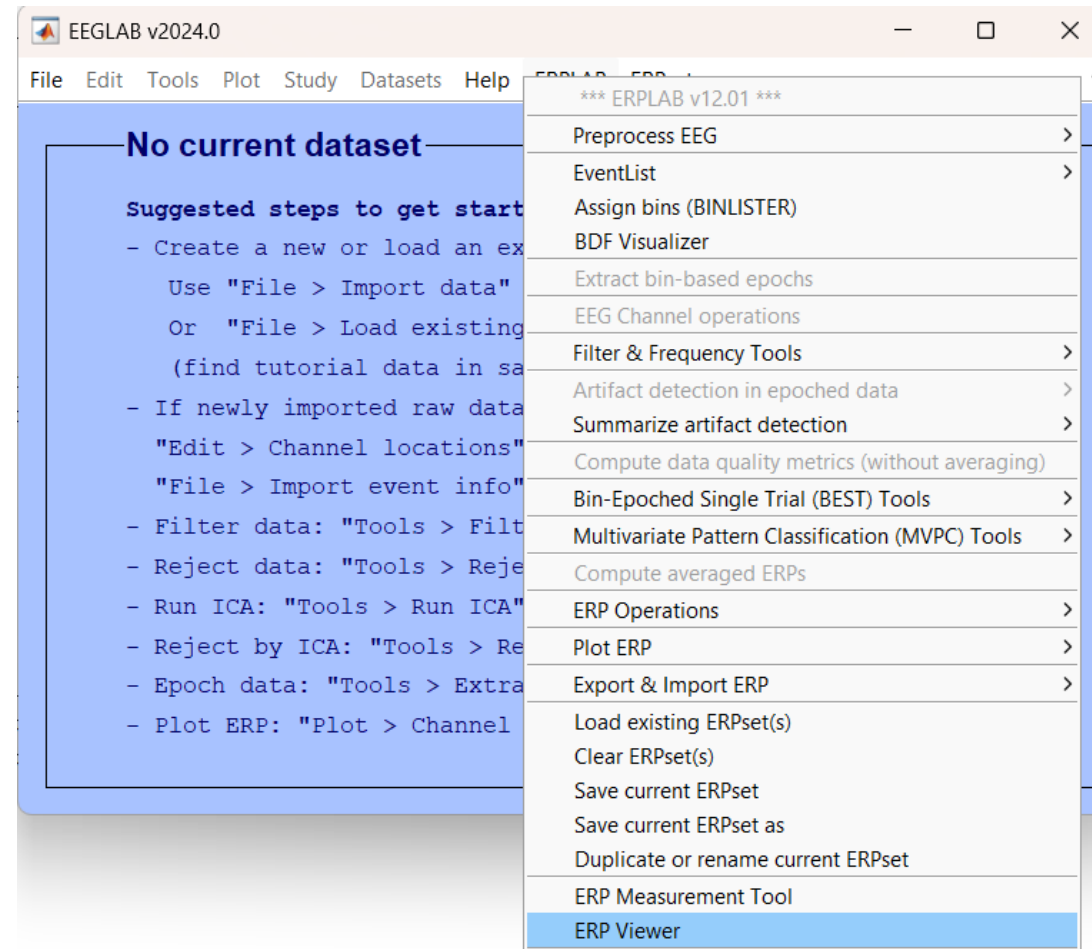
# ERPLAB

## Plot ERP



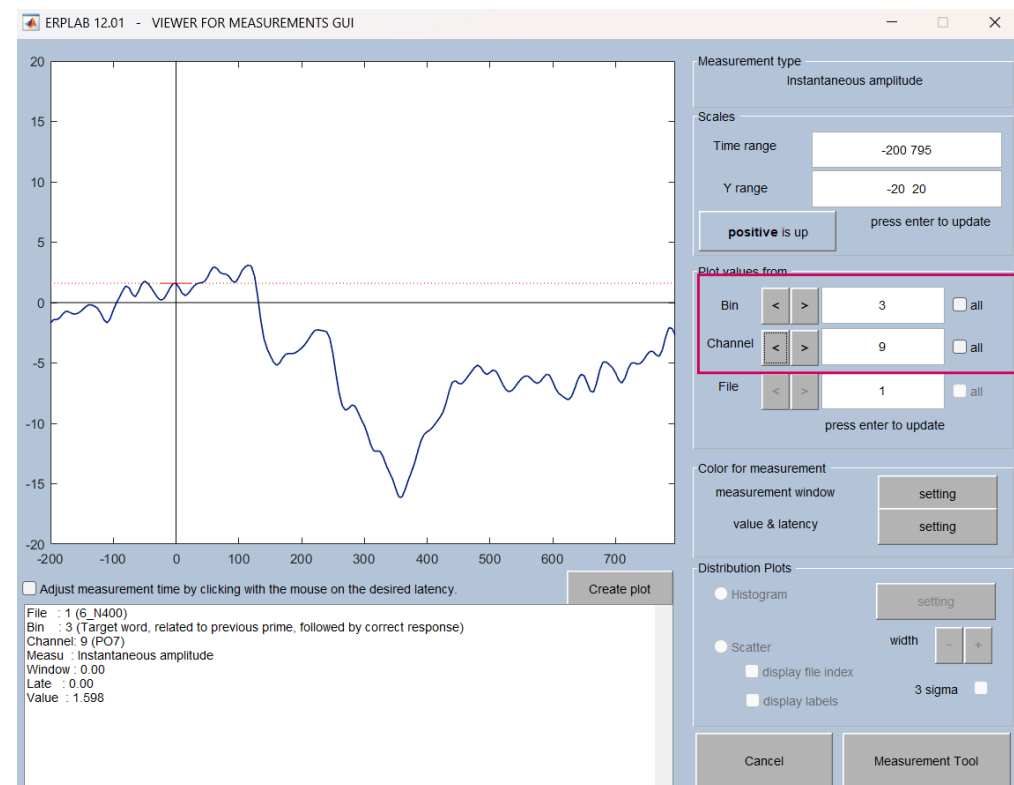
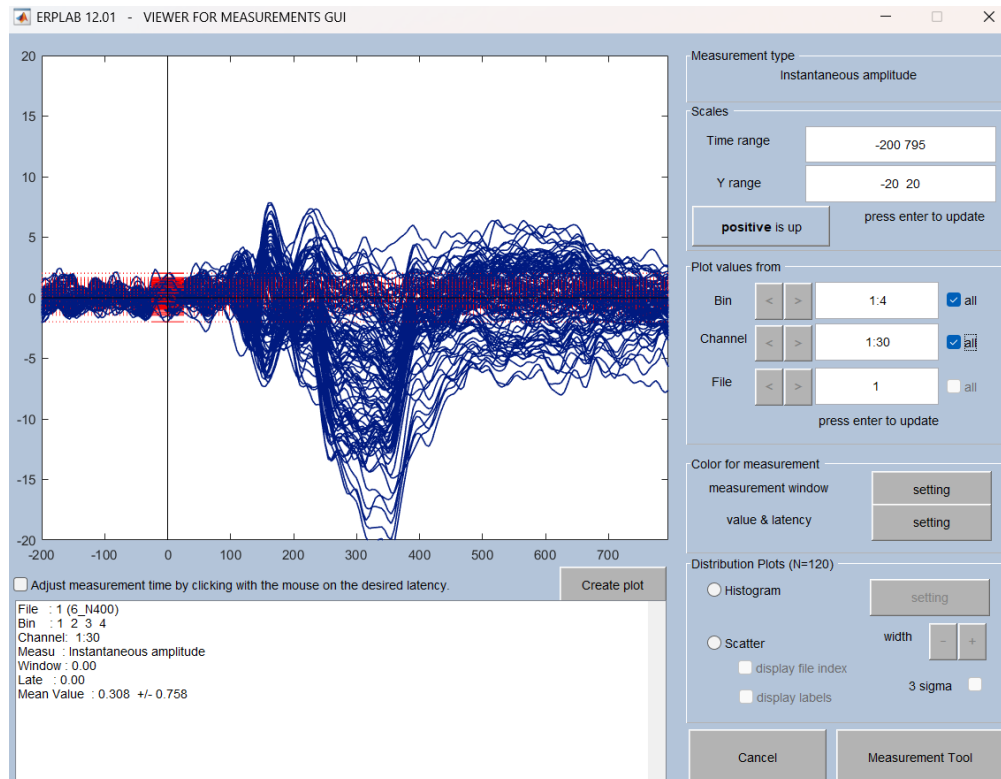
# ERPLAB

## ERP viewer



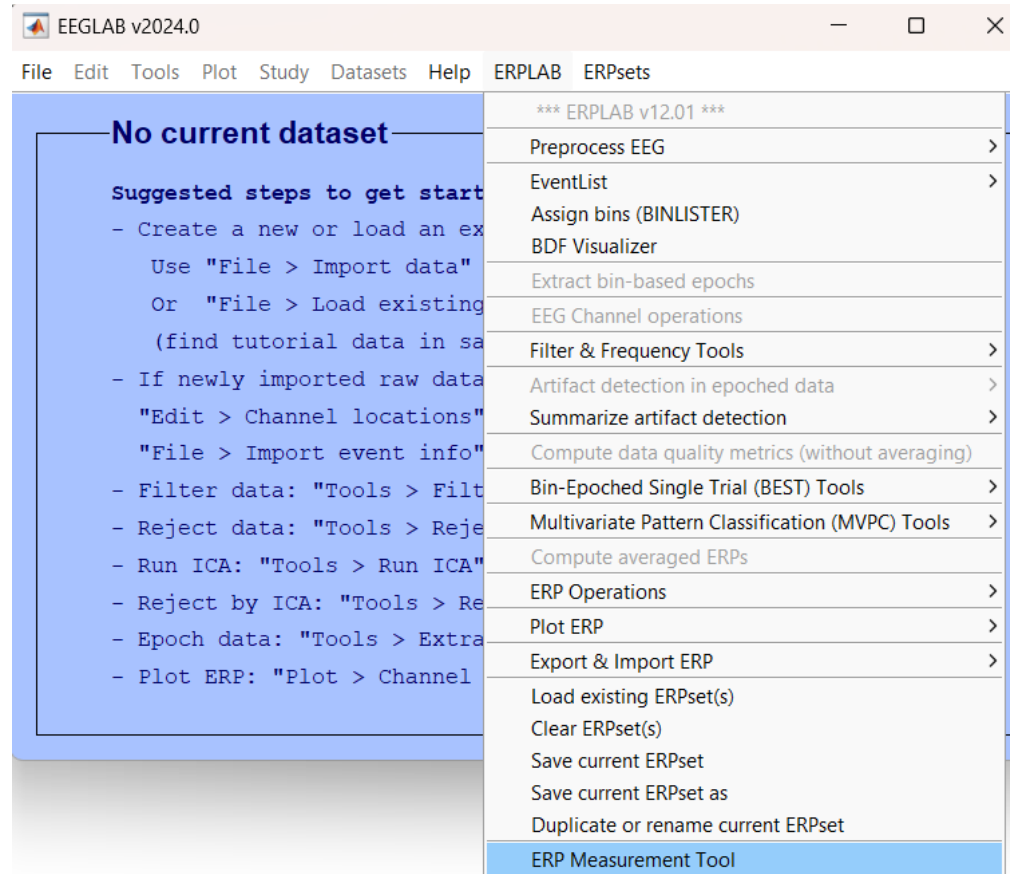
# ERPLAB

## ERP viewer



# ERPLAB

## ERP measurement tool



# ERPLAB

## ERP measurement tool

ERPLAB 12.01 - ERP Measurements GUI - Mean amplitude between two fixed latencies

ERPsets must have the same amount of bins and channels.

☐ Current ERPset

☒ From ERPset Menu

☐ From ERPset files

new erpset

Measurement

Typ **Mean amplitude between two fixed latencies**

Find a local peak that is **Positive** over **5** pnts (25.0 ms)

(pre-peak) onset at % of

If the requested fraction is not found, use "not a number" (NaN)

If no local peak is found, **absolute peak**

Rectified area (negative values beco...)

Interpolation Factor **1**

Measure's label (optional)

Bin(s) & Channel(s)

Bin

Channel

Measurement window  ms (use two latencies)

Baseline period **Pre**

Precision **3** # decimals

Save output file as

☐ One ERPset per line (wide format)

☐ Include actual measurement window ☐ Send values to Workspace

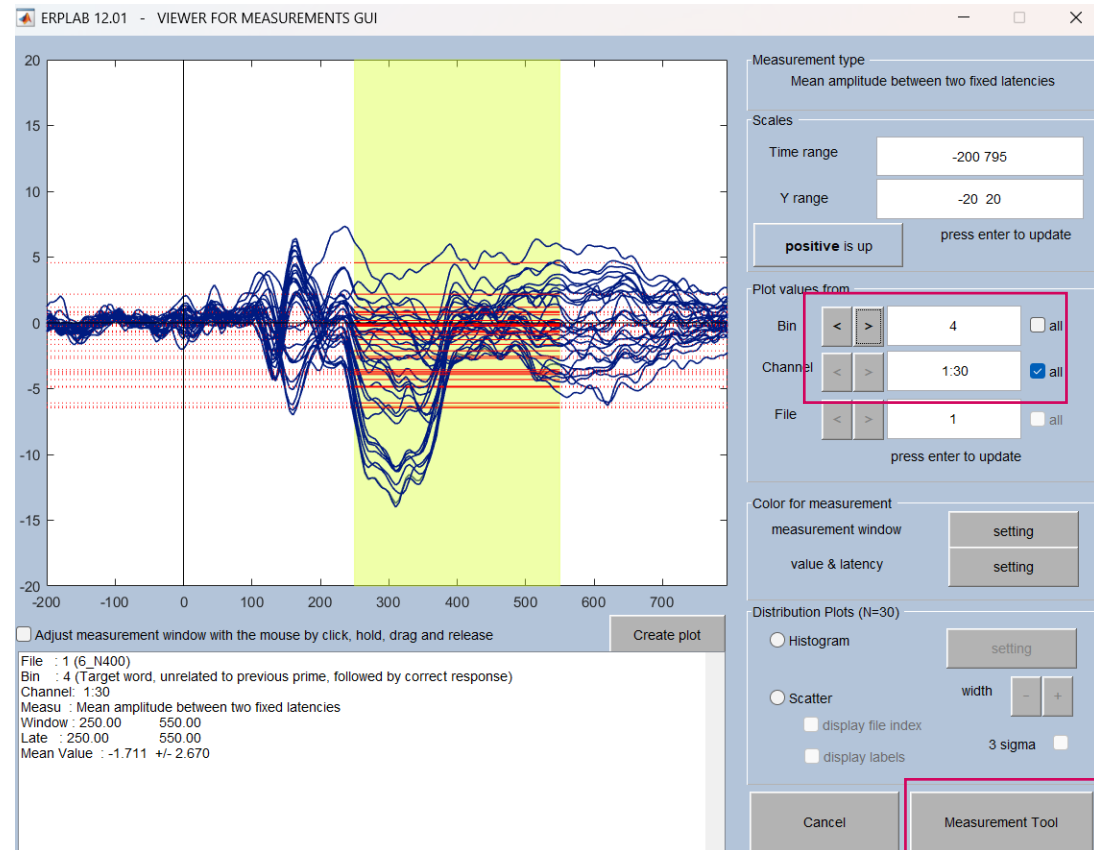
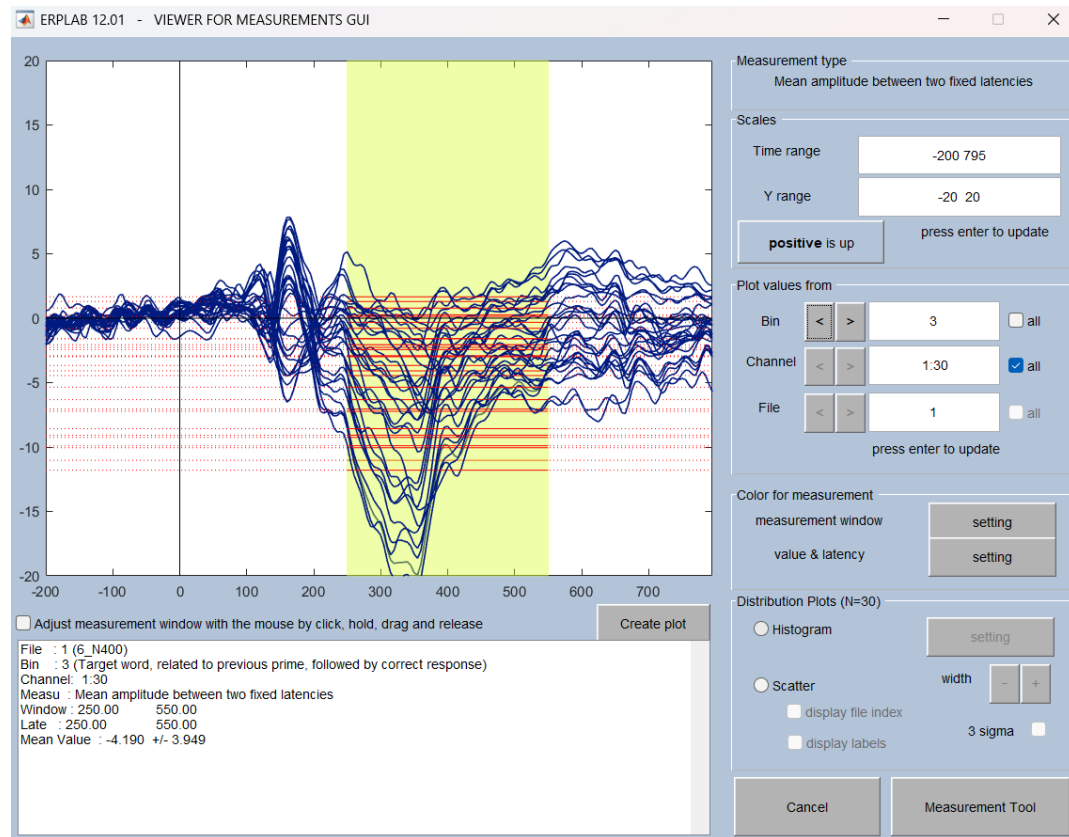
☒ Include bin label as well as bin index

Long format



# ERPLAB

## ERP measurement tool



# ERPLAB

## ERP measurement tool

```
6_N400_mean_amp.txt
File Edit View H1 B I G A
value chindex chlabel bini binlabel ERPset
-11.032 1 FP1 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-7.056 2 F3 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-10.055 3 F7 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-3.670 4 FC3 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-1.603 5 C3 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-4.089 6 C5 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
0.261 7 P3 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.913 8 P7 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-9.250 9 PO7 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.058 10 PO3 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-0.323 11 O1 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.259 12 O2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-4.451 13 P2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
1.298 14 CP2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
1.662 15 FP2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-11.797 16 E2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-6.320 17 F4 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-9.904 18 F8 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-9.075 19 FC4 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-7.223 20 FC2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.991 21 C2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
0.782 22 C4 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-0.784 23 C6 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.441 24 P4 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
0.134 25 P8 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.059 26 PO8 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-8.576 27 PO4 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-2.992 28 O2 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-1.577 29 HE0G 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-5.355 30 VE0G 3 Target_word_related_to_previous_prime_followed_by_correct_response 6_N400
-6.355 1 FP1 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-4.304 2 F3 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-6.087 3 F7 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-1.636 4 FC3 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-0.609 5 C3 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-2.691 6 C5 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
0.609 7 P3 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-0.727 8 P7 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
-3.803 9 PO7 4 Target_word_unrelated_to_previous_prime_followed_by_correct_response 6_N400
```

# ERPLAB

## Data quality viewing

The screenshot displays the ERPLAB v2024.0 application window. On the left, a blue sidebar contains a 'No current dataset' message and a list of 'Suggested steps to get started', including creating or loading data, importing data, channel operations, and various analysis tools. The main menu bar includes 'File', 'Edit', 'Tools', 'Plot', 'Study', 'Datasets', 'Help', 'ERPLAB', and 'ERPsets'. The 'ERPLAB' menu is open, showing a list of functions. The 'Data Quality viewing (ERPs only)' option is highlighted, which has opened a sub-menu. This sub-menu contains four options: 'Show Data Quality measures in table', 'Summarize Data Quality (min, median, max)', 'Save Data Quality measures to file', and 'Show which Data Quality measures are in each loaded ERPSET'.

ERPLAB v2024.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

**No current dataset**

**Suggested steps to get started**

- Create a new or load an existing dataset
- Use "File > Import data"
- Or "File > Load existing dataset" (find tutorial data in sample directory)
- If newly imported raw data, use "Edit > Channel locations"
- "File > Import event info"
- Filter data: "Tools > Filter"
- Reject data: "Tools > Reject"
- Run ICA: "Tools > Run ICA"
- Reject by ICA: "Tools > Reject by ICA"
- Epoch data: "Tools > Extra Epochs"
- Plot ERP: "Plot > Channel ERP"

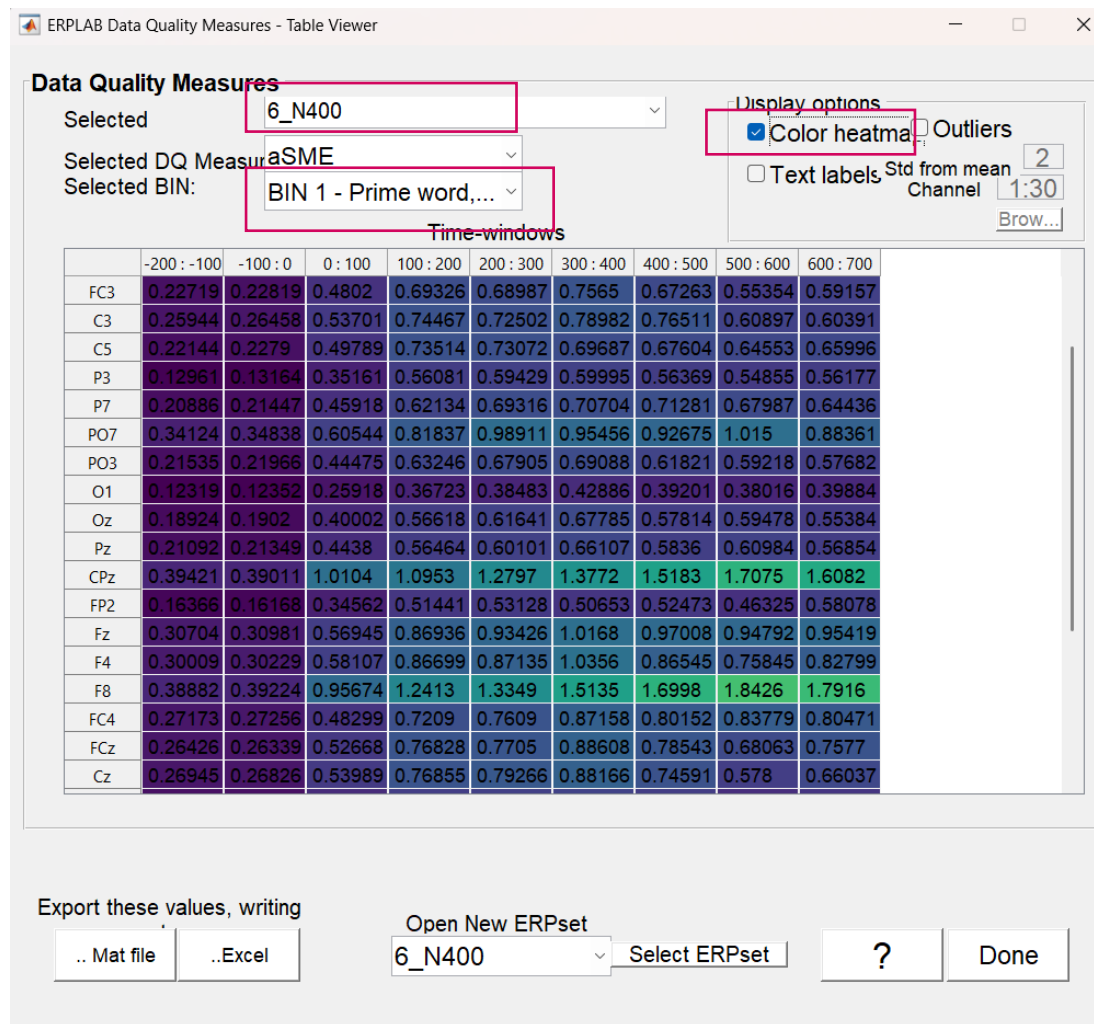
\*\*\* ERPLAB v12.01 \*\*\*

- Preprocess EEG
- EventList
- Assign bins (BINLISTER)
- BDF Visualizer
- Extract bin-based epochs
- EEG Channel operations
- Filter & Frequency Tools
- Artifact detection in epoched data
- Summarize artifact detection
- Compute data quality metrics (without averaging)
- Bin-Epoched Single Trial (BEST) Tools
- Multivariate Pattern Classification (MVPC) Tools
- Compute averaged ERPs
- ERP Operations
- Plot ERP
- Export & Import ERP
- Load existing ERPset(s)
- Clear ERPset(s)
- Save current ERPset
- Save current ERPset as
- Duplicate or rename current ERPset
- ERP Measurement Tool
- ERP Viewer
- Average across ERPsets (Grand Average)
- Create Artificial ERP Waveform
- Datatype Transformations
- Data Quality viewing (ERPs only)**
- Utilities
- Settings
- Help

- Show Data Quality measures in table
- Summarize Data Quality (min, median, max)
- Save Data Quality measures to file
- Show which Data Quality measures are in each loaded ERPSET

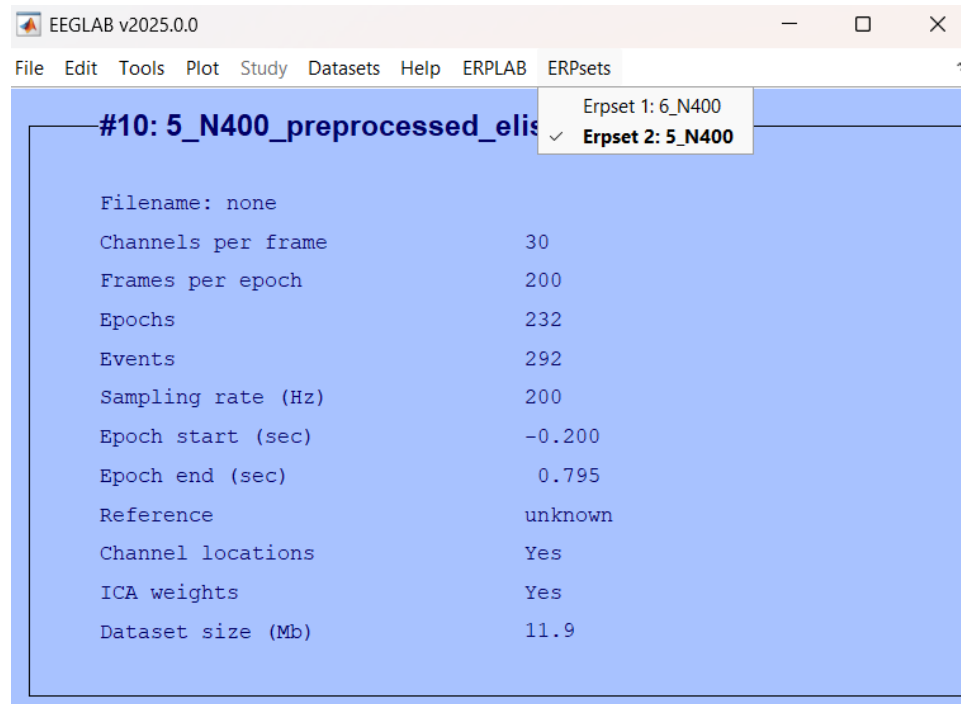
# ERPLAB

## Data quality viewing



# ERPLAB

Average across ERPsets (Grand Average)



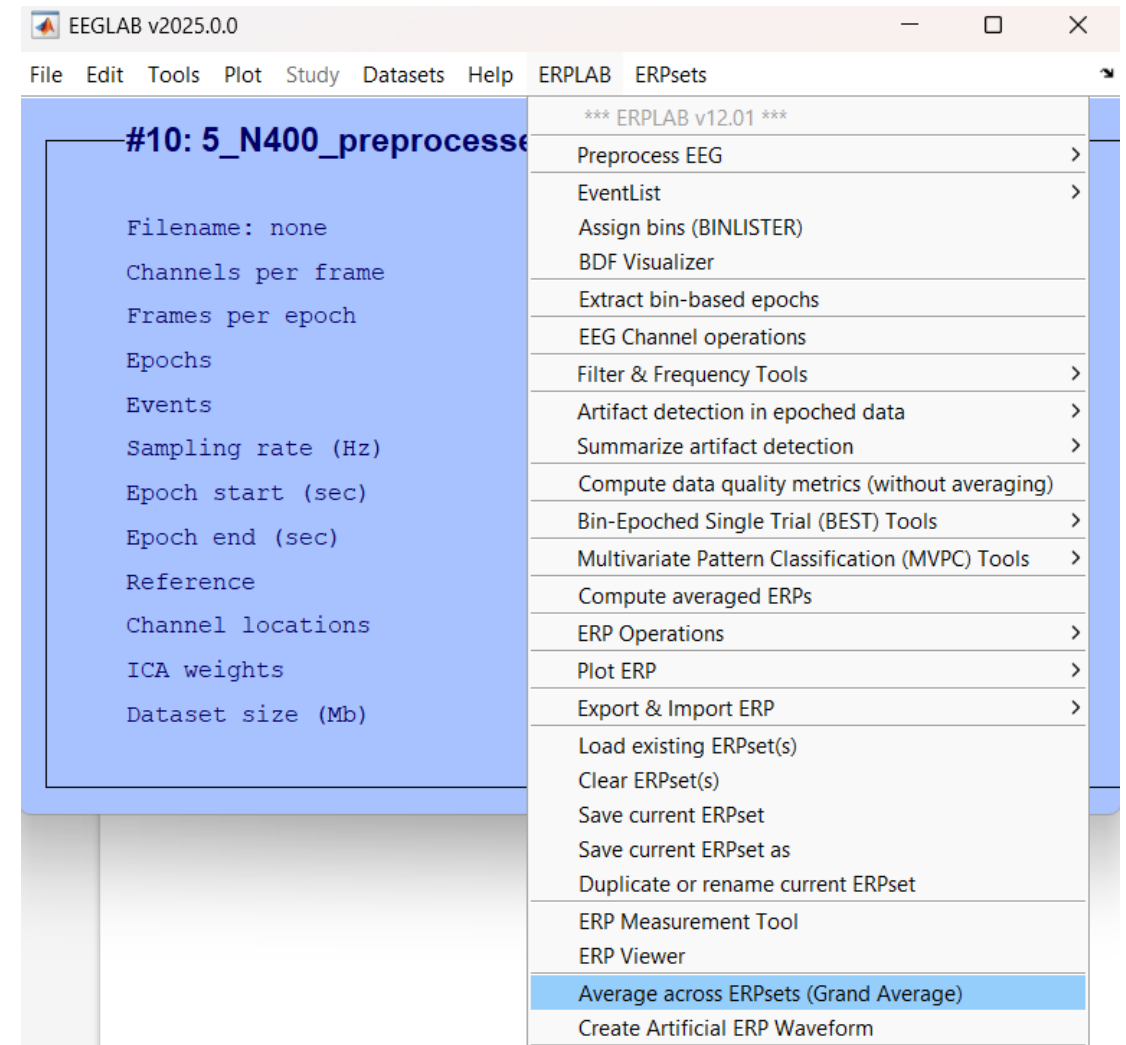
EEGLAB v2025.0.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

**#10: 5\_N400\_preprocessed\_elis**

Erpset 1: 6\_N400  
✓ Erpset 2: 5\_N400

Filename:	none
Channels per frame	30
Frames per epoch	200
Epochs	232
Events	292
Sampling rate (Hz)	200
Epoch start (sec)	-0.200
Epoch end (sec)	0.795
Reference	unknown
Channel locations	Yes
ICA weights	Yes
Dataset size (Mb)	11.9



EEGLAB v2025.0.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

**#10: 5\_N400\_preprocessed\_elis**

Filename: none

Channels per frame

Frames per epoch

Epochs

Events

Sampling rate (Hz)

Epoch start (sec)

Epoch end (sec)

Reference

Channel locations

ICA weights

Dataset size (Mb)

\*\*\* ERPLAB v12.01 \*\*\*

- Preprocess EEG >
- EventList >
- Assign bins (BINLISTER)
- BDF Visualizer
- Extract bin-based epochs
- EEG Channel operations
- Filter & Frequency Tools >
- Artifact detection in epoched data >
- Summarize artifact detection >
- Compute data quality metrics (without averaging)
- Bin-Epoched Single Trial (BEST) Tools >
- Multivariate Pattern Classification (MVPC) Tools >
- Compute averaged ERPs
- ERP Operations >
- Plot ERP >
- Export & Import ERP >
- Load existing ERPset(s)
- Clear ERPset(s)
- Save current ERPset
- Save current ERPset as
- Duplicate or rename current ERPset
- ERP Measurement Tool
- ERP Viewer
- Average across ERPsets (Grand Average)**
- Create Artificial ERP Waveform

# ERPLAB

Average across ERPsets  
(Grand Average)

ERPLAB 12.01 - GRAND AVERAGER GUI

☒ From ERPset in the ERPset Menu

☐ From ERPset files

Load List Save List Save List as Clear File Remove Erpset Add Erpset

Optional

☐ Use weighted average based on number of trials

☒ Exclude any null bin from non-weighted averaging (recommended)

☐ Include Jackknife subaverages (creates multiple ERPsets)

☐ Warn me about any subjects who exceed the epoch rejection threshold -  %

☒ Compute point-by-point standard error of the mean

☒ Combine Data Quality measure... ☒ defaults ☐ custom combo

Set custom DQ combo

CANCEL ? RUN

# ERPLAB

Average across ERPsets (Grand Average)

ERPLAB 12.01 - Save Erpset GUI

Your active erpset is # 2

What would you like to do with it?

☐ Overwrite in memory erpset # 2

☒ Create a new erpset # 3

same as filename

ername

Optional

☒ Save ERP as

same as erpname

EEGLAB v2025.0.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

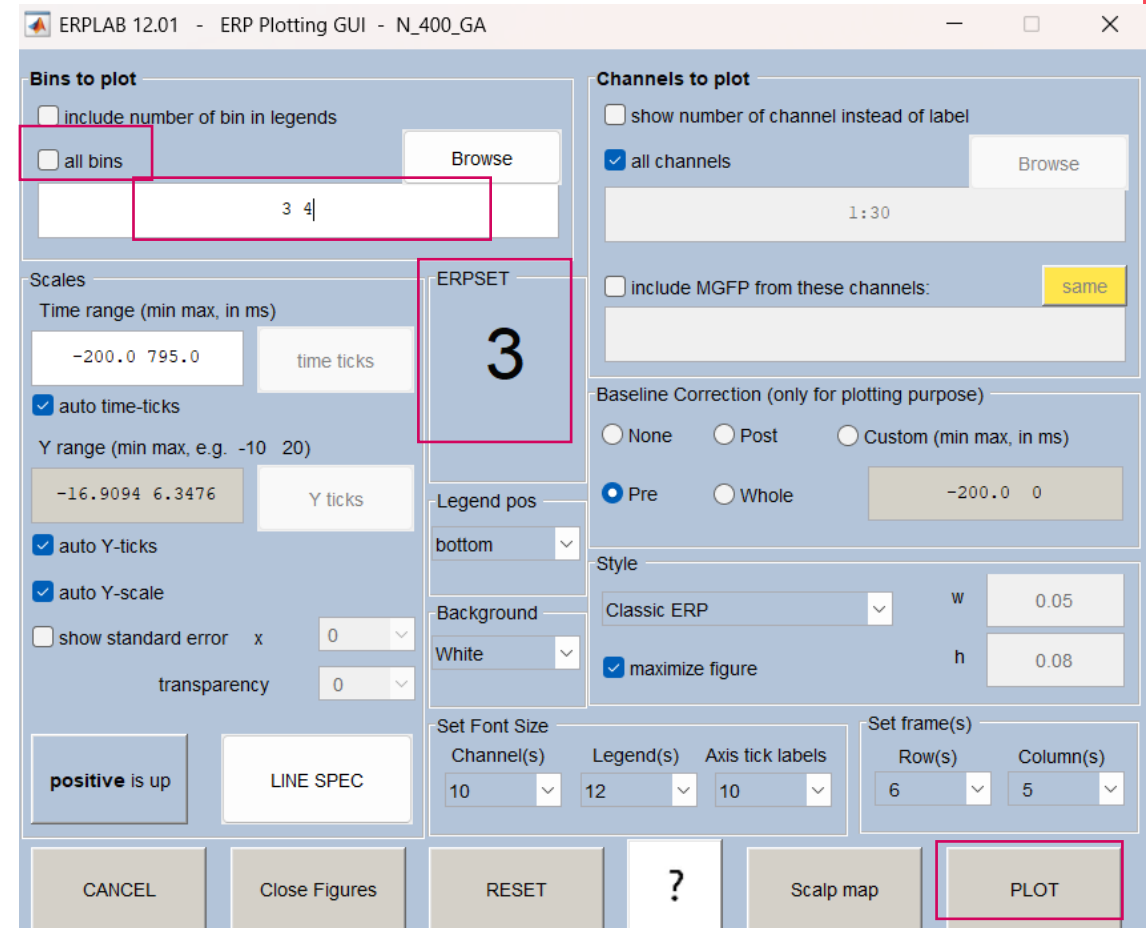
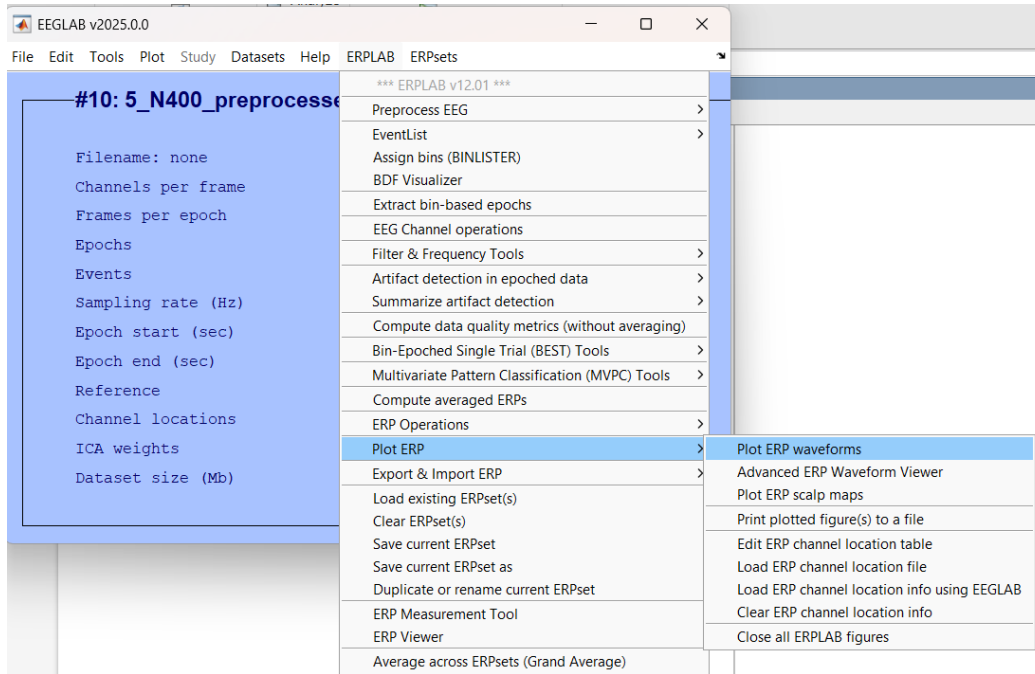
#10: 5\_N400\_preprocessed\_elis

Erpset 1: 6\_N400  
Erpset 2: 5\_N400  
✓ Erpset 3: N\_400\_GA

Filename:	none
Channels per frame	30
Frames per epoch	200
Epochs	232
Events	292
Sampling rate (Hz)	200
Epoch start (sec)	-0.200
Epoch end (sec)	0.795
Reference	unknown
Channel locations	Yes
ICA weights	Yes
Dataset size (Mb)	11.9

# ERPLAB

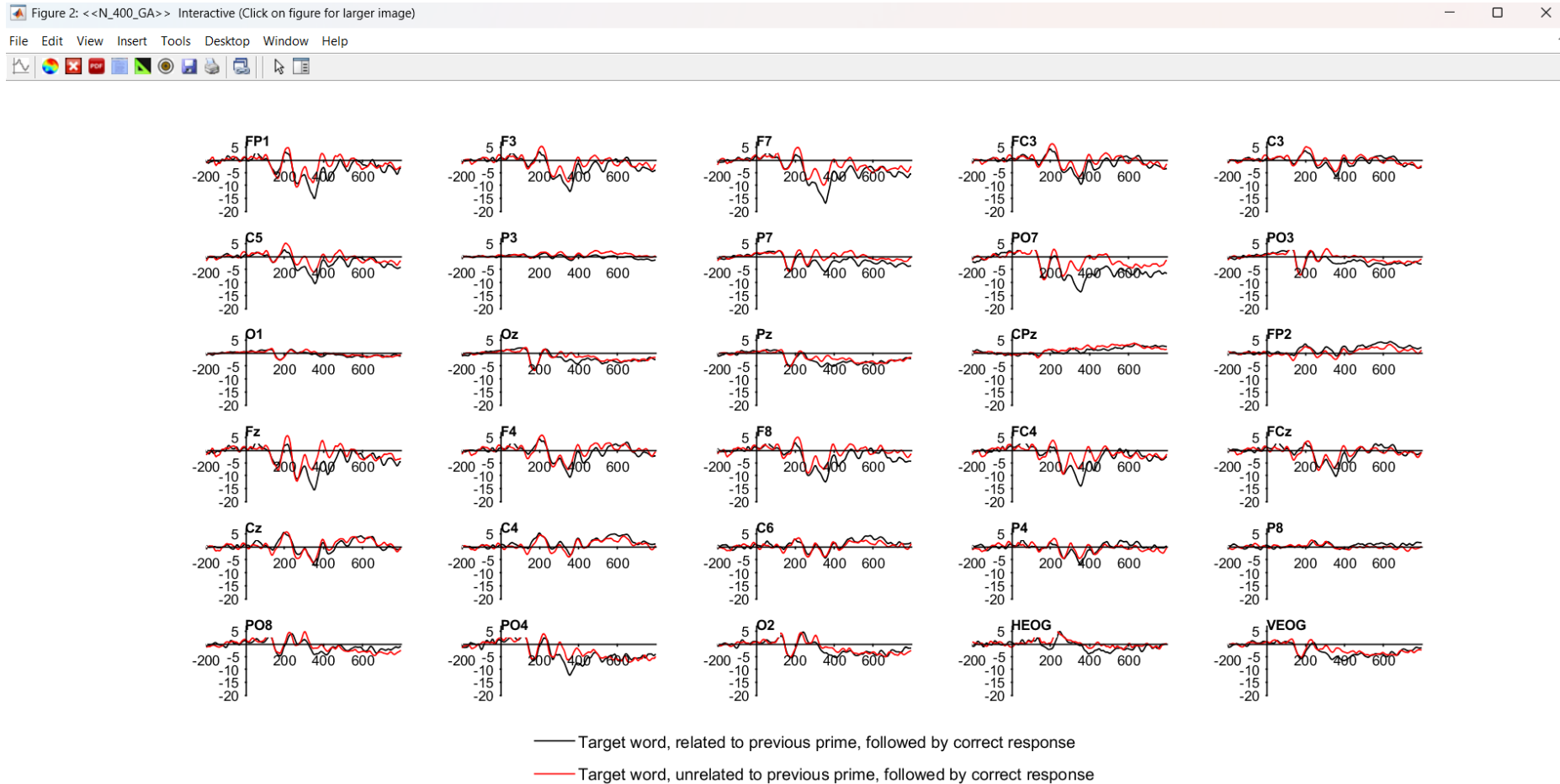
## Average across ERPsets (Grand Average)





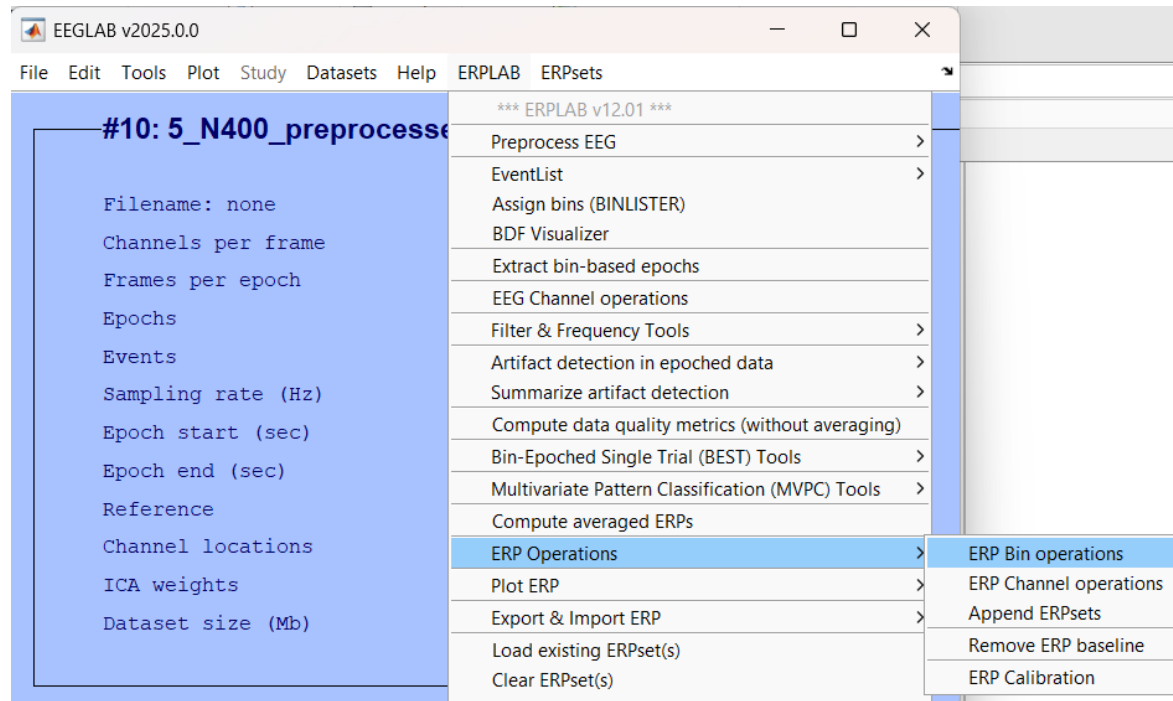
# ERPLAB

## Average across ERPsets (Grand Average)



# ERPLAB

Average across ERPsets (Grand Average)



# ERPLAB

Average across ERPsets (Grand Average)

ERPLAB 12.01 - Bin Operation GUI

b5 = b4 - b3 label Unrelated - Related Target Correctb5

Existing Bins

- BIN1 = Prime word, related to subsequent target word
- BIN2 = Prime word, unrelated to subsequent target word
- BIN3 = Target word, related to previous prime, followe
- BIN4 = Target word, unrelated to previous prime, follc
- BIN5 = Unrelated - Related Target Correct

Export this list to command window

contra/ipsi assistant

Equation List

File :

Load list Save list Save list as Clear file

☐ Send file rather than individual equations (creates compact history)

Equation Editor

Clear equations

Equation examples

Mode

☒ Modify existing ERPset (recursive updating)

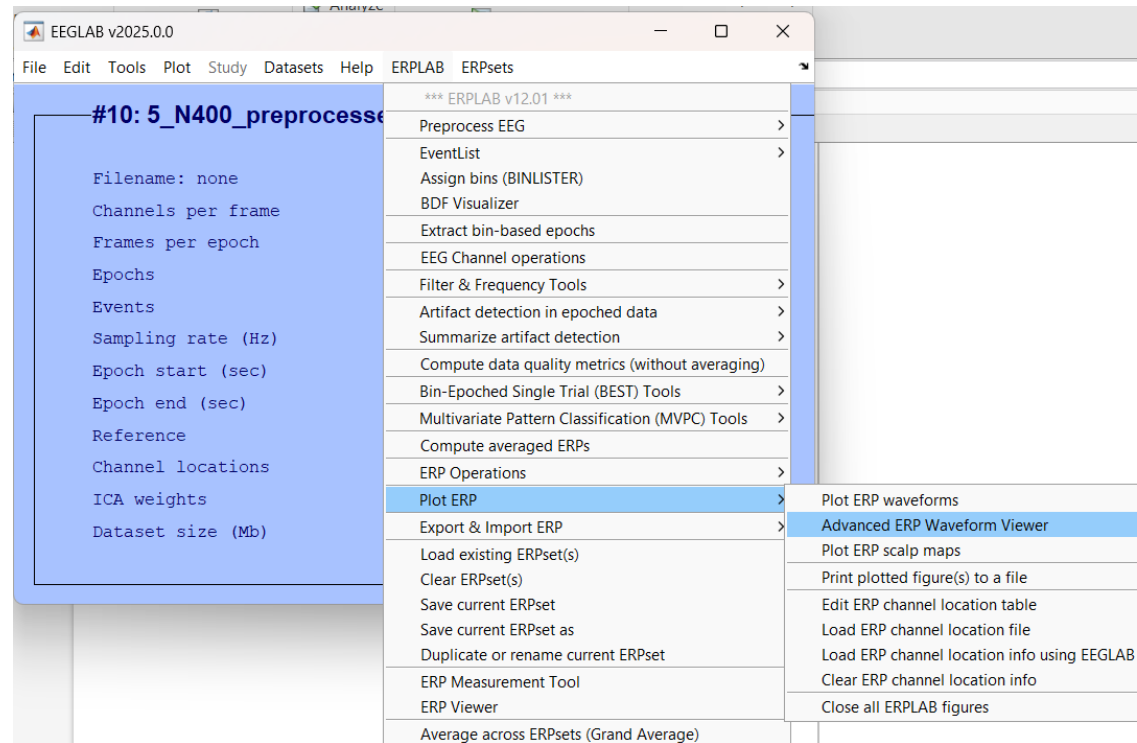
☐ Create new ERPset (independent transformations)

☒ Warning on

CANCEL ? RUN

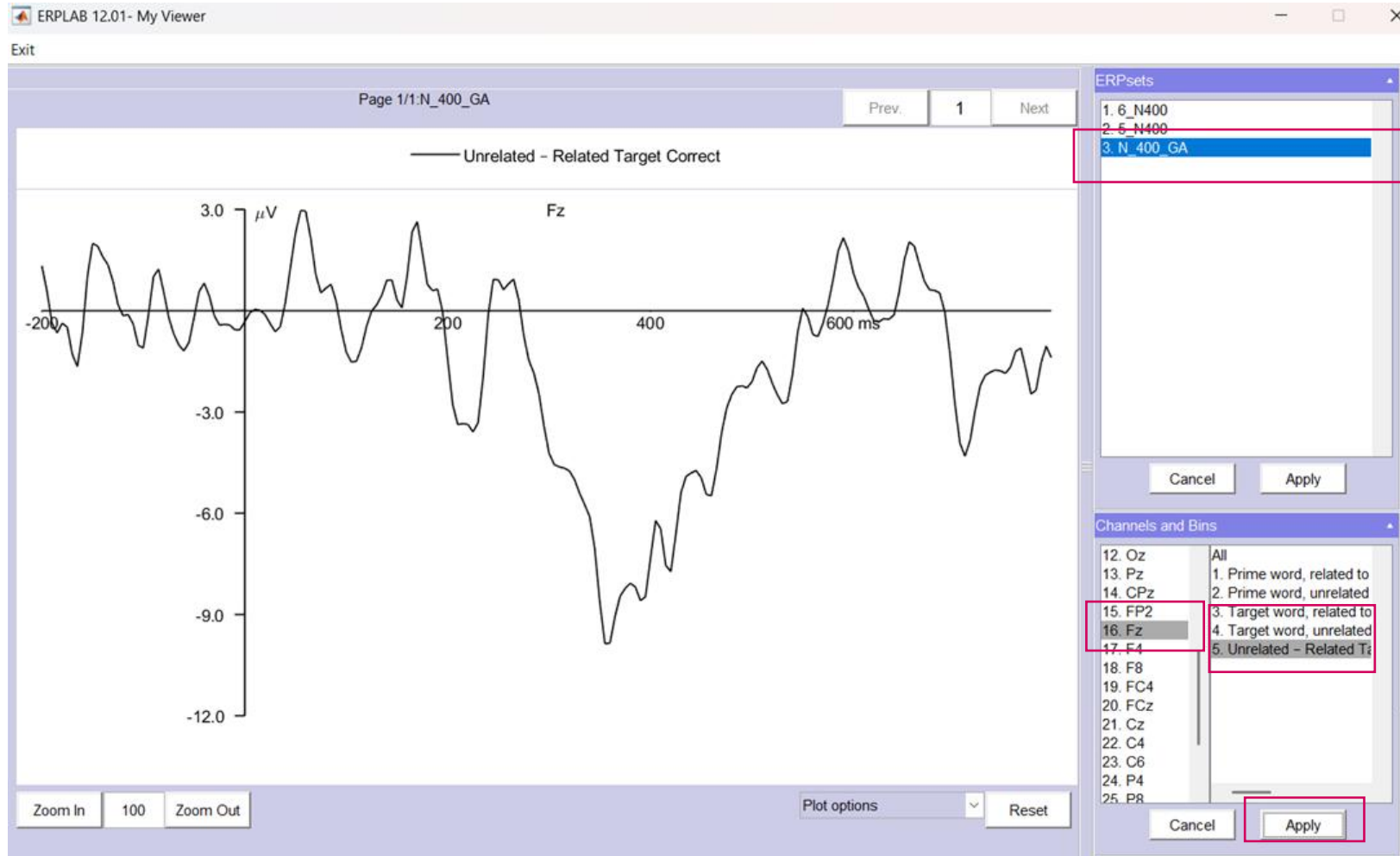
# ERPLAB

## Average across ERPsets (Grand Average)



# ERPLAB

Average across ERPsets (Grand Average)



# ERPLAB

## Average across ERPsets (Grand Average)

EEGLAB v2025.0.0

File Edit Tools Plot Study Datasets Help ERPLAB ERPsets

**#10: 5\_N400\_preprocess**

Filename: none  
Channels per frame  
Frames per epoch  
Epochs  
Events  
Sampling rate (Hz)  
Epoch start (sec)  
Epoch end (sec)  
Reference  
Channel locations  
ICA weights  
Dataset size (Mb)

\*\*\* ERPLAB v12.01 \*\*\*

- Preprocess EEG
- EventList
- Assign bins (BINLISTER)
- BDF Visualizer
- Extract bin-based epochs
- EEG Channel operations
- Filter & Frequency Tools
- Artifact detection in epoched data
- Summarize artifact detection
- Compute data quality metrics (without averaging)
- Bin-Epoched Single Trial (BEST) Tools
- Multivariate Pattern Classification (MVPC) Tools
- Compute averaged ERPs
- ERP Operations
- Plot ERP
- Export & Import ERP
- Load existing ERPset(s)
- Clear ERPset(s)
- Save current ERPset
- Save current ERPset as
- Duplicate or rename current ERPset
- ERP Measurement Tool
- ERP Viewer**

