STUDY plot menu

Marken and and a second and a

Task 1 Plot cluster summaries Task 2 Plot individual ICs Task 3 Plot using statistical thresholds Task 3 Eliminate/reassign ICs



Exercise...

File	Edit	Tools	Plot	Study	Datasets	Help		
!	STUD	Y set:		Edit s Selec	tudy info t/Edit study	y design(5)	
3	Study fil	lename: .	s/data	Preco	ompute cha	nnel mea	sures	
5	Study tas	sk name		Plot o	hannel me	asures		
1	Nb of sub	bjects		Preco	moute con	nonent	measures	
1	Nb of cor	nditions		Meas	ure Produc	t clusteri	na	
1	Nb of sea	ssions		DCA	die Floude		ig	
1	Nb of gro	oups		PCA	clustering (original)		
I	Spoch cor	nsistency		Edit/	plot cluster	S		
(Channels	per fram	е	61				
	Channel 1	locations		yes				
0	Clusters			1				
3	Status			Pre-cl	ustered			
1 1	Total siz	ze (Mb)		8.2				

00	Select and compute	te component measure	s for lat	er clustering pop_pr	recomp()
Pre-	compute channel measu	ures for STUDY 'Sternbe	rg' - 'STl	JDY.design 1'	
Cha	nnel list (default:all)				
☑	Spherical interpolation of	missing channels (perform	ned after (optional ICA removal below	v)
	Remove ICA artifactual of	omponents pre-tagged in e	ach data	set	
	Remove artifactual ICA cl	uster or clusters (hold shift	key)	ParentCluster 1 Cls 2 Cls 3 Cls 4	Q
List	of measures to precom	oute			
	ERPs	Baseline ([min max] in r	ns)	lanaamadal Iffil	(Test)
	Power spectrum	Spectopo parameters		specifiode, in	Test
	ERSPs T	ime/freq. parameters	'cycles	', [3 0.5], 'nfreqs', 100	Test
	Save single-trial measures	for single-trial statistics - r	equires d	isk space	
	Recompute even if presen	t on disk			
	Help			Cancel)k





ERP







EEGLAB v6.0b X File Datasets Study Help Tools Э. Edit study info -STUDY set: At Precompute channel measures Plot channel measures Study filename: Study task name Precompute component measures Nb of subjects. Build preclustering array Nb of conditions Cluster components Nb of sessions Edit/plot clusters Nb of groups Epoch consistency Yes Channels per frame 31 Channel locations yes Clusters. 26 Pre-clustered Status Total size (Mb) 39.1



2. Pre-compute measures

\varTheta 🔿 💿 🛛 EEGLAB	v9.0.0.0b
File Edit Tools Plot	Study Datasets Help
STUDY set:	Edit study info Select/Edit study design(s)
Study filename:s/dat. Study task name	Precompute channel measures Plot channel measures
Nb of subjects Nb of conditions Nb of sessions Nb of groups Epoch consistency	Precompute component measures Measure Product clustering PCA clustering (original) Edit/plot clusters
Channels per frame	61
Channel locations Clusters	1
Status	Pre-clustered
Total size (Mb)	8.2

	_)	v9.0.0.0Ł	EGLAB	E	\circ	0
	Help	Datasets	Study	Plot	Tools	Edit	File
.)	/ design(s	tudy info t/Edit study	Edit s Selec		Y set:	STUD	
sures	nnel mea	mpute cha	Preco	s/data	lename: .	Study fi	
	asures	hannel mea	Plot o		isk name	Study ta	
noncurac	nonent n	moute com	Droco		bjects	Nb of su	
leasures	iponent n	ure Dreduc	Maac		onditions	Nb of co	
ig i	t clusterir	ure Produc	Meas		ssions	Nb of se	
,	original)	clustering (PCA		oups	Nb of gr	
	s	plot cluster	Edit/		nsistency	Spoch co	
			61	e	per fram	Channels	
			yes		locations	Channel	
			1			Clusters	
		ustered	Pre-cl:			Status	
			8.2		ze (Mb)	Total si	

OOO Select a	and compute com	ponent measures	for later c	lustering pop_	precomp()
Pre-compute cha	annel measures fo	r STUDY '' - 'STUD'	Y.design 1'		
Channel list (defa	ault:all)				
Spherical int	erpolation of missing	g channels (perform	ed after optic	onal ICA removal bel	ow)
Remove ICA	artifactual compone	ents pre-tagged in ea	ach dataset		
Remove artif	factual ICA cluster of	r clusters (hold shift	key)	ParentCluster 1	
List of measures	to precompute				
ERPs	Base	eline ([min max] in m	is)		
Power spect	trum Spec	ctopo parameters		'specmode', 'fft'	Test
ERSPs	Time/free	q, parameters	'cycles', [3	0.5], 'nfreqs', 100	Test
Save single-tri	ial measures for sinç /en if present on disl	gle-trial statistics - re k	quires disk s	space	
Help			(Cancel	Ok

Components

Channels

3. Cluster components

and the second s	and when and an and a second a
EEGLAB v6.0b	
File Edit Tools Plot Study Datasets F	
STUDY set: At	
Precompute chan	nel measures
Study filename: Plot channel mea:	sures
Nb of subjects Duild productorin	Jonent measures
Nb of conditions	
Nb of sessions Edit/plot clusters	Select and compute component measures for later clustering pop_preclust()
Epoch consistency yes Channels per frame 31 Channel locations yes Clusters 1 Status Pre-clustered Total size (Mb) 32.4	Build pre-clustering matrix for STUDY 'Attention' Select the cluster to refine during sub-clustering (any existing sub-hierarchy will be overwritten) ParentCluster 1 (181 ICs)
~~~~~MMM~~~~	Inote:only measures that have been precomputed may be used)   Load   Dims.   Spectra   10   I   Freq.range [Hz]   3 25   0 600     dipoles   3   I   scalp maps   10   I   Image [ms]   Imag







View and edit currer	nt component clusters	pop_clustedit()
Study ": 151 of 151 components clustered		
Select cluster to plot		Select component(s) to plot
Cls 15 (8 ICs) Cls 16 (6 ICs) Cls 17 (4 ICs) Cls 18 (14 ICs) Cls 19 (14 ICs)	2	All components S02 IC3 S02 IC11 S02 IC12 S02 IC12
Plot scalp maps	×	Plot scalp map(s)
Plot dipoles	Ī	Plot dipole(s)
Plot ERPs	Params	Plot ERP(s)
Plot spectra	Parums	Plot spectra
. O O O Set ERP plottin	g parameters p	pop_erpparams()
Time range in ms [low high] Plot scalp map at latency [ms] Plot conditions on the same panel Plot groups on the same panel	Plot IaN Disj	t limits in uV [low high] play filter in Hz [high]
Statistical method to use Param Compute condition statistics Compute group statistics	etric 🛟 Stat	iistical threshold (p<)



#### **STUDY ERPs with p-value**



## Other plotting options...

	Martin Asso	000 s	et ERP plotting parameter	s pop_erpparams()	halal	A.
	a shift ee	Time range in ms [low high] Plot scale map at latency [ms] Plot conditions on t Plot groups on the s	NaN he same panel same panel	Plot limits in uV [low high] Display filter in Hz [high]		Ą
		Statistical method to use Compute condition Compute group sta Use single trials (w Use False Discove	Parametric statistics tistics hen available) ry Rate to correct for multiple of	Statistical threshold (p<)		
		Help		Ca	ncel Ok	
	🕺 Figure 6 <2>					- <b>D</b> ×
	Figure 6 <2>	<u>T</u> ools <u>D</u> esktop <u>W</u> indow <u>H</u> elp				<b>د</b> و ا
	Sigure 6 <2>     Eile Edit ⊻iew Insert     D	Iools Desktop Window Help 옥 《 ' ' ) 이 무리 🔲 📰 🗎 🎞				× ם •
	Figure 6 <2> File Edit Yiew Insert □ ≥ ■ ● ▷ ○	Iools Desktop Window Help 국 《 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	low do	se	placebo	<u>د</u>
	Figure 6 <2> Eile Edit ⊻iew Insert Eile S and the second seco	Iools Desktop Window Help </th <th>low do</th> <th>se8</th> <th>placebo</th> <th>• • • ×</th>	low do	se8	placebo	• • • ×
	Figure 6 <2> <u>File Edit ⊻iew Insert</u>	Iools Desktop Window Help <implement not<="" note:="" th=""><th>low do</th><th>se86</th><th>placebo KAN NONKAN</th><th></th></implement>	low do	se86	placebo KAN NONKAN	
	Figure 6 <2> Eile Edit ⊻iew Insert Eile Bit ⊻iew Insert S 2 3 4 1 € € 6 6 4	Iools Desktop Window Help	low do	se 8 6 4	placebo KAN NONKAN	
	Figure 6 <2> File Edit ⊻iew Insert Eile Bilt ⊻iew Insert P 2	Iools Desktop Window Help	low do	se 8 6 4	placebo KAN NONKAN	
	Figure 6 <2> File Edit ⊻iew Insert Eile Edit ⊻iew Insert S = ● ● ● ● ● 8 6 4 2 0	Iools Desktop Window Help	low do	se 8 6 4 2	placebo KAN NONKAN	
~~~~	Figure 6 <2>         Eile       Edit       Yiew       Insert         □       2       3       4         1       2       4       2         0       4       4       4	Iools Desktop Window Help	low do 8 6 4 2 0	se 8 6 4 2 0	placebo	
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Figure 6 <2>         Eile       Edit       Yiew       Insert         □       2       3       4         -2       0       4	Iools Desktop Window Help	low do 8 6 4 2 0 -2	se 8 6 4 2 0 -2	placebo KAN NONKAN	
~~~	Figure 6 <2>         File       Edit       Yiew       Insert         □       2       3       4       4         2       0       4       4       4         2       0       4       4       4         2       0       4       4       4         2       -0       4       4       4         2       -0       4       4       4         2       -0       4       4       4       4         4       -2       -4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4       4	Iools Desktop Window Help S < >> >> >> < I = = = = = = = = = = = = = = = = = =	low do	se 8 6 4 2 0 -2 -4	placebo	

STUDY ERPs with threshold



STUDY ERSPs with statistics

and a second production of the second of the



Reassigning components

View ar	nd edit current component clusters	- pop_clustedit()	
Study ": 151 of 151 components clustered			
Select cluster to plot		Select component(s) to plot	
CIs 12 (6 ICs) CIs 13 (5 ICs) CIs 14 (11 ICs)		All components 507 IC14 S07 IC33 S08 IC23 S08 IC23	
File Edit View Insert Tools Desktop Window Help		510 1060	
		Plot scalp map(s)	
		Plot dipole(s)	
CIs 17 average scalp map, 3Ss	ic14/S07	Plot ERP(x)	
ic23/S08 ic60/S10	ic33/S07	Cls 11 - 3 sets - 4 components (4 dipoles) File Edit Yiew In IC14, S07 RV: 0.96% X tal: -46 Y tal: -25 Z tal: 46 Display: Mesh on Tight view Sagittal view Coronal view Top view	

Reassigning components

View and edi	it current component clusters pop_clustedit()
Study ": 151 of 151 components clustered	
Select cluster to plot	Select component(s) to plot
Cls 13 (5 ICs) Cls 14 (11 ICs) Cls 15 (8 ICs) Cls 16 (6 ICs) Cls 17 (4 ICs)	All components S07 IC14 S07 IC33 S08 IC22 S10 IC60 S0 IC22 S10 IC60 S10 IC60 S10 IC60
Plot scalp maps	Plot scalp map(s)
Plot dipoles	Remove outliers - from pop_clustedit()
Plot ERPs	Remove currently selected component below from CIs 17 to its outlier cluster?
Plot spectra	\$10 IC60
Plot ERSPs	
Plot ITCs	
Plot cluster properties	
Contra a su alla tas	Cancel Ok
Create new cluster	Demove celected outlier comme
Merce clusters	Auto-reject outlier components
merge ordsters	
Save STUDY set to disk	/home/julie/workshop06/5subjects/WSstudy.study
_	

Outlier cluster reassignment

Study ": 151 of 151 components clustered Select cluster to plot Select component(s) to plot Cls 16 (6 ICs) Cls 17 (3 ICs) Cls 18 (14 ICs) All components S10 IC60 Outliers Cls 17 20 (1 ICs) Plot scalp maps Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s)	151 of 151 components clustered uster to plot (6 [C5) (3 [C5) (14	Study ": 151 of 151 components clustered Select cluster to plot Select component(s) to plot Cls 16 (6 ICS) Cls 17 (3 ICs) Cls 18 (14 ICs) Outliers Cls 1/ 20 (1 ICS) All components S10 IC60 Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERSPs Params Plot ITCs Plot ITC(s) Plot cluster properties Params Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Select cluster to plot Select component(s) to plot Cls 16 (6 lCs) Cls 17 (3 lCs) Cls 18 (14 lCs) Cls 19 (14 lCs) All components S10 lC60 Outliers Cls 17 20 (1 lCs) Plot scalp maps Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s)	Select component(s) to plot (6 ICS) (3 ICS) (14 ICS) (14 ICS) (14 ICS) Cls 17 20 (1 ICS) Plot scalp maps Plot scalp maps Plot dipoles Plot ERPs Plot spectra Plot ERSPs Plot ITCs Plot ITCs Plot cluster properties	Select cluster to plot Select component(s) to plot Cls 16 (6 ICs) (1s 17 (3) ICs) (1s 17 (3) ICs) (1s 19 (14 ICs) All components (5) 10 IC60 Dutliers Cls 17 20 (1 ICs) Plot scalp maps Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot spectra Plot spectra Plot ITCs Params Plot Cluster properties Plot component properties Create new cluster Reassign selected component(s) Remove selected cluster Remove selected outlier comps.
Cls 16 (6 ICs) All components Cls 17 (3 ICs) S10 IC60 Cls 19 (14 ICs) S10 IC60 Outliers Cls 17 20 (1 ICs) Plot scalp maps Plot scalp maps Plot dipoles Plot dipoles Plot dipole(s) Plot ERPs Params	(6 ICs) (3 ICs) (14 ICs) (14 ICs) (14 ICs) All components S10 IC60 Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s) Plot spectra Params Plot spectra Plot ITCs Plot ITCs Plot ITC(s) Plot cluster properties V Plot component properties	Cls 16 (6 ICS) Cls 17 (3 ICs)All components S10 IC60Cls 19 (14 ICs)Plot scalp mapsPlot scalp mapsPlot scalp map(s)Plot dipolesPlot dipole(s)Plot spectraParamsPlot ERSPsParamsPlot ERSPsPlot spectraPlot ITCsPlot ITC(s)Plot cluster propertiesPlot component propertiesCreate new clusterReassign selected component(s)Rename selected clusterRemove selected outlier comps.
Cls 19 (14 ICs) Outliers Cls 17 20 (1 ICs) Plot scalp maps Plot dipoles Plot ERPs Plot ERPs	I14 ICs) Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot spectra Plot ERSPs Params Plot spectra Plot ITCs Platement Plot ITC(s) Plot cluster properties Plot component properties	CIs 19 (14 ICs) Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot spectra Plot ITCs Plot ITCs Plot ITC(s) Plot cluster properties Plot component properties Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Plot scalp maps Plot scalp map(s) Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s)	Plot scalp mapsPlot scalp map(s)Plot dipolesPlot dipole(s)Plot ERPsParamsPlot ERP(s)Plot spectraParamsPlot spectraPlot ERSPsParamsPlot ERSP(s)Plot ITCsParamsPlot ITC(s)Plot cluster propertiesPlot component properties	Plot scalp mapsPlot scalp map(s)Plot dipolesPlot dipole(s)Plot ERPsParamsPlot ERP(s)Plot spectraParamsPlot spectraPlot ERSPsParamsPlot ERSP(s)Plot ITCsParamsPlot ITC(s)Plot cluster propertiesPlot component propertiesCreate new clusterReassign selected component(s)Rename selected clusterRemove selected outlier comps.
Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s)	Plot dipoles Plot dipole(s) Plot ERPs Params Plot ERP(s) Plot spectra Params Plot spectra Plot ERSPs Params Plot ERSP(s) Plot ITCs Plot Component properties Plot component properties	Plot dipolesParamsPlot dipole(s)Plot ERPsParamsPlot ERP(s)Plot spectraParamsPlot spectraPlot ERSPsParamsPlot ERSP(s)Plot lTCsParamsPlot ITC(s)Plot cluster propertiesPlot component propertiesCreate new clusterReassign selected component(s)Rename selected clusterRemove selected outlier comps.
Plot ERPs Params Plot ERP(s)	Plot ERPs Params Plot ERP(s) Plot spectra Params Plot spectra Plot ERSPs Params Plot ERSP(s) Plot lTCs Plot ITC(s) Plot ITC(s) Plot cluster properties V Plot component properties	Plot ERPsParamsPlot ERP(s)Plot spectraParamsPlot spectraPlot ERSPsParamsPlot ERSP(s)Plot ITCsParamsPlot ITC(s)Plot cluster propertiesPlot component propertiesCreate new clusterReassign selected component(s)Rename selected clusterRemove selected outlier comps.
	Plot spectra Params Plot spectra Plot ERSPs Params Plot ERSP(s) Plot ITCs Plot ITC(s) Plot Component properties	Plot spectraParamsPlot spectraPlot ERSPsParamsPlot ERSP(s)Plot ITCsParamsPlot ITC(s)Plot cluster propertiesPlot component propertiesCreate new clusterReassign selected component(s)Rename selected clusterRemove selected outlier comps.
Plot spectra Params Plot spectra	Plot ERSPs Params Plot ERSP(s) Plot ITCs Plot ITC(s) Plot cluster properties Plot component properties	Plot ERSPs Params Plot ERSP(s) Plot ITCs Plot ITC(s) Plot ITC(s) Plot cluster properties Plot component properties Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Plot ERSPs Plot ERSP(s)	Plot ITCs Plot ITC(s) Plot cluster properties Plot component properties	Plot ITCs Plot ITC(s) Plot cluster properties Plot component properties Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Plot ITCs Plot ITC(s)	Plot cluster properties Plot component properties	Plot cluster properties Plot component properties Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Plot cluster properties Plot component properties		Create new cluster Reassign selected component(s) Rename selected cluster Remove selected outlier comps.
Create new cluster Reassign selected component(s)	Create new cluster Reassign selected component(s)	Rename selected cluster Remove selected outlier comps.
Rename selected cluster	Reading in Second Component(s)	
	Rename selected cluster Remove selected outlier comps.	Merge clusters Auto-reject outlier components
Merge clusters Auto-reject outlier components	Rename selected cluster Remove selected outlier comps. Merge clusters Auto-reject outlier components	Save STUDY set to disk
Rename selected cluster Remove selected outlier comps.		
	Rename selected cluster Remove selected outlier comps.	Merge clusters Auto-reject outlier components
Merge clusters Auto-reject outlier components	Rename selected cluster Remove selected outlier comps. Merge clusters Auto-reject outlier components	



Study Datasets Help Edit study info Select/Edit study design(s) Precompute channel measures Plot channel measures
Edit study info Select/Edit study design(s) Precompute channel measures Plot channel measures
Precompute channel measures Plot channel measures
Precompute component measures Measure Product clustering PCA clustering (original) Edit/plot clusters
61 yes 1 Pre-clustered 8.2

мм. I	M	. ı .
Select STUDY design		
STUDY.design 1		Add design
		Rename design
		Delete design
Subjects	Independent variable 1	Independent variable 2
S01 S02 S03 S04 S05 S06 S07 S08 S09 S10 S11 S12 S13	condition duration init_index init_time inset load Ind. var. 1 values ignore memorize probe	None condition duration init_index init_time inset
Select all subjects	Combine selected values Unpaired statistics	Combine selected values) Unpaired statistics
Use only specific datasets	frials	
Delete all datafiles assoc	iated with this STUDY design	
Save the STUDY	(Cancel Ok

0	\circ	E	EGLAB	v9.0.0.0b)			
File	Edit	Tools	Plot	Study	Datasets	Help		
!	STUD	Y set:		Edit s Selec	tudy info t/Edit study	y design(s	5)	
5	Study fi Study ta	lename: . sk name	s/data	Preco Plot c	mpute cha hannel me	nnel mea asures	sures	
1	Nb of su Nb of co Nb of se Nb of gr Spoch co	bjects nditions ssions oups nsistency		Preco Meas PCA o Edit/	ompute con ure Produc clustering (plot cluster	nponent r t clusterir original) s	neasure 1g	s •
(Channels	per fram	e	61				
(Channel	locations		yes				
(Clusters			1				
5	Status			Pre-cl	ustered			
1	Total si	ze (Mb)		8.2				

Select subjects

M.A. 1	M	1
Select STUDY design STUDY.design 1		Add design Rename design Delete design
Subjects	Independent variable 1	Independent variable 2
S01 S02 S03 S04 S05 S06 S07 S08 S09 S10 S11 S12 S13	condition duration init_index init_time inset load Ind. var. 1 values ignore memorize probe	None Image: Condition duration init_index init_time inset init_time Image: Combine selected values
Select all subjects	Unpaired statistics 🛟	Unpaired statistics
Use only specific datasets Delete all datafiles assoc Save the STUDY	ftrials iated with this STUDY design	Cancel Ok



Audio versus light all subied	ts	Add design	
Il stimulus type - non dual	subjects only	Add design	
Audio preceeded by differer	t stimulus types	Rename design	
Audio versus ligh accross se Audio versus light accross p	essions - non dual subjects only resentation - non dual subjects only	Delete design	
Subjects	Independent variable 1	Independent variable 2	
2	None	None	
3	stimulusType	stimulusType	
c4	presentation	presentation	
C5 c6	Session	session	
c7	prototoin	prototoint	
c8 nd1	Ind var 1 values	Ind var 2 values	
nd2	audio	control	
nd3 nd4	blank	nondual	
nd5	both		
nd6 nd7	audio - light		
nd8			
	Combine selected values	Combine selected values	
Select all subjects	Unpaired statistics	Unpaired statistics	
Use only specific datas	sets/trials		
Delete all datafiles asso	ciated with this STUDY design		
	allog martino or ob r dobign		
Save the STUDY			
		Cancel Ok	



Audio vorouo light all subio	ata	
udio versus light all subje Il stimulus type - non dual	subjects only	Add design
lank versus other stimulus	Rename design	
Audio versus ligh accross s	essions - non dual subjects only	
Audio versus light accross (presentation - non dual subjects only	Delete design
Subjects	Independent variable 1	Independent variable 2
2	None	None
2	stimulusType	stimulusType
54	presentation	presentation
25	session	session
20 27	prevevent	prevevent
8		
nd1	Ind. var. 1 values	Ind. var. 2 values
nd3	audio	
nd4	blank	
nd5	light	
100 nd7	audio - light	
nd8		
	Combine selected values	Combine selected values
Select all subjects	Unpaired statistics \$	Unpaired statistics 🛟
Lice only specific data		
Use only specific data	Isets/mais	
Delete all datafiles asso	ciated with this STUDY design	
Delete all'udialles assu	Solution With this of OD T design	
Save the STUDY		
		Cancel Ok



Audio versus light all subject	8	Add dealer	
All stimulus type - non dual s	ubjects only	Add design	
Blank versus other stimulus t Audio preceeded by differen	ype - non dual subjects only t stimulus types	Rename design	
Audio versus ligh accross se	ssions - non dual subjects only	Delete design	
Audio versus light accross pi	esentation - non dual subjects only	Delete design	
Subjects	Independent variable 1	Independent variable 2	
1	None	None	
3	group stimulusType	group stimulusType	
4	presentation	presentation	
5	session	session	
7	prevevent	prevevent	
28 pd1	Ind yor twolyon	Ind yor Quelyos	
d2	ind. var. i values	ind. var. 2 values	
nd3	blank		
nd5	both		
nd6	light audio - light		
id8	audio ngrit		
	Combine selected values	Combine selected values	
O al a st all authin sta			
Select all subjects	Unpaired statistics	Unpaired statistics	
Use only specific datas	ets/trials		
Delete all datafiles assor	isted with this STUDY design		
Delete all datalles assoc	ated with this STODY design		
Save the STUDY			

26



Select STUDY design		and the second second	A
Audio versus light all subjects All stimulus type - non dual subjec Blank versus other stimulus type - Audio preceeded by different stimu Audio versus ligh accross sessions Audio versus light accross present	ts only non dual subjects only ilus types s - non dual subjects only ation - non dual subjects only	Add design Rename design Delete design	1
Subjects	Independent variable 1	Independent variable 2	
c1 c2 c3 c4 c5 c6 c7 c8 nd1 nd2 nd3 nd4 nd5 nd6 nd7 nd8	None group stimulusType presentation session prevevent Ind. var. 1 values audio blank both light	None group stimulusType presentation session prevevent Ind. var. 2 values	
Select all subjects	Unpaired statistics	Unpaired statistics	
Use only specific datasets/tri	ials 'stimulu with this STUDY design	IsType',{'audio'}	
Save the STUDY	(Cancel Ok	





Select STUDY design			" has not
Audio versus light all subject All stimulus type - non dual s	s ubiects only	Add design	
Blank versus other stimulus t Audio preceeded by different	ype - non dual subjects only stimulus types	Rename design	
Audio versus ligh accross se Audio versus light accross pr	ssions - non dual subjects only esentation - non dual subjects only	Delete design	
	, , ,		
Subjects	Independent variable 1	Independent variable 2	
c1 c2 c3 c4 c5 c6 c7	None group stimulusType presentation session prevevent	None group stimulusType presentation session prevevent	
28 hd1 nd2 nd3 nd4 nd5 nd6 nd7 nd8	Ind. var. 1 values audio blank both light audio - light	Ind. var. 2 values	
	Combine selected values	Combine selected values	
Select all subjects	Unpaired statistics	Unpaired statistics	
Use only specific datas	ets/trials		
Delete all datafiles assoc	iated with this STUDY design		
Save the STUDY			
		Cancel Ok	



All stimulus type - non di Blank versus other stimu Audio preceeded by diffe Audio versus light accros	ual subje Ilus type - erent stim s sessior	cts only non dual subjects only ulus types ns - non dual subjects only		Rename design	
Subjects	ss preser	Independent variable 1	iiyii	Independent variable 2	
c1 c2 c3 c4 c5 c6 c7 c8 nd1 nd2 nd3 nd4 nd5 nd6		None group stimulusType presentation session prevevent Ind. var. 1 values audio blank both light		None group stimulusType presentation session prevevent Ind. var. 2 values evoked spontaneous	
nd7 nd8		Combine selected value	ies	Combine selected value	es
Select all subjects	:	Unpaired statistics	+	Unpaired statistics	•
Use only specific d Delete all datafiles a	atasets/tr ssociated	ials			



Exercises

and water and the second state and the second of the secon

Suggestion for exercises:

Load stern.study in STUDY folder

From the GUI, compute ERP for data channels. Plot grand average ERP for all channels. Experiment with statistics.

Then move to the plotting cluster function. Plot ERSP for frontal midline theta cluster (cluster 19) and remove outliers by hand.

Build a STUDY design to compare letter with high memory load versus letter with low memory load. Recompute spectrum for components and compare the two conditions for the frontal midline cluster (cluster 19).

