Scripting 1st Level Analysis

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Make_FSL_Timings.sh :

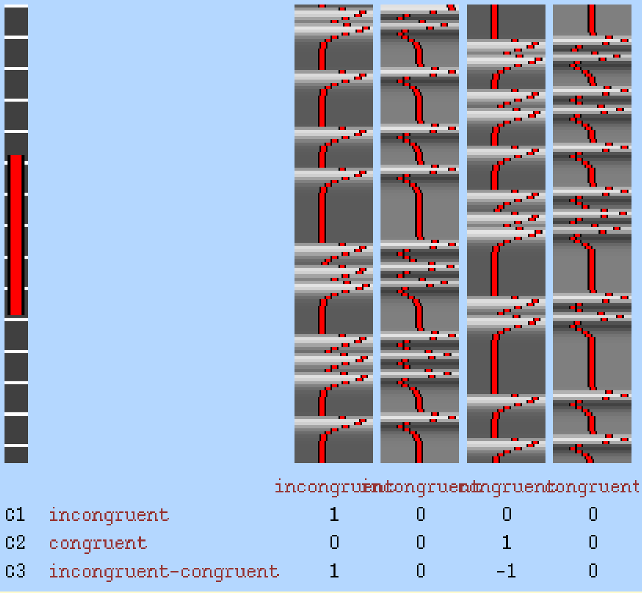
```
#!/bin/bash

#Check whether the file subjList.txt exists; if not, create it
if [ ! -f subjList.txt ]; then
	ls -d sub-?? > subjList.txt
fi

#Loop over all subjects and format timing files into FSL format
for subj in `cat subjList.txt` ; do
	cd $subj/func #Navigate to the subject's func directory, which contains the timing files
	
	#Extract the onset times for the incongruent and congruent trials for each run. NOTE: This script only extracts the trials in which the subject made a correct response. Accuracy is nearly 100% for all subjects, but as an exercise the student can modify this to extract the incorrect trials as well.
	cat ${subj}_task-flanker_run-1_events.tsv | awk '{if ($3=="incongruent_correct") {print $1, $2, "1"}}' > incongruent_run1.txt
	cat ${subj}_task-flanker_run-1_events.tsv | awk '{if ($3=="congruent_correct") {print $1, $2, "1"}}' > congruent_run1.txt

	cat ${subj}_task-flanker_run-2_events.tsv | awk '{if ($3=="incongruent_correct") {print $1, $2, "1"}}' > incongruent_run2.txt
	cat ${subj}_task-flanker_run-2_events.tsv | awk '{if ($3=="congruent_correct") {print $1, $2, "1"}}' > congruent_run2.txt
	
	cd ../..
done
```

run_1stLevel_Analysis.sh :

```
#!/bin/bash


# Generate the subject list to make modifying this script
# to run just a subset of subjects easier.

for id in `seq -w 1 26` ; do
    subj="sub-$id"
    echo "===> Starting processing of $subj"
    echo
    cd $subj
        
        # If the brain mask doesn’t exist, create it
        if [ ! -f anat/${subj}_T1w_brain_f02.nii.gz ]; then
            echo "Skull-stripped brain not found, using bet with a fractional intensity threshold of 0.2"
            # Note: This fractional intensity appears to work well for most of the subjects in the
            # Flanker dataset. You may want to change it if you modify this script for your own study.
            bet2 anat/${subj}_T1w.nii.gz \
                anat/${subj}_T1w_brain_f02.nii.gz -f 0.2
        fi

        # Copy the design files into the subject directory, and then
        # change “sub-08” to the current subject number
        cp ../design_run1.fsf .
        cp ../design_run2.fsf .

        # Note that we are using the | character to delimit the patterns
        # instead of the usual / character because there are / characters
        # in the pattern.
        sed -i " "s|sub-08|${subj}|g" \
            design_run1.fsf
        sed -i " "s|sub-08|${subj}|g" \
            design_run2.fsf

        # Now everything is set up to run feat
        echo "===> Starting feat for run 1"
        feat design_run1.fsf
        echo "===> Starting feat for run 2"
        feat design_run2.fsf
                echo

    # Go back to the directory containing all of the subjects, and repeat the loop
    cd ..
done
echo
```

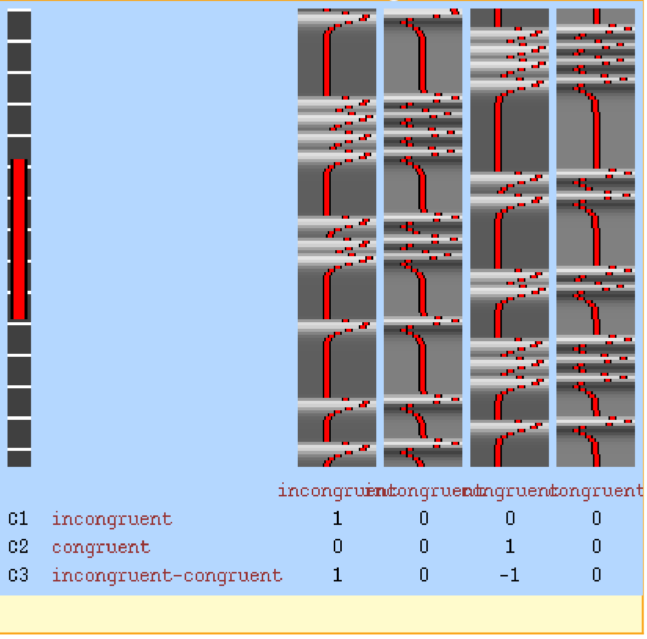
Template Design

Run 1 Design



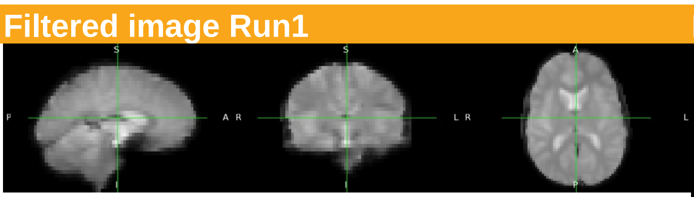
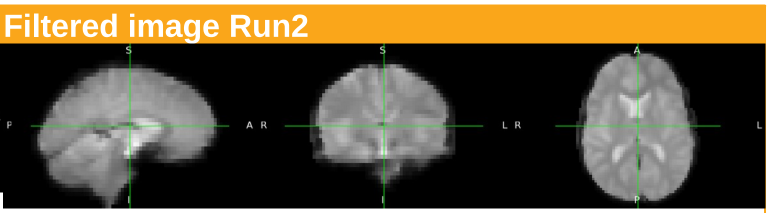
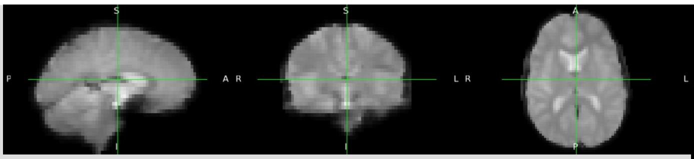
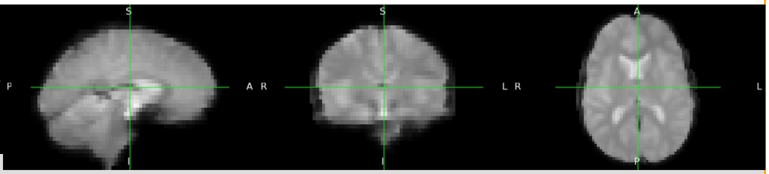
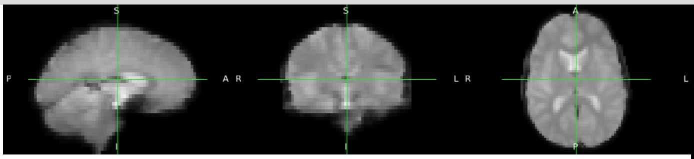
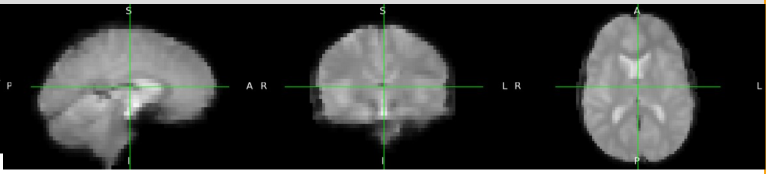
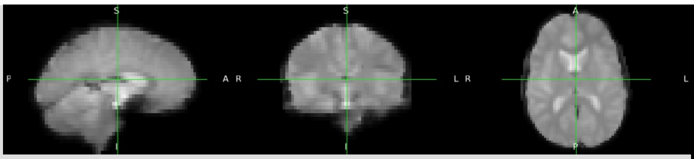
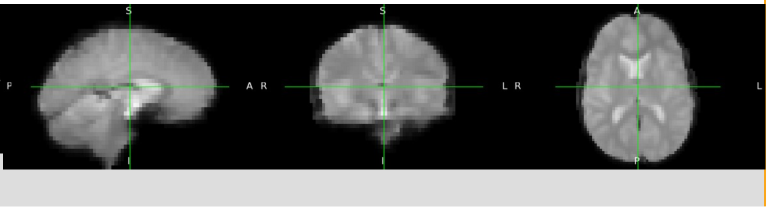
		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Run 2 Design

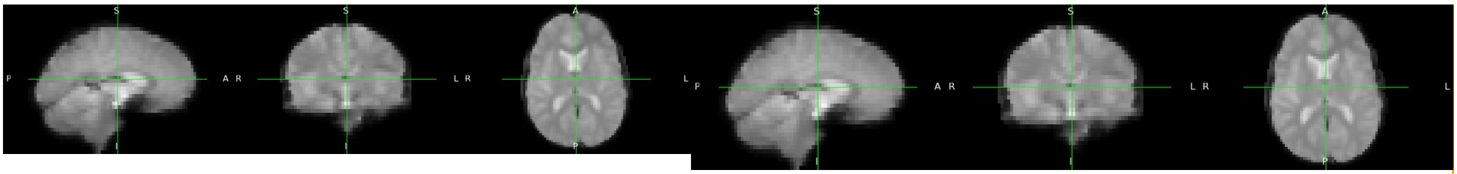


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Preprocessing

Sub	Filtered image Run1	Filtered image Run2
Sub-1		
Sub-2		
Sub-3		
Sub-4		

Sub-5



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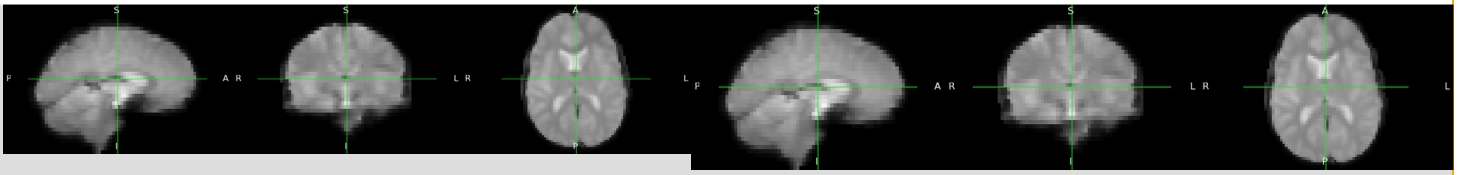

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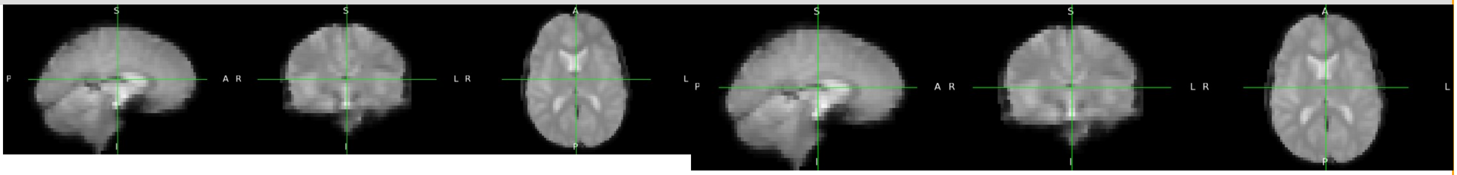

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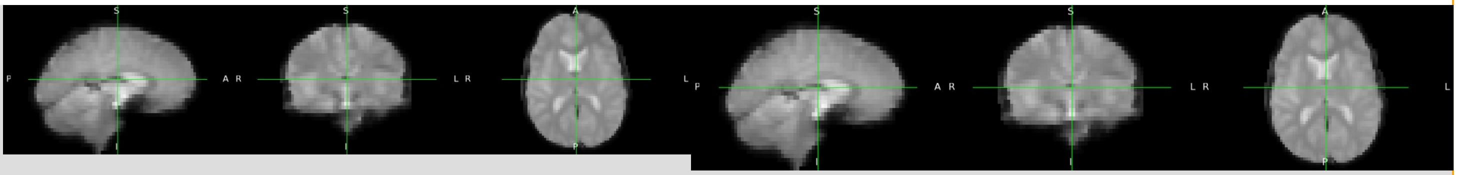

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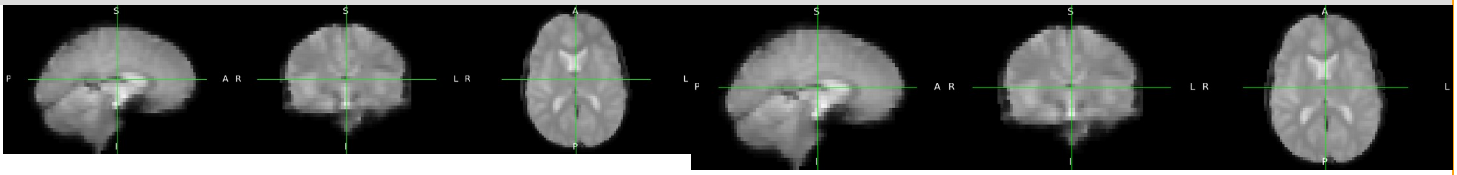

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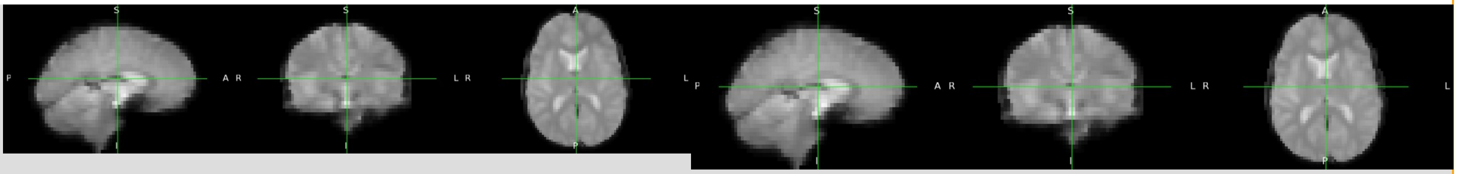

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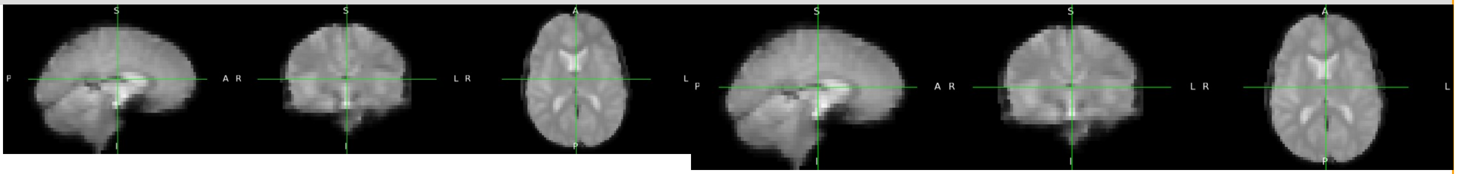

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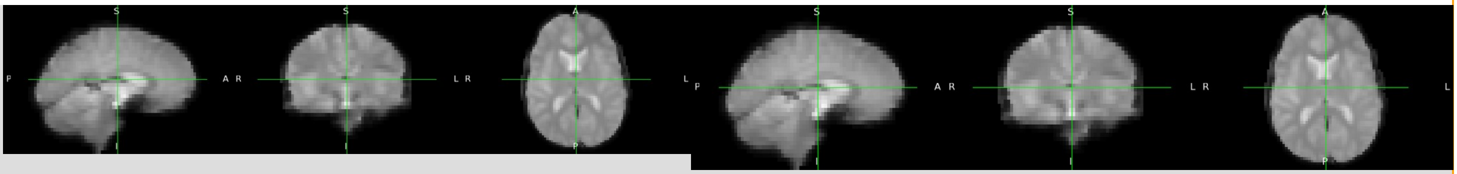

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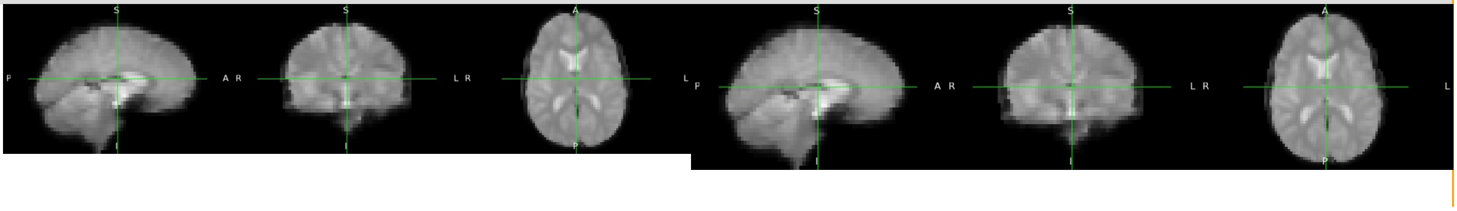

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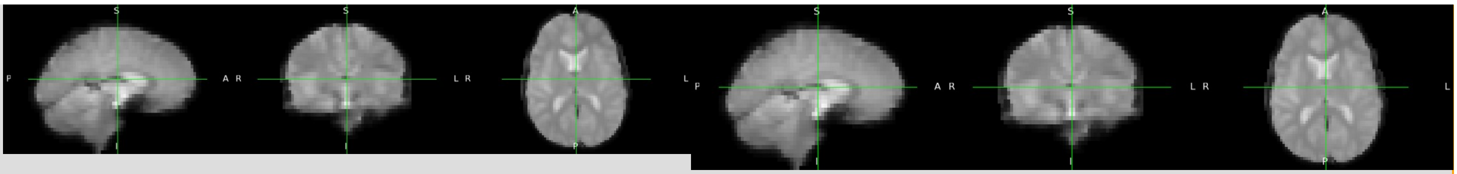

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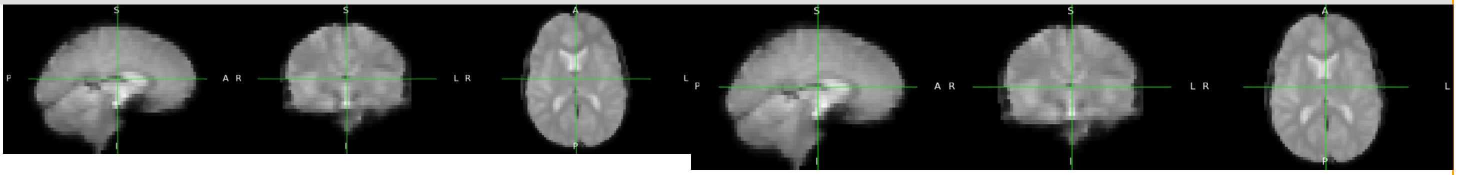

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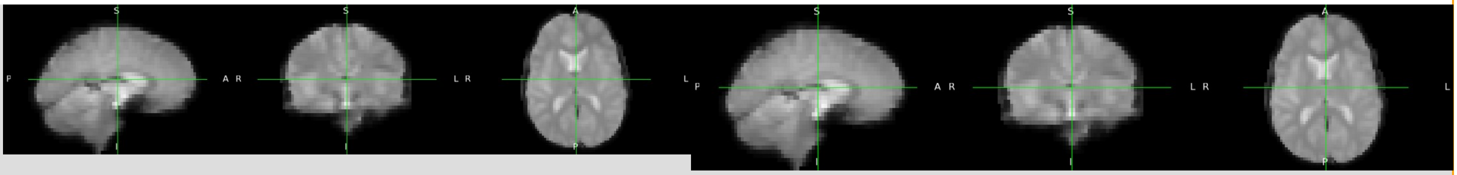

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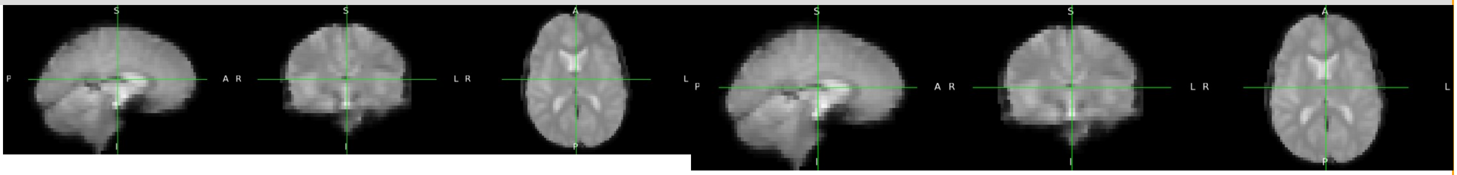

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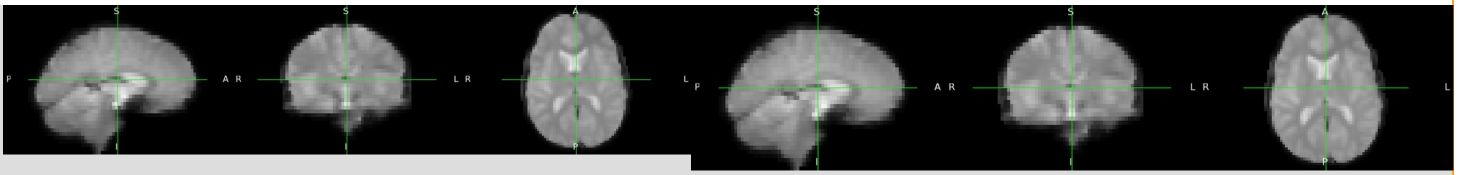

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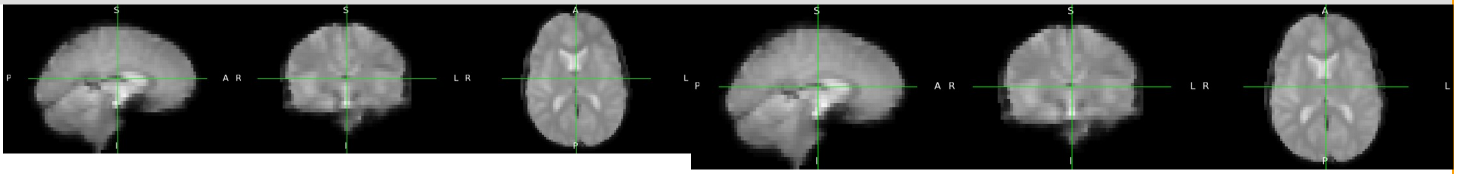

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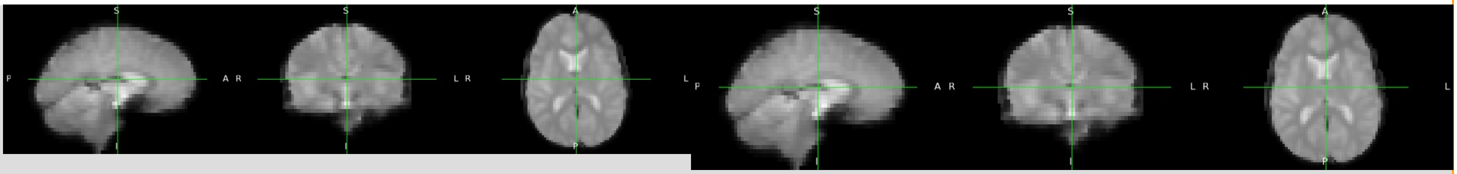

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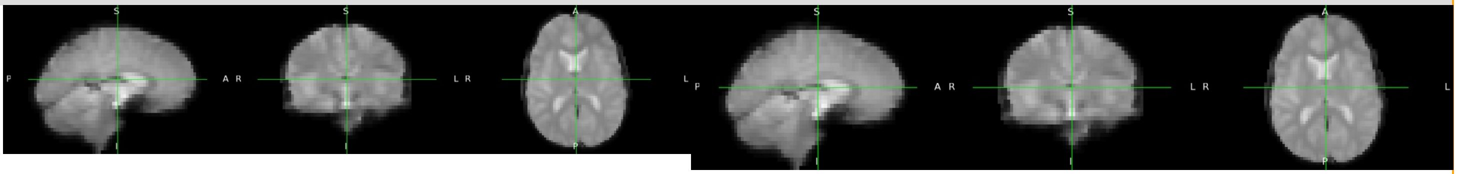

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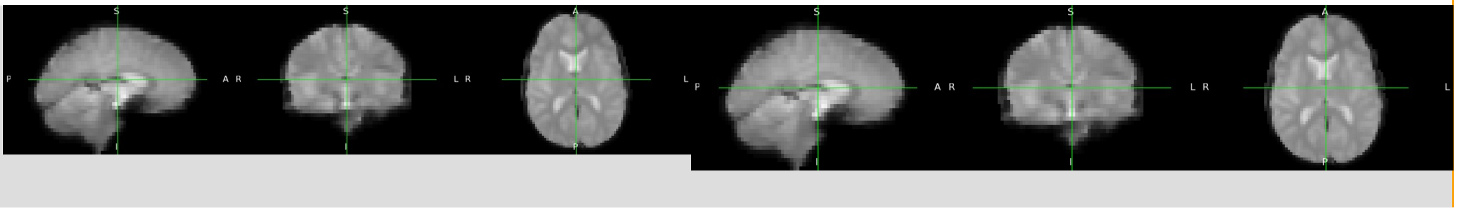
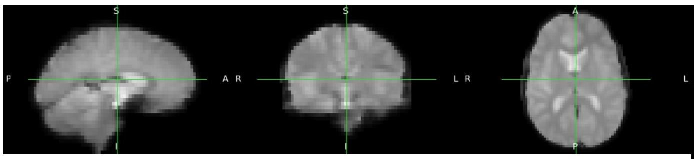
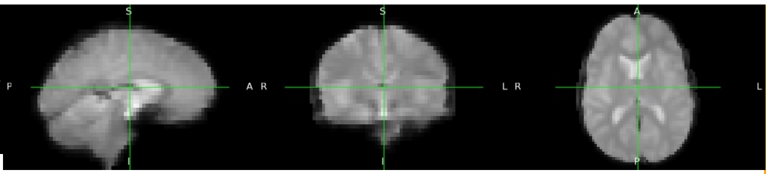
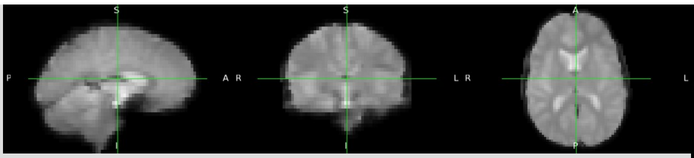
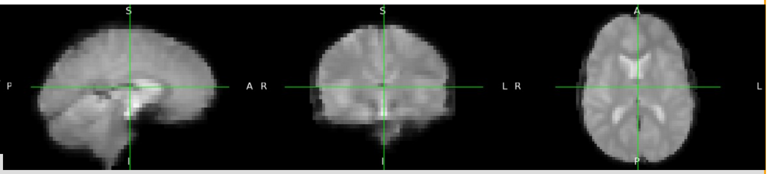
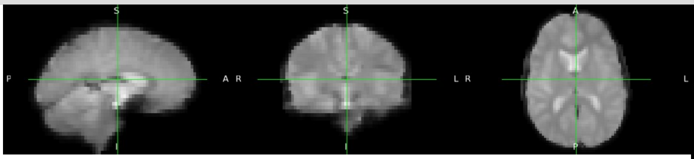
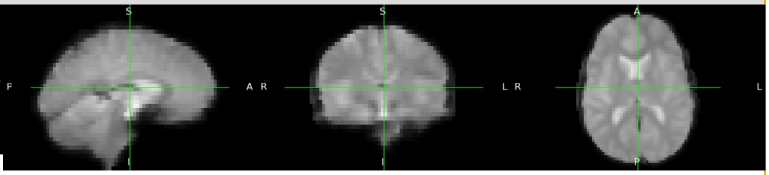
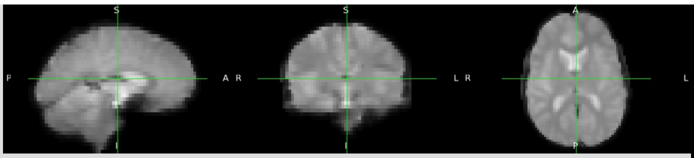
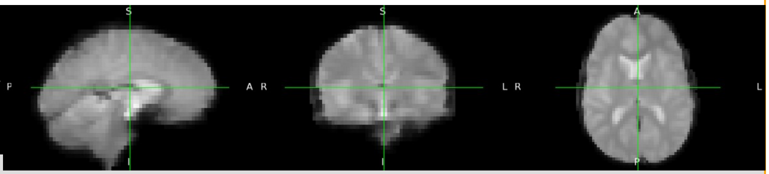
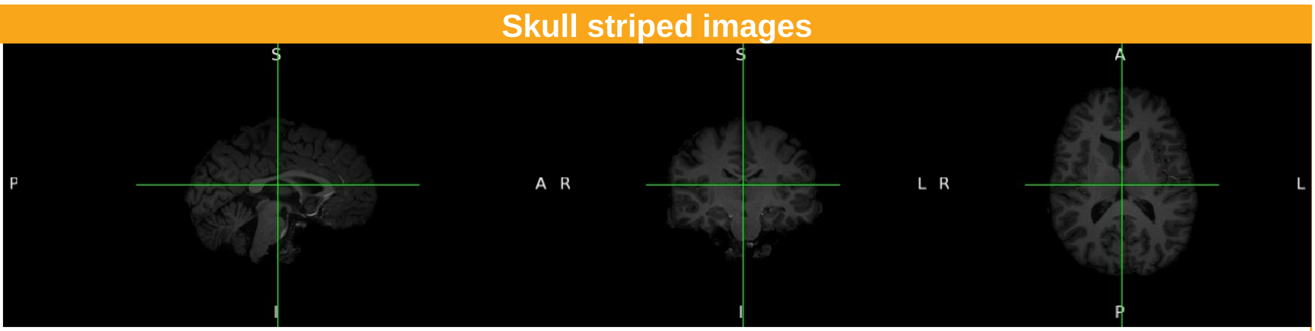
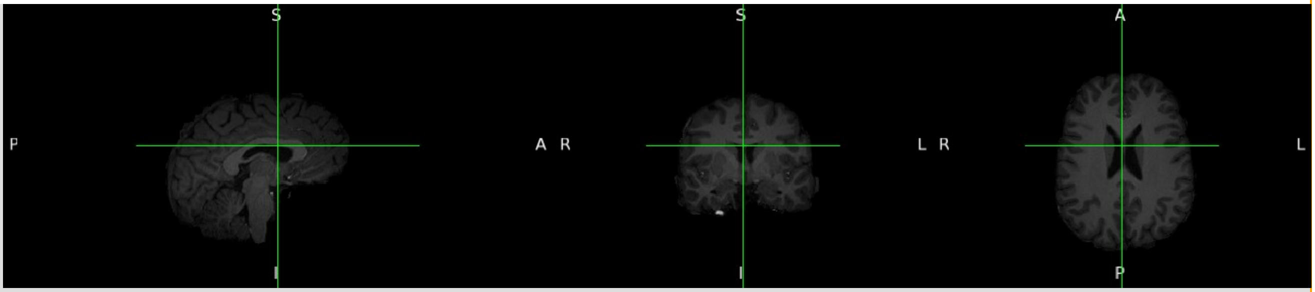
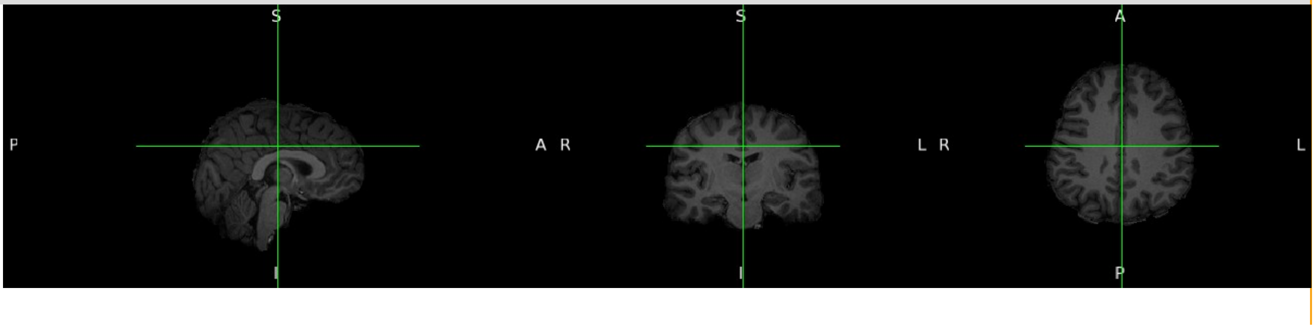
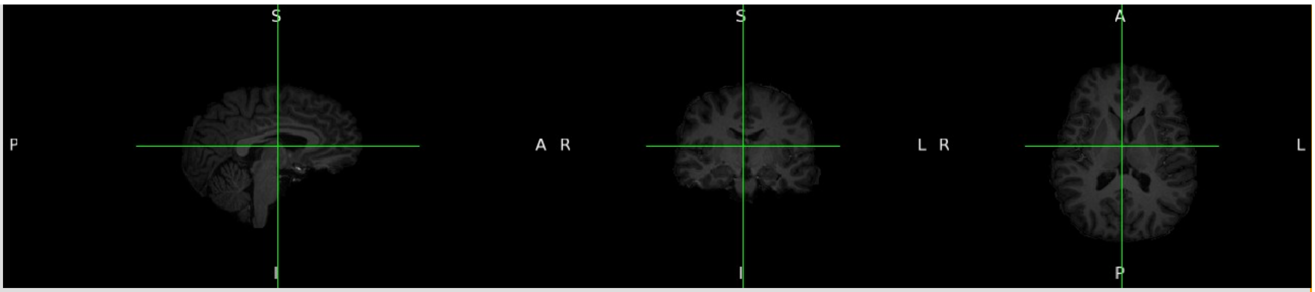


Sub-23		
Sub-24		
Sub-25		
Sub-26		

Subjects	Skull striped images
Sub-1	
Sub-2	
Sub-3	

Sub-4


S
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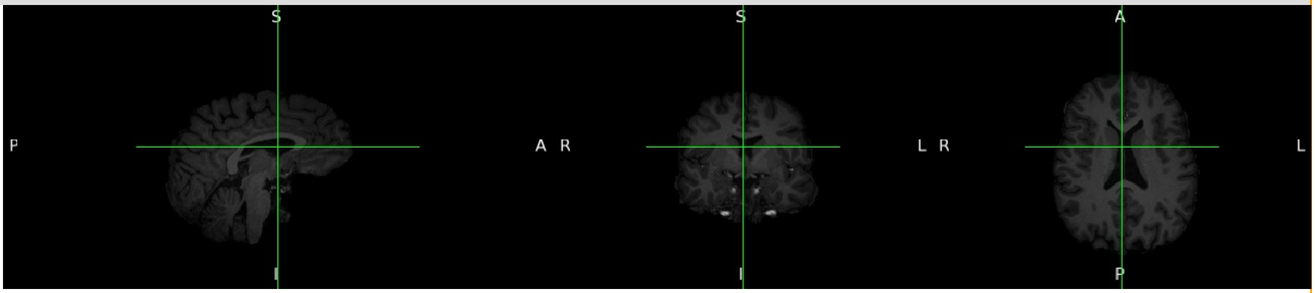
Sub-5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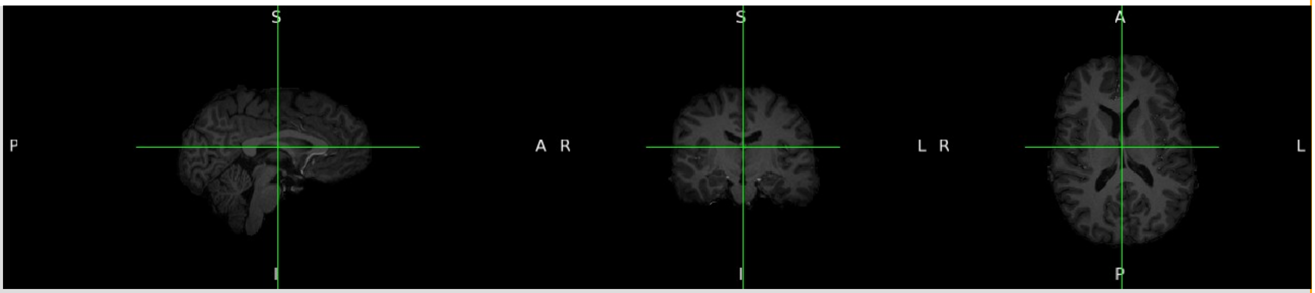
Sub-6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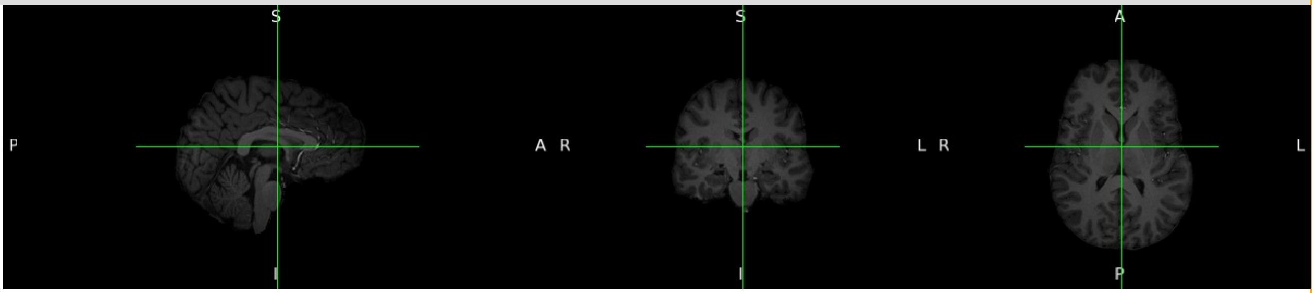
Sub-7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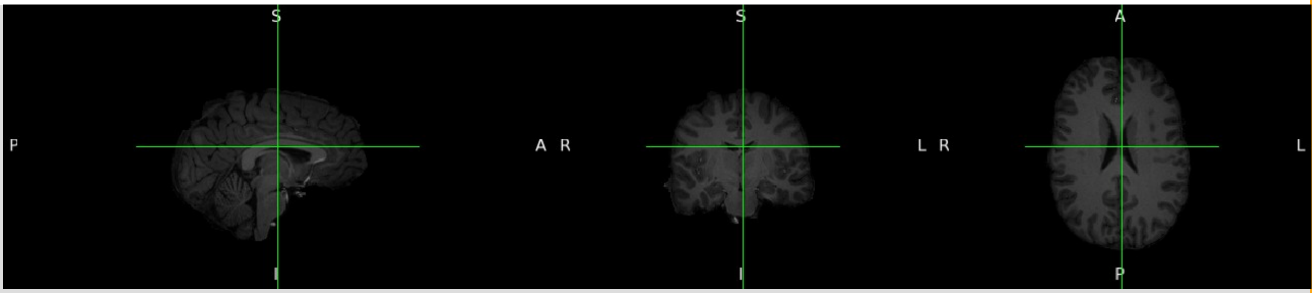
Sub-8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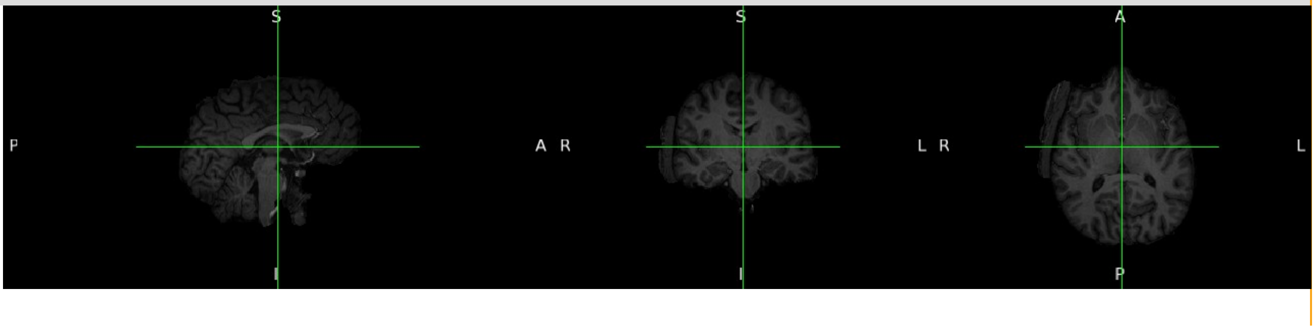
Sub-9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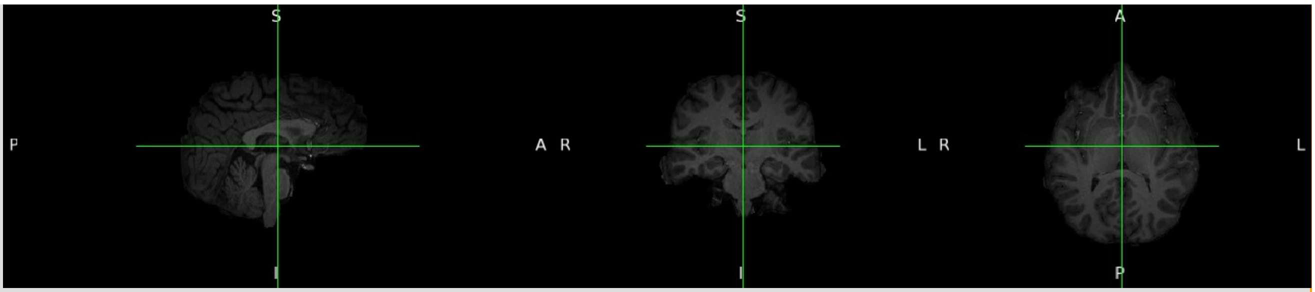
Sub-10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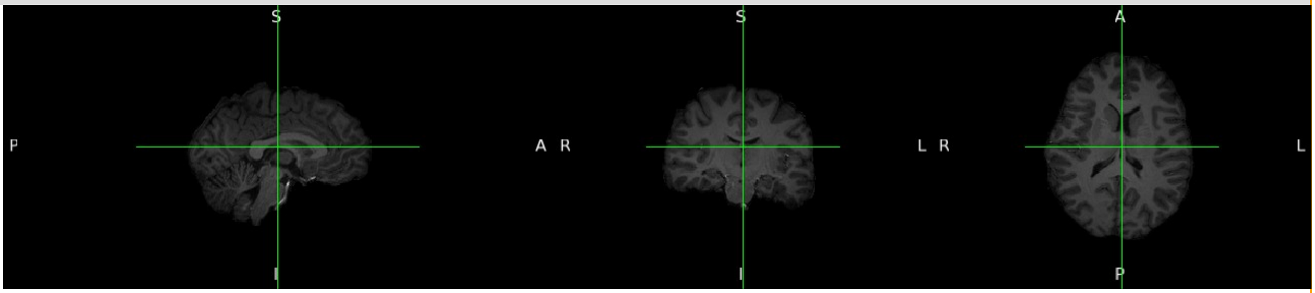
Sub-11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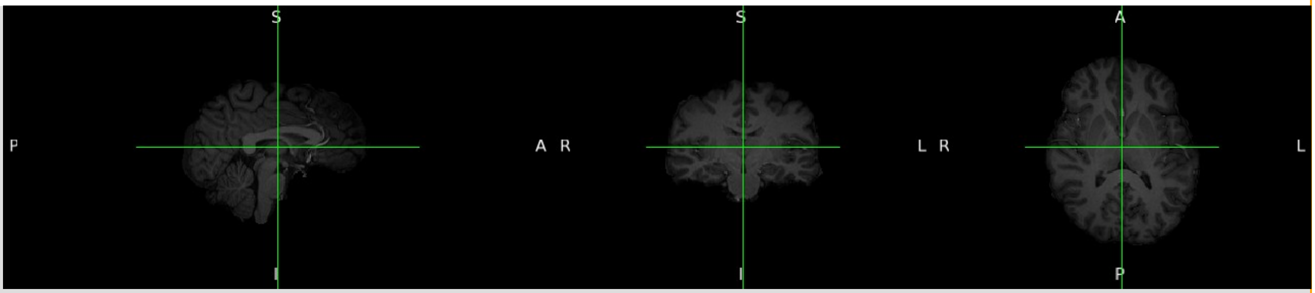
Sub-12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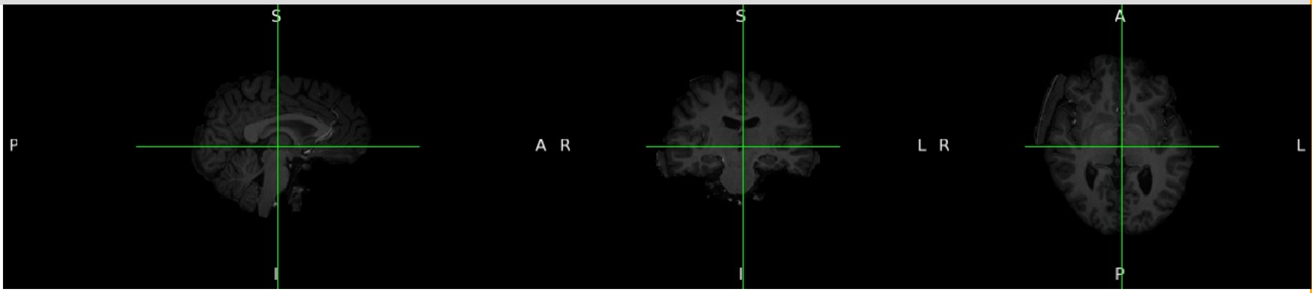
Sub-13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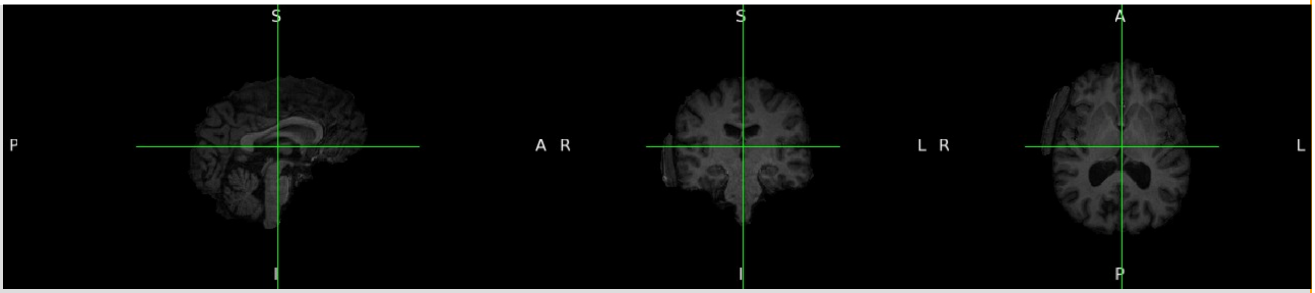
Sub-14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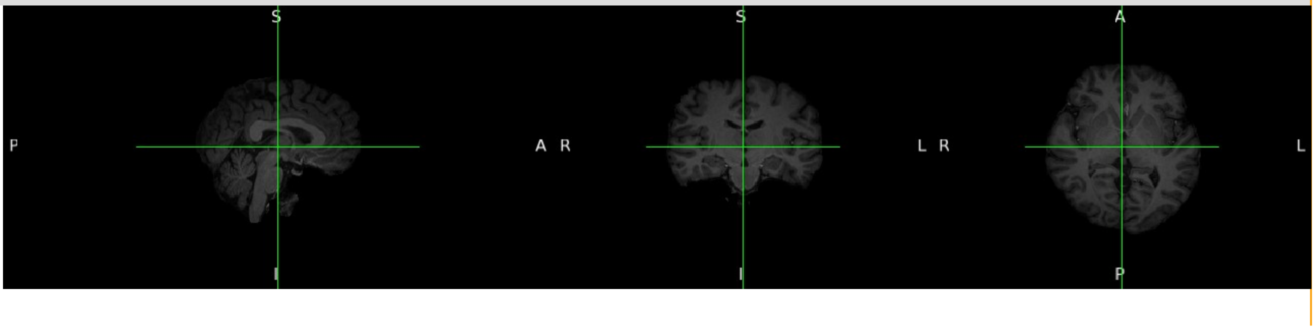
Sub-15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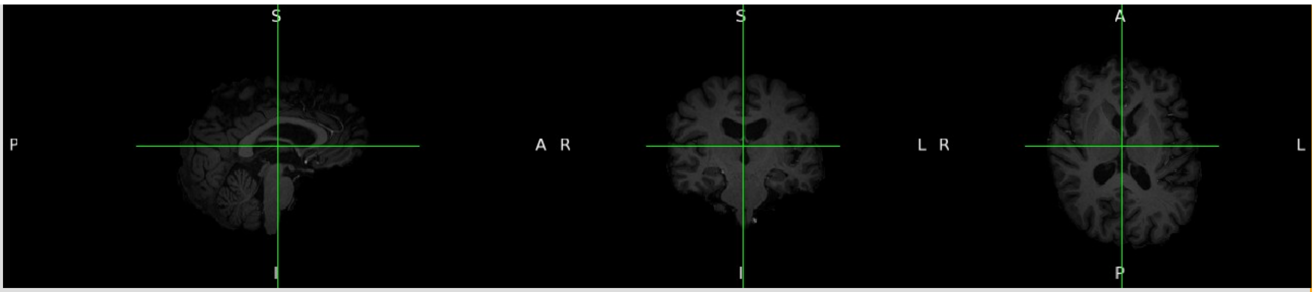
Sub-16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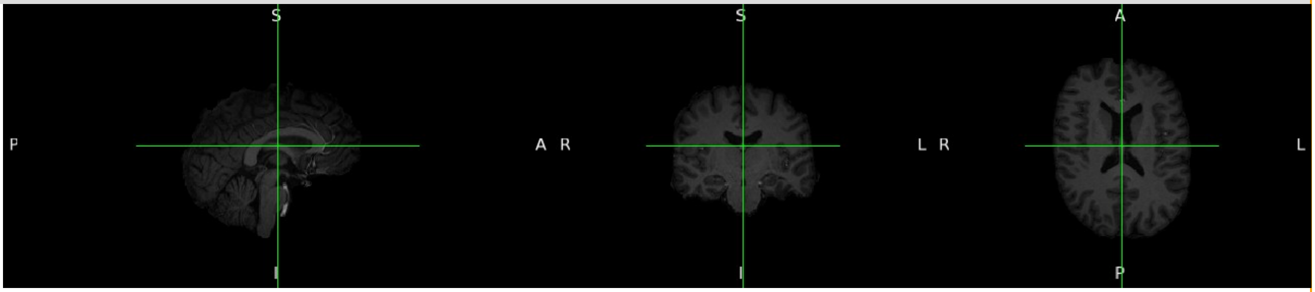
Sub-17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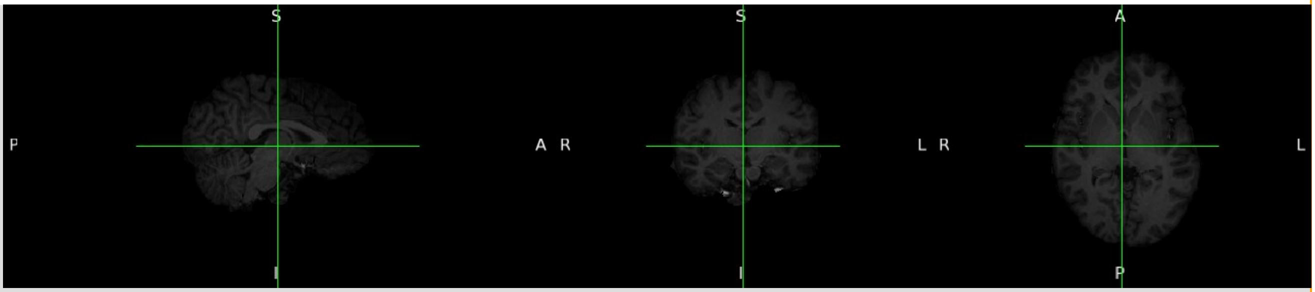
Sub-18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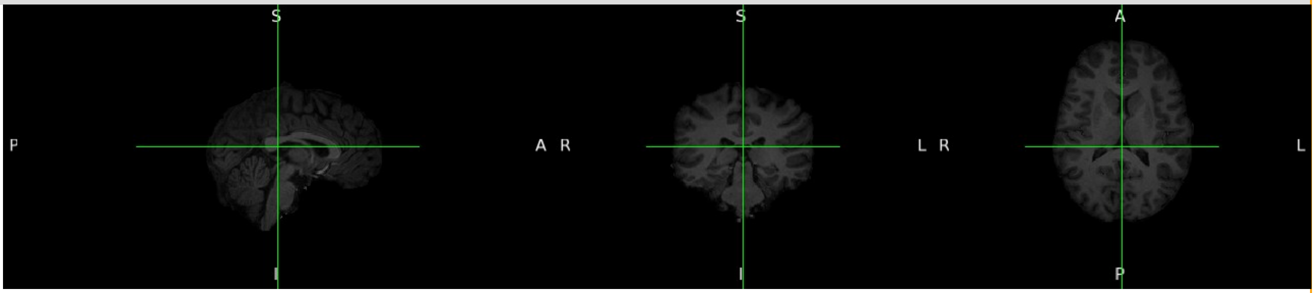
Sub-19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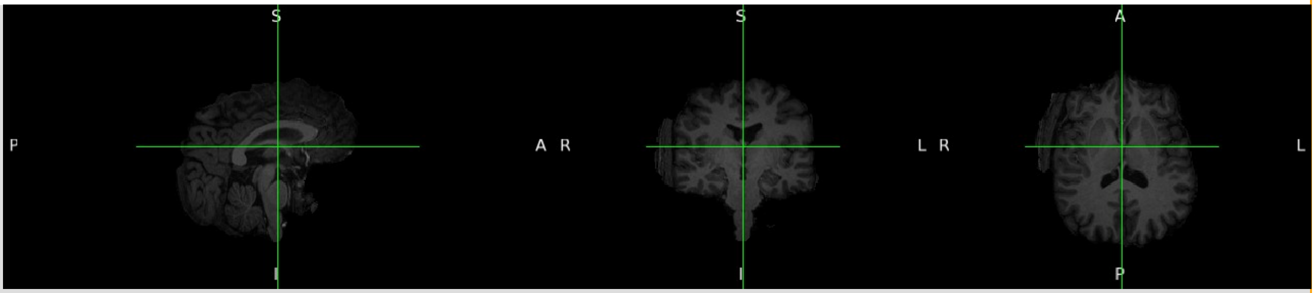
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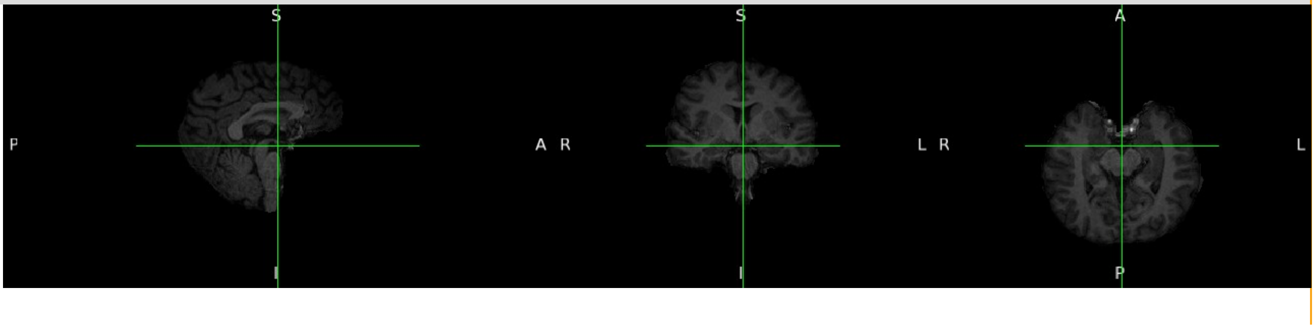
Sub-21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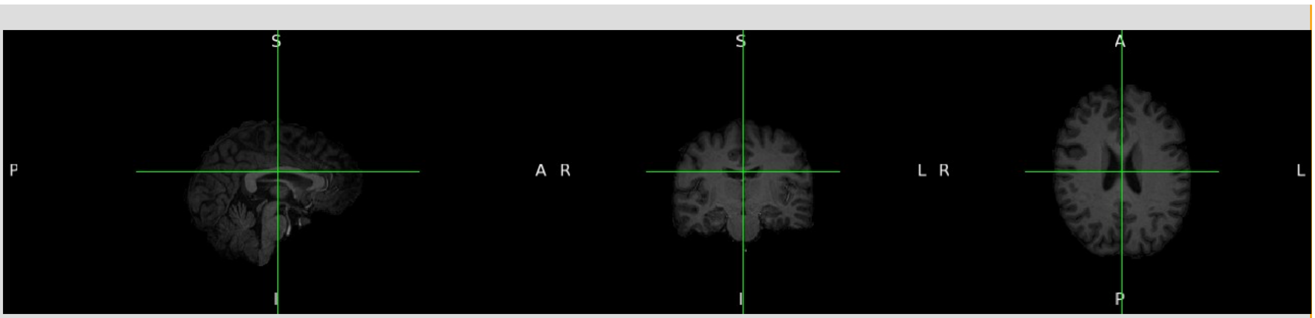
Sub-22


S
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A R
L R
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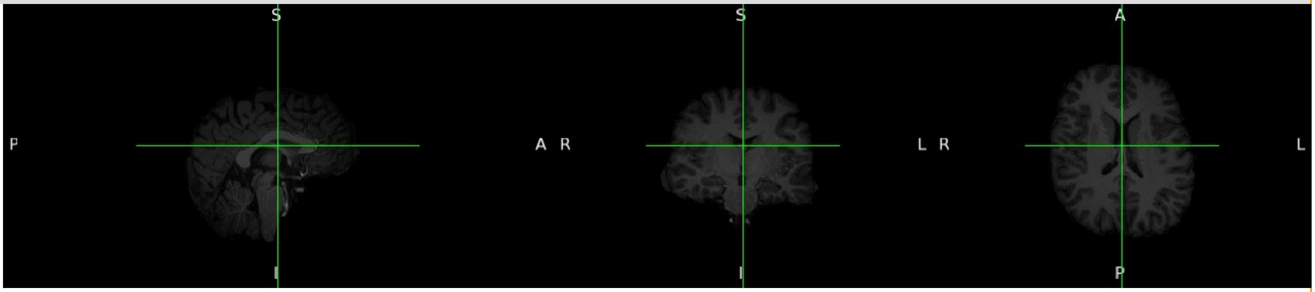
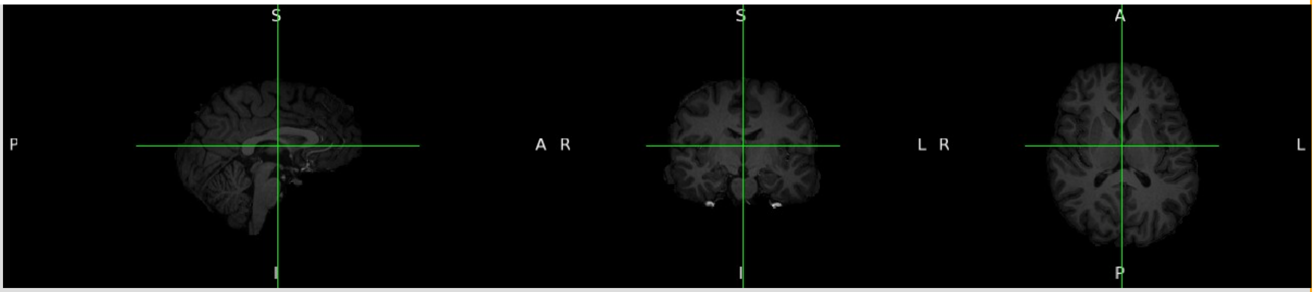
P

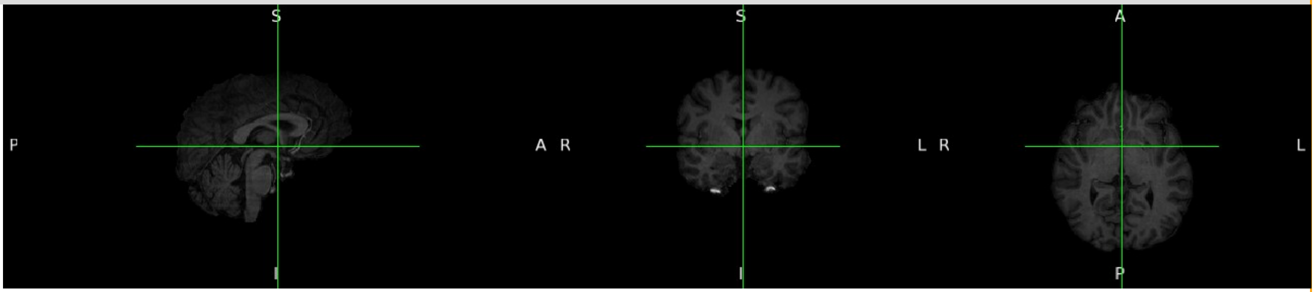
Sub-23


S
S
A
P
A R
L R
L
I
I
P

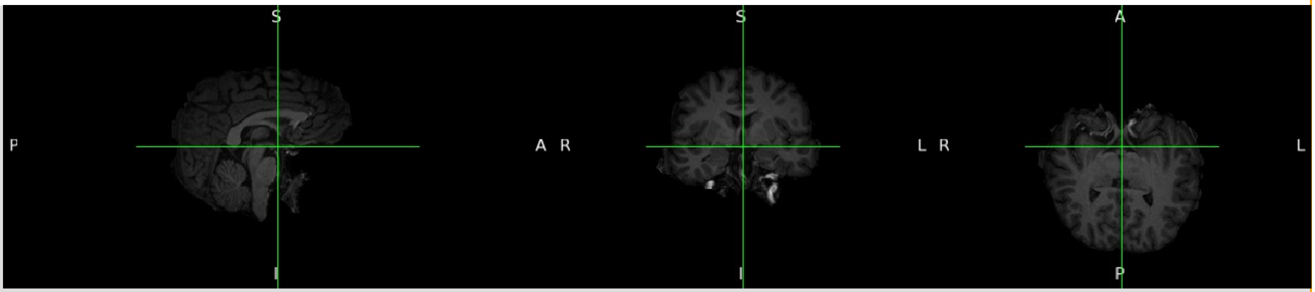
Sub-24


S
S
A
P
A R
L R
L
I
I
P

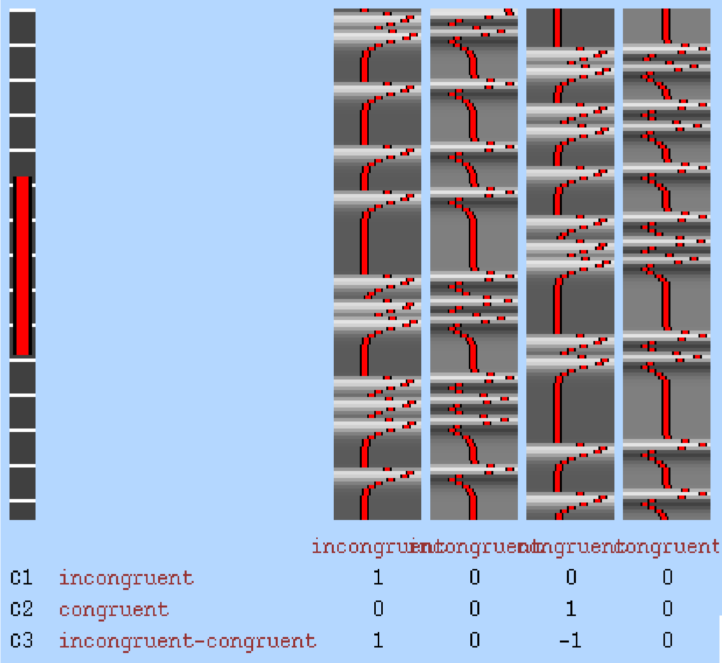
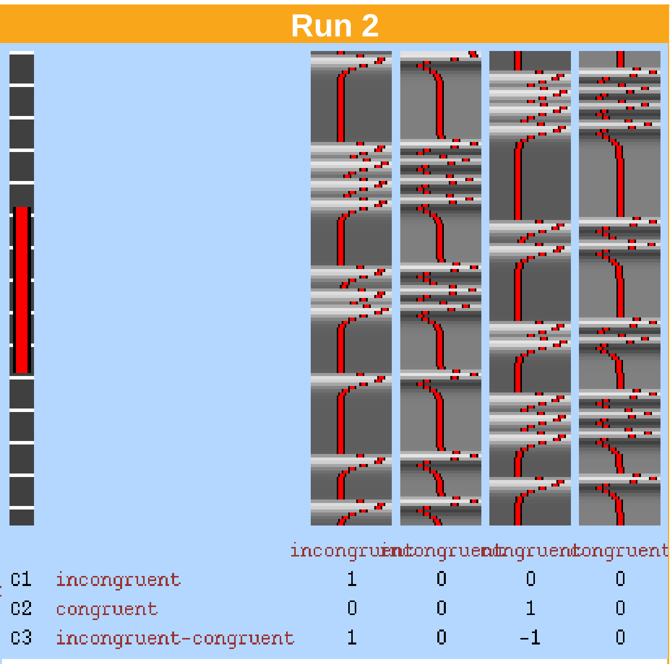
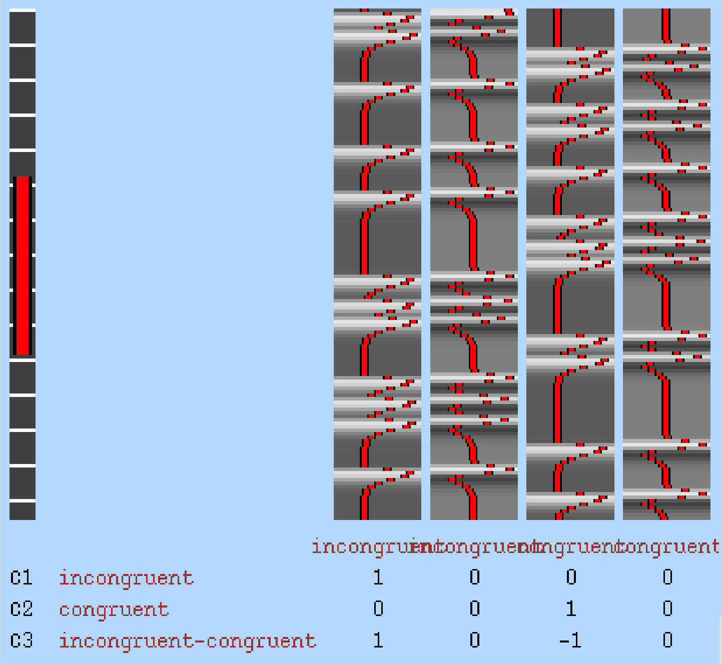
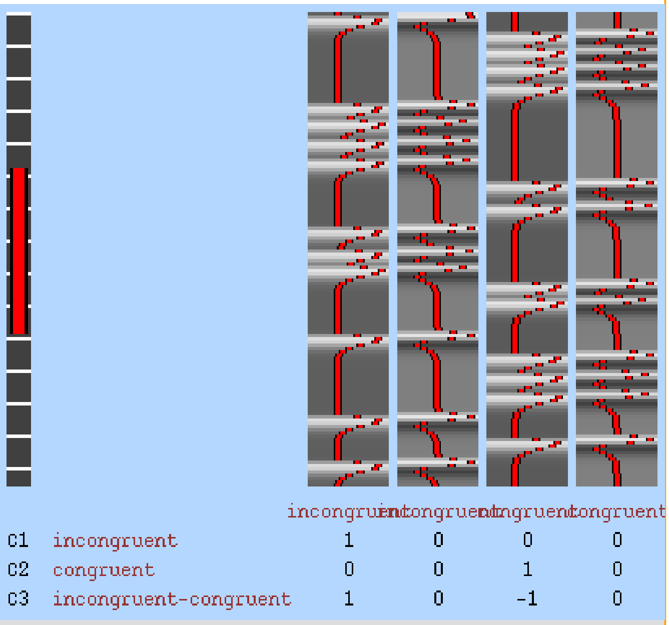
Sub-25


S
S
A
P
A R
L R
L
I
I
P

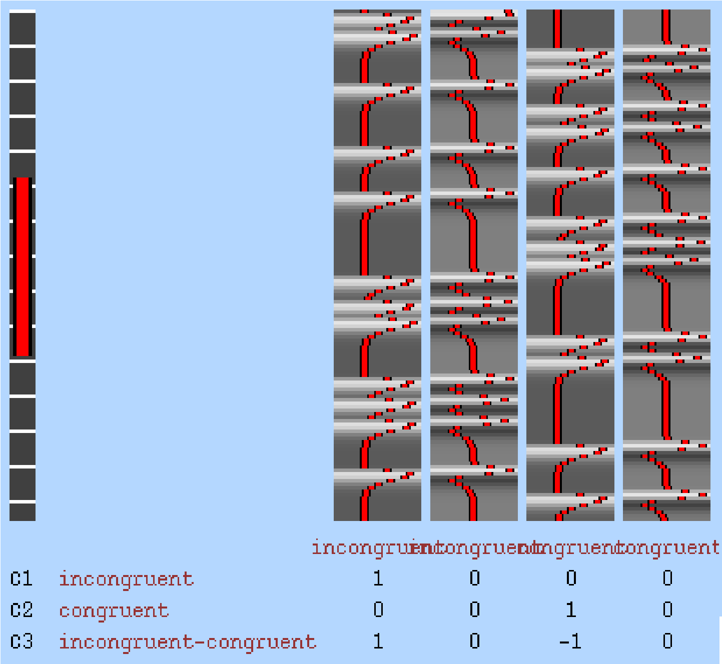
Sub-26


S
S
A
P
A R
L R
L
I
I
P

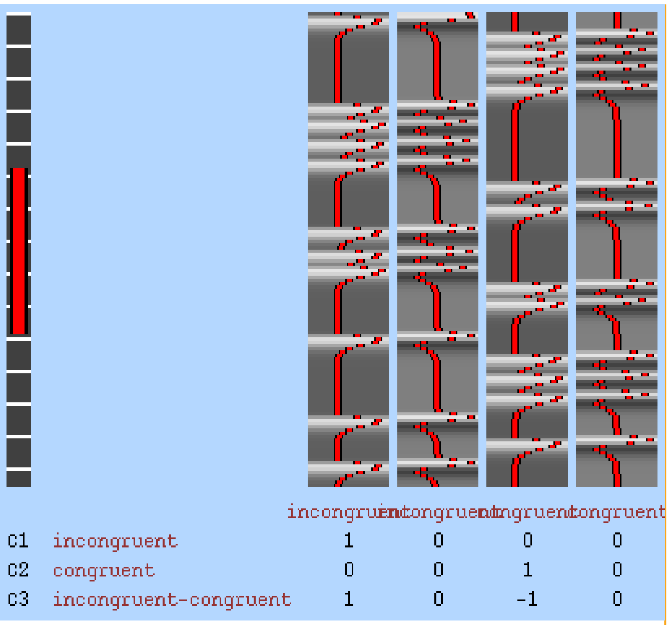
GLM Design

Subjects	Run 1	Run 2
Sub-1	 incongruent incongruent congruent congruent C1 incongruent 1 0 0 0 C2 congruent 0 0 1 0 C3 incongruent-congruent 1 0 -1 0	 incongruent incongruent congruent congruent C1 incongruent 1 0 0 0 C2 congruent 0 0 1 0 C3 incongruent-congruent 1 0 -1 0
Sub-2	 incongruent incongruent congruent congruent C1 incongruent 1 0 0 0 C2 congruent 0 0 1 0 C3 incongruent-congruent 1 0 -1 0	 incongruent incongruent congruent congruent C1 incongruent 1 0 0 0 C2 congruent 0 0 1 0 C3 incongruent-congruent 1 0 -1 0

Sub-3



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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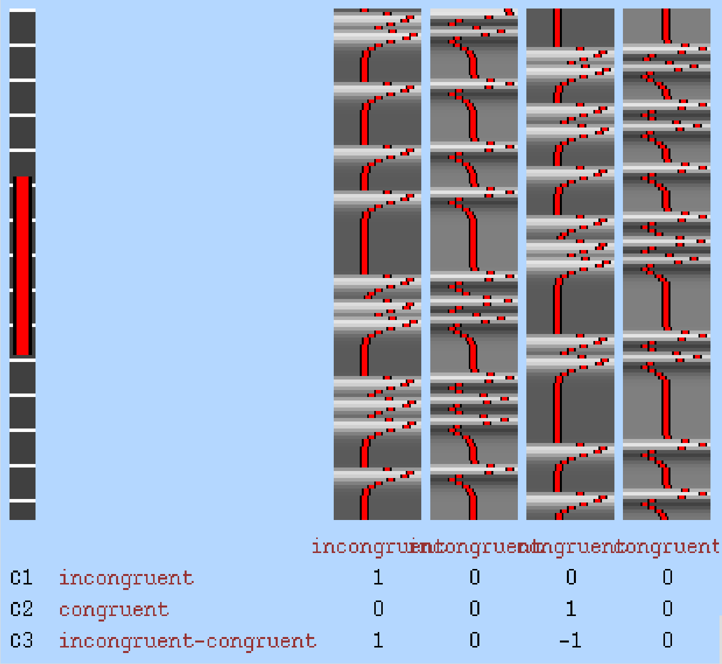
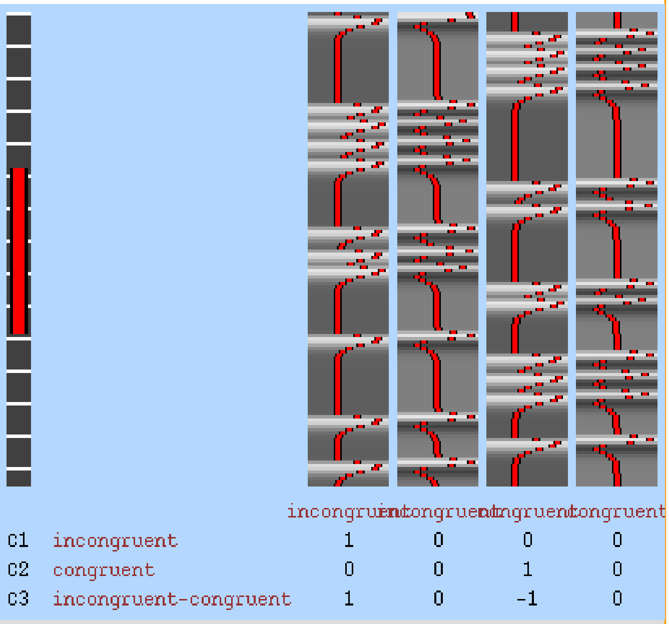
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-4

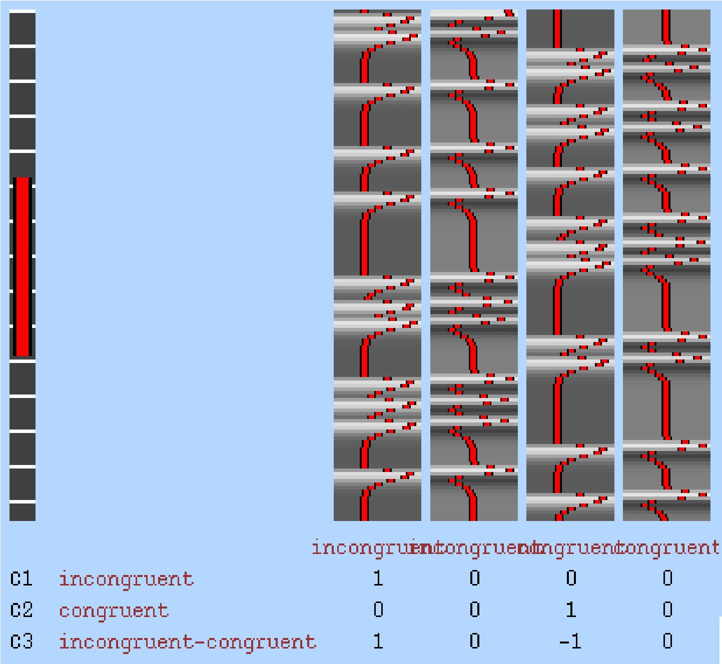


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

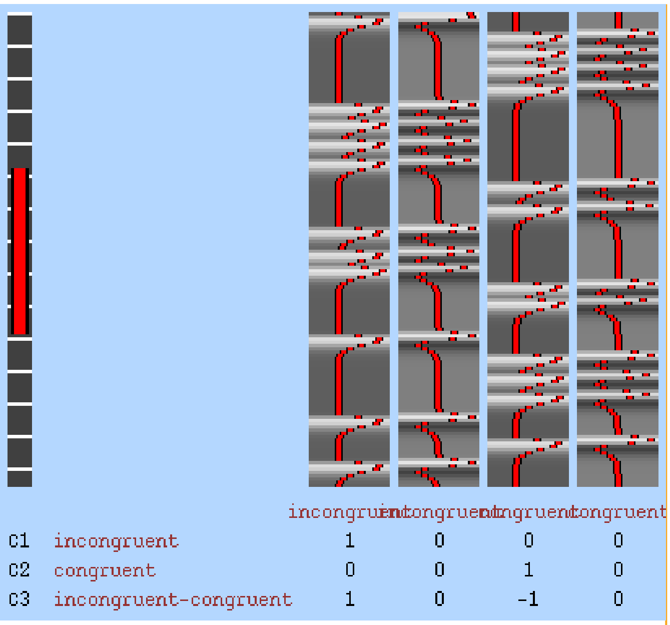


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-5

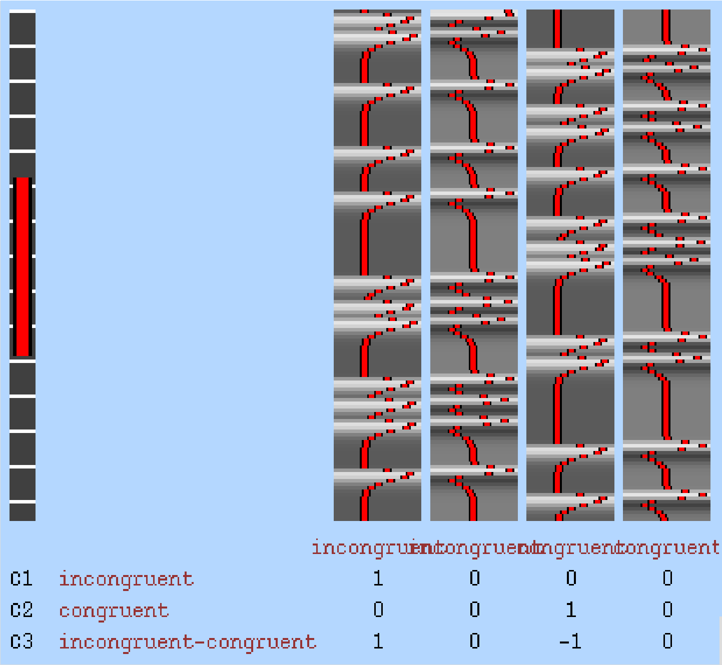


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

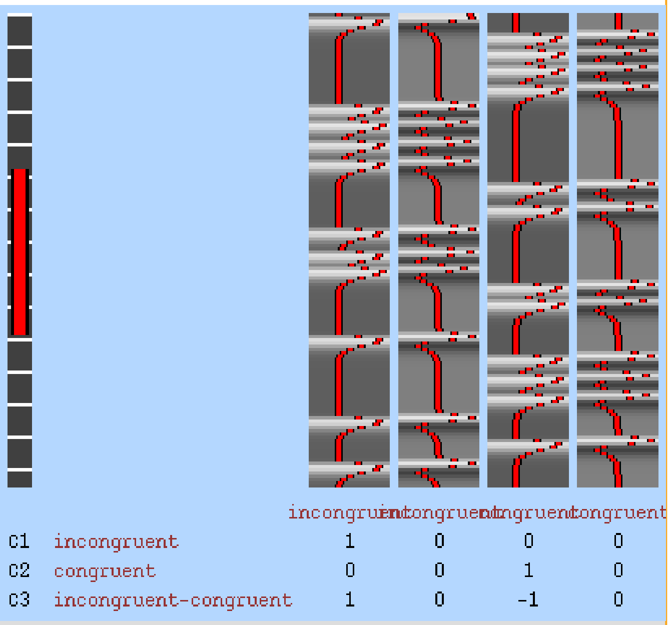


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-6

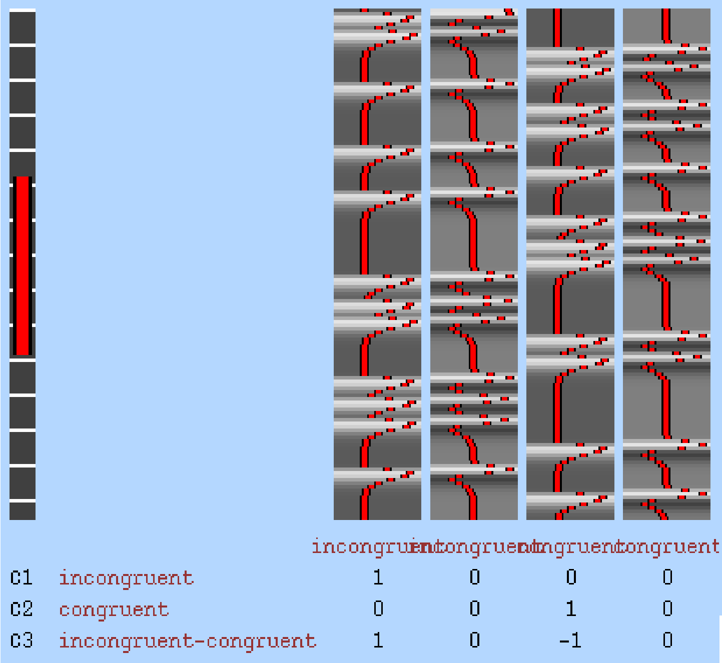


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

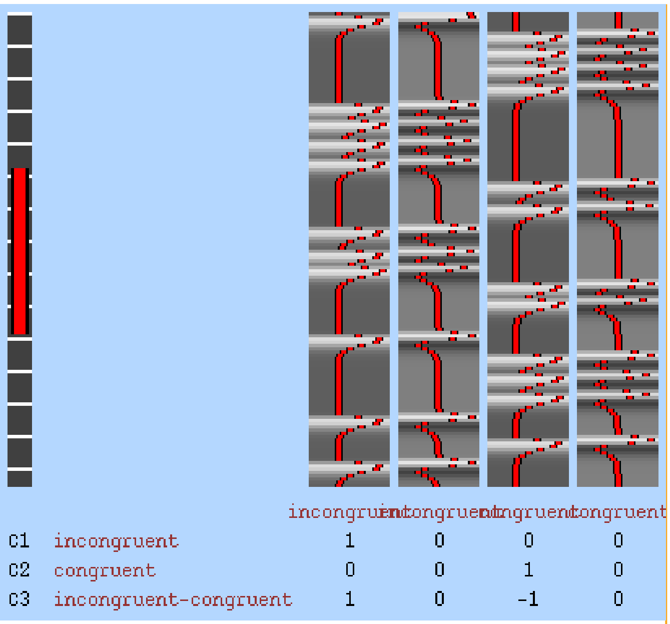


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-7

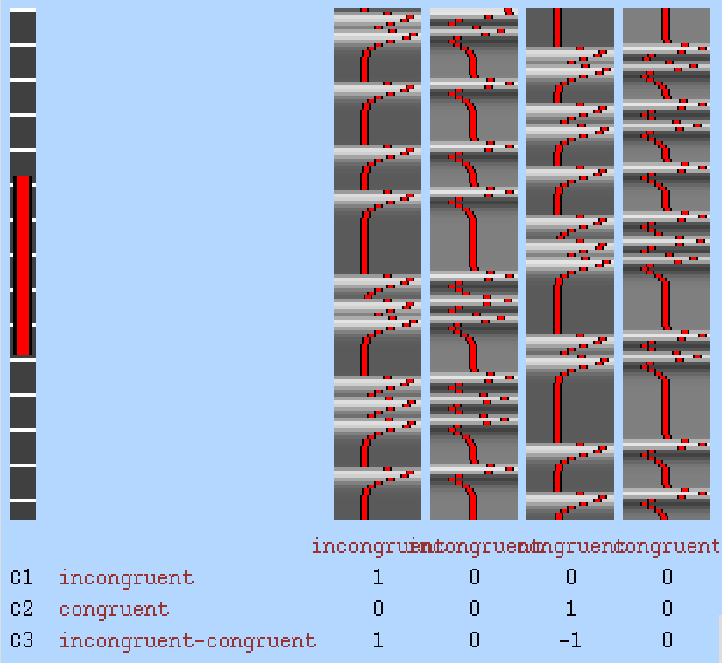


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

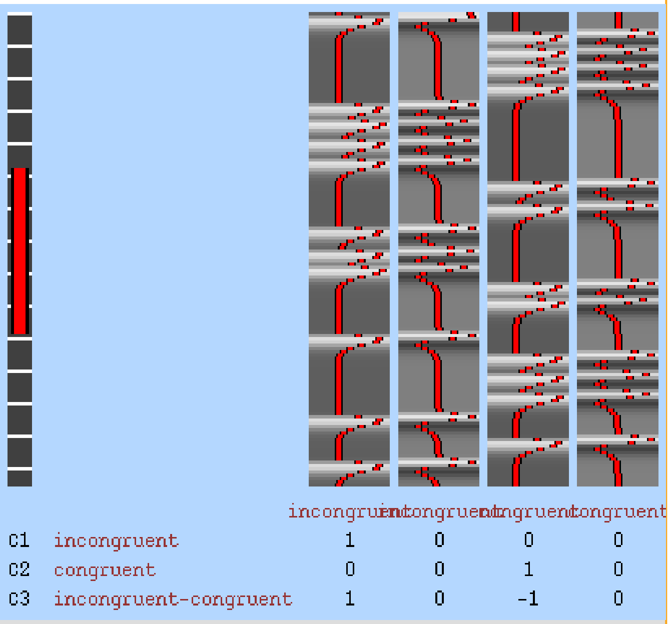


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-8

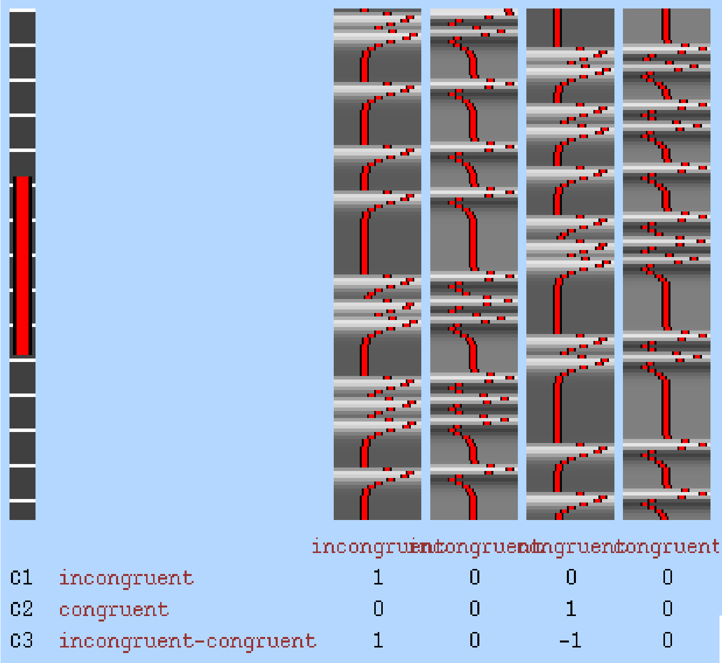


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

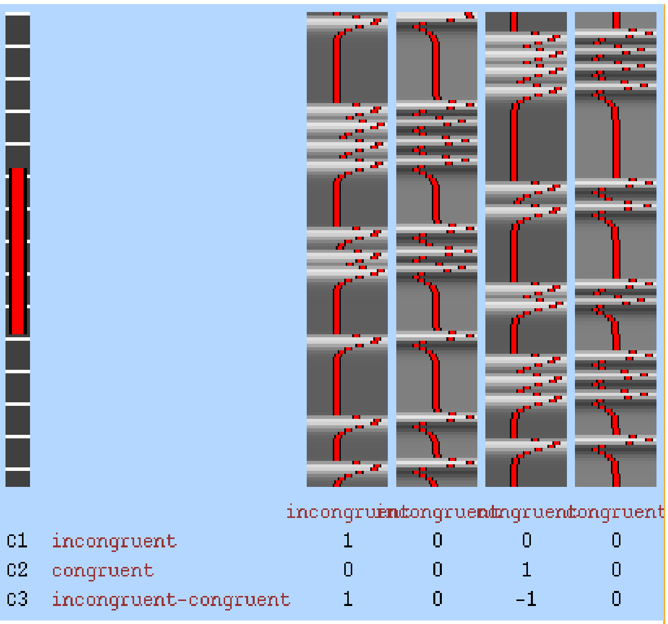


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-9

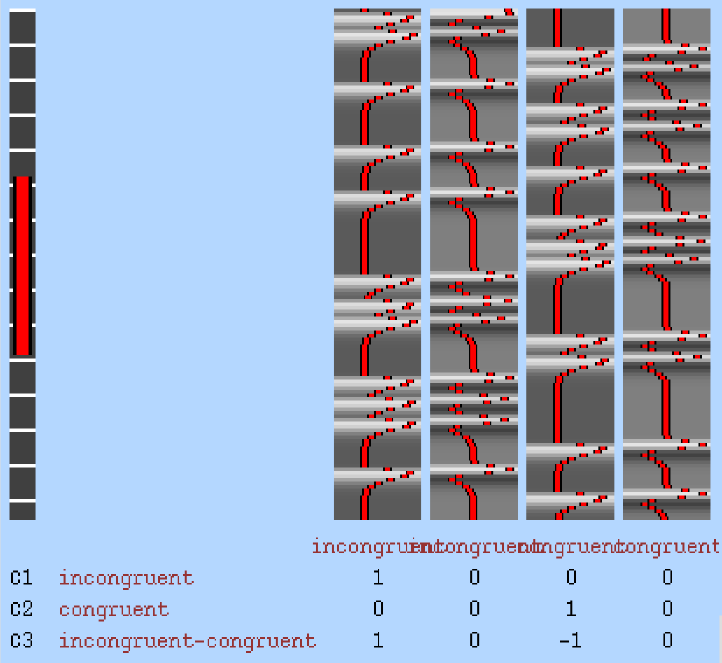


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

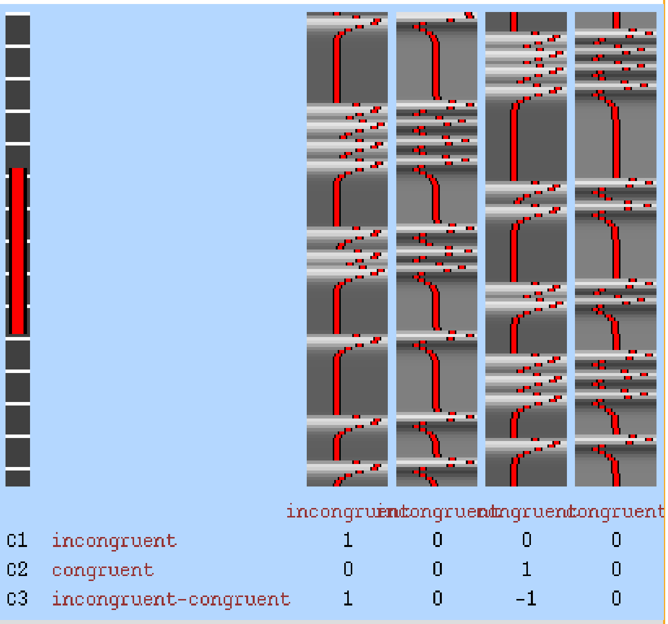


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-10



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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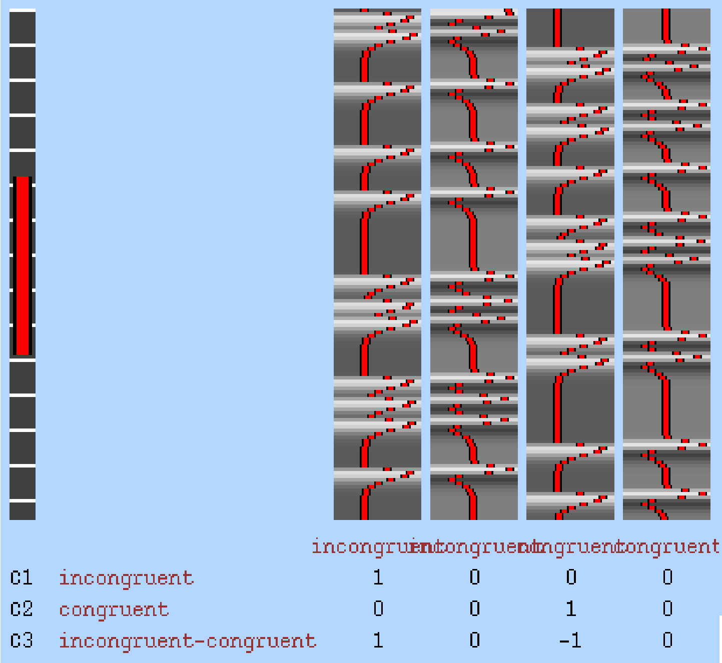
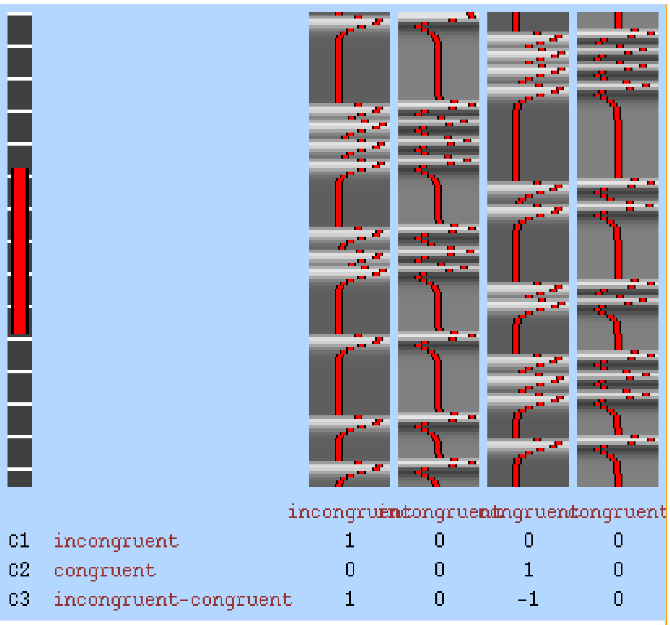
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-11

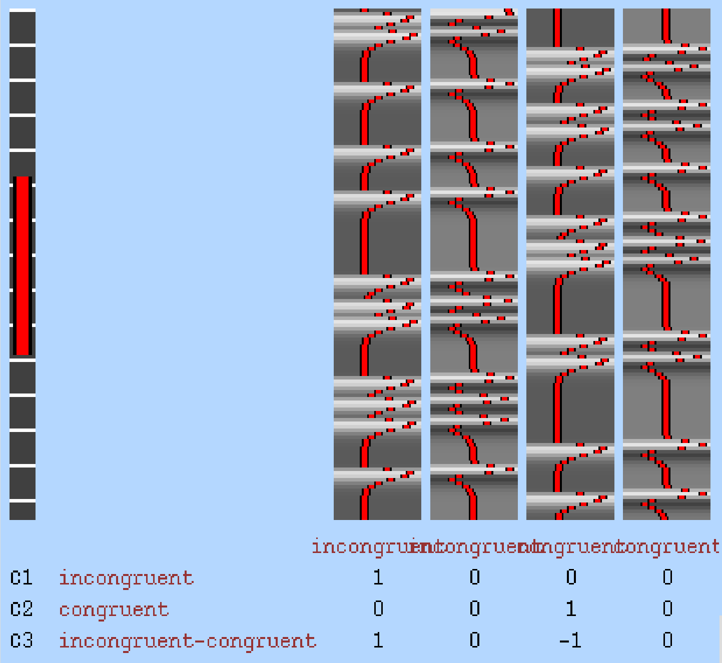


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

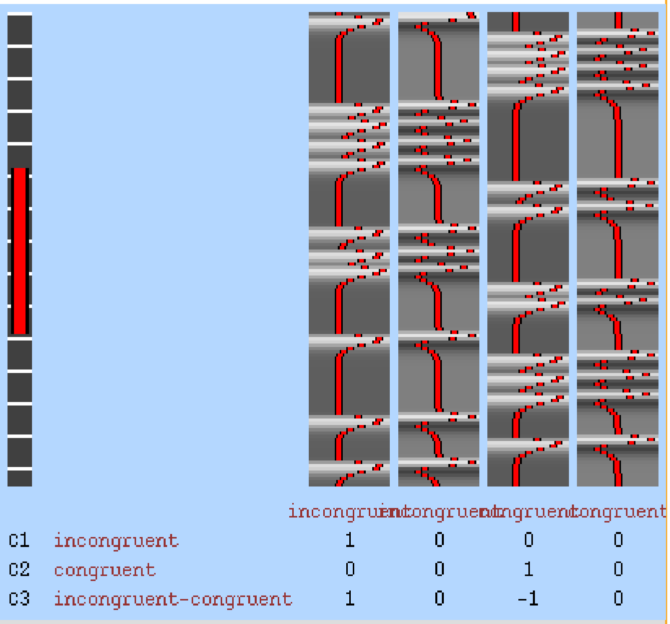


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-12

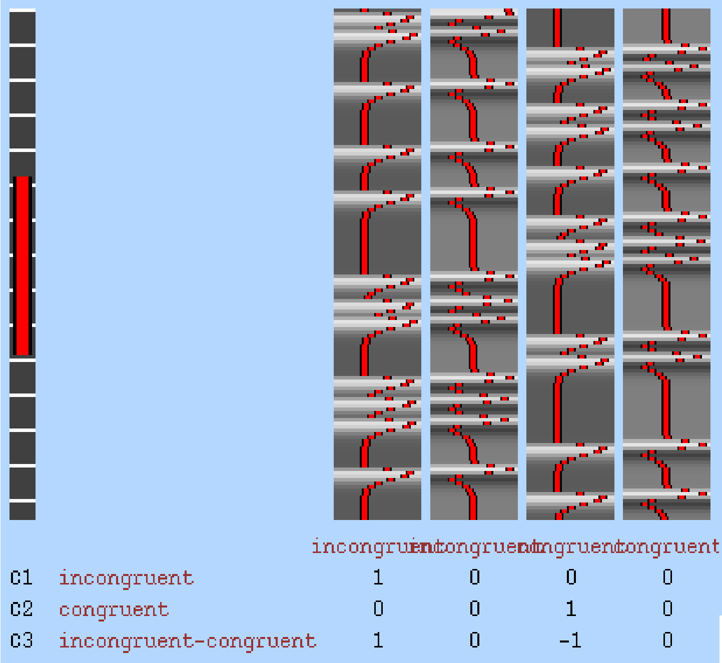


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

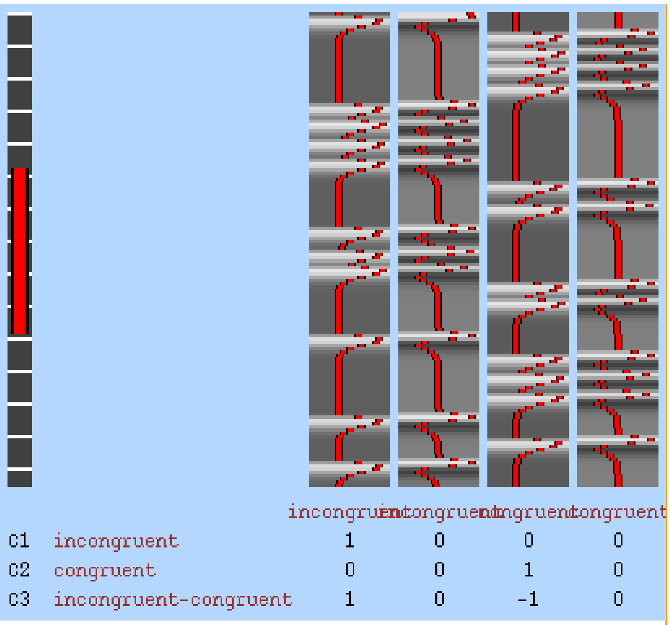


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-13

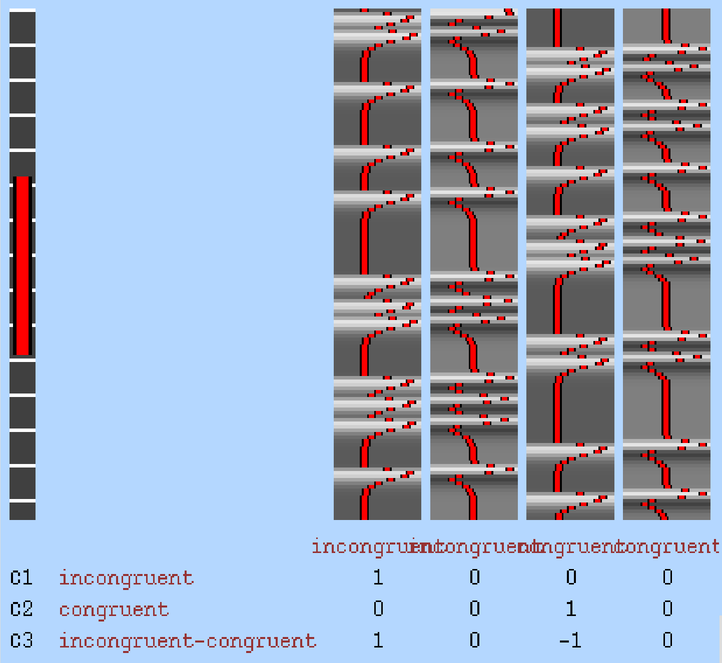


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

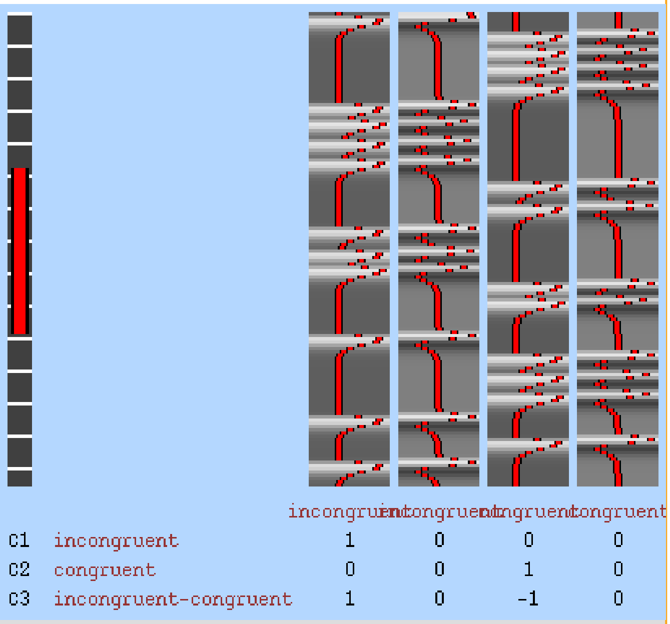


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-14

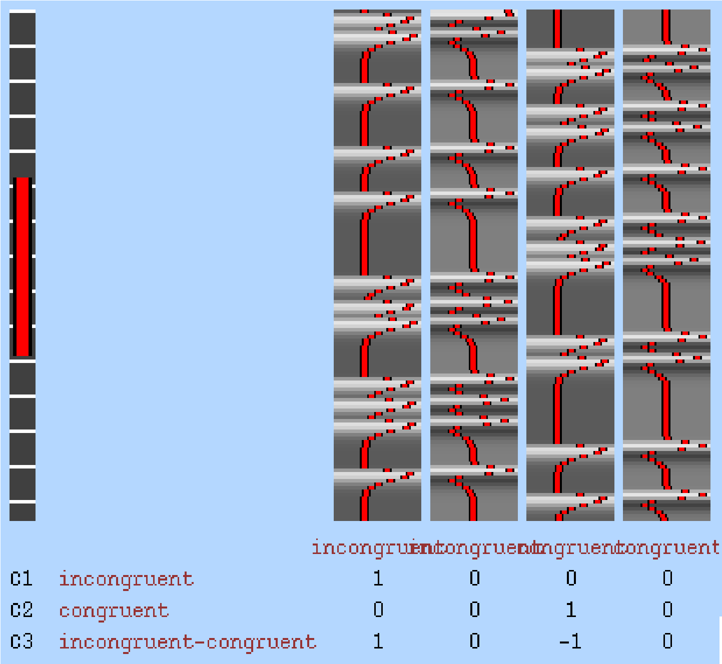


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

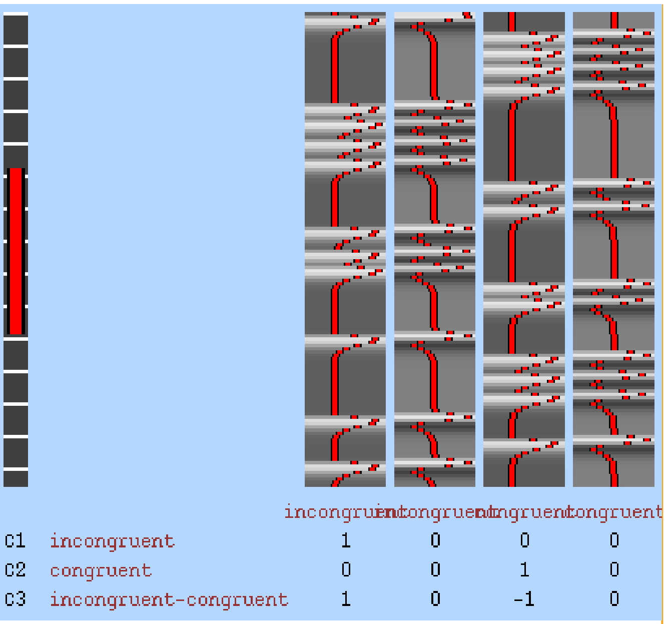


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-15



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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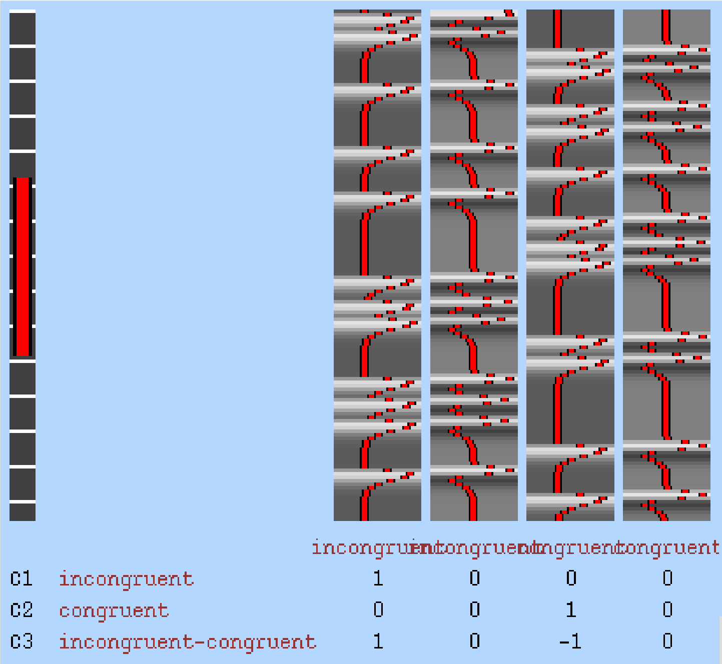
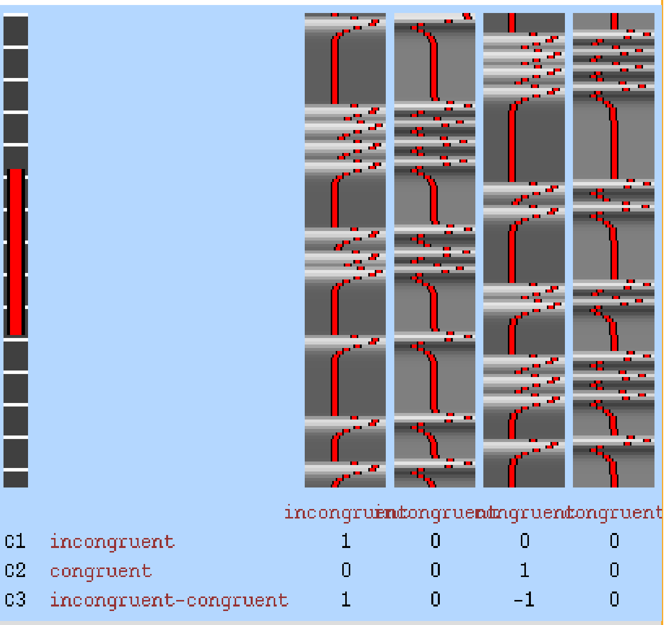
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-16

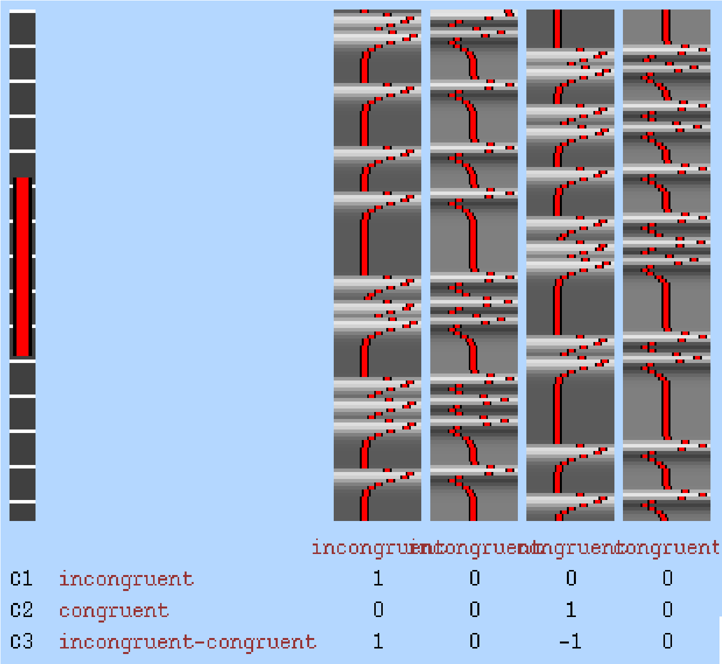


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

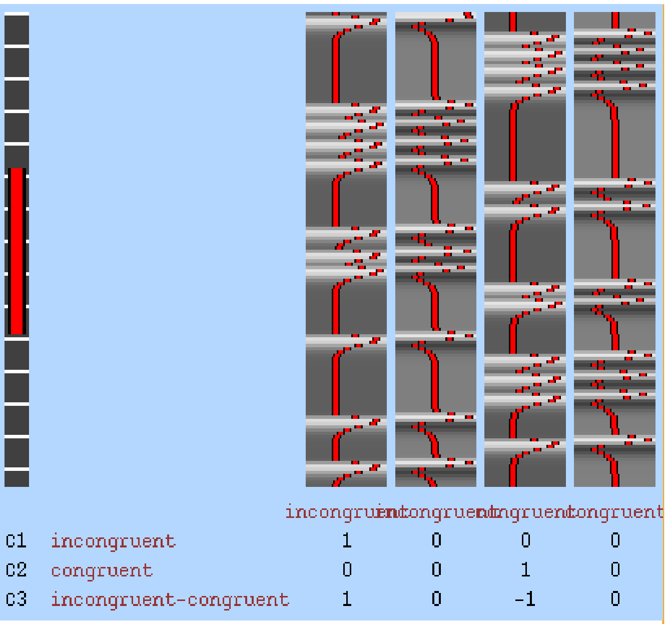


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-17



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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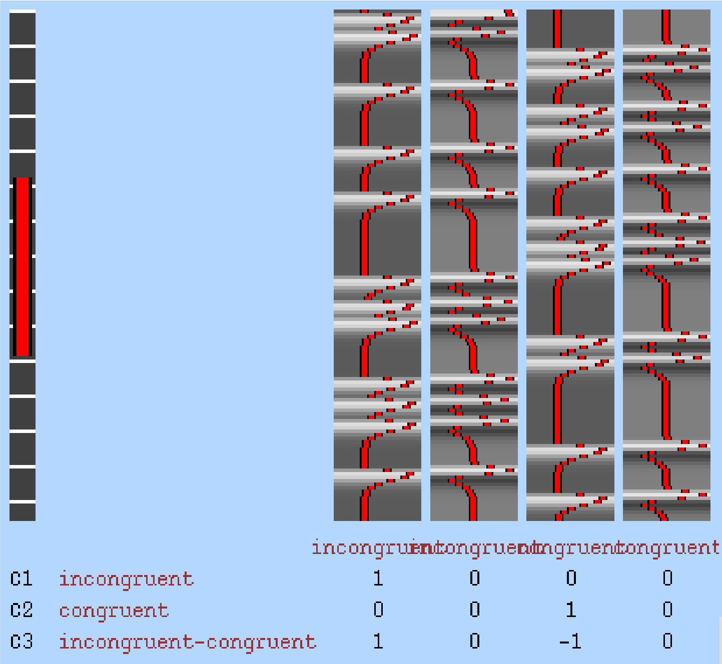
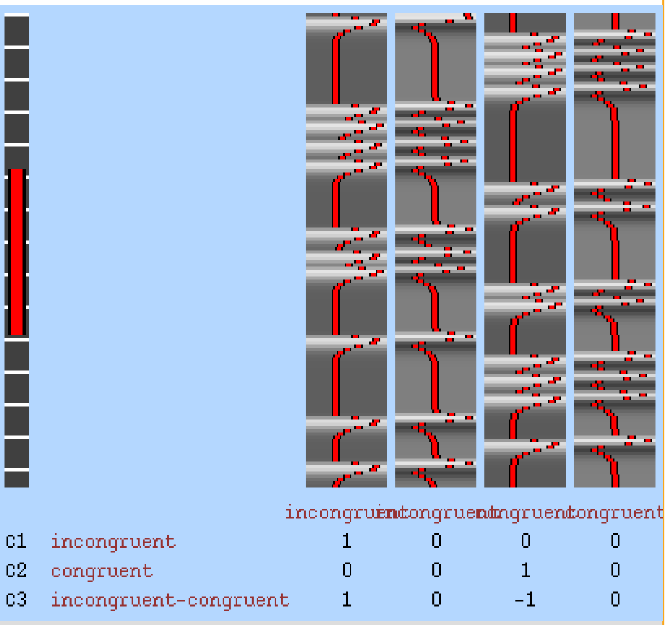
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-18



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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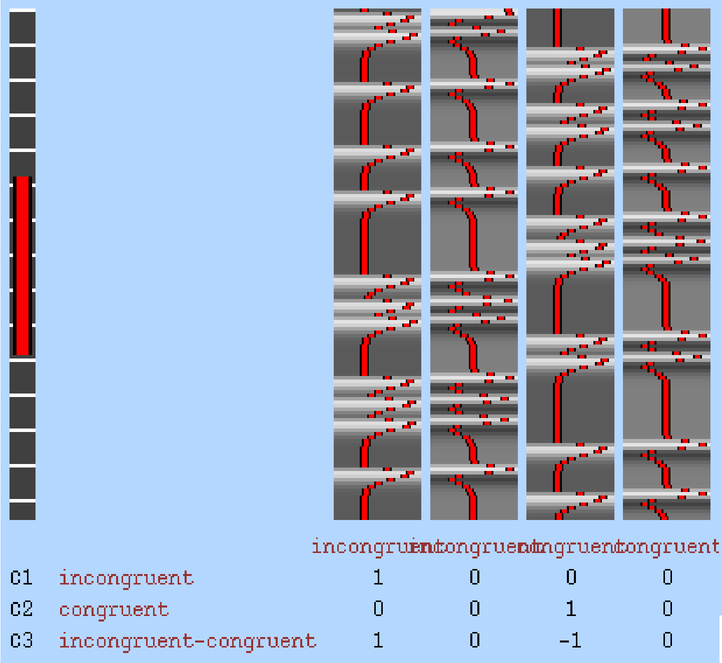
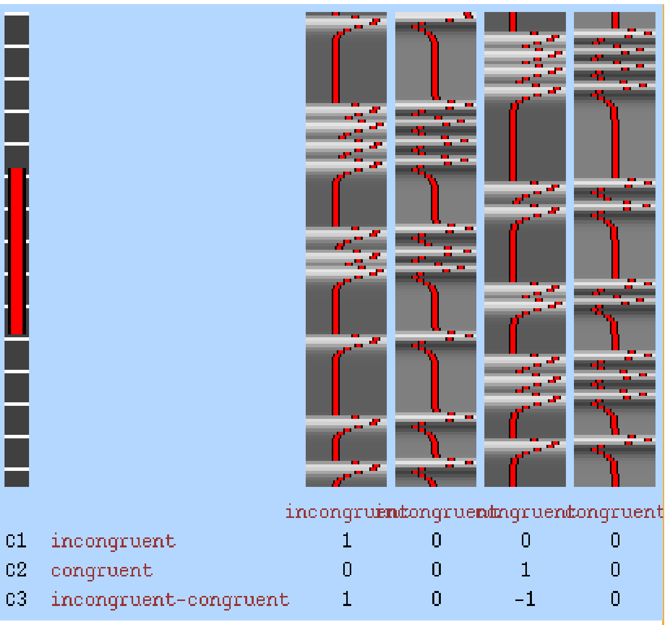
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-19

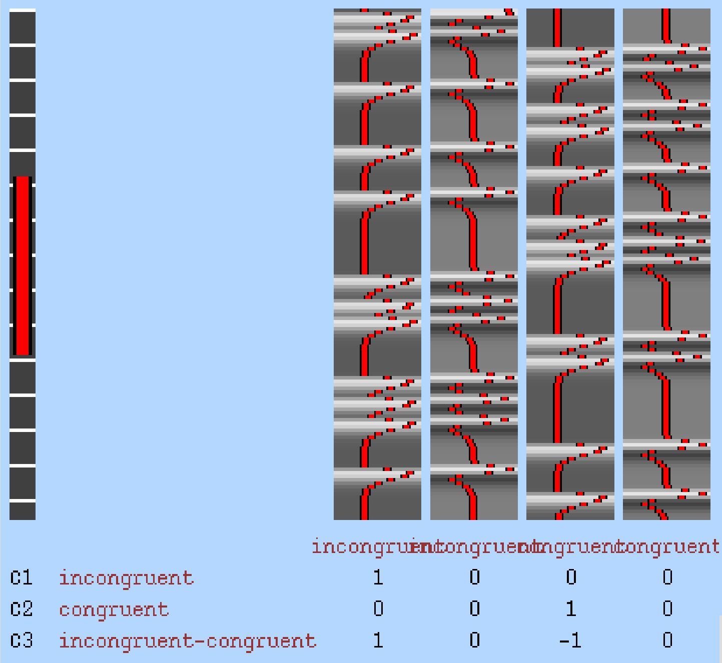


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

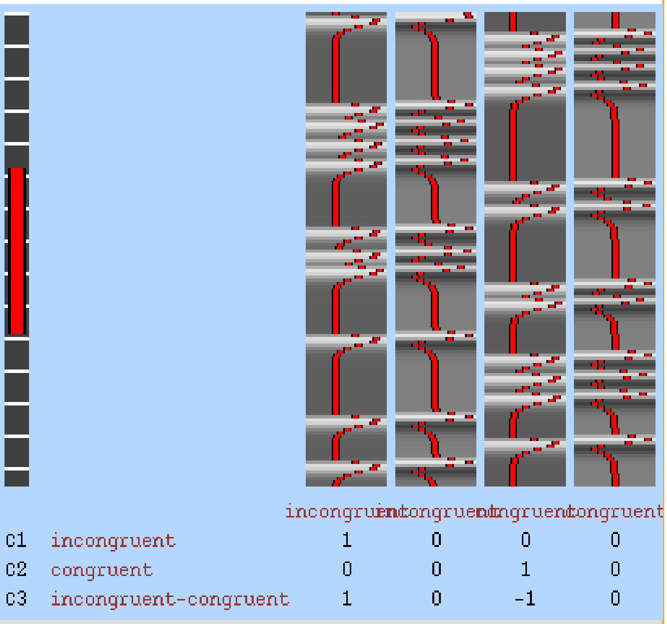


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-20

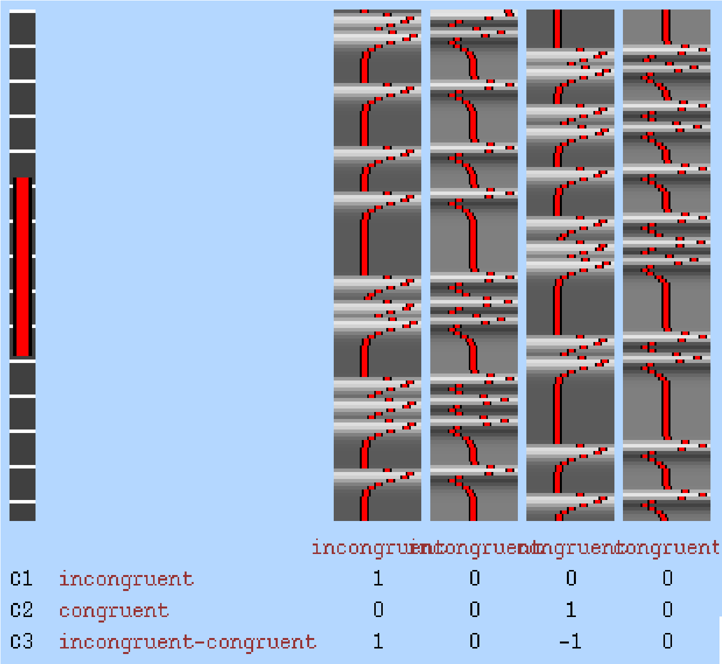


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

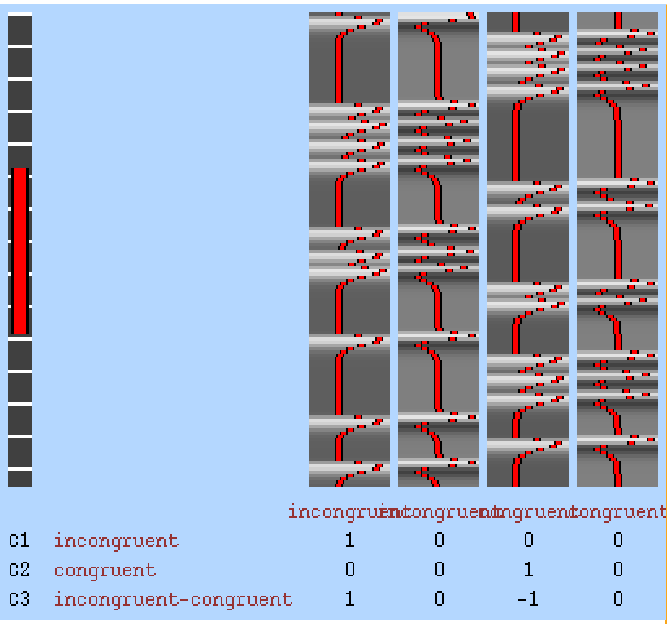


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-21

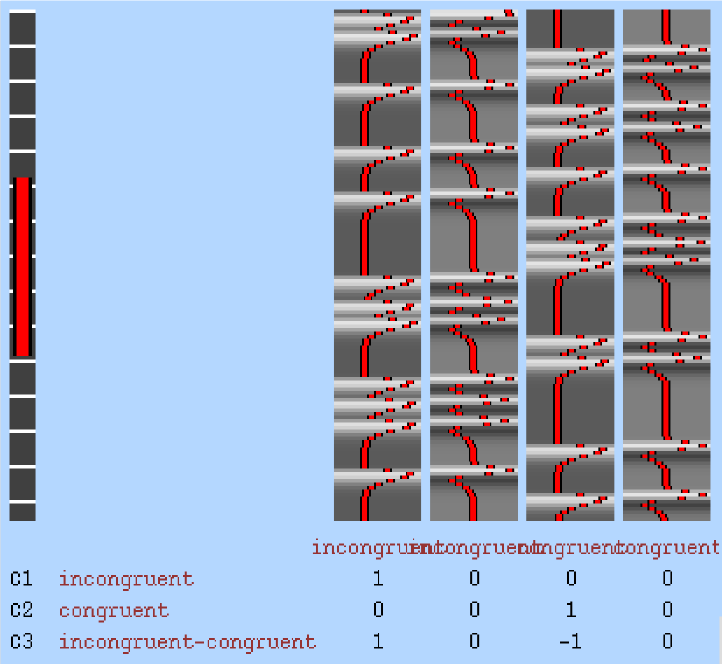


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

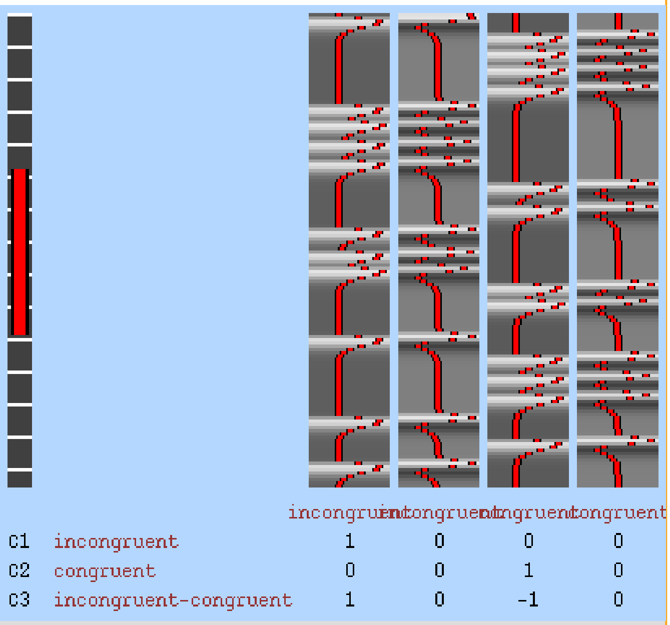


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-22

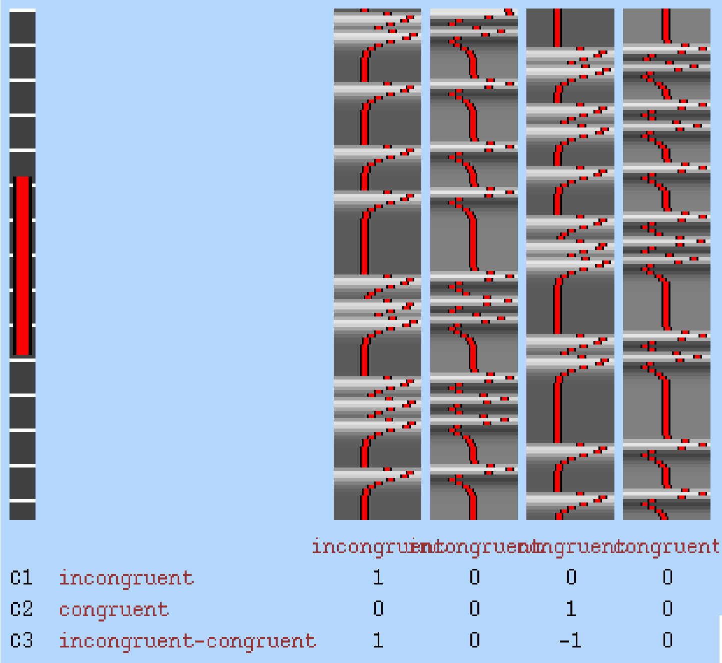


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

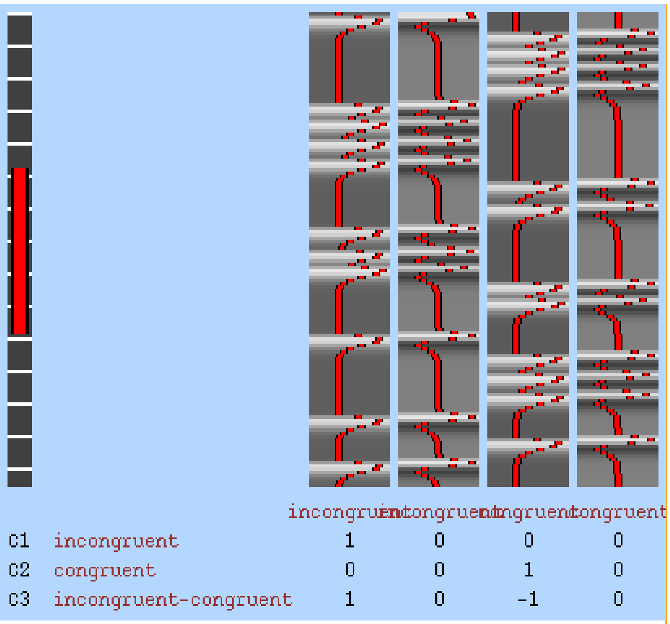


		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-23



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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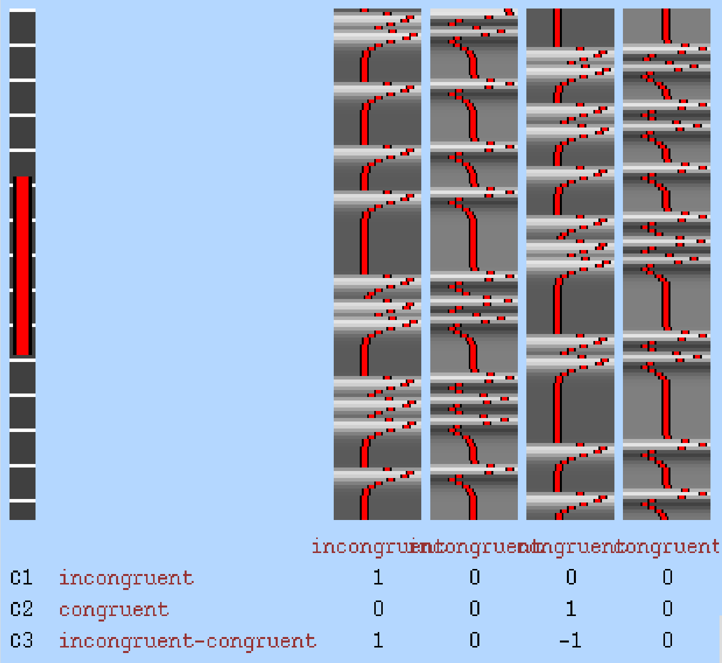
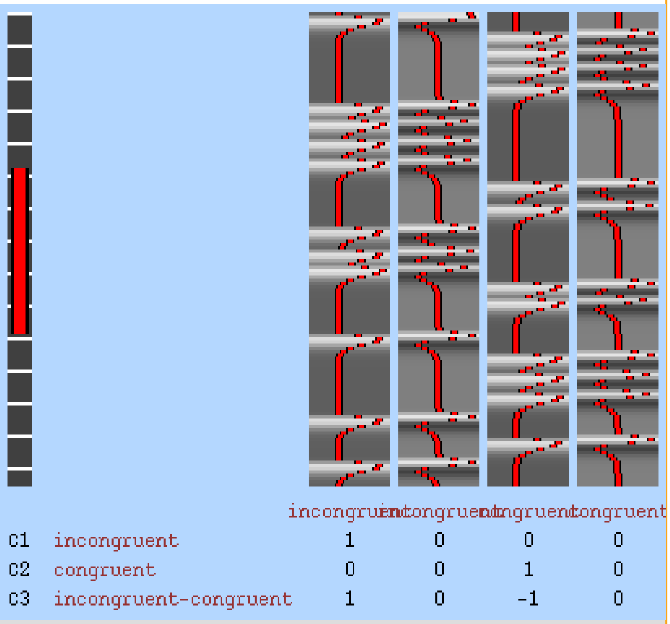
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-24



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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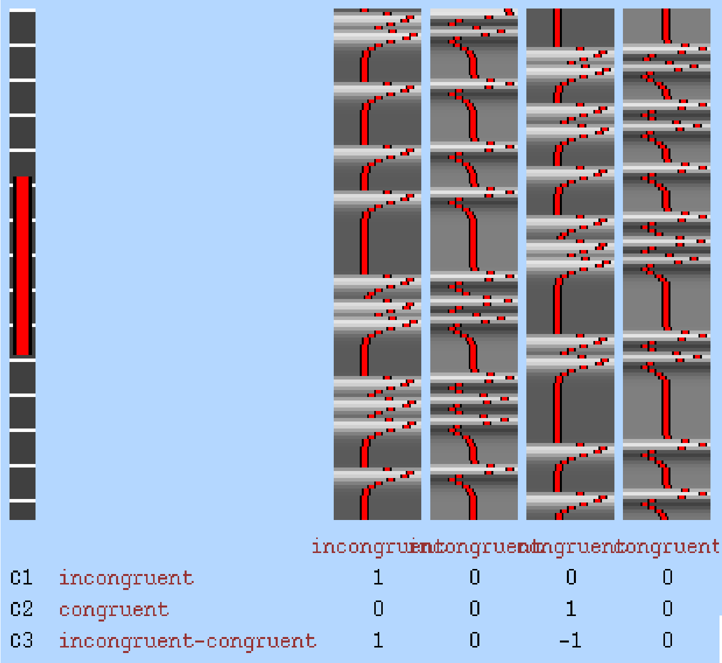
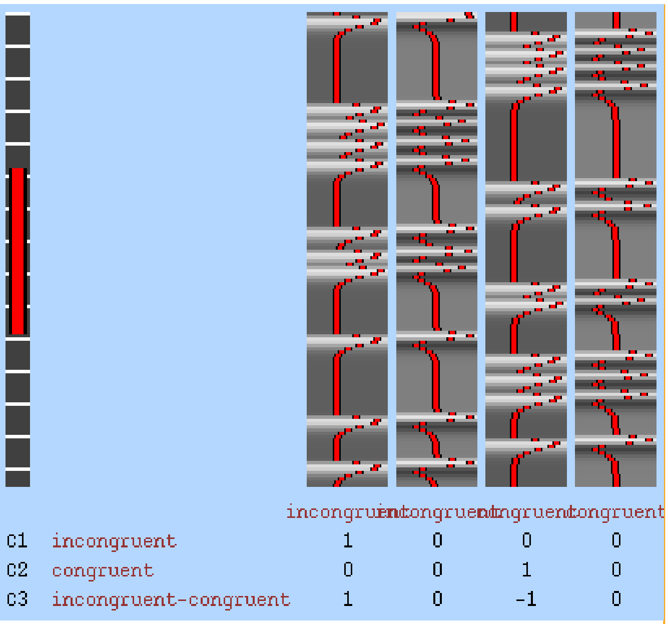
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-25



		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0



		incongruent	incongruent	congruent	congruent
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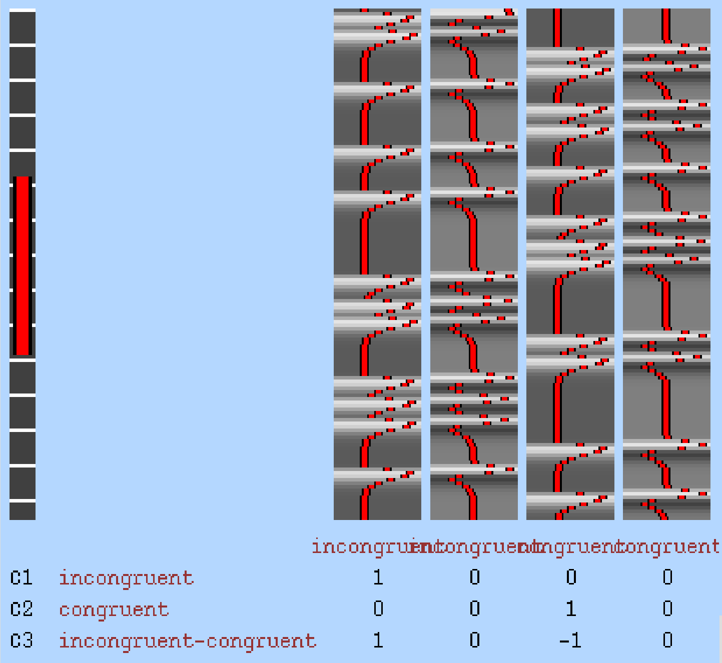
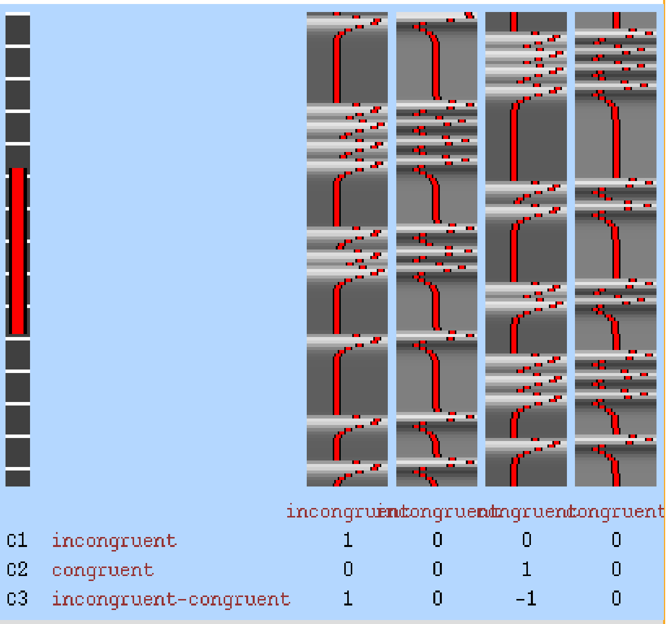
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

Sub-26

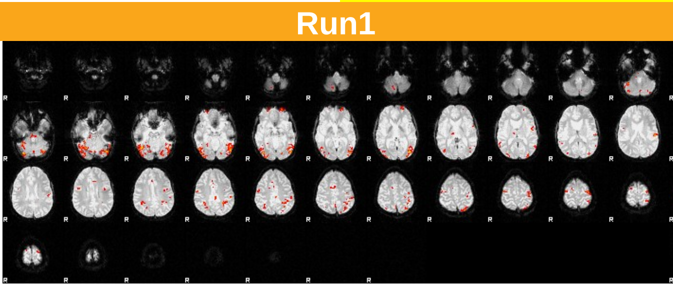
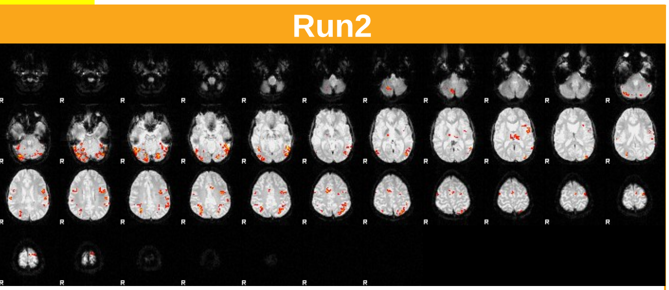
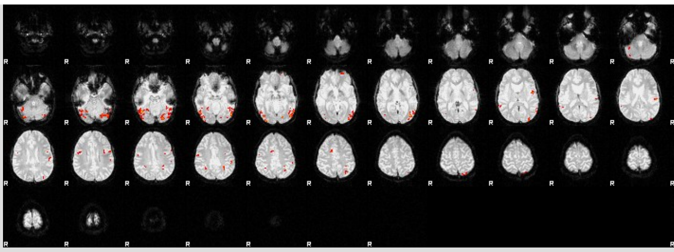
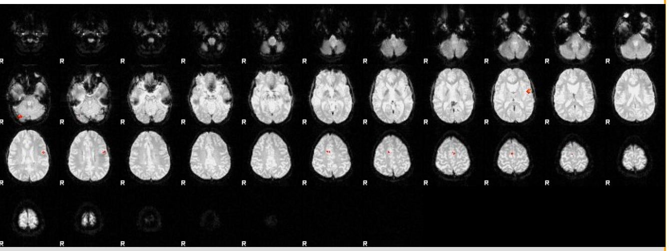
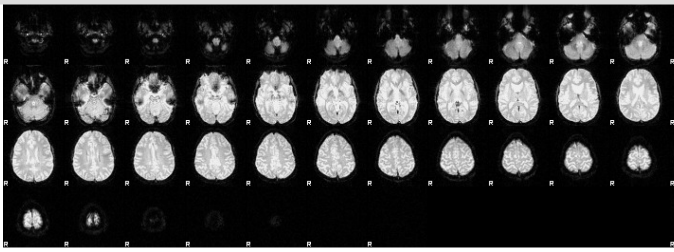
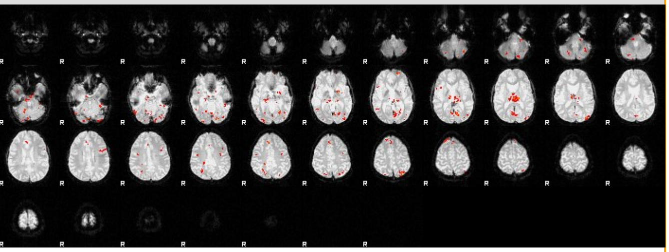
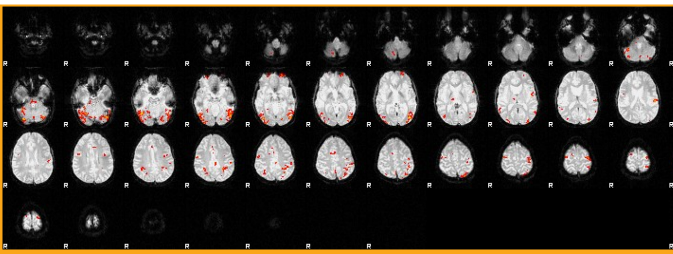
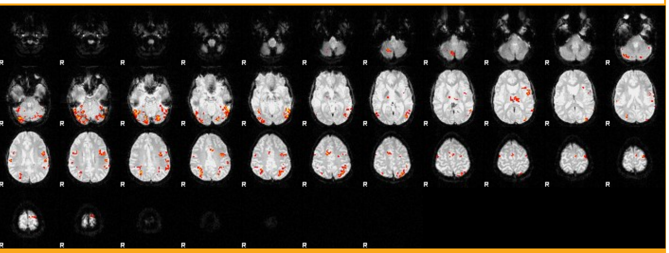
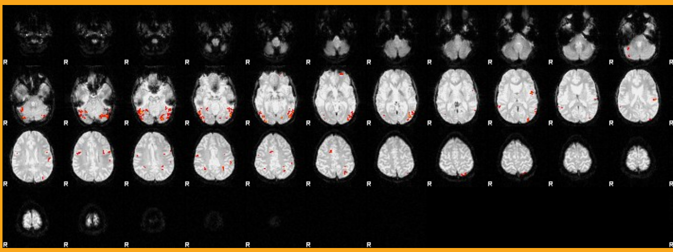
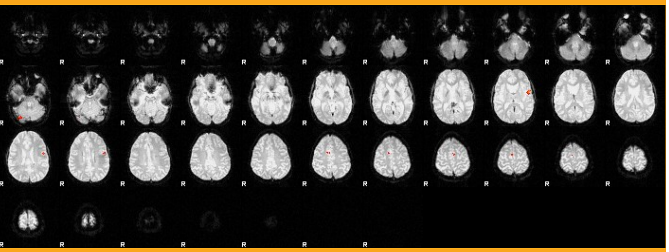
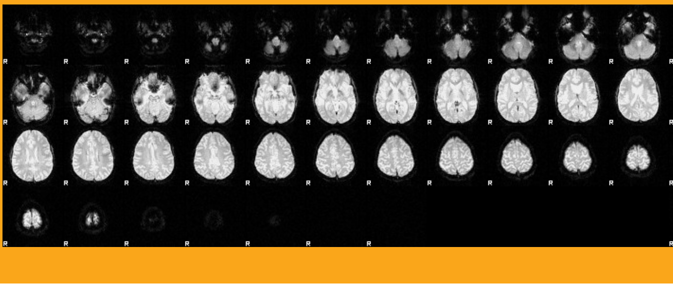
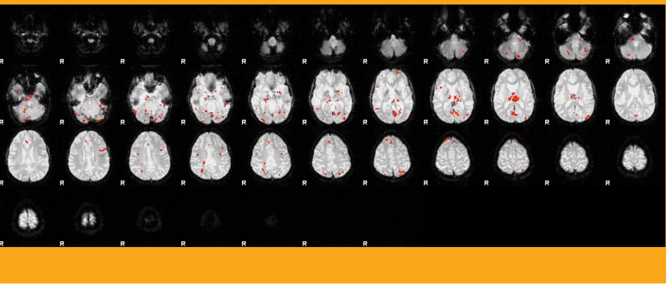


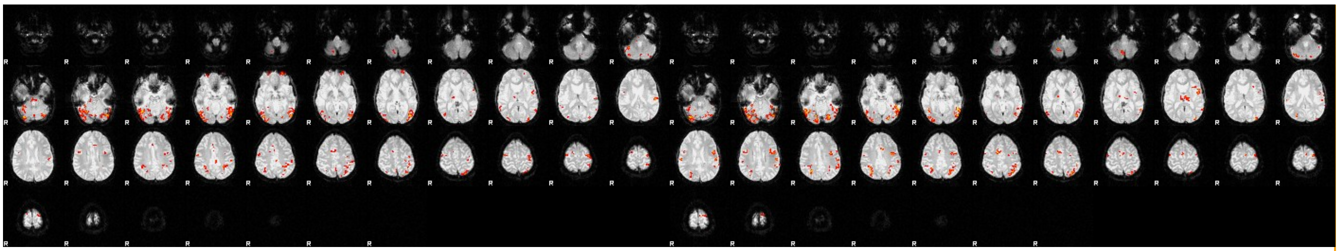
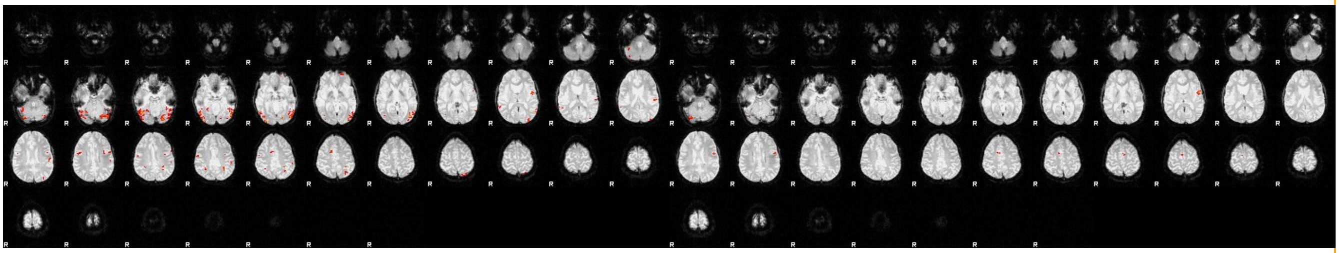
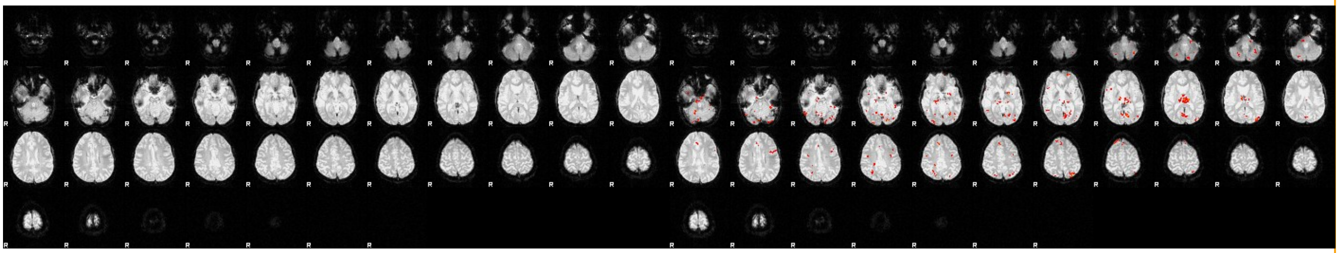
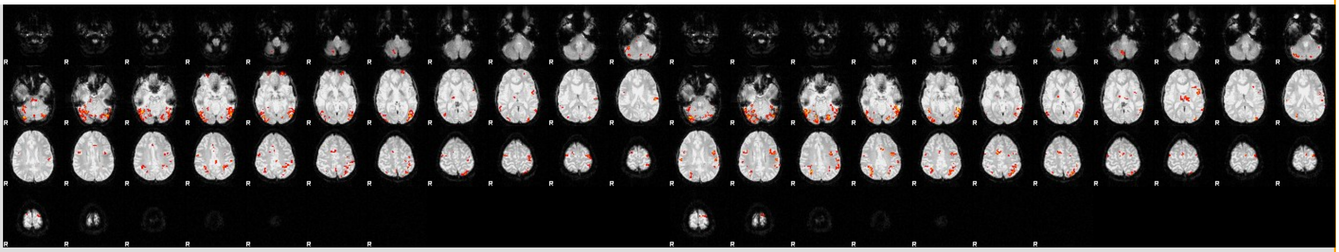
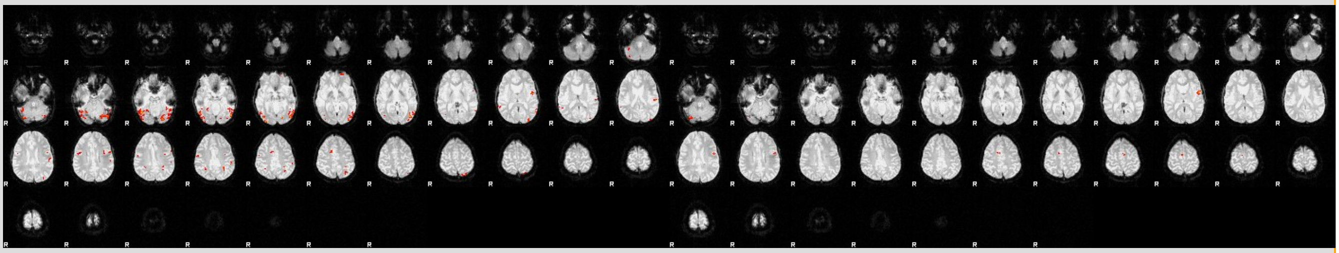
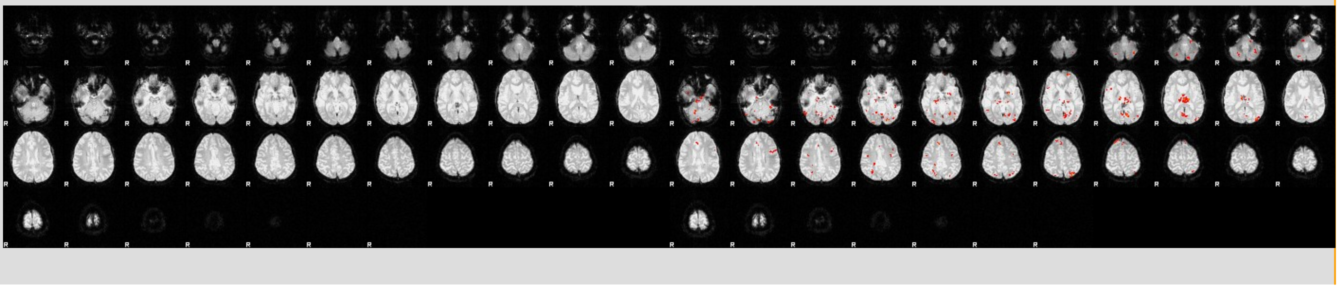
		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

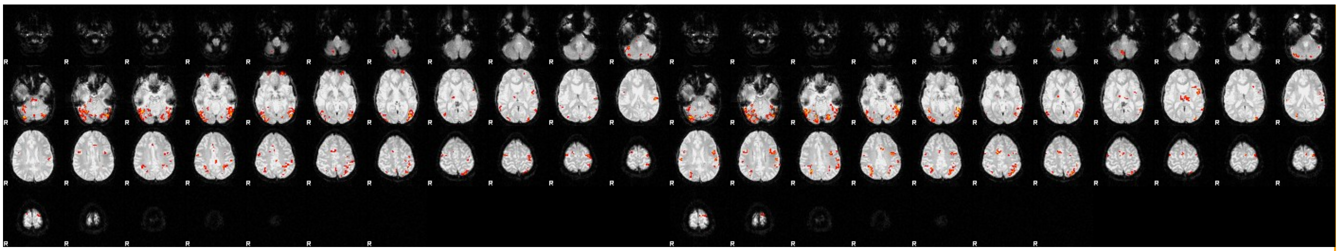
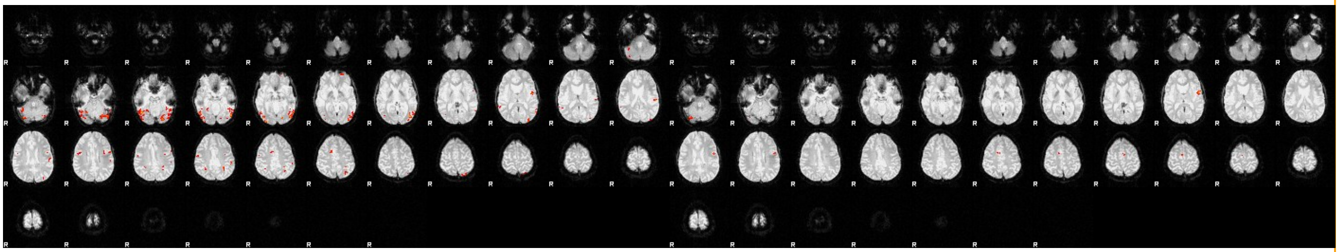
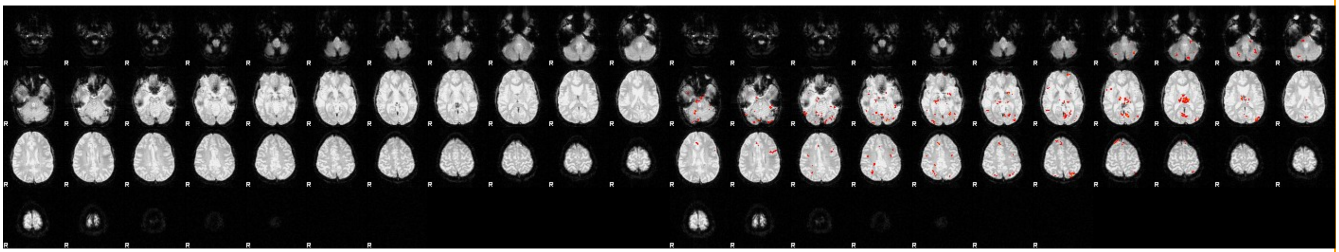
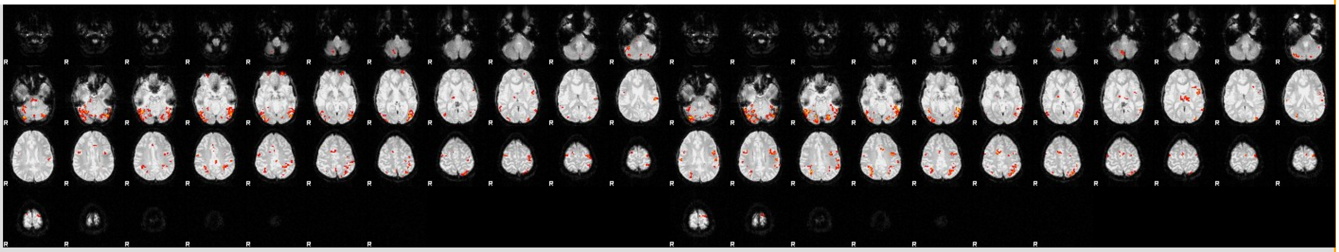
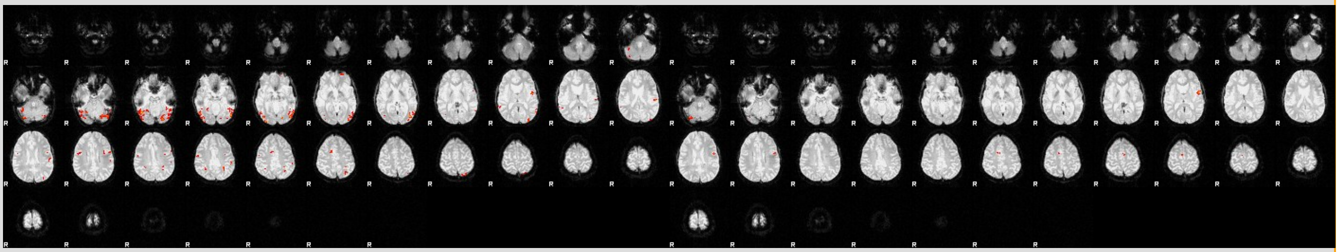
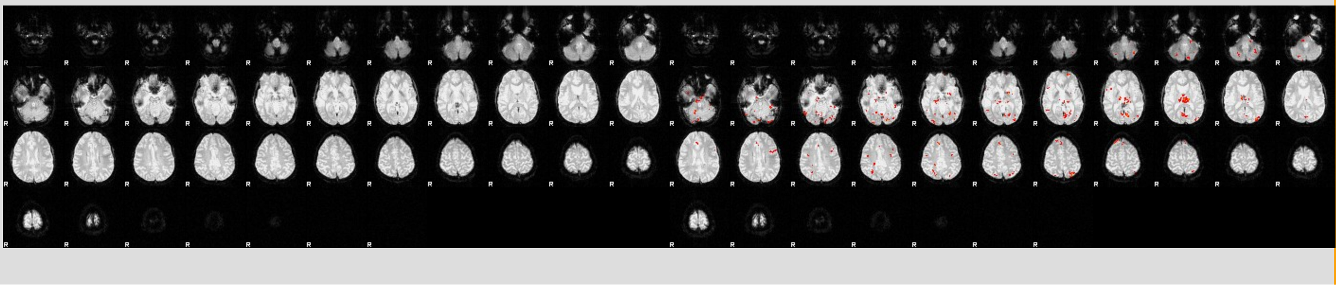


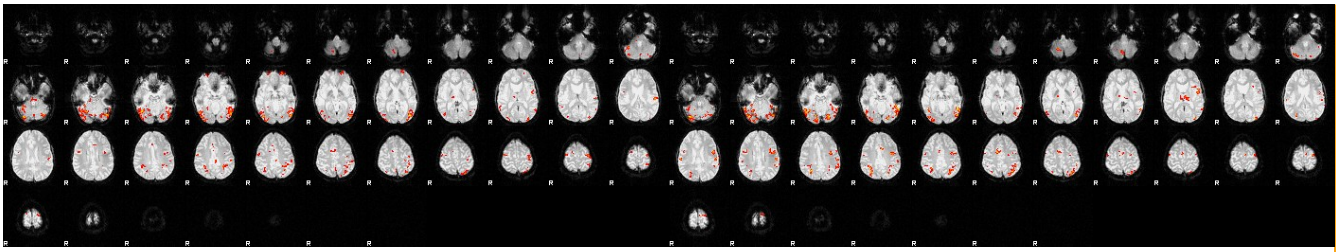
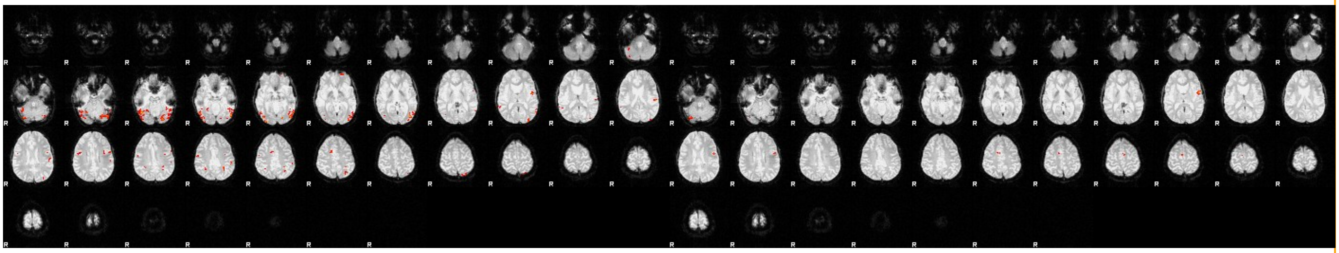
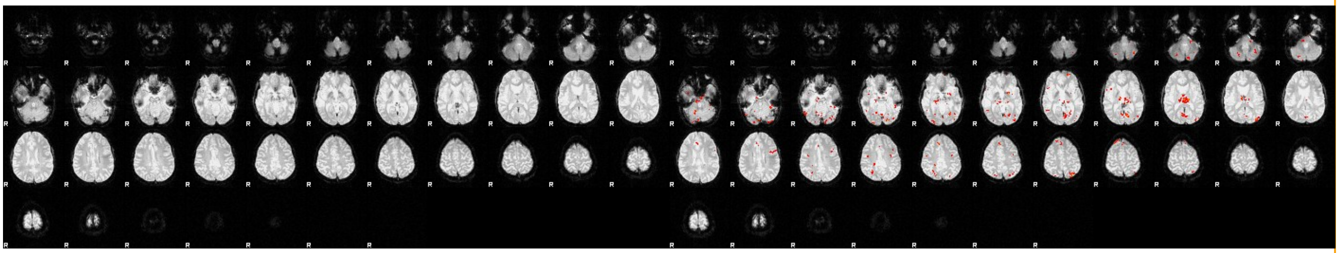
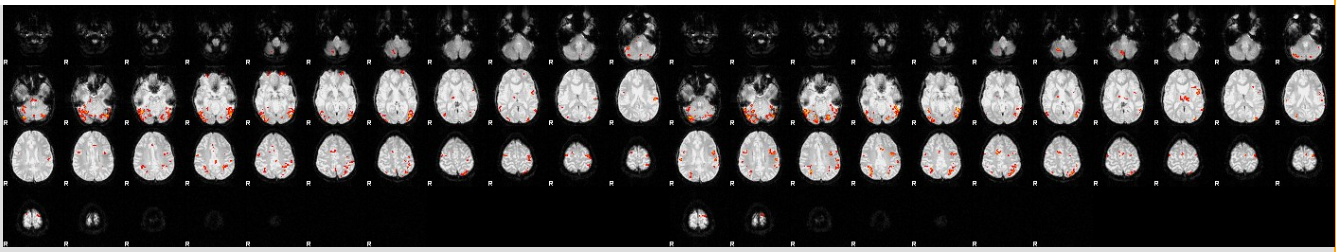
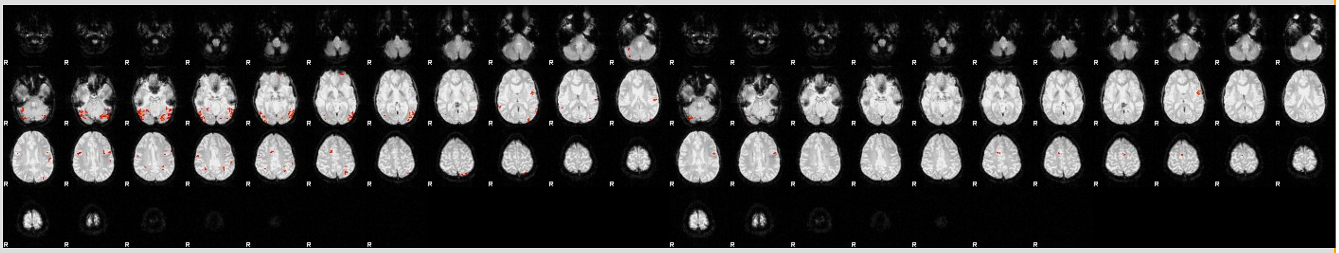
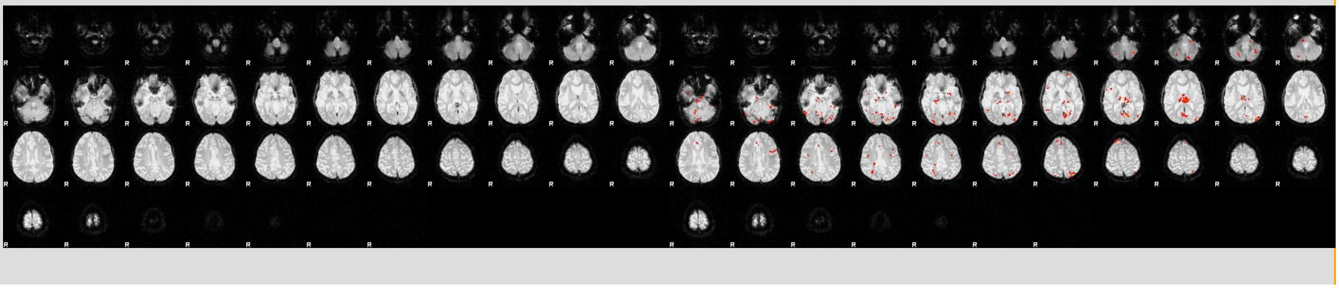
		incongruent	incongruent	congruent	congruent
C1	incongruent	1	0	0	0
C2	congruent	0	0	1	0
C3	incongruent-congruent	1	0	-1	0

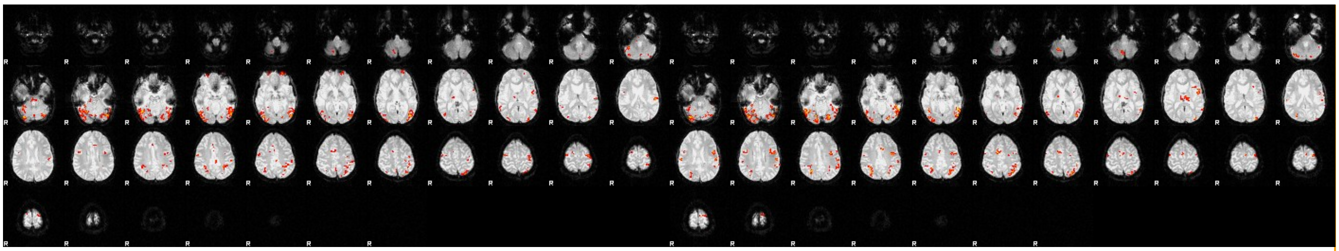
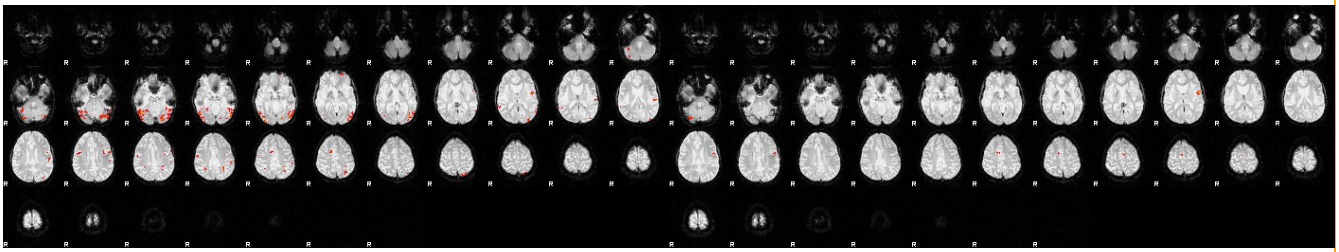
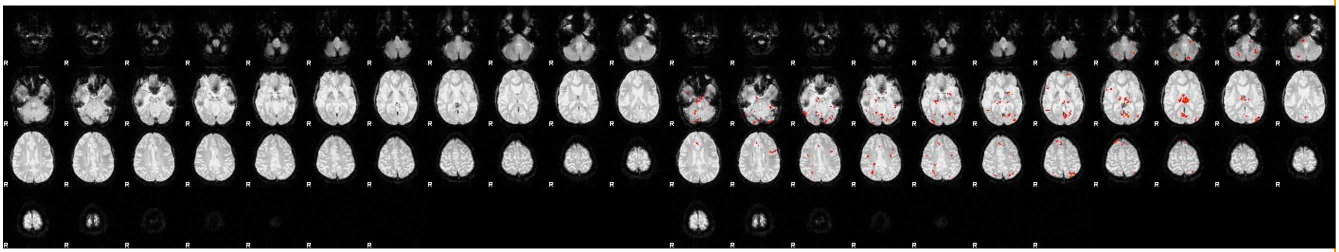
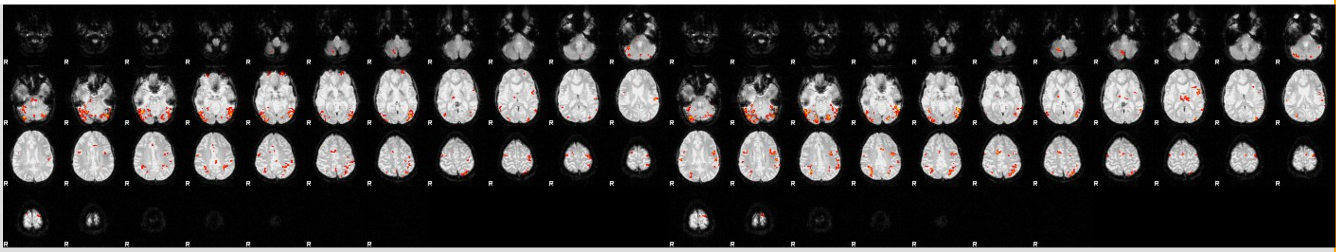
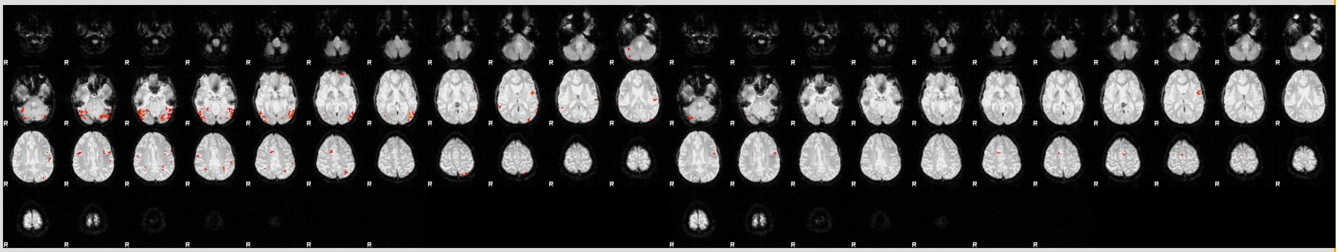
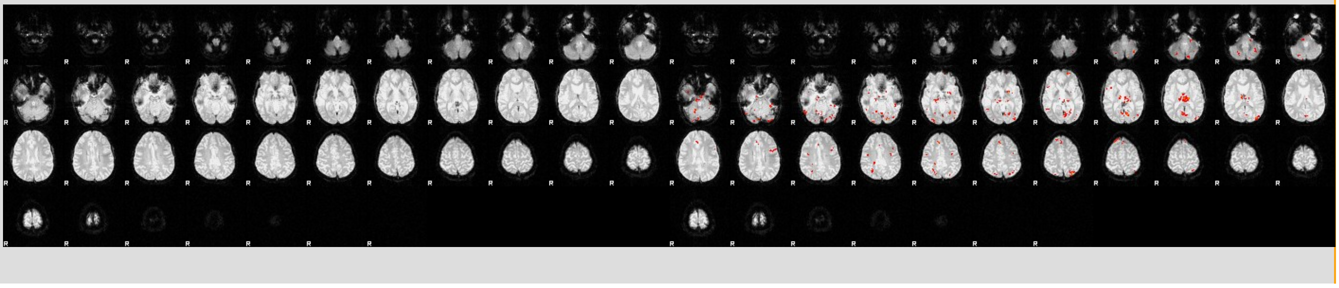
GLM Z-stats 1 ,2 and 3

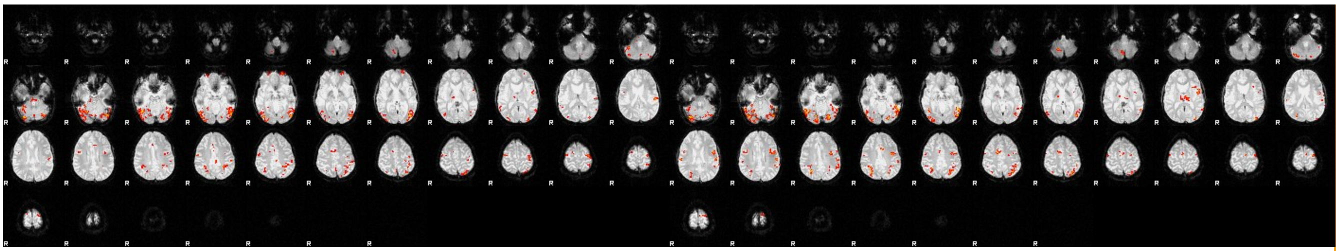
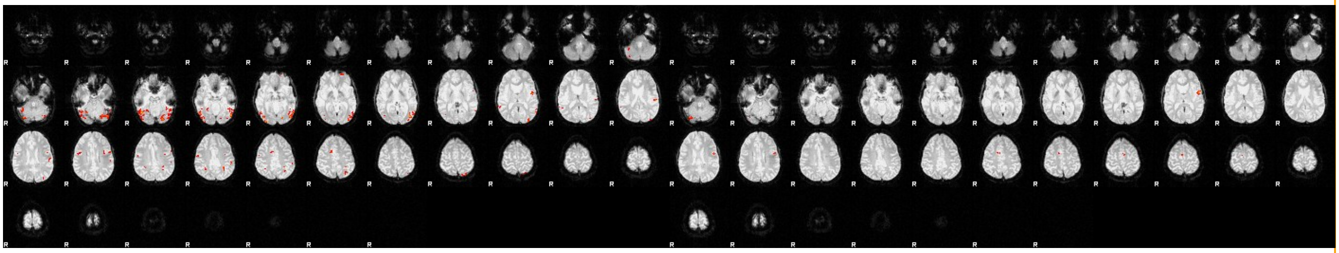
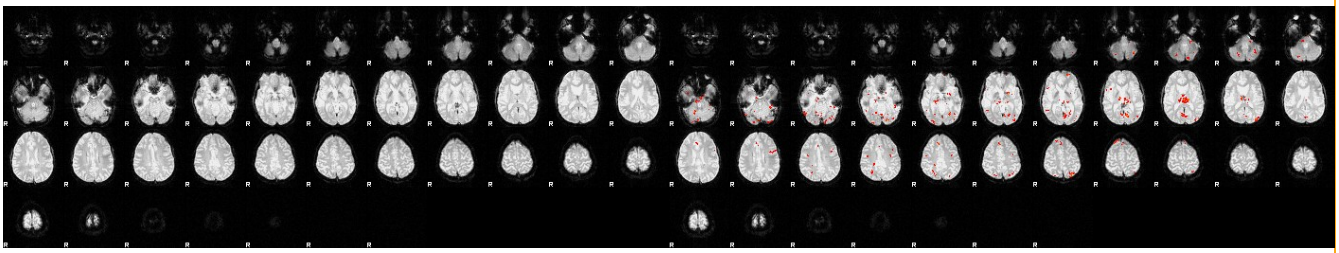
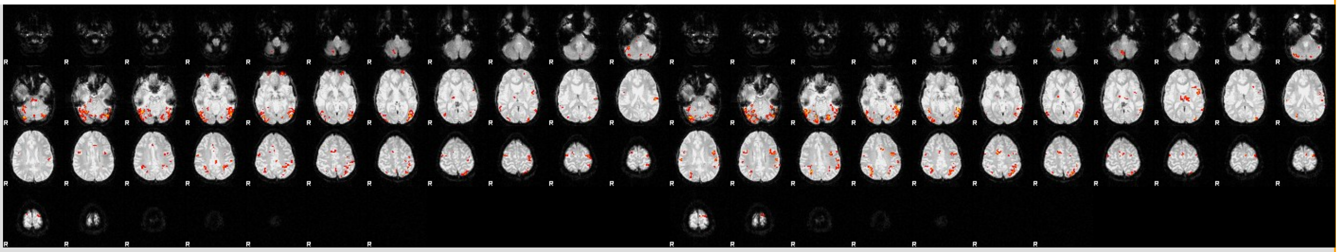
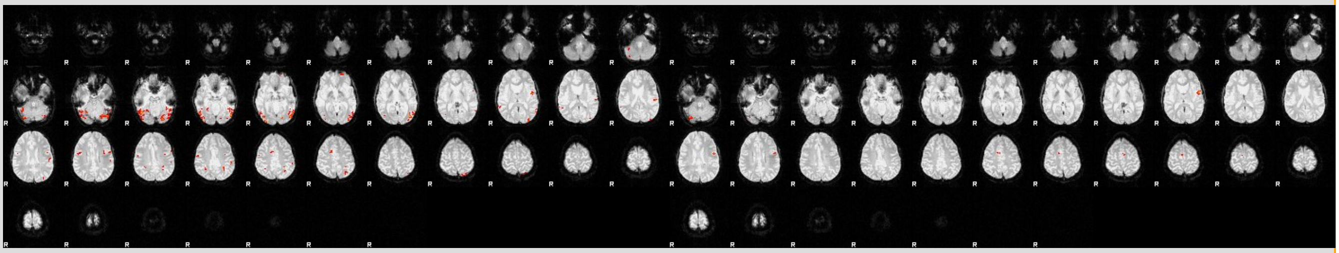
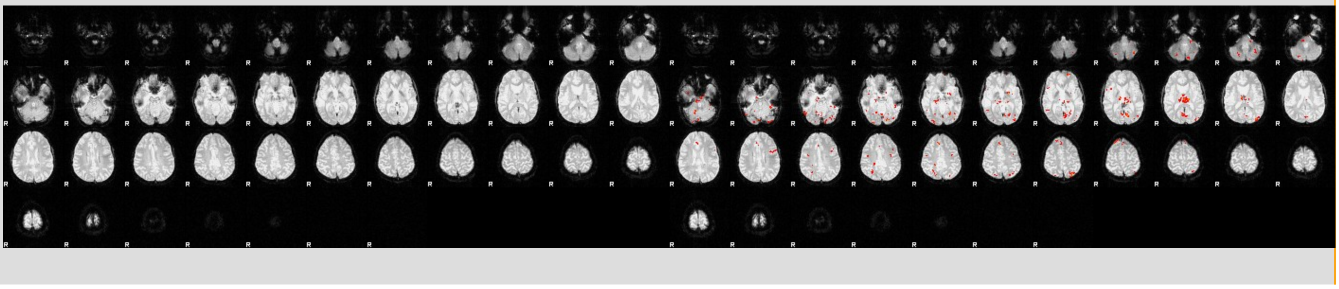
Sub	Z-stat	Run1	Run2
Sub-1	**1**		
	2		
	3		
Sub-2	**1**		
	2		
	3		

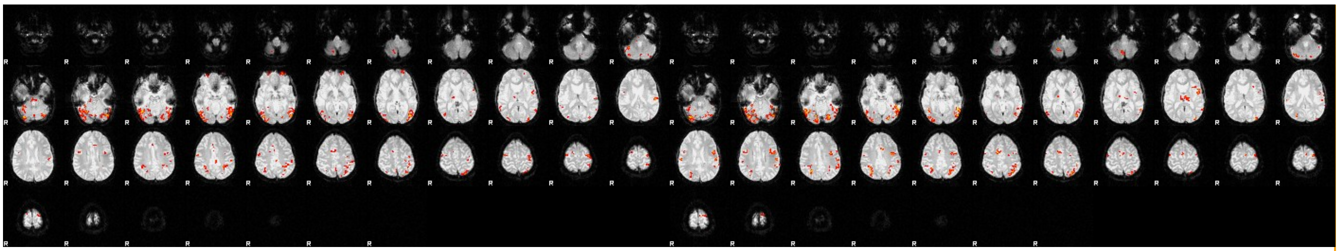
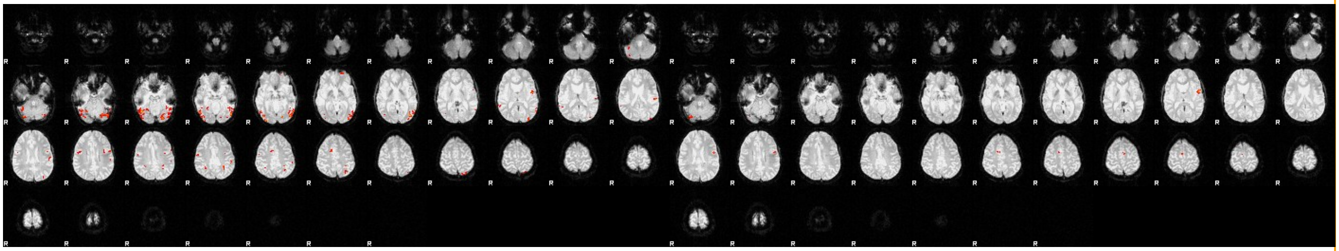
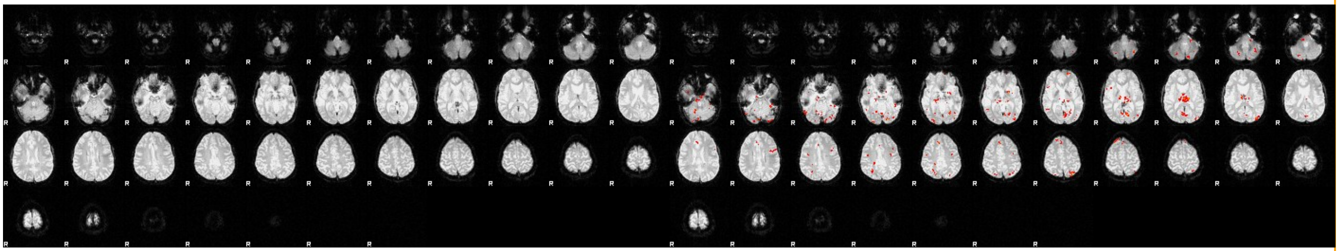
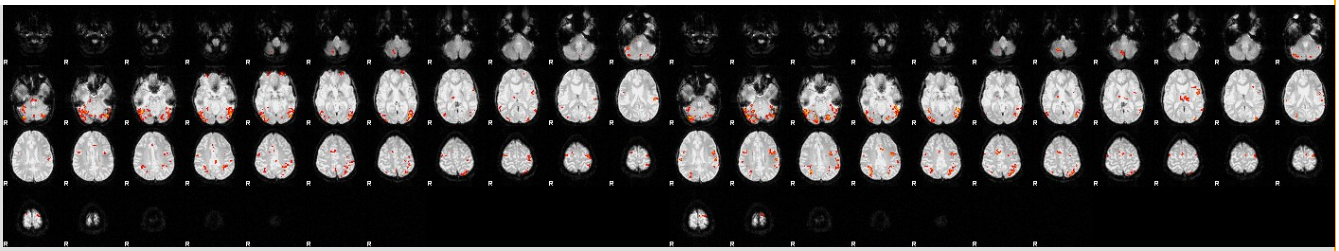
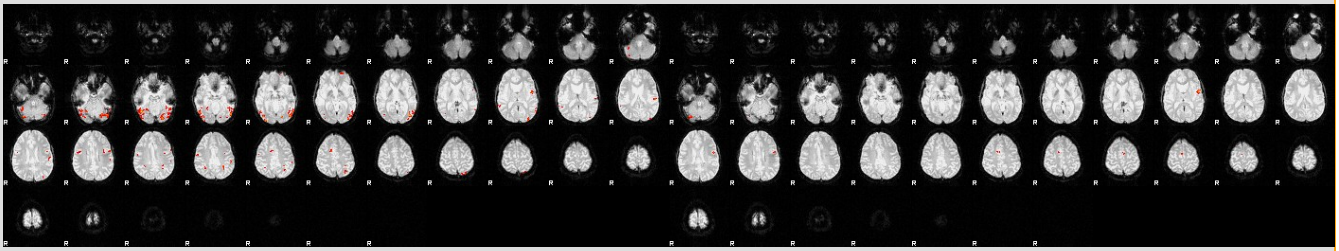
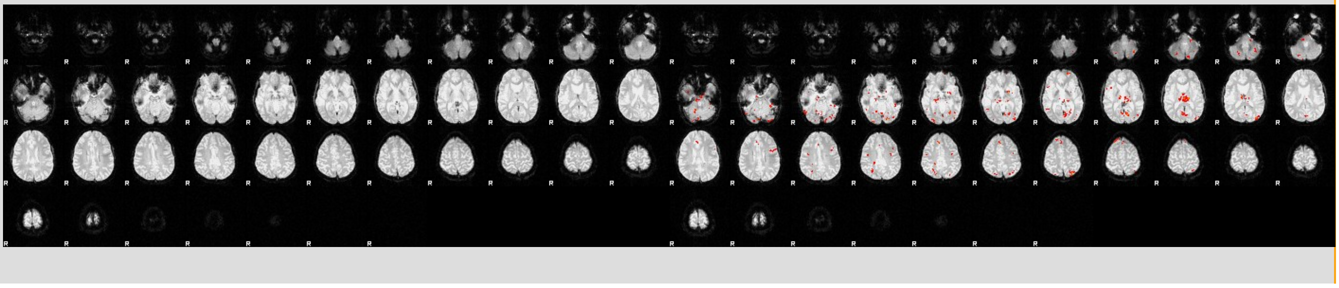
Sub-3	**1**	
	2	
	3	
Sub-4	**1**	
	2	
	3	

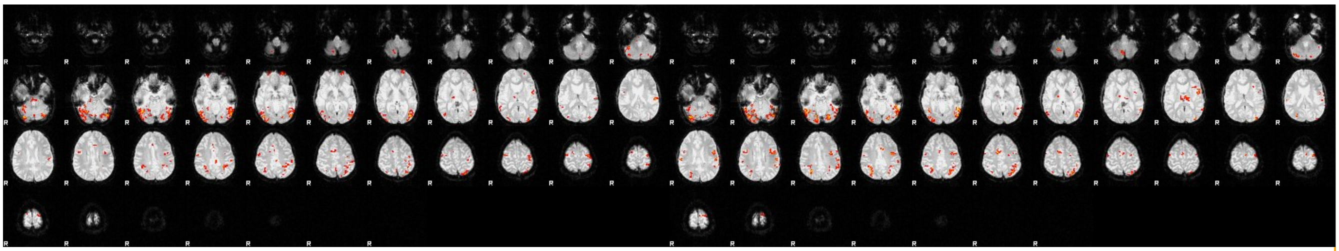
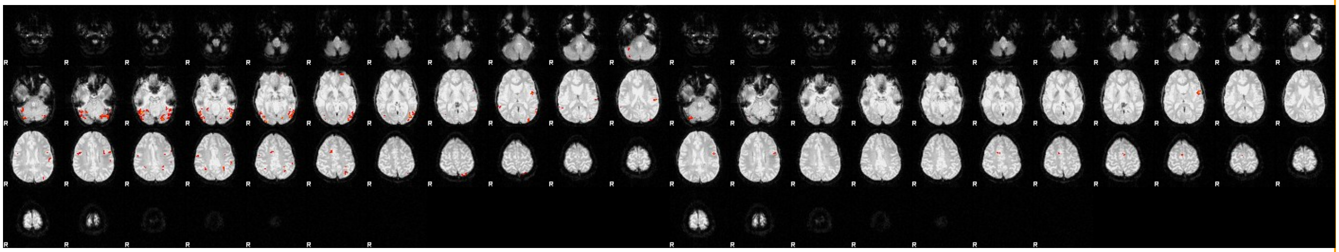
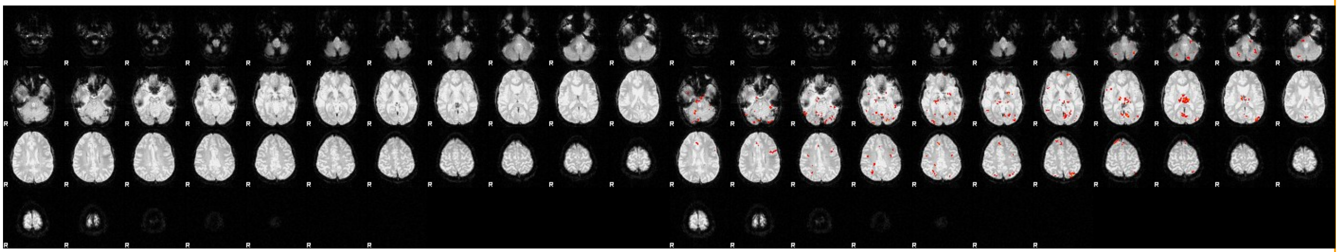
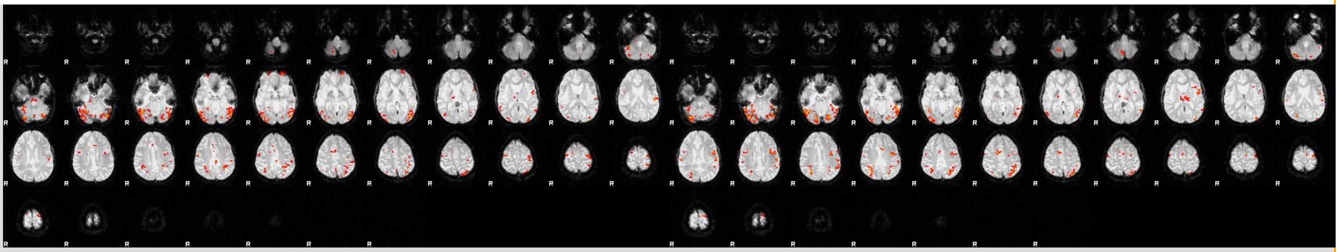
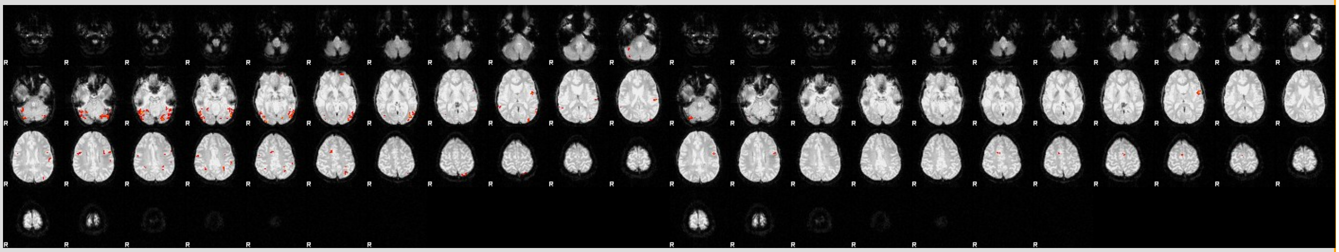
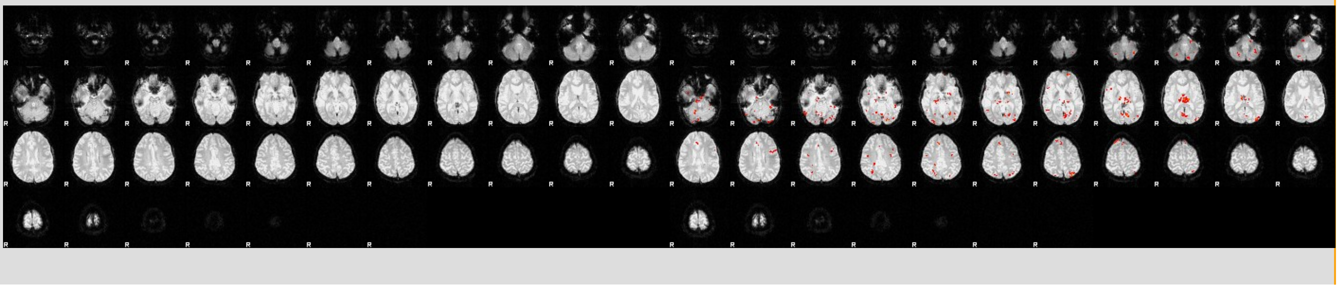
Sub-5	**1**	
	2	
	3	
Sub-6	**1**	
	2	
	3	

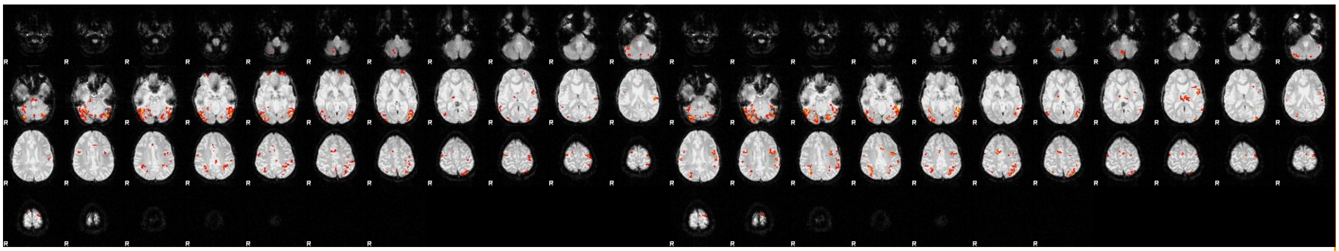
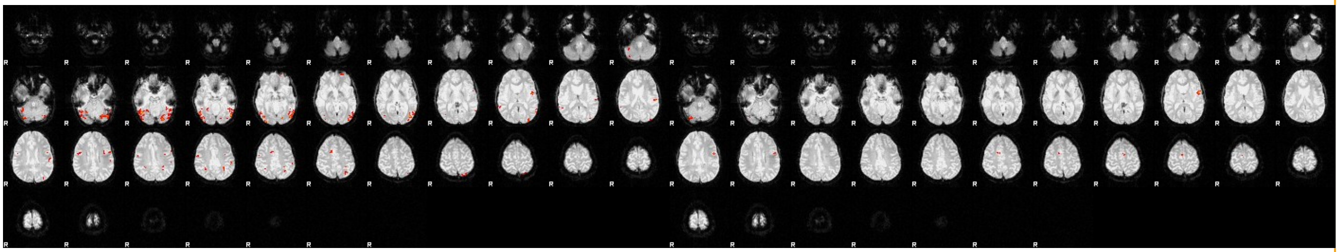
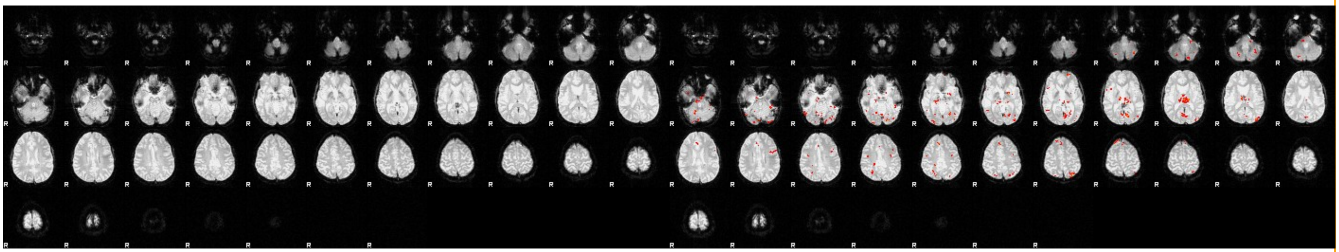
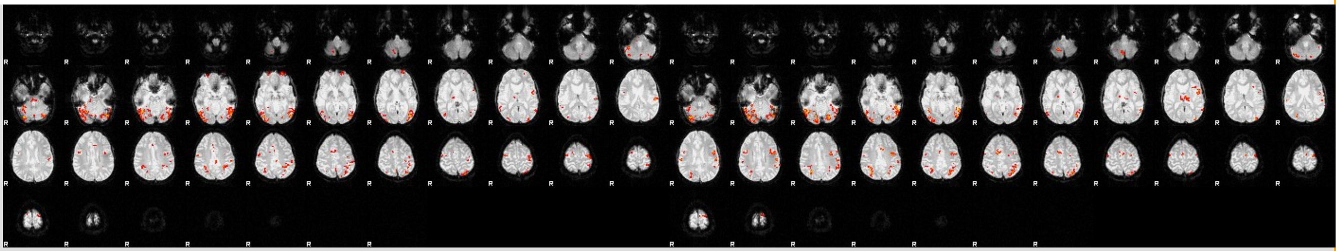
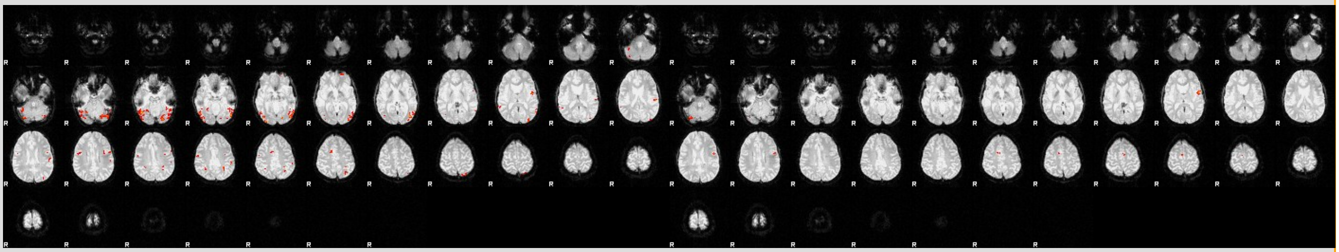
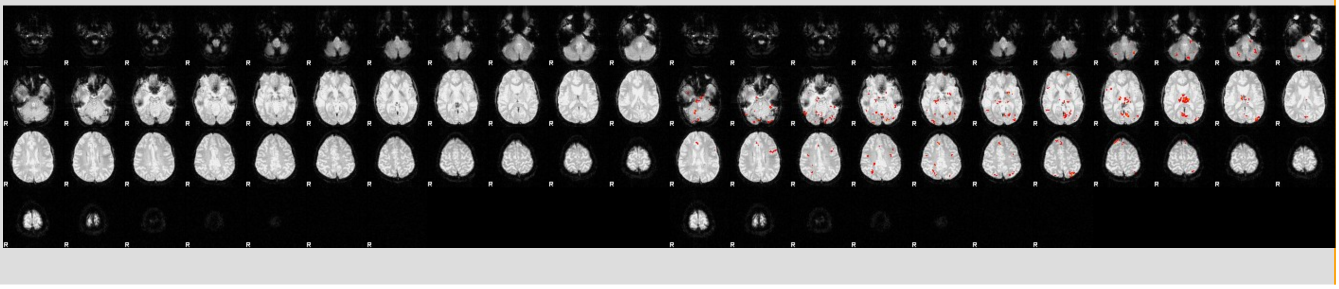
Sub-7	**1**	
	2	
	3	
Sub-8	**1**	
	2	
	3	

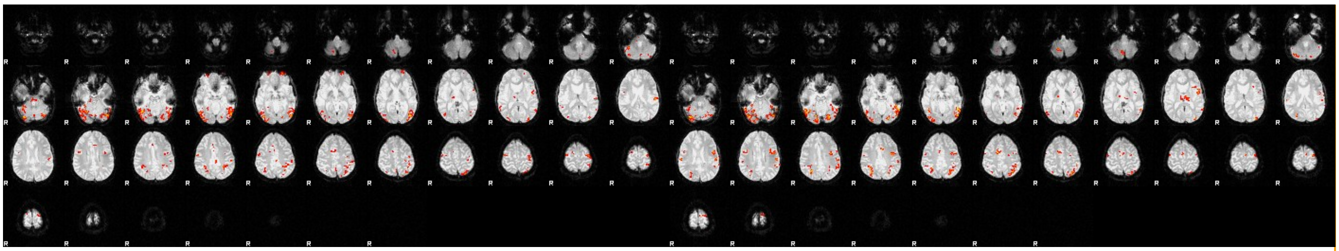
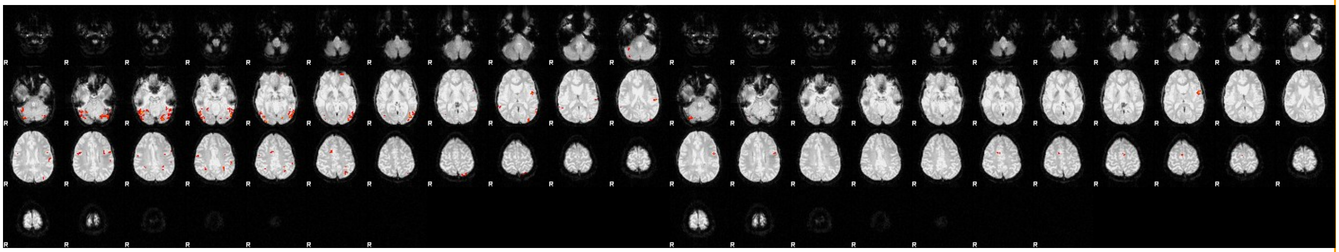
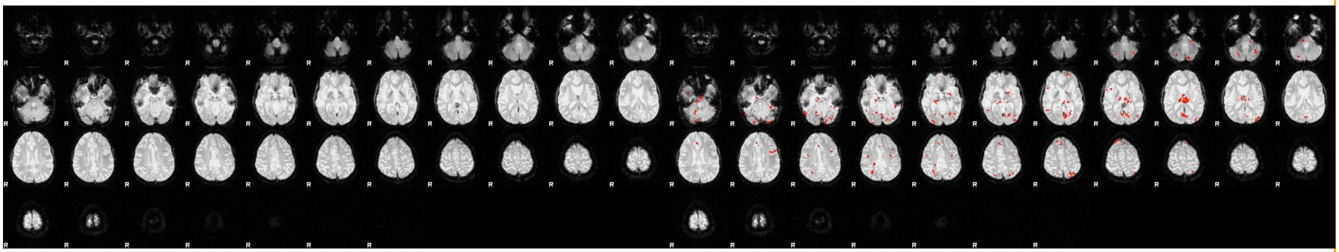
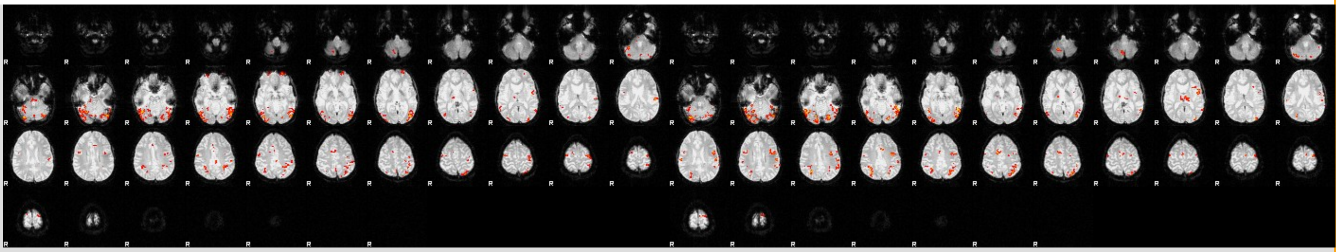
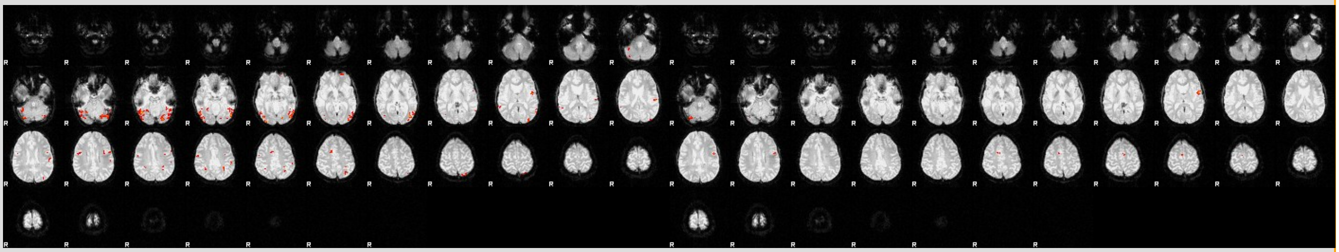
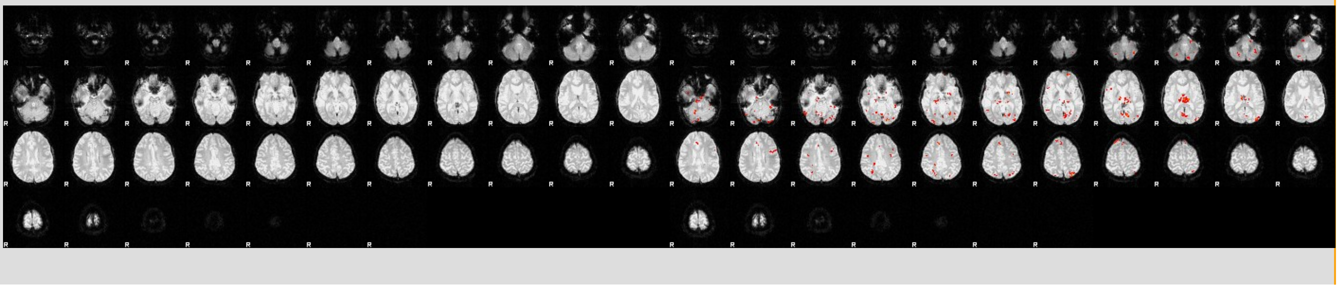
Sub-9	**1**	
	2	
	3	
Sub-10	**1**	
	2	
	3	

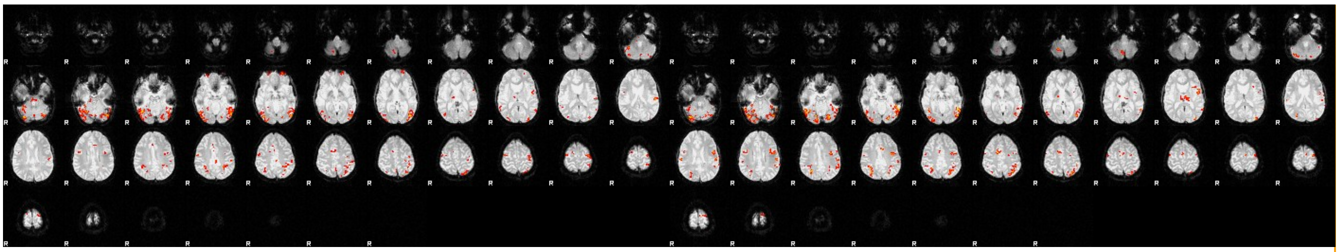
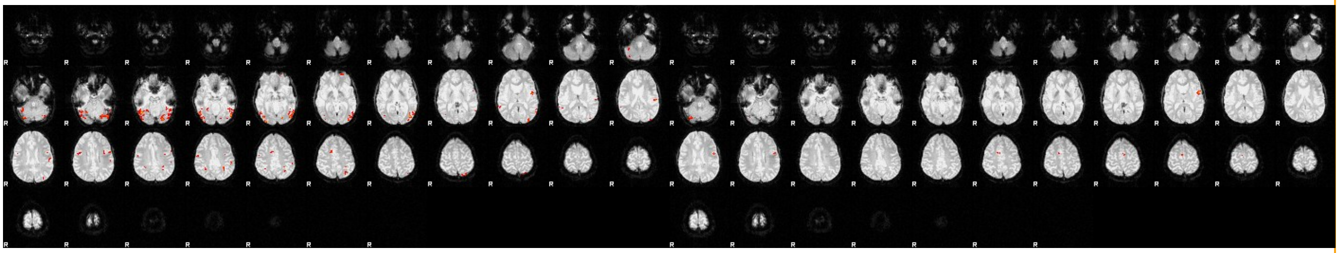
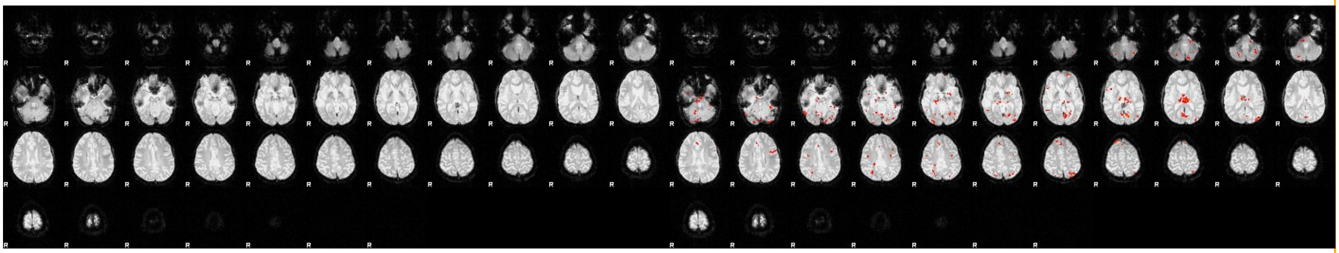
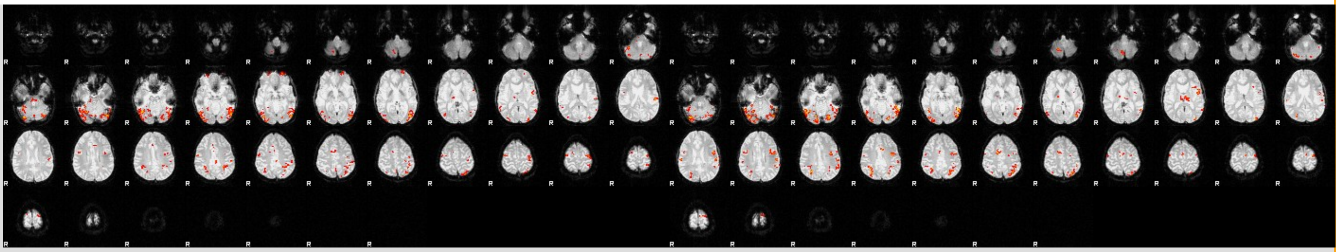
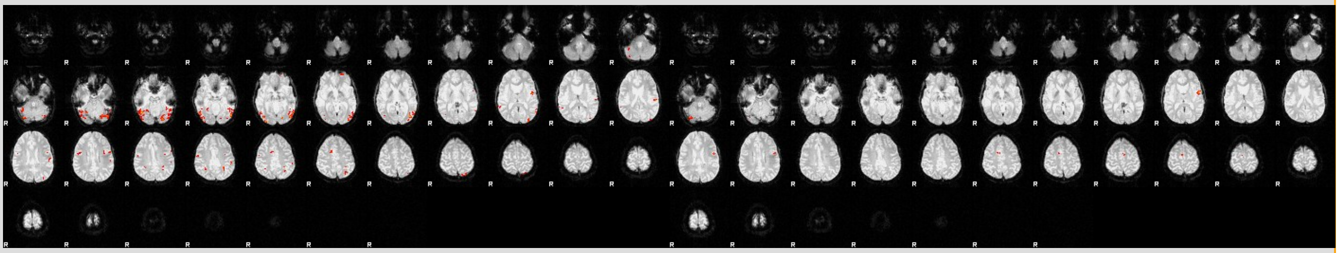
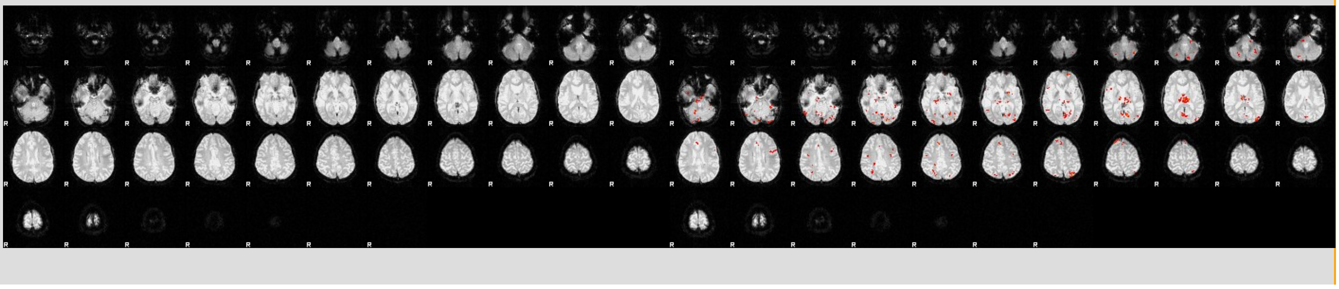
Sub-11	**1**	
	2	
	3	
Sub-12	**1**	
	2	
	3	

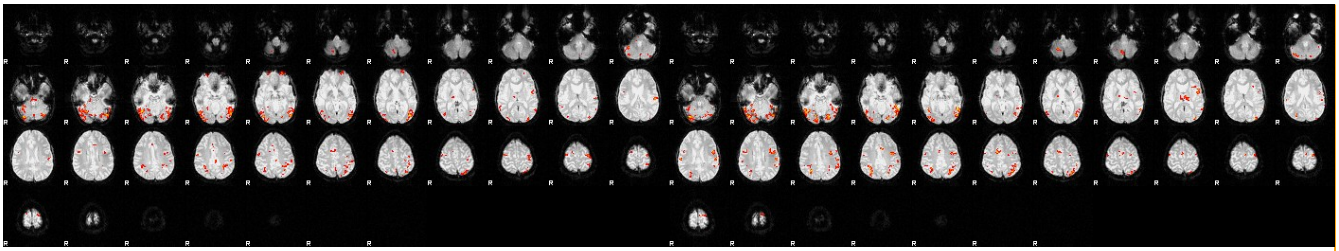
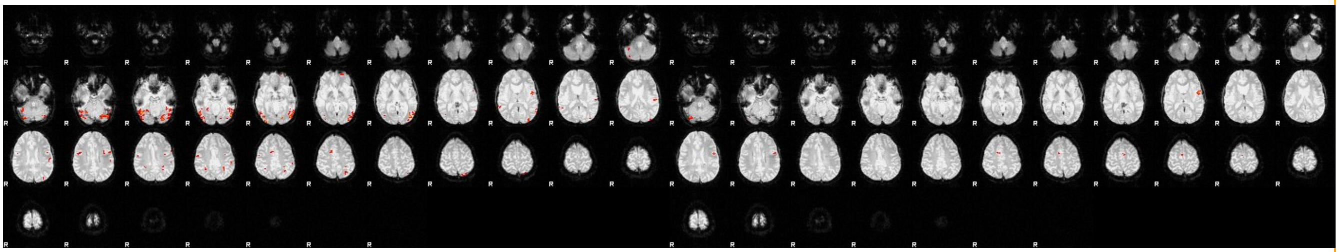
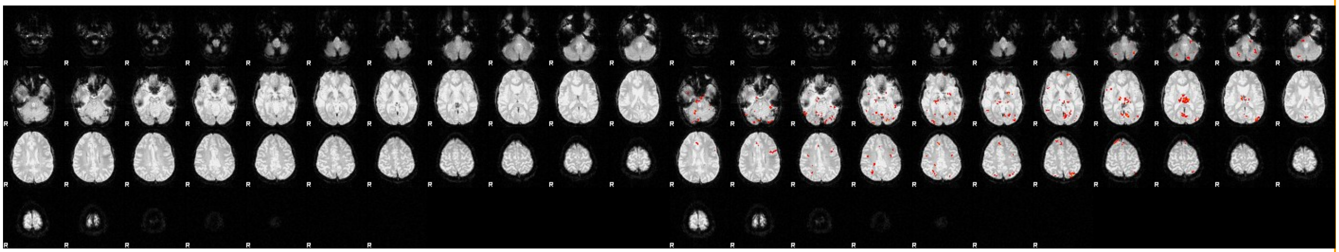
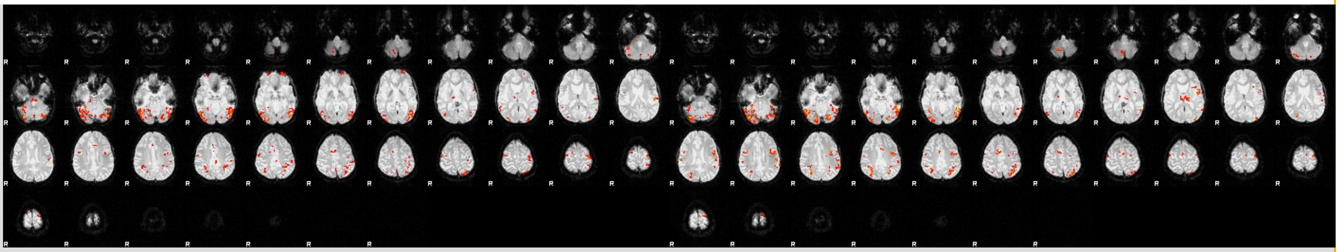
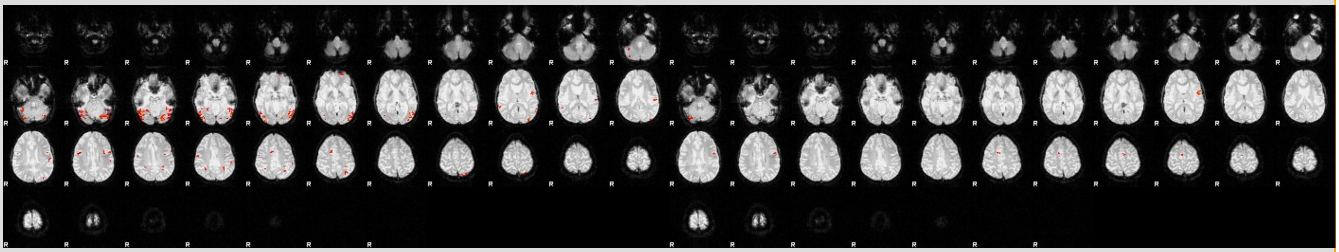
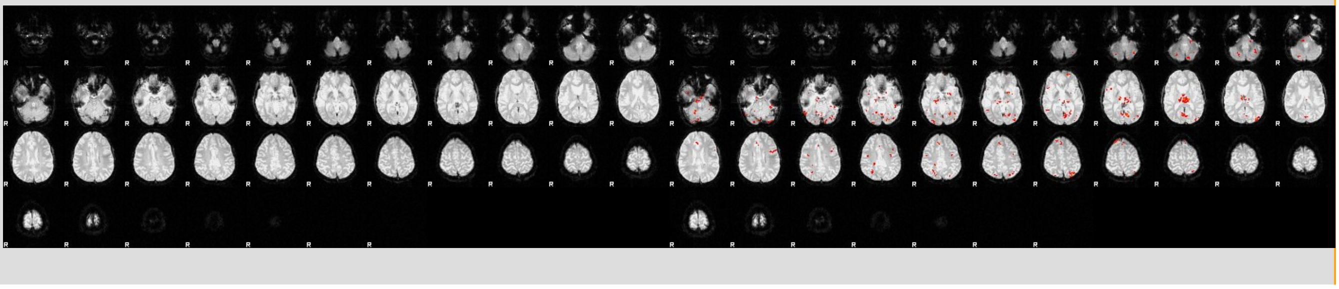
Sub-13	**1**	
	2	
	3	
Sub-14	**1**	
	2	
	3	

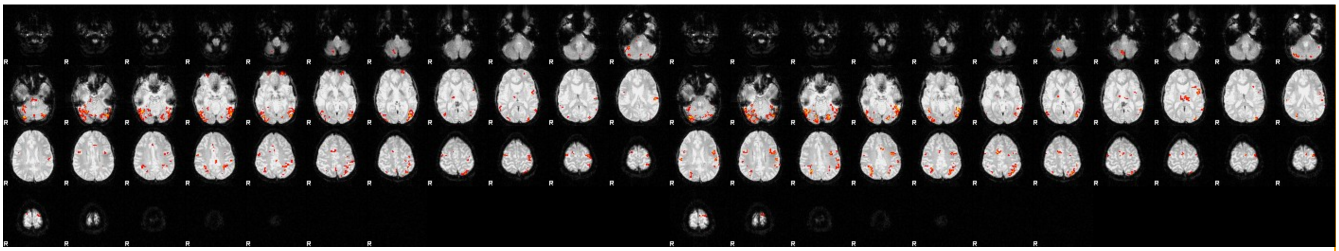
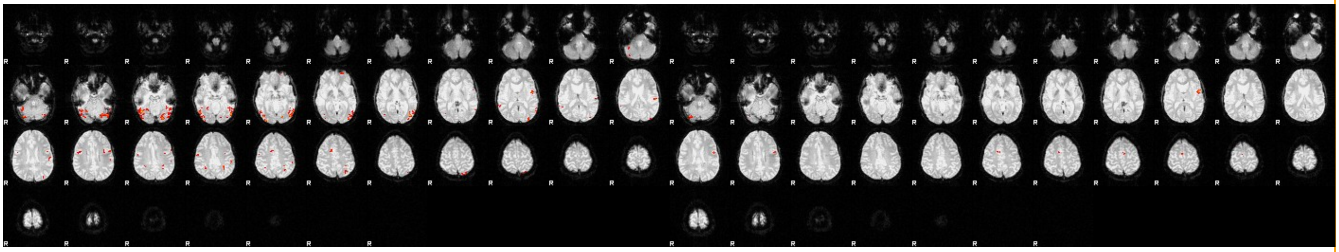
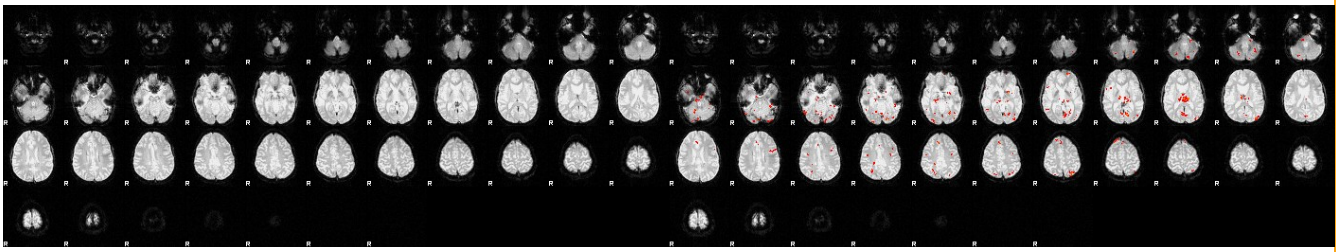
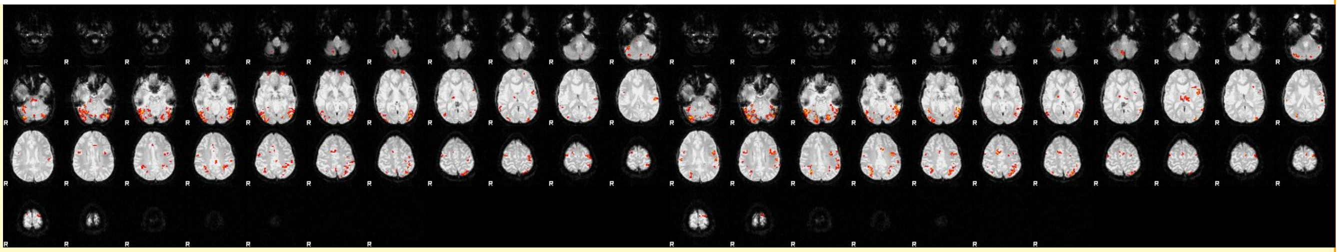
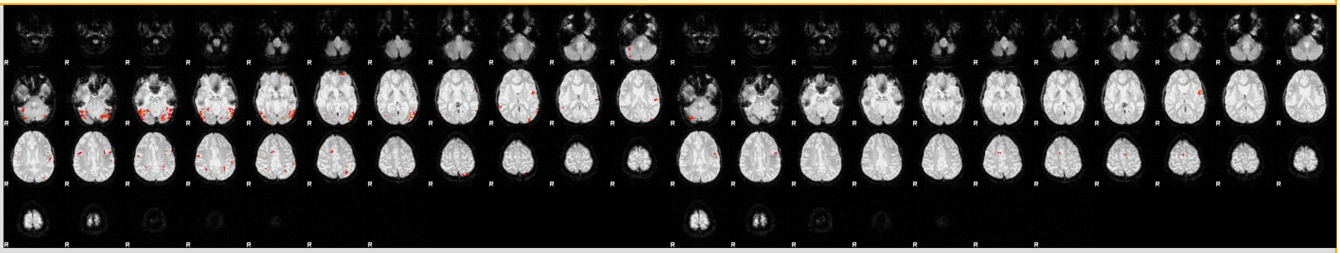
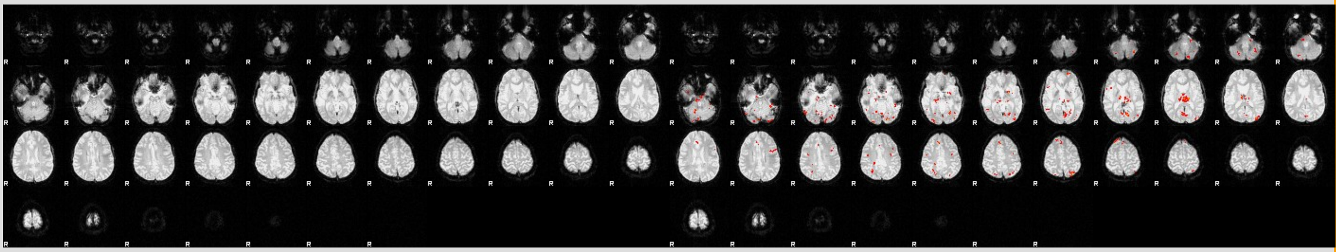
Sub-15	**1**	
	2	
	3	
Sub-16	**1**	
	2	
	3	

Sub-17	**1**	
	2	
	3	
Sub-18	**1**	
	2	
	3	

Sub-19	**1**	
	2	
	3	
Sub-20	**1**	
	2	
	3	

Sub-21	**1**	
	2	
	3	
Sub-22	**1**	
	2	
	3	

Sub-23	**1**	
	2	
	3	
Sub-24	**1**	
	2	
	3	

Sub-25	1	
	2	
	3	
Sub-26	1	
	2	
	3	

If you reached so far , Thank you :)

attached with the report all full sized images for better resolution.