```
% script for memory task anaysis
```

Parameter Setting

```
subject ='Group';
plot_window=[1 25 1920 1080];
home_dir = '/bigvault/Projects/seeg_pointing';
group_dir = '/bigvault/Projects/seeg_pointing/results/memory_group/';
```

Time window

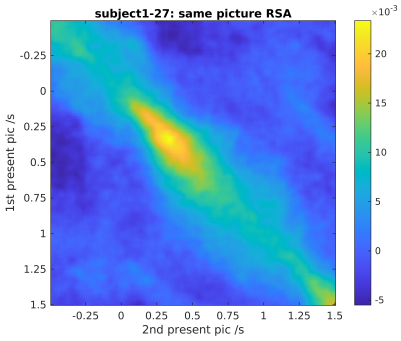
1. same VS different picture RSA
2. pre vs after RSA

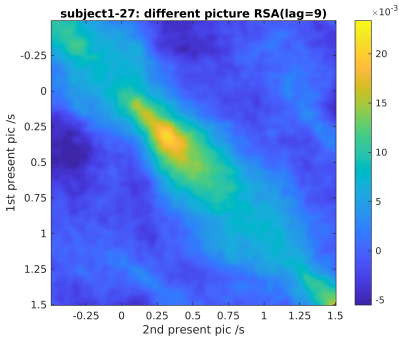
Neural Time Windows in Object Recognition Task

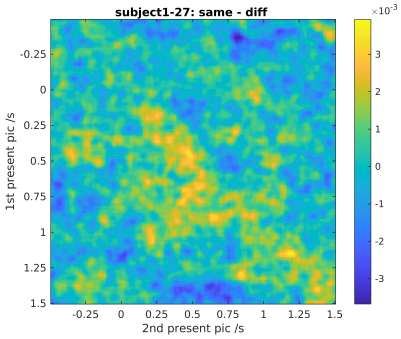
```
% load
load([group_dir,'rsa_obj_group.mat'], 'rsa_group')
disp(['subject: ',num2str(rsa_group.sub_id)])
```

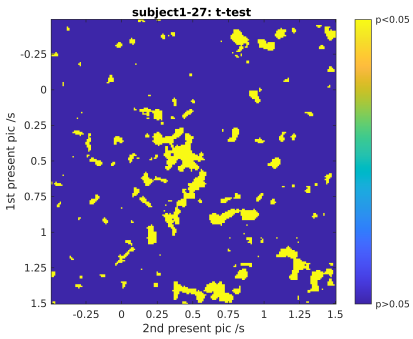
```
subject: 1   2   3   4   7  12  15  16  17  18  19  20  21  24  25  26
```

```
rsa_same= rsa_group.same(:,:,1:end);
for lag = 9
    rsa_diff = rsa_group.diff{lag}(:,:,1:end);
    % 1. object same difff
    figure
    plt_rsa_obj_sd(rsa_same, rsa_diff, subject, lag, plot_window)
    % 2. object diag
    %plt_rsa_obj_diag(rsa_same,rsa_diff,subject,lag,plot_window)
end
```







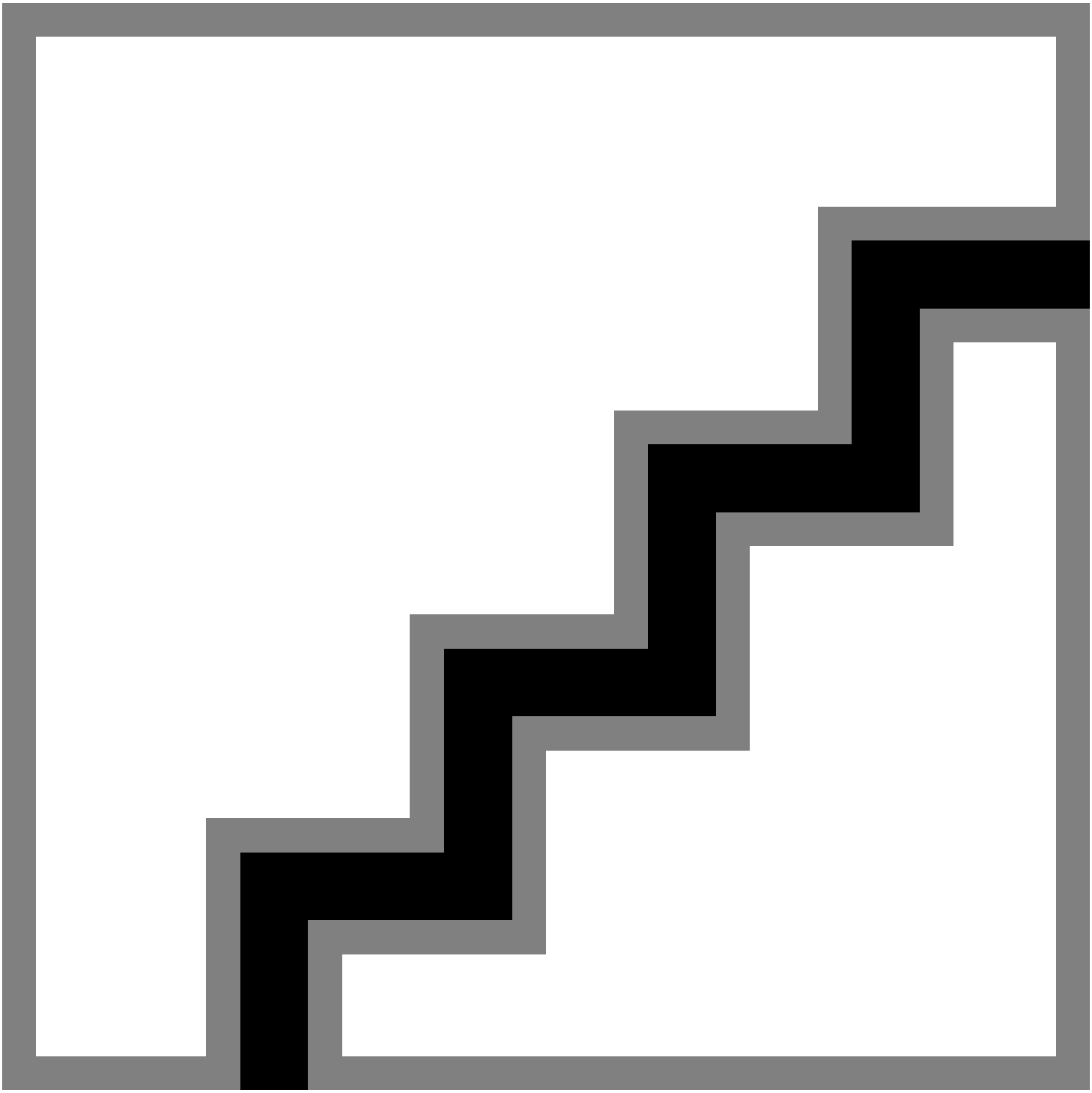


picture pair=16

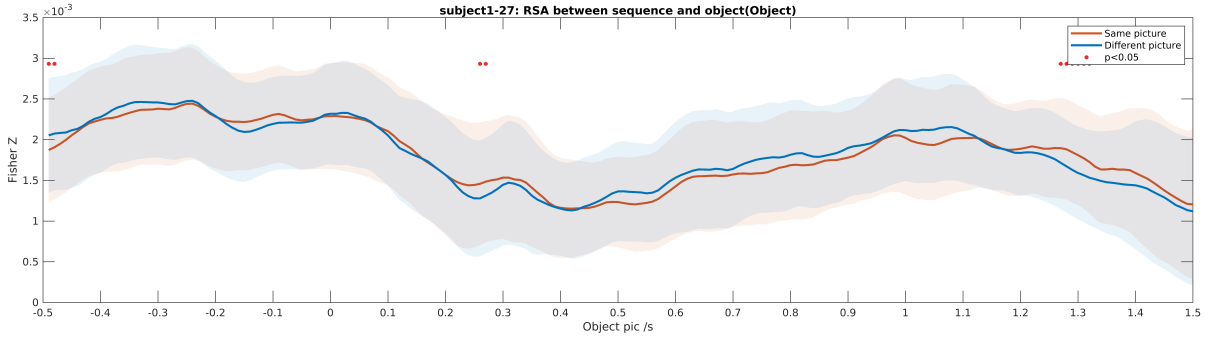
Consistency of neural activity across Object and Sequence

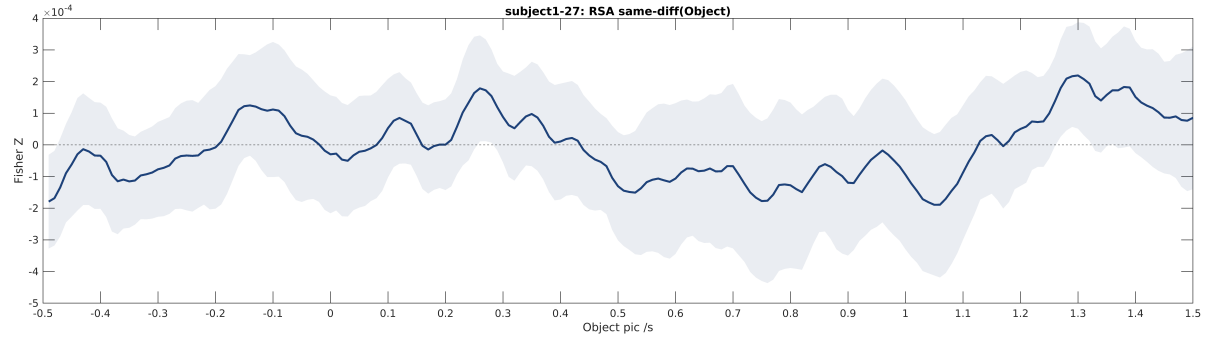
```
rsa_obj2seq_group = load_mat([group_dir,'rsa_obj2seq_group.mat']);
rsa_same = rsa_obj2seq_group.same;
rsa_diff = rsa_obj2seq_group.diff;
methods = 'ttest';

% 4. obj2seq same difff
plt_rsa_obj2seq_sd(rsa_same,rsa_diff,subject,plot_window)
% 5. obj2seq flatten
```

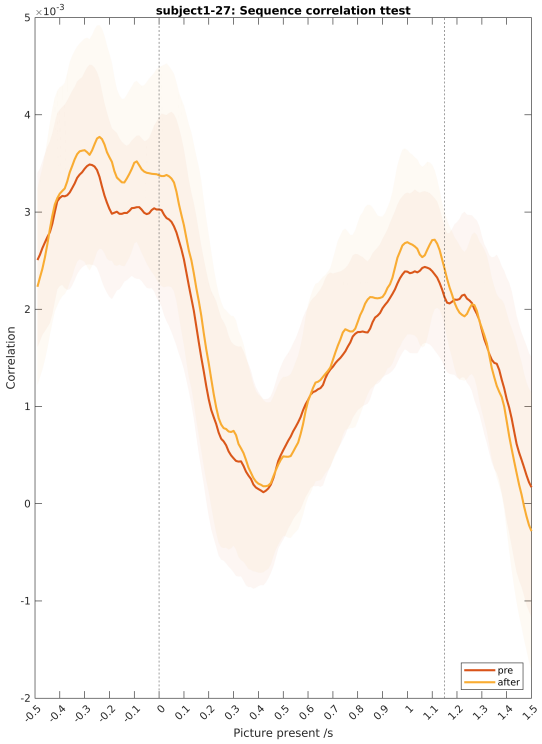


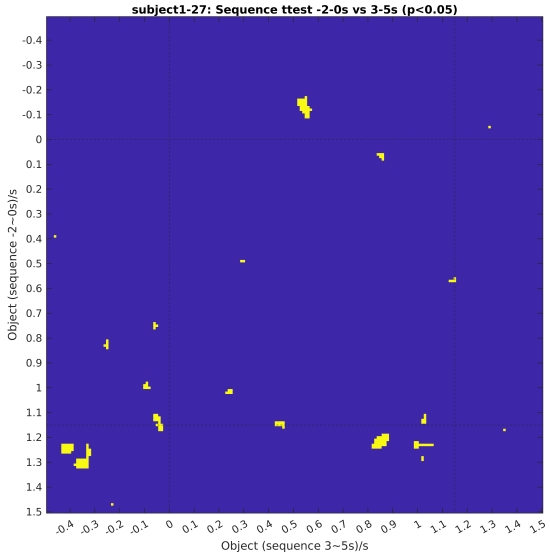
```
%plt_rsa_obj2seq_flatten(rsa_same, rsa_diff, 1, subject, plot_window)
plt_rsa_obj2seq_flatten(rsa_same, rsa_diff, 2, subject, plot_window)
```






```
% 6. obj2seq region123
plt_rsa_obj2seq_region123(rsa_same,subject,plot_window,methods)
```

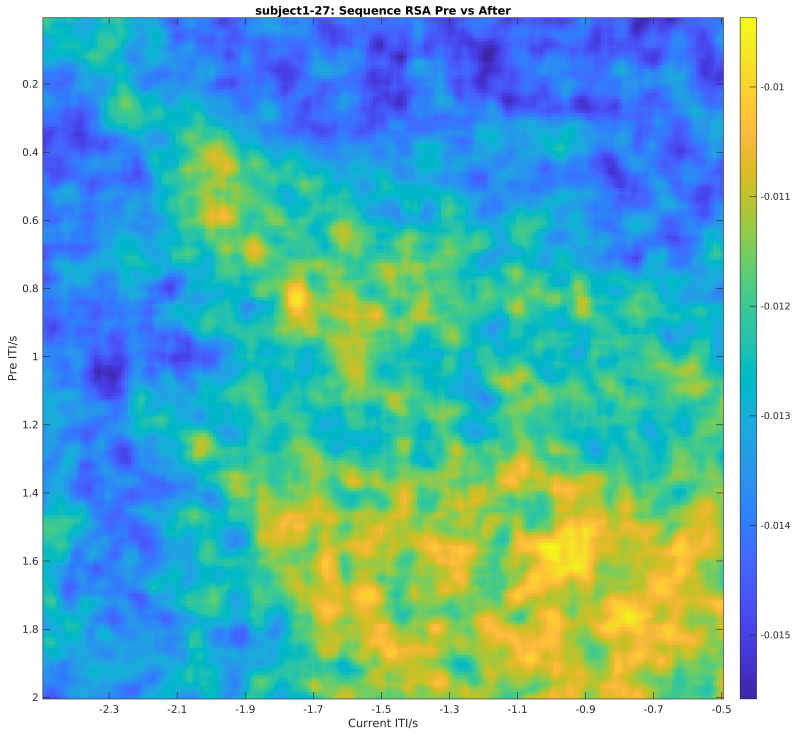




Consistency of neural activity across pre and after in Obj2Seq

```
rsa_group = load_mat([group_dir,'rsa_seq_pre_after_group.mat']);

plt_rsa_seq_pre_after(rsa_group.same, subject, plot_window)
```



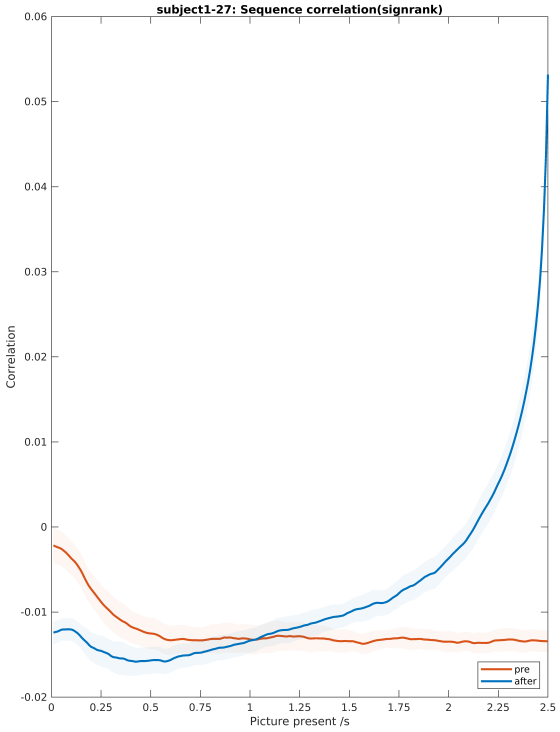
Item Specific Representation

Pre/After vs current stimulus

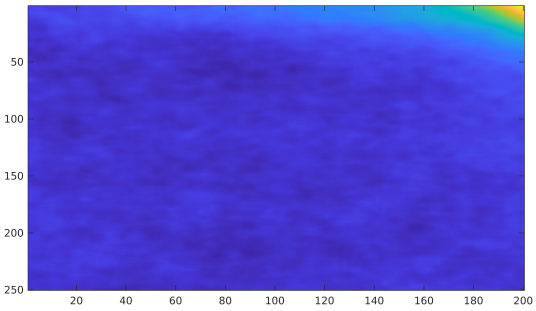
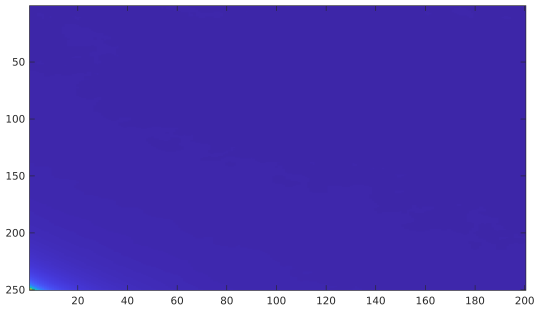
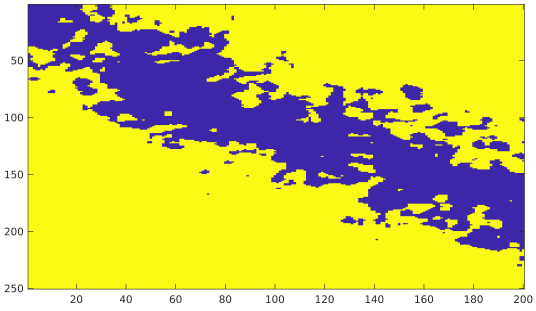
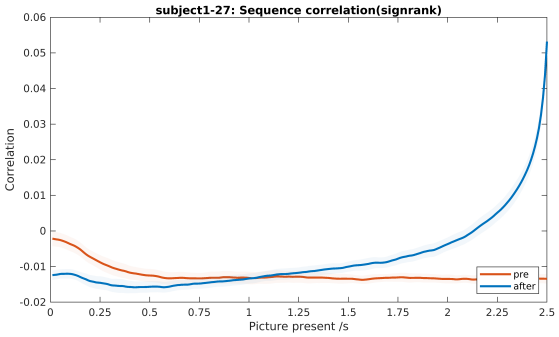
```
rsa_seq_pic_total_group = load_mat([group_dir,'rsa_seq_pic_total_group.mat']);

rsa_group = rsa_seq_pic_total_group.same(:,:,2:19);
rsa_group(rsa_group==inf)= nan;

% pic vs total
plt_rsa_seq_pic_total(rsa_group, subject, plot_window)
```




```
% Curve of Pre/After vs current stimulus
plt_rsa_seq_pic_total2(rsa_group, subject, plot_window)
```

Hippocampus

Neural Time Windows in Object Recognition Task

Consistency of neural activity across Object and Sequence

Consistency of neural activity across pre and after in Sequence

Pre/After vs current stimulus

Power change in Boundary and Nonboundary

```
%wavelet_subject = load_mat('/bigvault/Projects/seeg_pointing/results/sequence_memory/H

[wavelet_boundary,idx] = cell2matrix(wavelet_subject.data_bd);
[wavelet_non_boundary,idx] = cell2matrix(wavelet_subject.data_non_bd);
```

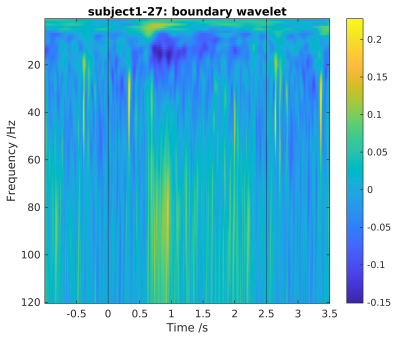
channel 2 subject

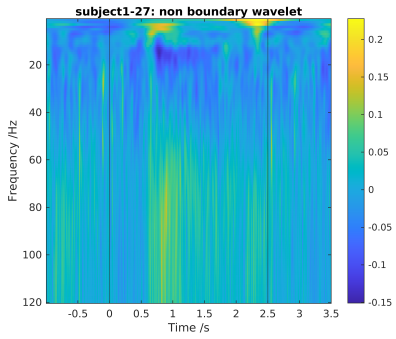
```
wavelet_subject = [];
subjects =unique(wavelet_group.info(:,1))
for j = 1:length(subjects)
    subject=subjects(j);
    ids = find(wavelet_group.info(:,1)==subject);
    for i=1:18
        wavelet_subject.data_bd{subject,i} = mean(cell2matrix(wavelet_group.data_bd(ids
        wavelet_subject.data_non_bd{subject,i} = mean(cell2matrix(wavelet_group.data_no
    end
end
wavelet_subject.info = wavelet_group.info;
wavelet_subject.subjects =subjects;
```

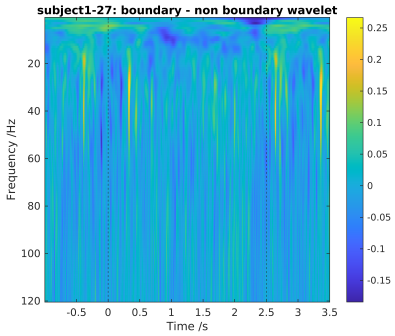
Boundary turns vs nonBoundary turns

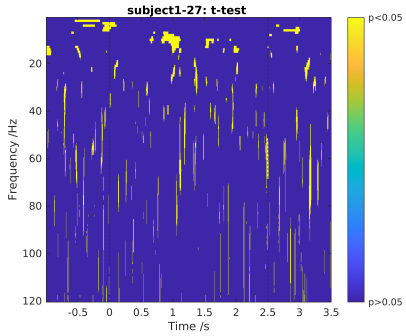
total

```
subject='subject1-27';
data_bd = [];
data_non_bd = [];
subjects =wavelet_subject.subjects;
for subi=1:length(subjects)
    data_bd(:,:,subi) = mean(cell2matrix(wavelet_subject.data_bd(subjects(subi),:)),3);
    data_non_bd(:,:,subi) = mean(cell2matrix(wavelet_subject.data_non_bd(subjects(subi)
end
plt_wavelet_region_bd(data_bd, data_non_bd, subject, plot_window)
```







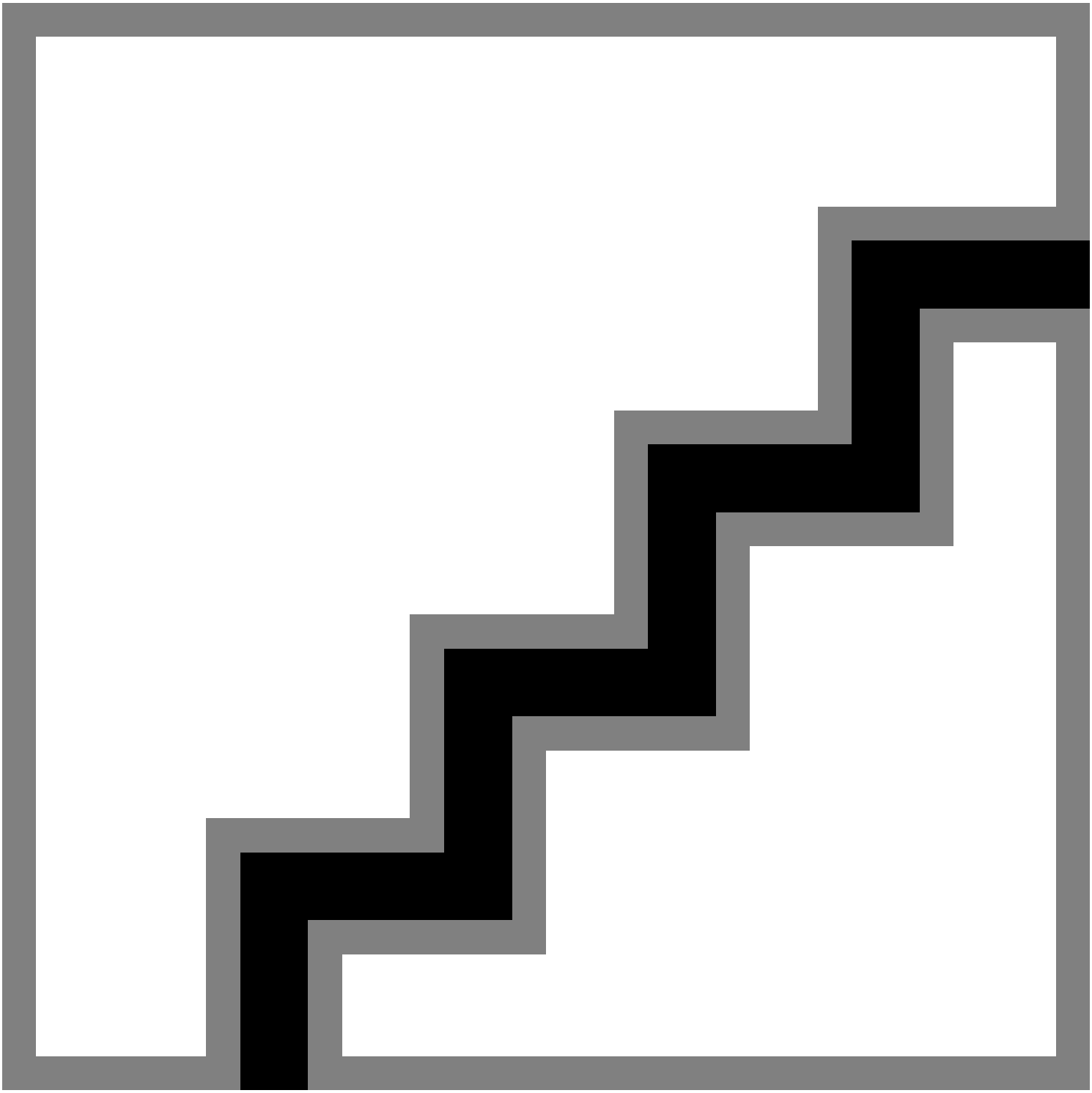


3 turns

```
subject='subject1-27'
```

```
subject =
'subject1-27'
```

```
data_bd = [];
data_non_bd = [];
subjects =wavelet_subject.subjects;
for subi=1:length(subjects)
    for seqi=1:6
    data_bd{subi,seqi} = mean(cell2matrix(wavelet_subject.data_bd(subjects(subi),seqi:6
    data_non_bd{subi,seqi} = mean(cell2matrix(wavelet_subject.data_non_bd(subjects(subi
    end
end
plt_wavelet_sd(data_bd, data_non_bd, subject, plot_window)
```



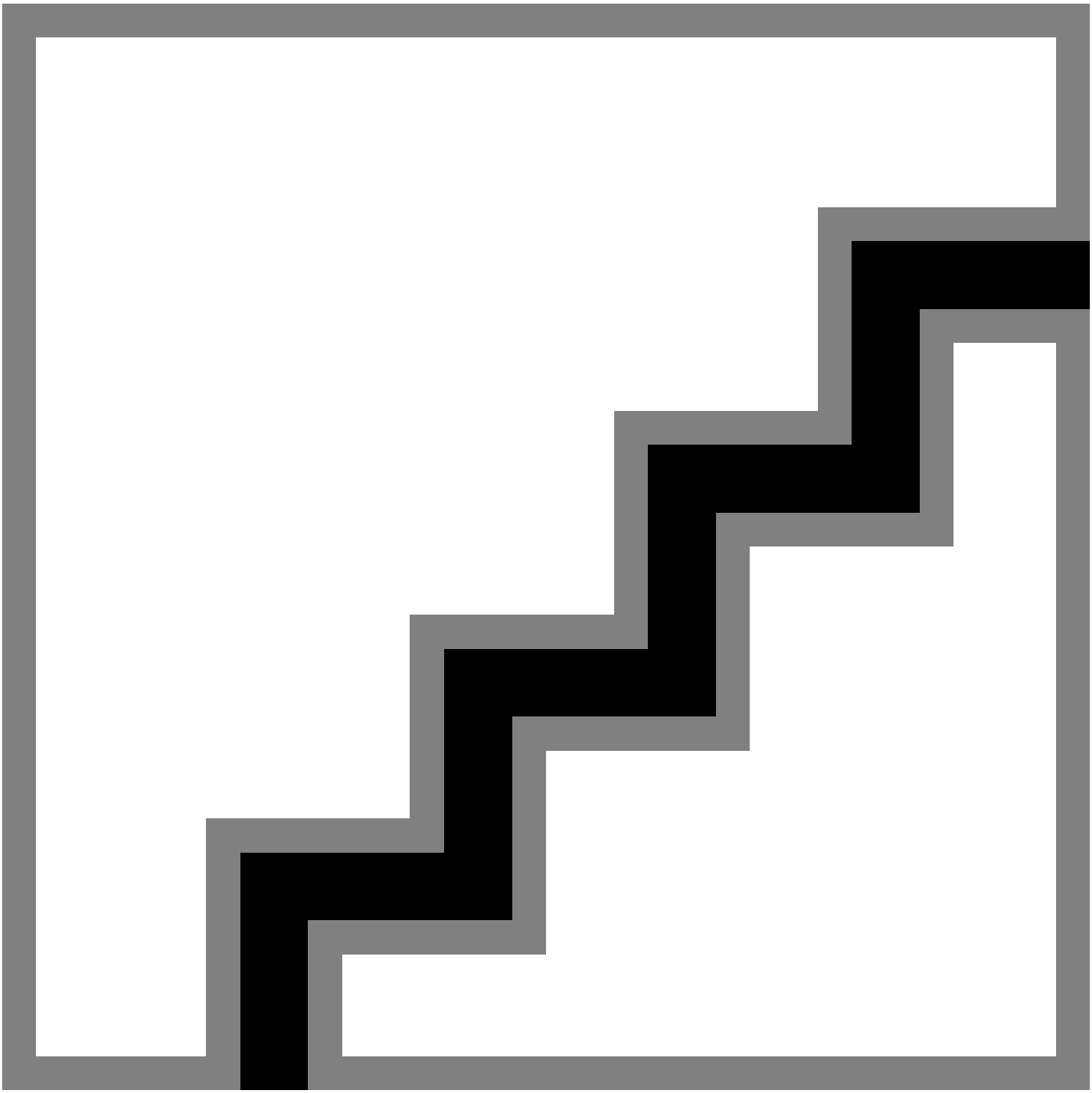
2 turns

```
subject='subject1-27'
```

```
subject =
'subject1-27'
```

```
data_bd = [];
```

```
data_non_bd = [];
subjects =wavelet_subject.subjects;
for subi=1:length(subjects)
    for seqi=1:6
    data_bd{subi,seqi} = mean(cell2matrix(wavelet_subject.data_bd(subjects(subi),seqi:6
    data_non_bd{subi,seqi} = mean(cell2matrix(wavelet_subject.data_non_bd(subjects(subi
    end
end
plt_wavelet_sd(data_bd, data_non_bd, subject, plot_window)
```



```
time = [-2.5,5];
srate= 512;
time_point = srate*(time(2)-time(1));%7.5s


id=0;
figure
for i=1:2
    for j=1:5
        id = id+1;
        subplot(4,5,(i-1)*10+j)
        imagesc(wavelet_subject.boundary{1,idx(id)})
        title(['boundary',num2str(idx(id))])
        xticks(0:srate:time_point);
        xticklabels([time(1):1:time(2)]);
        xline(-srate*time(1),'r','-')
        xline(srate*(2.5-time(1)),'r','-')
        cl = caxis;
        subplot(4,5,(i*2-1)*5+j)
        imagesc(wavelet_subject.non_boundary{1,idx(id)})
        title(['non boundary',num2str(idx(id))])
        xticks(0:srate:time_point);
        xticklabels([time(1):1:time(2)]);
        xline(-srate*time(1),'r','-')
        xline(srate*(2.5-time(1)),'r','-')
        caxis(cl)
    end
end
```