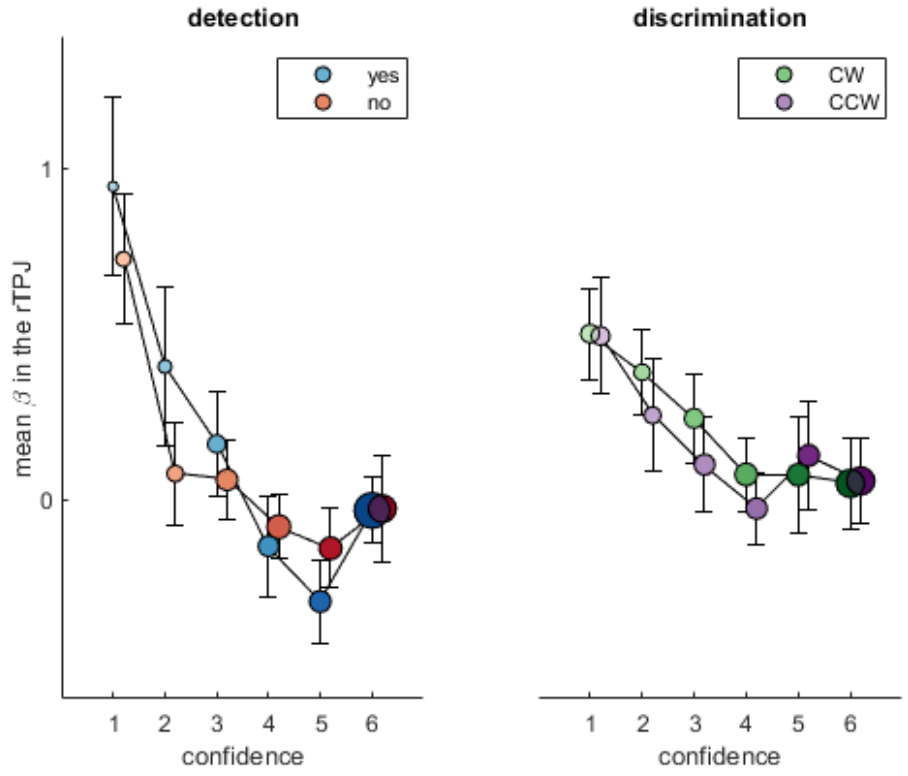
Multiple linear regression

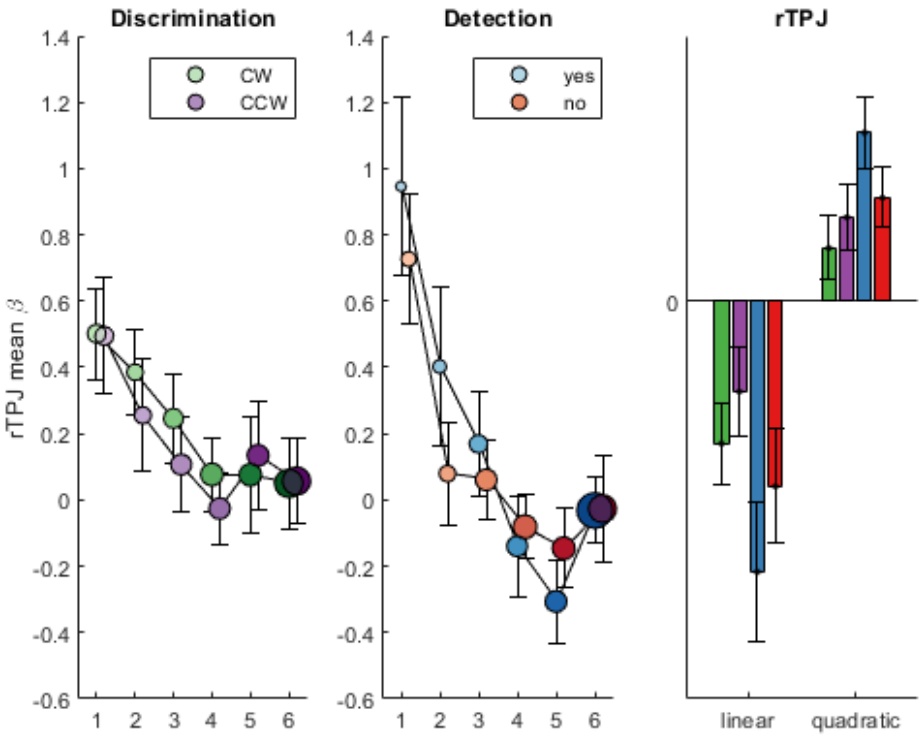
```
%load files and set workspace
% excludeSubjects;
load('relevant_ss.mat')
load('D:\Documents\software\MetaLabCore\project_params.mat');
load(fullfile(project_params.raw_dir,'subject_details.mat'));
p=project_params;
addpath(p.spm_dir);
cwd = pwd;

%add nice things to path
addpath('D:\Documents\software\cbrewer') %for color
addpath('D:\Documents\software\sigstar') %for significance
[cb] = cbrewer('qual','Set1',10,'pchip');
cb_dis = cbrewer('div','PRGn',18,'pchip');
cb_det = cbrewer('div','RdBu',18,'pchip');
cb_dis = cb_dis([1:6,13:18],:);
cb_det = cb_det([1:6,13:18],:);
mappingcb = cbrewer('div','BrBG',3);
addpath('D:\Documents\software\raincloud_plots') %for rainclouds

good_ss = find(sum((toExclude+toExcludeFromConfAnalyses)>0,2)<5)';
```

```
[ax1_rTPJ,ax2_rTPJ, rTPJ_coefs]=plotQuadFit(project_params,good_ss,'rTPJ','rTPJ');
```

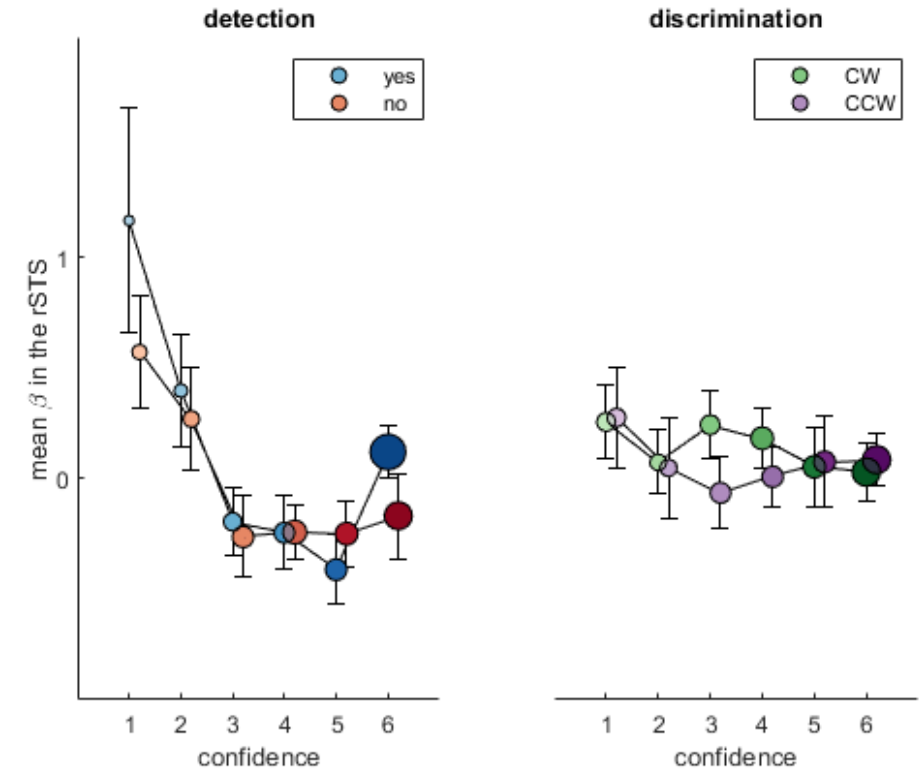


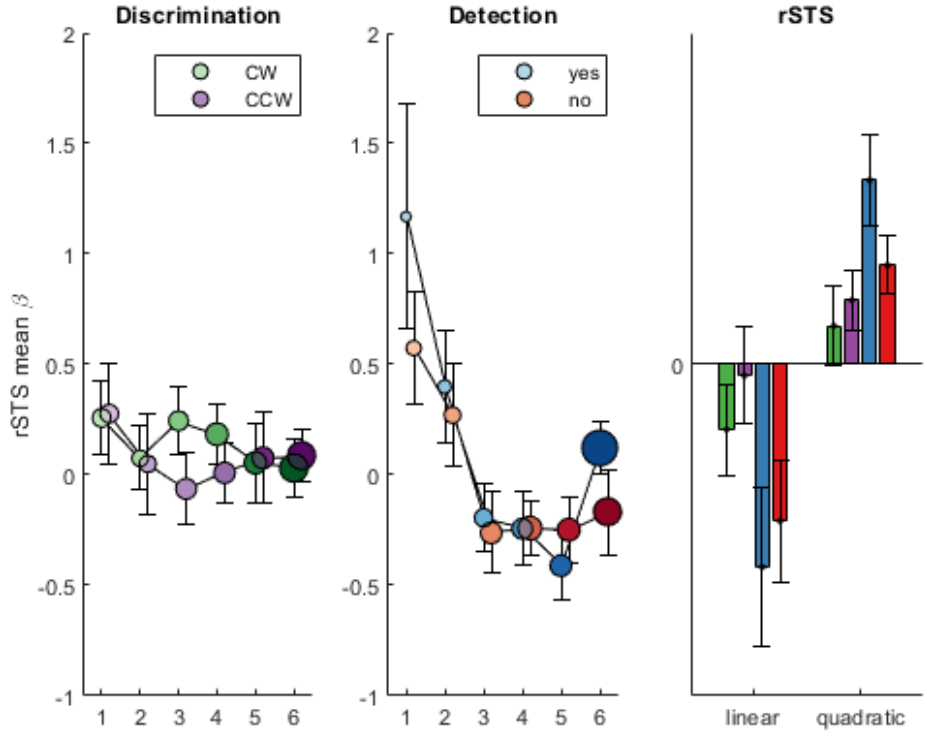



```
compareCoefs(rTPJ_coefs)
```

```
quad_global_p = 1.3636e-05
linear_global_p = 2.9420e-06
quad_task_p = 0.0692
linear_task_p = 0.0037
quad_resp_p = 0.0692
linear_resp_p = 0.0037
```

```
[ax1_rSTS,ax2_rSTS, rSTS_coefs]=plotQuadFit(project_params,good_ss,'rSTS','rSTS');
```



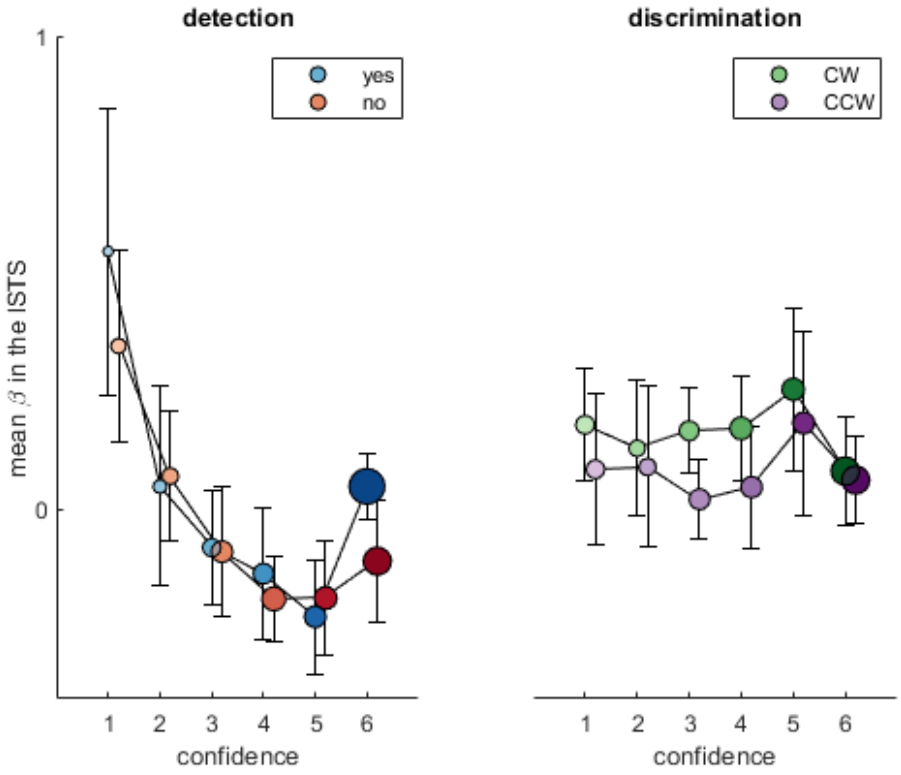


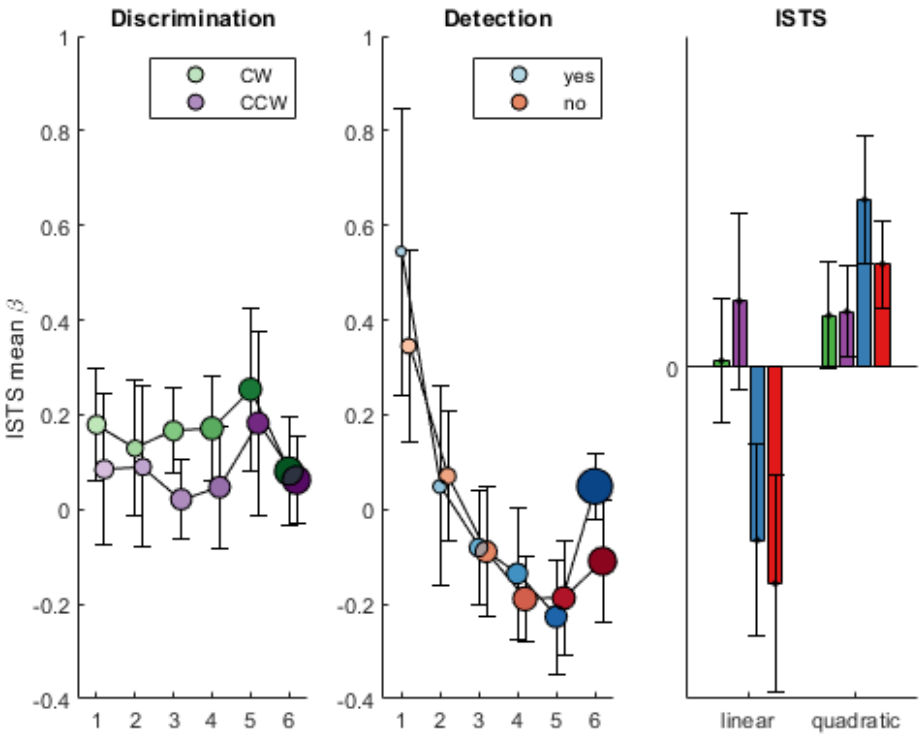

```
compareCoefs(rSTS_coefs)
```

```
quad_global_p = 2.1840e-04
linear_global_p = 0.0039
quad_task_p = 0.0214
```

```
linear_task_p = 0.0080
quad_resp_p = 0.0214
linear_resp_p = 0.0080
```

```
[ax1_lSTS,ax2_lSTS, lSTS_coefs]=plotQuadFit(project_params,good_ss,'lSTS','lSTS');
```



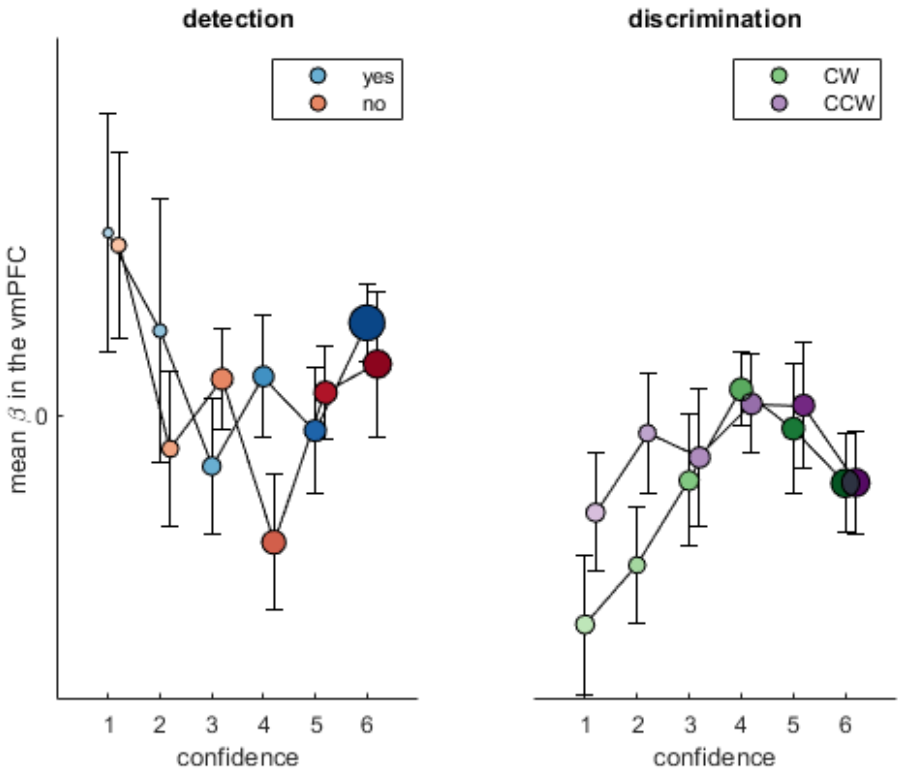


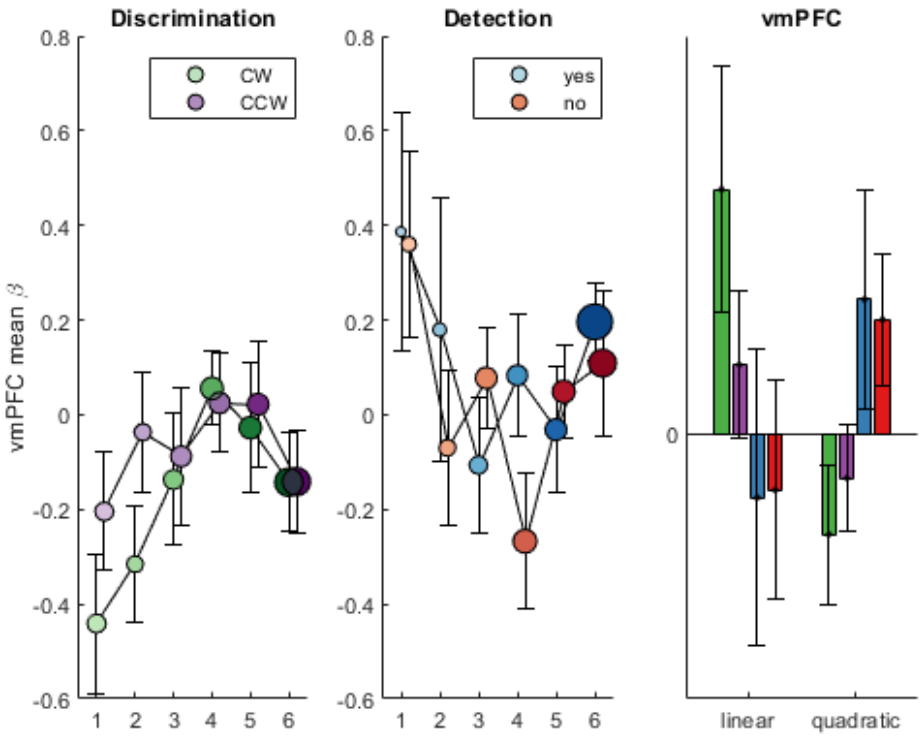

```
compareCoefs(lSTS_coefs)
```

```
quad_global_p = 0.0131
quad_global_stats = struct with fields:
    tstat: 2.6181
       df: 34
       sd: 0.0961
linear_global_p = 0.0756
liner_global_stats = struct with fields:
    tstat: -1.8327
       df: 34
       sd: 0.1125
quad_task_p = 0.1082
quad_task_stats = struct with fields:
    tstat: 1.6498
       df: 34
       sd: 0.1250
linear_task_p = 0.0019
linear_task_stats = struct with fields:
    tstat: -3.3631
       df: 34
       sd: 0.2004
quad_resp_p = 0.1082
quad_resp_stats = struct with fields:
    tstat: 1.6498
       df: 34
       sd: 0.1250
linear_resp_p = 0.0019
linear_resp_stats = struct with fields:
    tstat: -3.3631
       df: 34
```

```
sd: 0.2004
```

```
[ax1_vmPFC,ax2_vmPFC, vmPFC_coefs]=plotQuadFit(project_params,good_ss,'vmPFC','vmPFC');
```



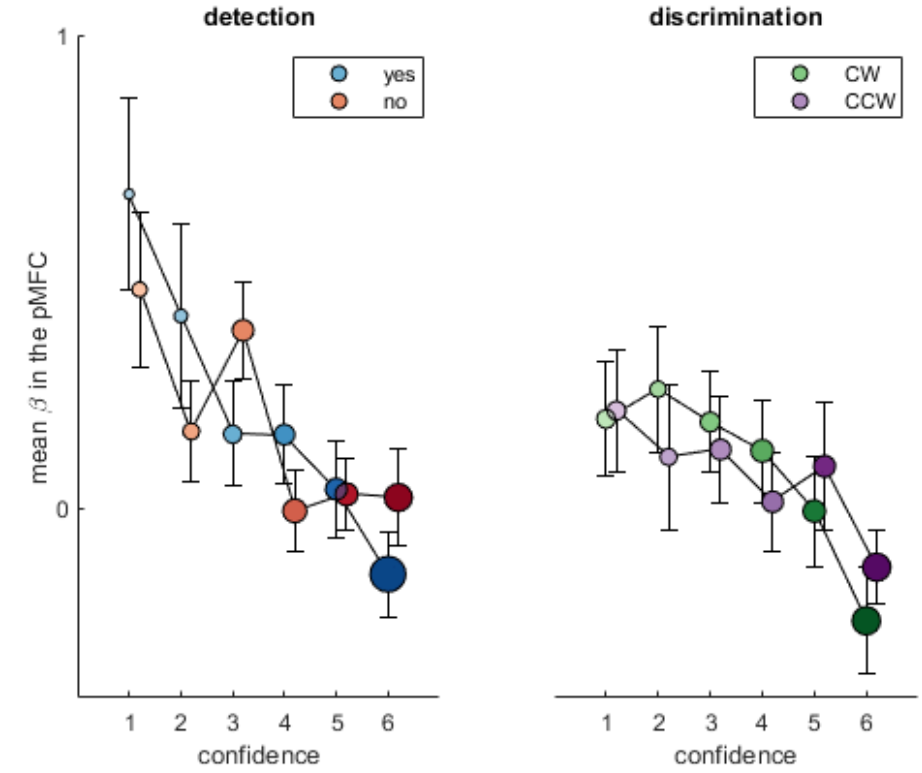


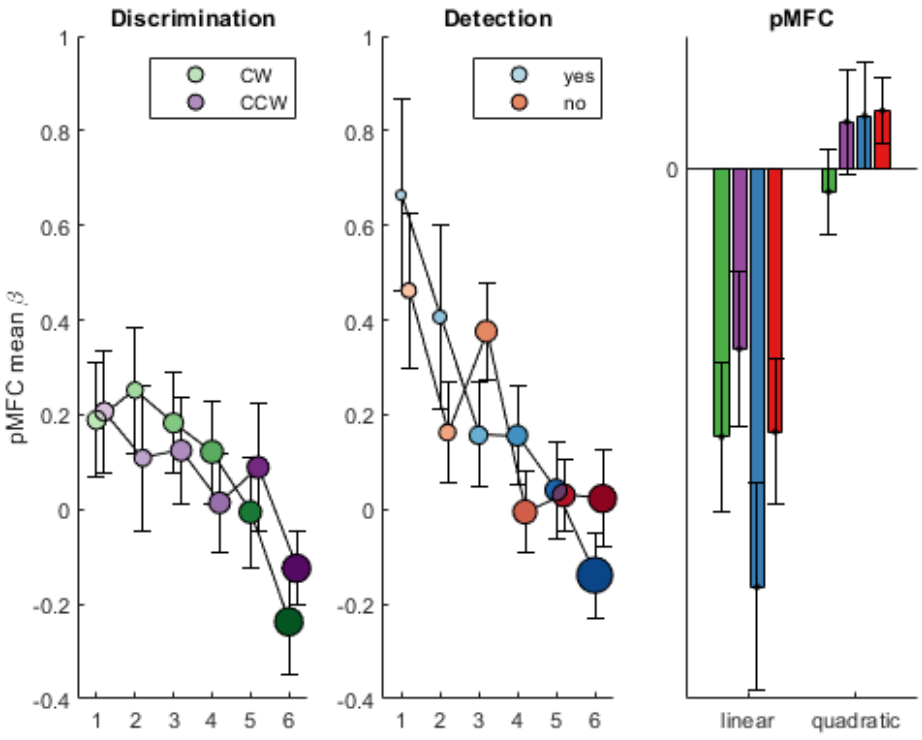

```
compareCoefs(vmPFC_coefs)
```

```
quad_global_p = 0.4850
quad_global_stats = struct with fields:
    tstat: 0.7059
       df: 34
       sd: 0.0811
linear_global_p = 0.4145
liner_global_stats = struct with fields:
    tstat: 0.8262
       df: 34
       sd: 0.1428
quad_task_p = 0.0248
quad_task_stats = struct with fields:
    tstat: 2.3482
       df: 34
       sd: 0.1615
linear_task_p = 0.2669
linear_task_stats = struct with fields:
    tstat: -1.1289
       df: 34
       sd: 0.2278
quad_resp_p = 0.0248
quad_resp_stats = struct with fields:
    tstat: 2.3482
       df: 34
       sd: 0.1615
linear_resp_p = 0.2669
linear_resp_stats = struct with fields:
    tstat: -1.1289
       df: 34
```

```
sd: 0.2278
```

```
[ax1_pMFC,ax2_pMFC, pMFC_coefs]=plotQuadFit(project_params,good_ss,'pMFC','pMFC');
```

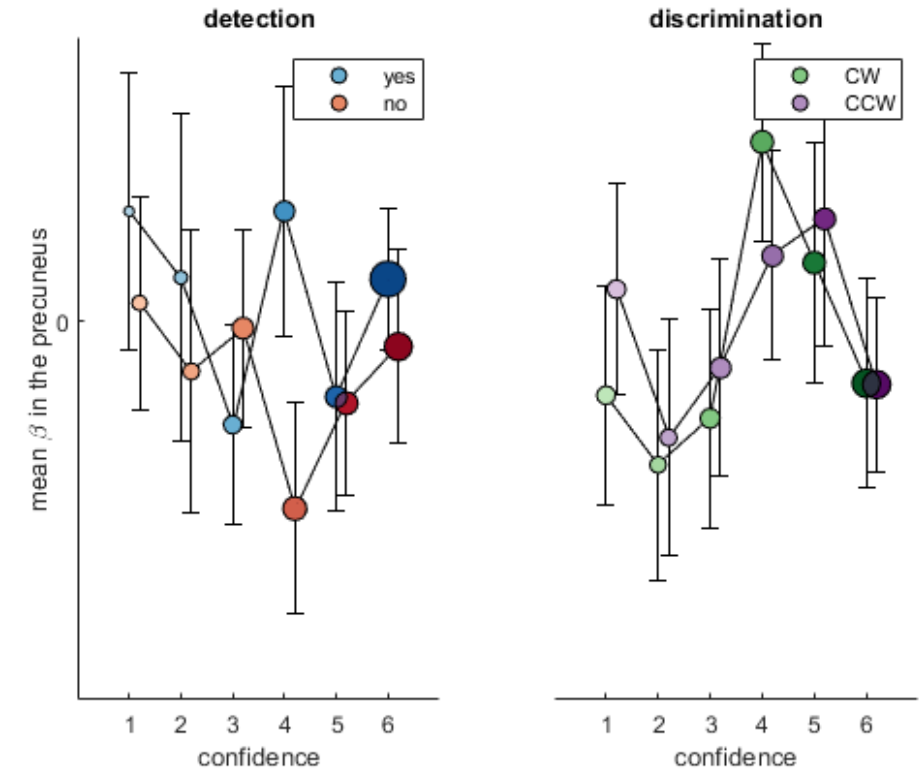


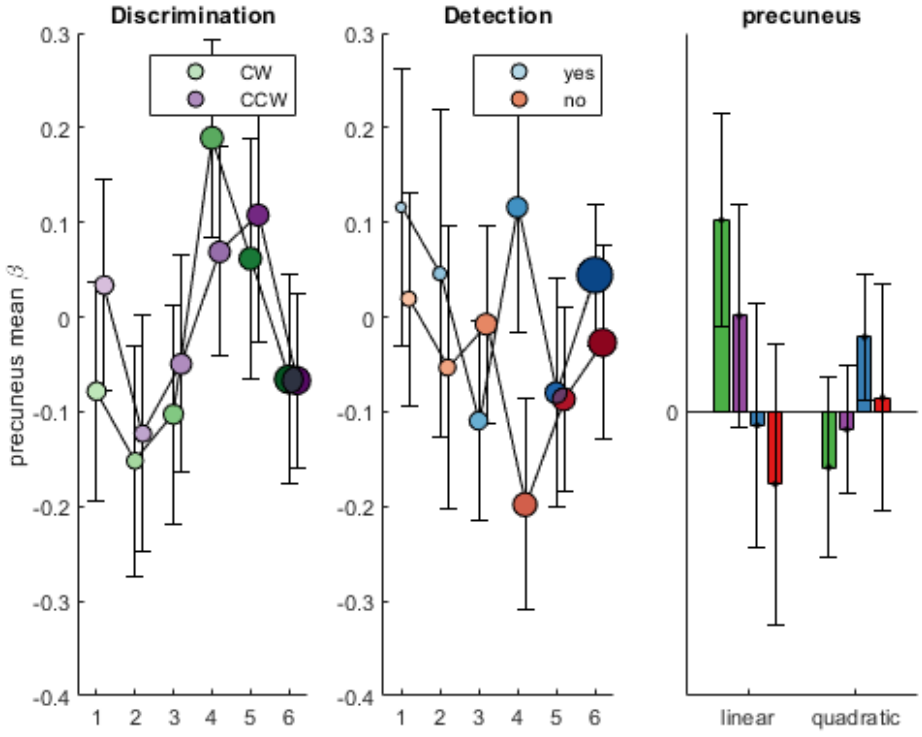


```
compareCoefs(pMFC_coefs)
```

```
quad_global_p = 0.2021
quad_global_stats = struct with fields:
    tstat: 1.3008
       df: 34
       sd: 0.0540
linear_global_p = 7.8587e-06
liner_global_stats = struct with fields:
    tstat: -5.2616
       df: 34
       sd: 0.1181
quad_task_p = 0.9278
quad_task_stats = struct with fields:
    tstat: 0.0913
       df: 34
       sd: 0.0787
linear_task_p = 0.0339
linear_task_stats = struct with fields:
    tstat: -2.2107
       df: 34
       sd: 0.1512
quad_resp_p = 0.9278
quad_resp_stats = struct with fields:
    tstat: 0.0913
       df: 34
       sd: 0.0787
linear_resp_p = 0.0339
linear_resp_stats = struct with fields:
    tstat: -2.2107
       df: 34
       sd: 0.1512
```

```
[ax1_precuneus,ax2_precuneus, precuneus_coefs]=plotQuadFit(project_params,good_ss,'precuneus',
```



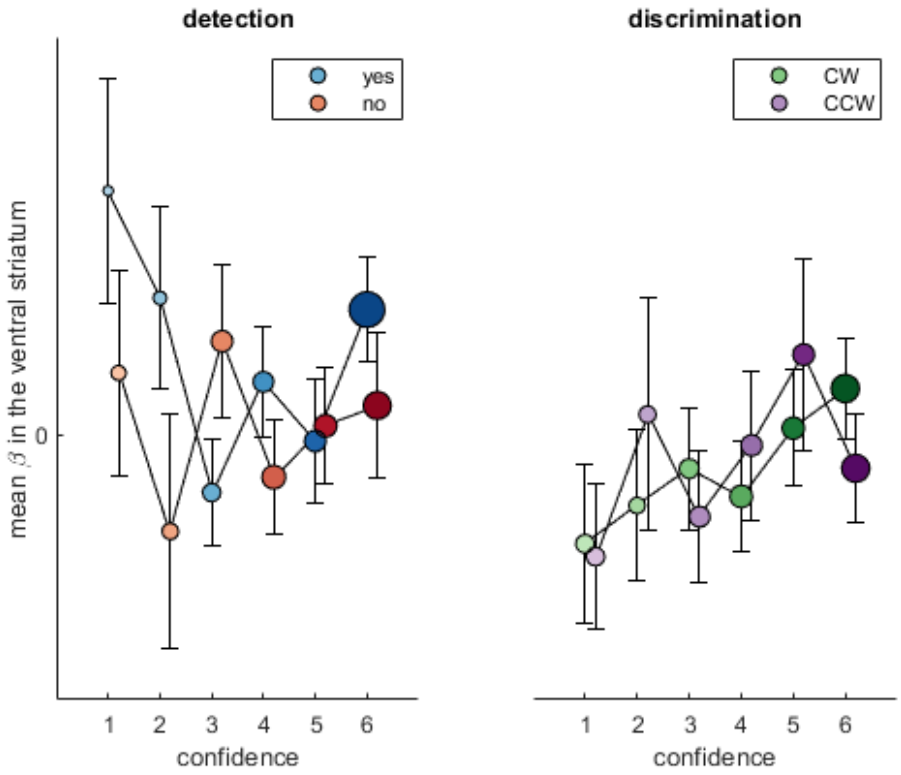


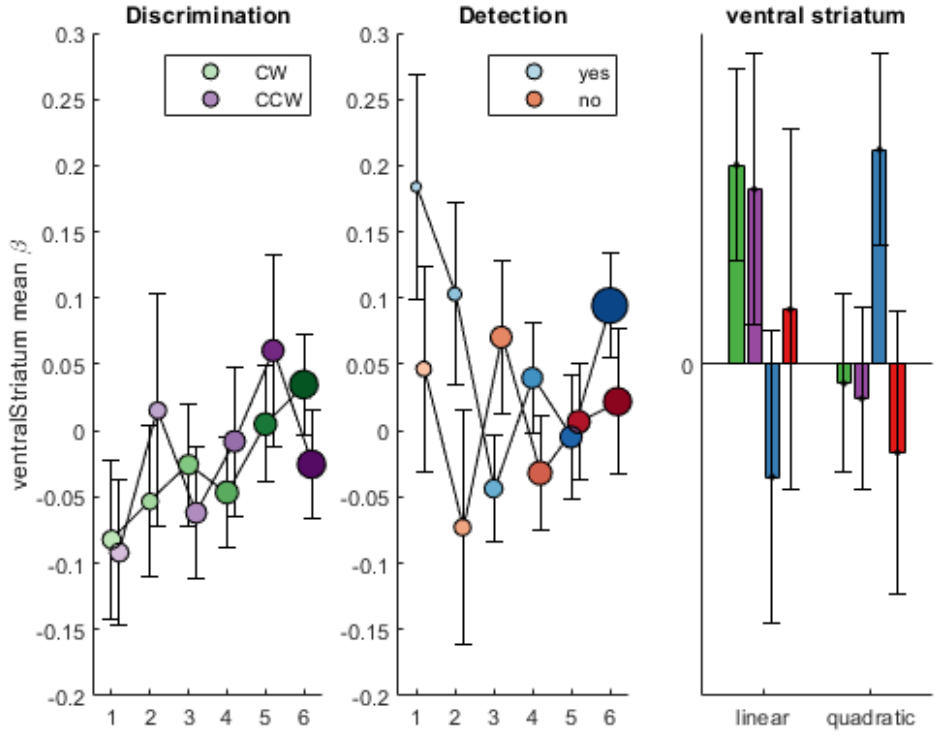

```
compareCoefs(precuneus_coefs)
```

```
quad_global_p = 0.9179
quad_global_stats = struct with fields:
```

```
    tstat: 0.1038
       df: 34
       sd: 0.0634
linear_global_p = 0.4004
liner_global_stats = struct with fields:
    tstat: 0.8515
       df: 34
       sd: 0.0787
quad_task_p = 0.3608
quad_task_stats = struct with fields:
    tstat: 0.9263
       df: 34
       sd: 0.0918
linear_task_p = 0.1655
linear_task_stats = struct with fields:
    tstat: -1.4172
       df: 34
       sd: 0.1183
quad_resp_p = 0.3608
quad_resp_stats = struct with fields:
    tstat: 0.9263
       df: 34
       sd: 0.0918
linear_resp_p = 0.1655
linear_resp_stats = struct with fields:
    tstat: -1.4172
       df: 34
       sd: 0.1183
```

```
[ax1_VS,ax2_VS, VS_coefs]=plotQuadFit(project_params,good_ss,'ventralStriatum','ventral striatu
```



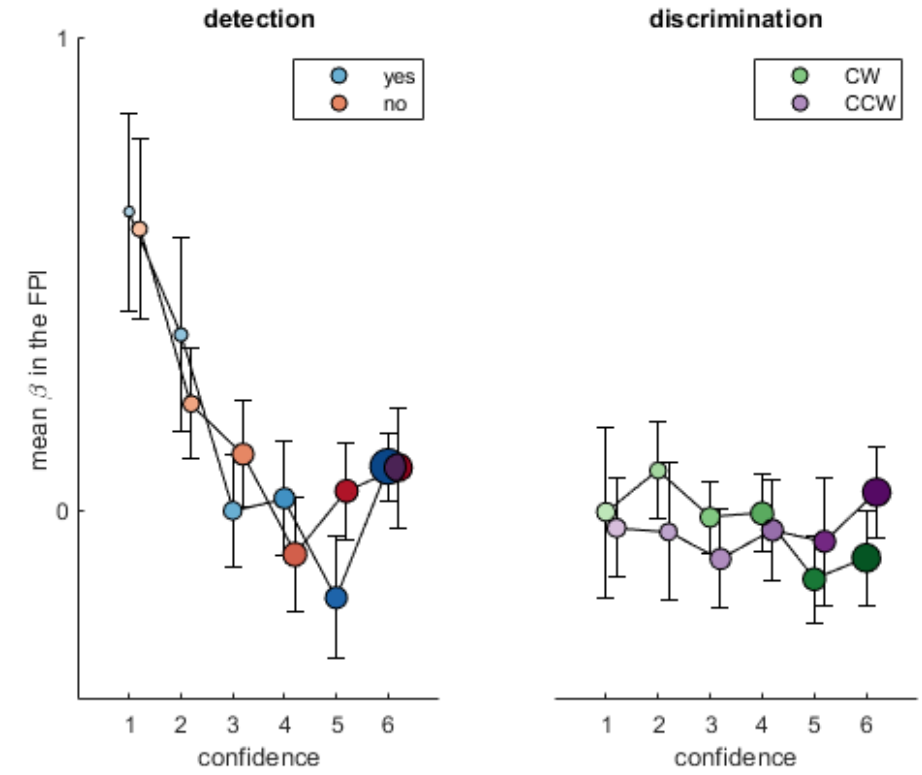


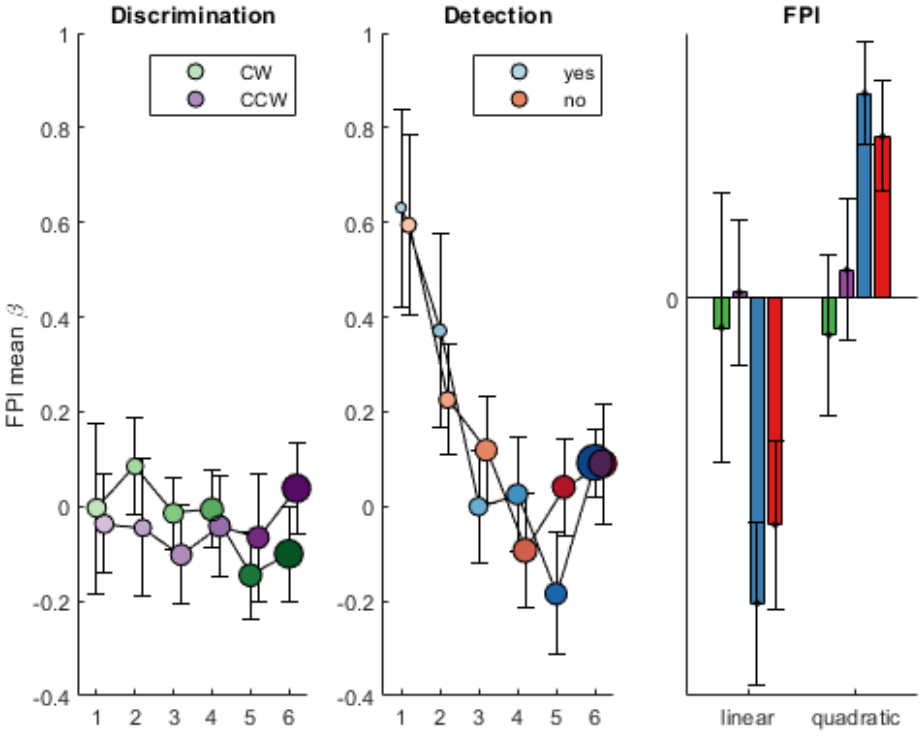

```
compareCoefs(VS_coefs)
```

```
quad_global_p = 0.7051
quad_global_stats = struct with fields:
```

```
    tstat: 0.3816
       df: 34
       sd: 0.0244
linear_global_p = 0.3618
liner_global_stats = struct with fields:
    tstat: 0.9243
       df: 34
       sd: 0.0502
quad_task_p = 0.2684
quad_task_stats = struct with fields:
    tstat: 1.1253
       df: 34
       sd: 0.0489
linear_task_p = 0.1908
linear_task_stats = struct with fields:
    tstat: -1.3348
       df: 34
       sd: 0.0750
quad_resp_p = 0.2684
quad_resp_stats = struct with fields:
    tstat: 1.1253
       df: 34
       sd: 0.0489
linear_resp_p = 0.1908
linear_resp_stats = struct with fields:
    tstat: -1.3348
       df: 34
       sd: 0.0750
```

```
[ax1_FPl,ax2_FPl, FPl_coefs]=plotQuadFit(project_params,good_ss,'FPl','FPl');
```



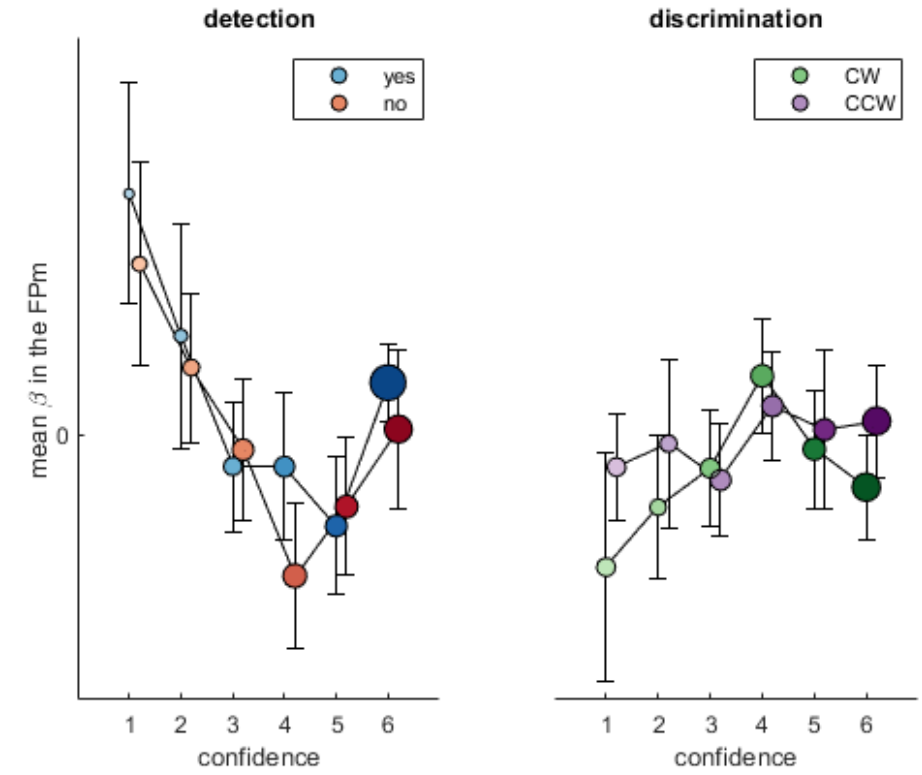


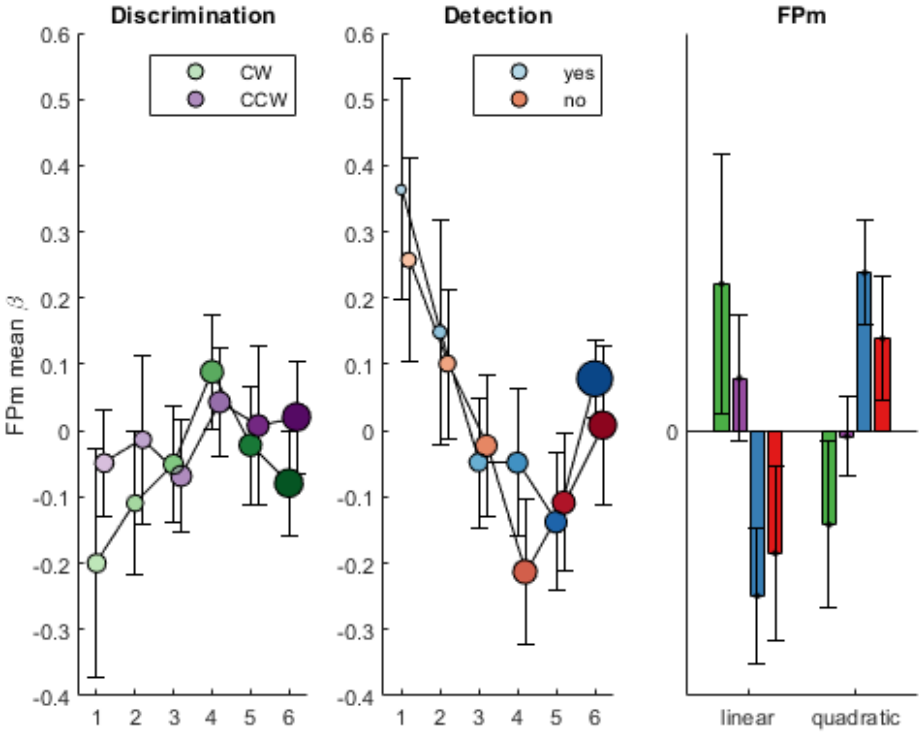

```
compareCoefs(FPl_coefs)
```

```
quad_global_p = 0.0293
quad_global_stats = struct with fields:
```

```
    tstat: 2.2759
       df: 34
       sd: 0.0861
linear_global_p = 0.0180
liner_global_stats = struct with fields:
    tstat: -2.4852
       df: 34
       sd: 0.1222
quad_task_p = 5.0397e-04
quad_task_stats = struct with fields:
    tstat: 3.8449
       df: 34
       sd: 0.0885
linear_task_p = 3.9769e-04
linear_task_stats = struct with fields:
    tstat: -3.9281
       df: 34
       sd: 0.1502
quad_resp_p = 5.0397e-04
quad_resp_stats = struct with fields:
    tstat: 3.8449
       df: 34
       sd: 0.0885
linear_resp_p = 3.9769e-04
linear_resp_stats = struct with fields:
    tstat: -3.9281
       df: 34
       sd: 0.1502
```

```
[ax1_FPm,ax2_FPm, FPm_coefs]=plotQuadFit(project_params,good_ss,'FPm','FPm');
```



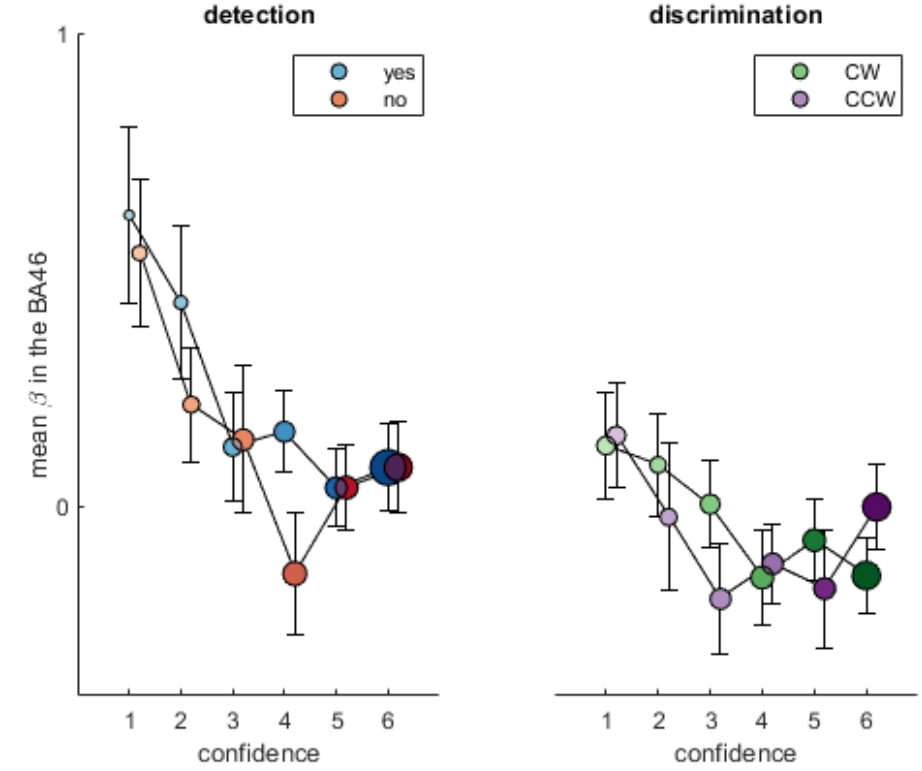


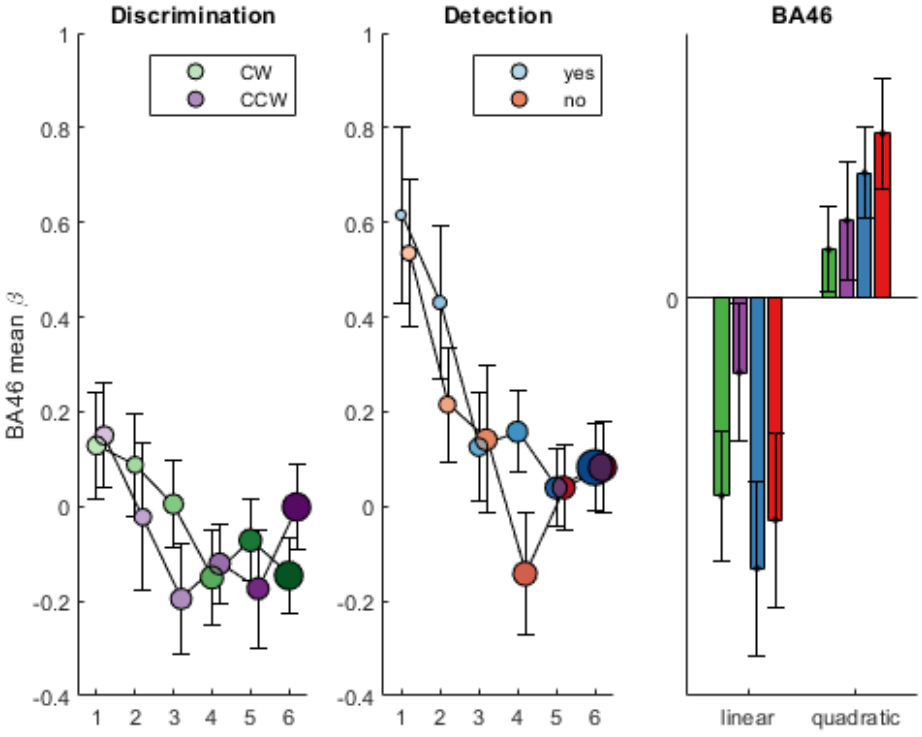

```
compareCoefs(FPm_coefs)
```

```
quad_global_p = 0.3072
quad_global_stats = struct with fields:
```

```
    tstat: 1.0367
       df: 34
       sd: 0.0797
linear_global_p = 0.6027
liner_global_stats = struct with fields:
    tstat: -0.5254
       df: 34
       sd: 0.0843
quad_task_p = 0.0030
quad_task_stats = struct with fields:
    tstat: 3.1929
       df: 34
       sd: 0.0915
linear_task_p = 0.0049
linear_task_stats = struct with fields:
    tstat: -3.0068
       df: 34
       sd: 0.1426
quad_resp_p = 0.0030
quad_resp_stats = struct with fields:
    tstat: 3.1929
       df: 34
       sd: 0.0915
linear_resp_p = 0.0049
linear_resp_stats = struct with fields:
    tstat: -3.0068
       df: 34
       sd: 0.1426
```

```
[ax1_BA46,ax2_BA46, BA46_coefs]=plotQuadFit(project_params,good_ss,'BA46','BA46');
```






```
compareCoefs(BA46_coefs)
```

```
quad_global_p = 1.9287e-04
quad_global_stats = struct with fields:
```

```
    tstat: 4.1798
       df: 34
       sd: 0.0549
linear_global_p = 1.5195e-04
liner_global_stats = struct with fields:
    tstat: -4.2618
       df: 34
       sd: 0.0989
quad_task_p = 0.0777
quad_task_stats = struct with fields:
    tstat: 1.8191
       df: 34
       sd: 0.0793
linear_task_p = 0.0199
linear_task_stats = struct with fields:
    tstat: -2.4439
       df: 34
       sd: 0.1507
quad_resp_p = 0.0777
quad_resp_stats = struct with fields:
    tstat: 1.8191
       df: 34
       sd: 0.0793
linear_resp_p = 0.0199
linear_resp_stats = struct with fields:
    tstat: -2.4439
       df: 34
       sd: 0.1507
```