DCM: Demo

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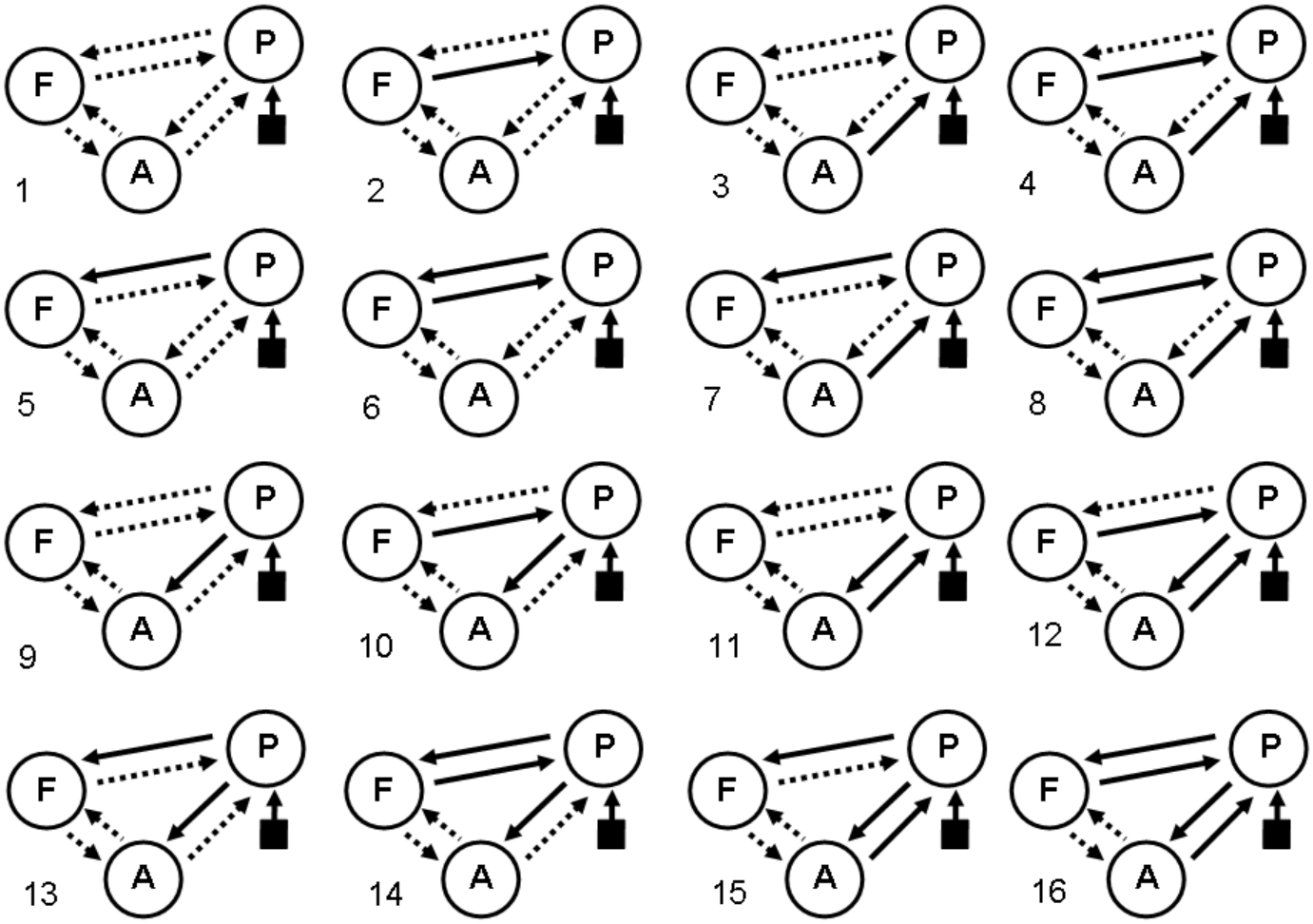
Our Hypotheses

- We consider only four endogenous connections are modulated by an external input:
  - left posterior temporal sulcus (region P)
  - left anterior superior temporal sulcus (region A)
  - pars orbitalis of the inferior frontal gyrus (region F).
- Therefore, there are 2^4 possibility to modulate these connections.

Our Hypotheses



Generate 16 DCM

```
clear all;
clc;
name_ = 'DCM';
dir_= 'F:\ProfSiadat\Baghdad University\Data\DCM\subject';
for i = 1:12
   Subject = [dir_ int2str(i)];
   dcm_ = [Subject '\DCM'];
   for j = 1:16
      load(dcm_);
      switch j
         case 1
            DCM.b = zeros(3,3,2);
            dcm_name = [name_ '_' int2str(j)];
            cd(Subject);
            save(dcm_name, 'DCM', '-V6');
         case 2
            DCM.b = zeros(3,3,2);
            DCM.b(1,3,2) = 1;
            dcm_name = [name_ '_' int2str(j)];
            cd(Subject);
            save(dcm_name, 'DCM', '-V6');
         case 3 ……..
      End;
   End;
End;
```

Estimate Parameters

- Run spm_dcm_ui
- To estimate one model

```
for i=1:numel(P)
        spm_dcm_estimate(P{i});
end
```

- To estimate 16 models

```
dir = 'F:\ProfSiadat\Baghdad University\Data\DCM\subject';
    for i = 1:16
        name_ = [dir '\DCM_' int2str(i) ];
        spm_dcm_estimate(name_);
    end;
```

Create model space

```
clear all; clc;
model_name = 'model_sapce';
dir_ = 'F:\ProfSiadat\Baghdad University\Data\DCM';
for i = 1:12
   filename = [dir_ '\subject' int2str(i)];
   for j = 1:16
      name_ = [filename '\DCM_' int2str(j)];
      load(name_);
      subj(i).sess.model(j).fname = name_;
      subj(i).sess.model(j).F = F;
      subj(i).sess.model(j).Ep = Ep;
      subj(i).sess.model(j).Cp = Cp;
   end;
end;
cd(dir_);
save(model_name, 'subj', '-V6');
```