

## Overview

An alternative parcellation of the orbitofrontal cortex is described for the automated [anatomical labeling atlas](#) of Tzourio-Mazoyer et al. (2002) (Automated anatomical labeling of activations in SPM using a macroscopic anatomical parcellation of the MNI MRI single-subject brain. *NeuroImage* 15:273-289). The new parcellation of the orbitofrontal cortex follows the description provided by Chiavaras, Petrides, and colleagues (2000, 2001).

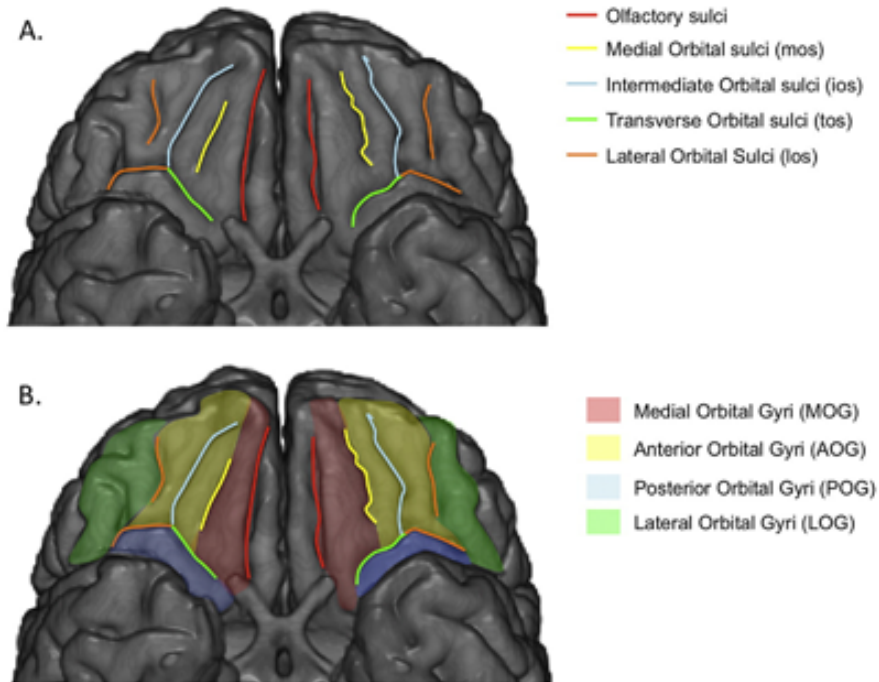


Figure : Frontal lobe inferior surface, identification of sulci (A) that were used to parcellate using axial slices from -10 to -24 the new orbitofrontal regions in AAL2 corresponding to the Medial, Anterior, Posterior and Lateral orbital gyri (B).

## How to install the software

1) Copy the archive to the chosen location (e.g. /usr/local/soft/spm12/toolbox)

```
unix> cp aal2_for_SPM12.tar.gz /usr/local/soft/spm12/toolbox
```

```
unix> cd /usr/local/soft/spm12/toolbox
```

2) Gunzip and untar the archive will create an aal directory

```
unix> tar -zxvf aal2_for_SPM12.tar.gz
```

3) Add this directory to your Matlab path and copy 2 files in your SPM12/atlas directory

```
unix> setenv MATLABPATH $MATLABPATH :/usr/local/soft/spm12/toolbox/aal
```

```
unix> cp /usr/local/soft/spm12/toolbox/aal/AAL2.nii /usr/local/soft/spm12/atlas
```

```
unix> cp /usr/local/soft/spm12/toolbox/aal/AAL2.xml /usr/local/soft/spm12/atlas
```

To install AAL2 in [mricron](#) software :

```
unix> cp /usr/local/soft/spm12/toolbox/aal/aal2.nii.gz /usr/local/soft/mricron/templates
```

```
unix> cp /usr/local/soft/spm12/toolbox/aal/aal2.nii.lut /usr/local/soft/mricron/templates
```

```
unix> cp /usr/local/soft/spm12/toolbox/aal/aal2.nii.txt /usr/local/soft/mricron/templates
```

## How to use the software

- 1) Launch Matlab  
unix> matlab
- 2) First option : launch AAL from SPM12 :  
>> spm\_fmri  
Select the desired contrast, mask, probability and extent threshold like in the regular spm\_result.  
In the SPM12 Menu window : Toolbox / aal  
Then choose a labeling procedure as below from the instructions 4).
- 3) An alternative is to launch AAL from the Matlab command window :  
>> aal  
Select the desired contrast, mask, probability and extent threshold like in the regular spm\_result.  
Then choose a labeling procedure as below from the instructions 4).
- 4) Choose a labeling procedure. The 3 choices are explained and documented in the NeuroImage paper (Tzourio-Mazoyer et al., 2002) :
  - Local maxima labeling
  - Extended local maxima labeling
  - Cluster labeling
- 5) For "Extended local maxima labeling" input the local maxima radius of the sphere in millimeters (default 10 mm).
- 6) Select the anatomical parcellation database  
In /usr/local/soft/spm12/toolbox/aal  
The file : ROI\_MNI\_V5.img
- 7) There is also a third option to get the label :  
unix> matlab  
>> spm\_fmri  
Select the desired contrast, mask, probability and extent threshold like in the regular spm\_result.  
In the SPM12 Results window : Atlas / Label using / AAL2  
Then you get the label with a right click on the coordinates in the Graphic window.

## Note

If the "unknown" label appears, it might be that the local maximum is at the edge of the template. Then, move your cursor on the label to display the proportion of the voxels in the surrounding ROIs. See below as an example.

peak-level				mm mm mm		
rr	T	(Z <sub>s</sub> )	D <sub>incorr</sub>			
5.43	5.21	0.000		5	6	48
5.46	5.13	0.000		-1	-54	-37
5.31	5.06	0.000		-12	-25	49
5.19	4.95	0.000		-52	-14	29
5.16	4.93	0.000		53	-5	32
5.15	4.92	0.000		17	11	44
5.12	4.90	0.000		4	11	44