

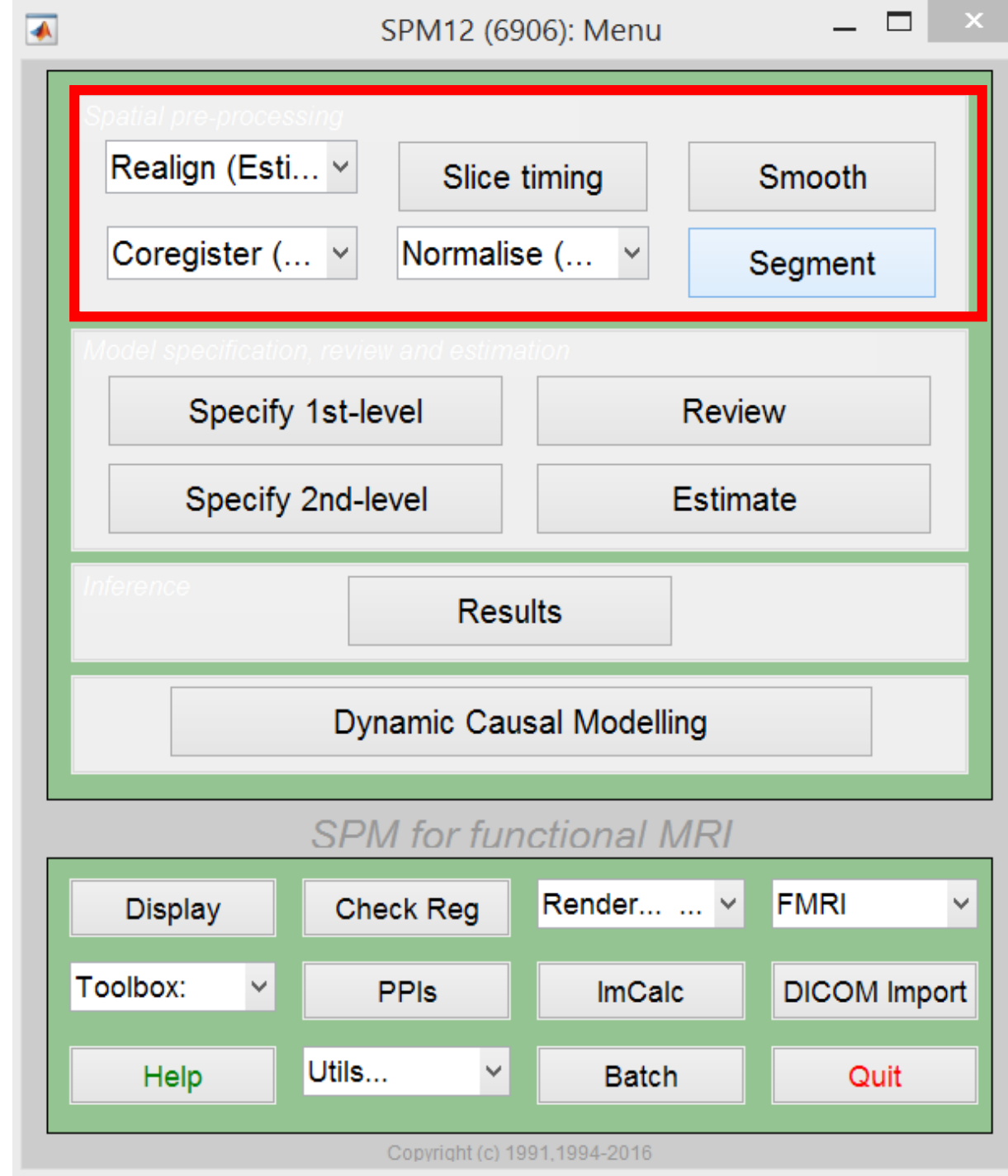
Information for scanning session

- More information to follow in an email.
- Dates: ETH/UZH – 09.10.2018, 08:00?; MED – 16.10.2018, 08:15
- Meeting point: Entrance of «MR Zentrum Süd».
- Volunteers: 2-3 Students per morning can volunteer to go into the scanner. We will pseudonomize the filenames and skull strip anatomies.
- Treat all data as confidential: Use for the course,
but do not distribute!

Basic SPM functions

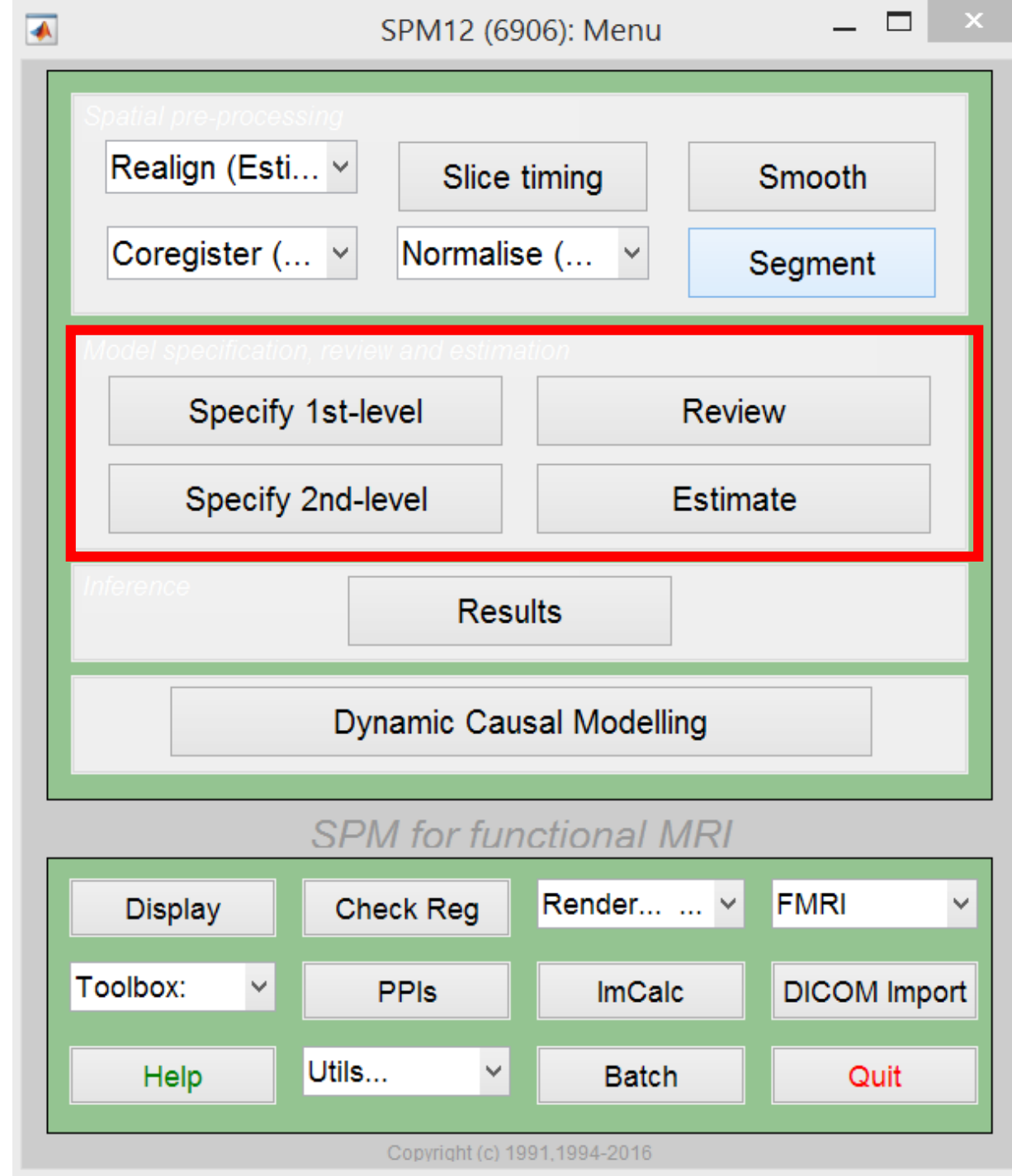
SPM main menu

- Functions to preprocess fMRI data.
- E.g. Smoothing
- E.g. Coregister.



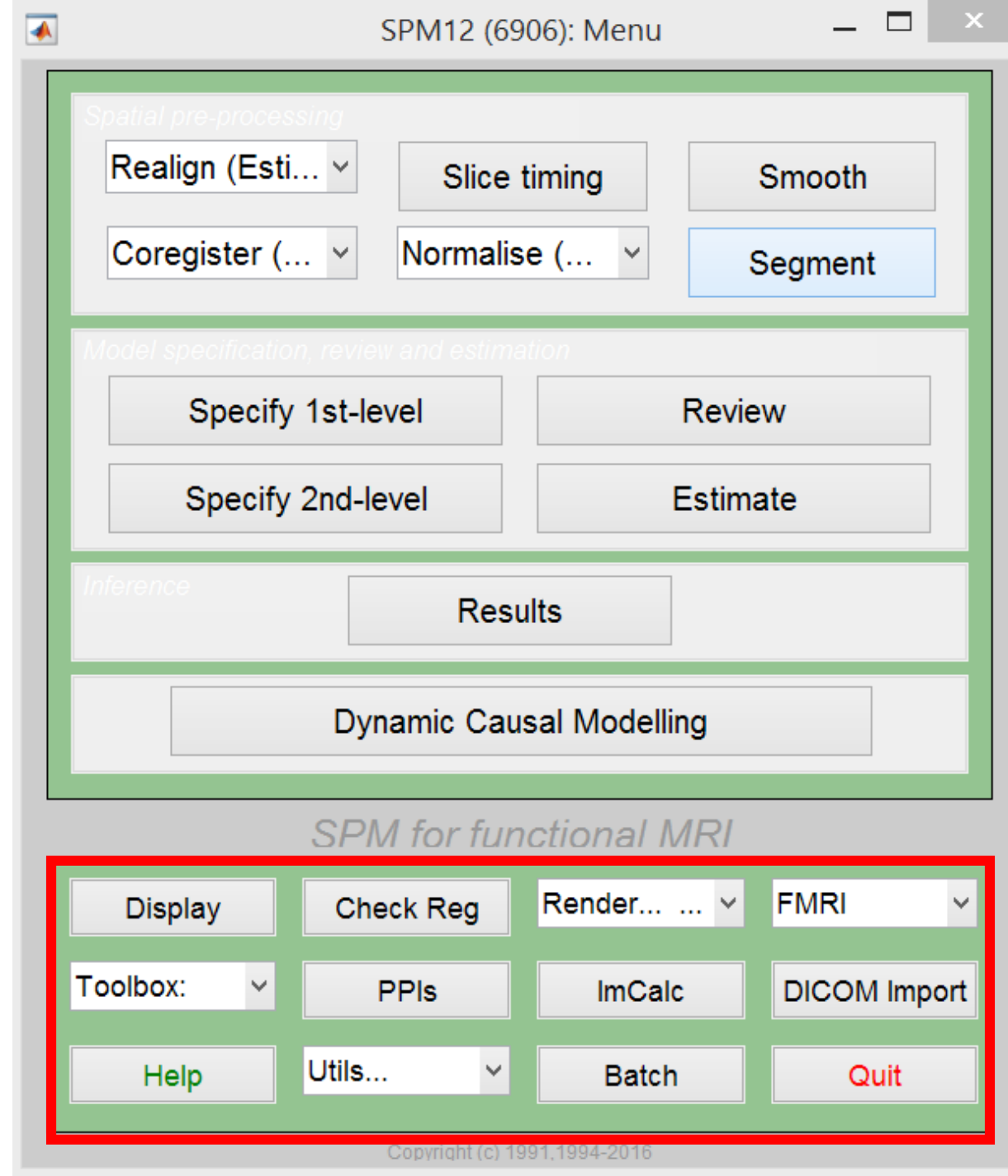
SPM main menu

- Modeling data, performing statistics on the fMRI data.



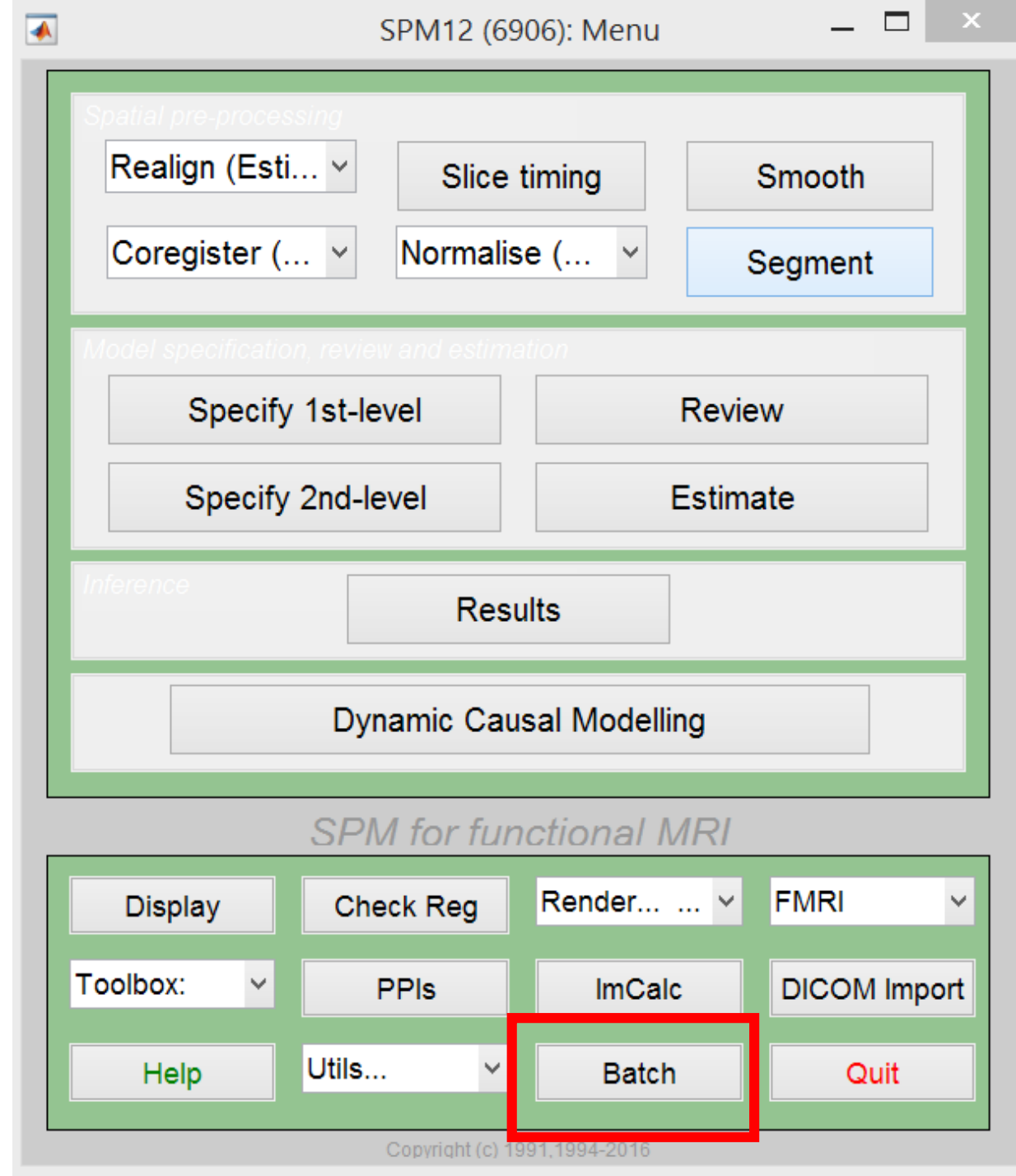
SPM main menu

- Other useful tools.
- E.g. Display
- E.g. Check Reg
- E.g. ImCalc



SPM main menu

- SPM Batch Editor



Prepare your folder

- Copy the files rafmri.nii, skstruct.nii to a folder called rawdata.
- You now have a copy of the originals that you can go back to in case something goes wrong in the analysis.

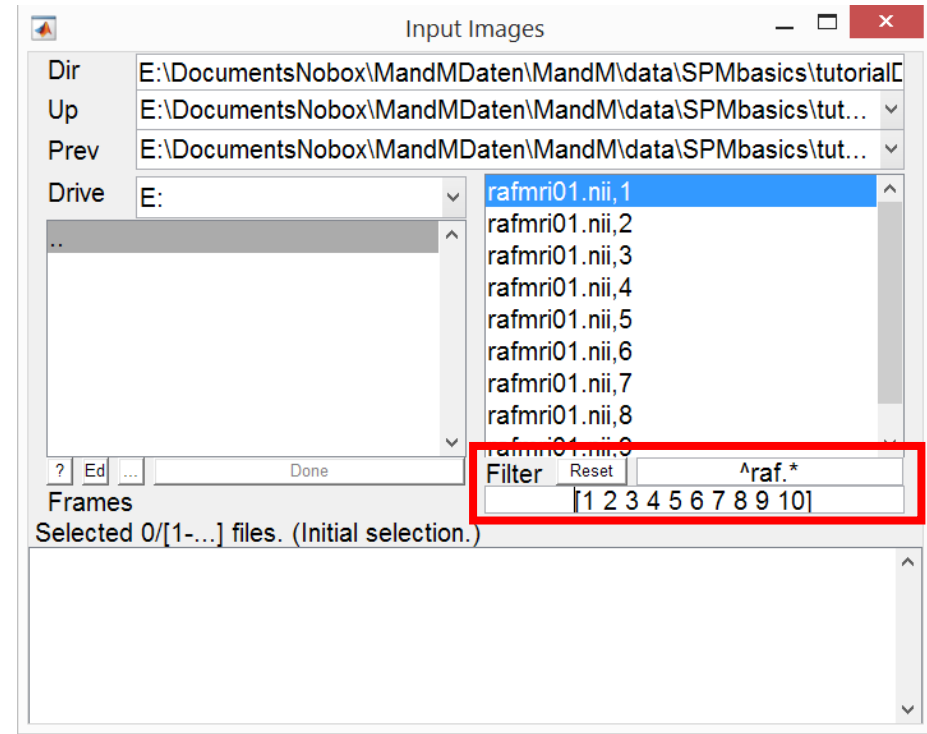
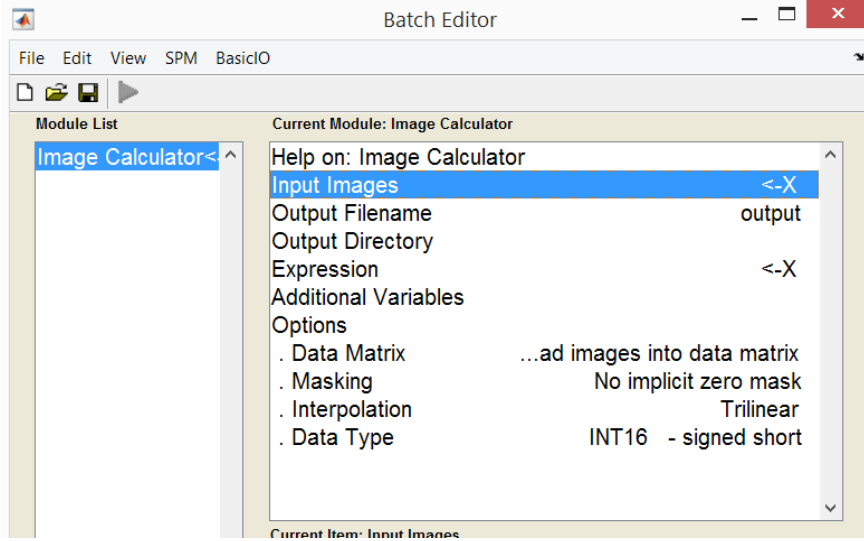
Task 1

- View the skstruct.nii using the function display.
- Zoom in, change the interpolation type, play around with the rotation and translation options.

Task 2

- Calculate the mean of the 10 rafmri... images.
- Use the function ImCalc directly, or open the Batch editor and find the function
- Select the 10 rafmri... functional images.
- Compute the mean.
- Save your batch and check what was saved.

Task 2 - Hints

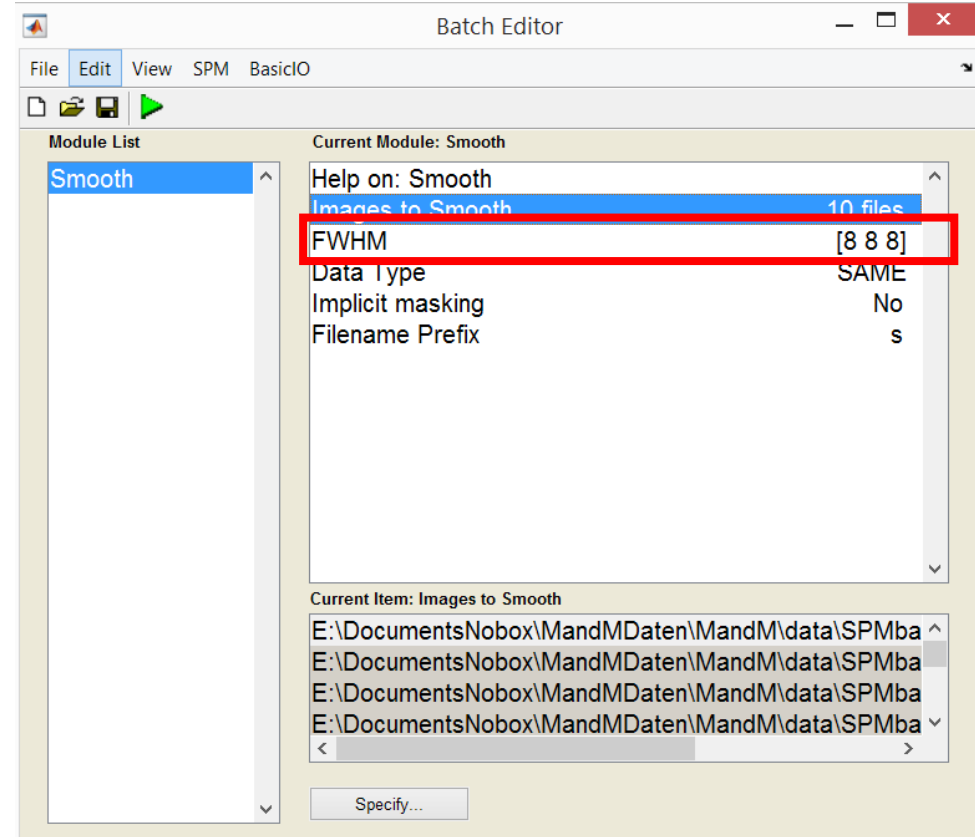


- Expression: mean(X)
- Data Matrix: Yes – read
- Try to understand how the Filter works when selecting images
- Instead of «1:10» put «Inf», what is the difference

Task 3

- smooth the 10 rafmri... images.
- Use the function Smooth directly, or open the Batch editor and find the function
- Select the 10 rafmri... functional images and smooth them with a FWHM [8 8 8]
- Save it as «Batch and Script» and check what was saved.

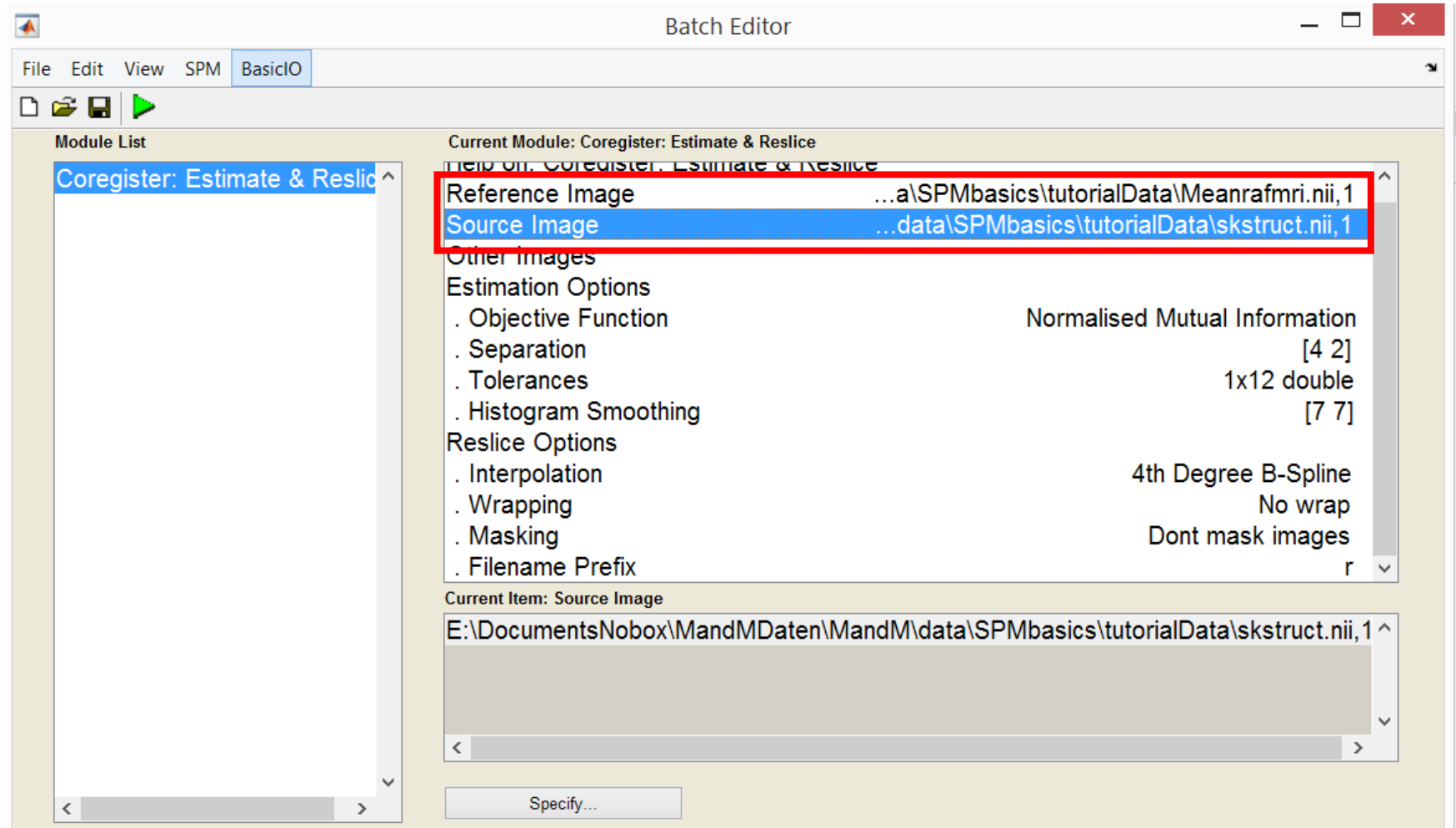
Task 3 - Hints



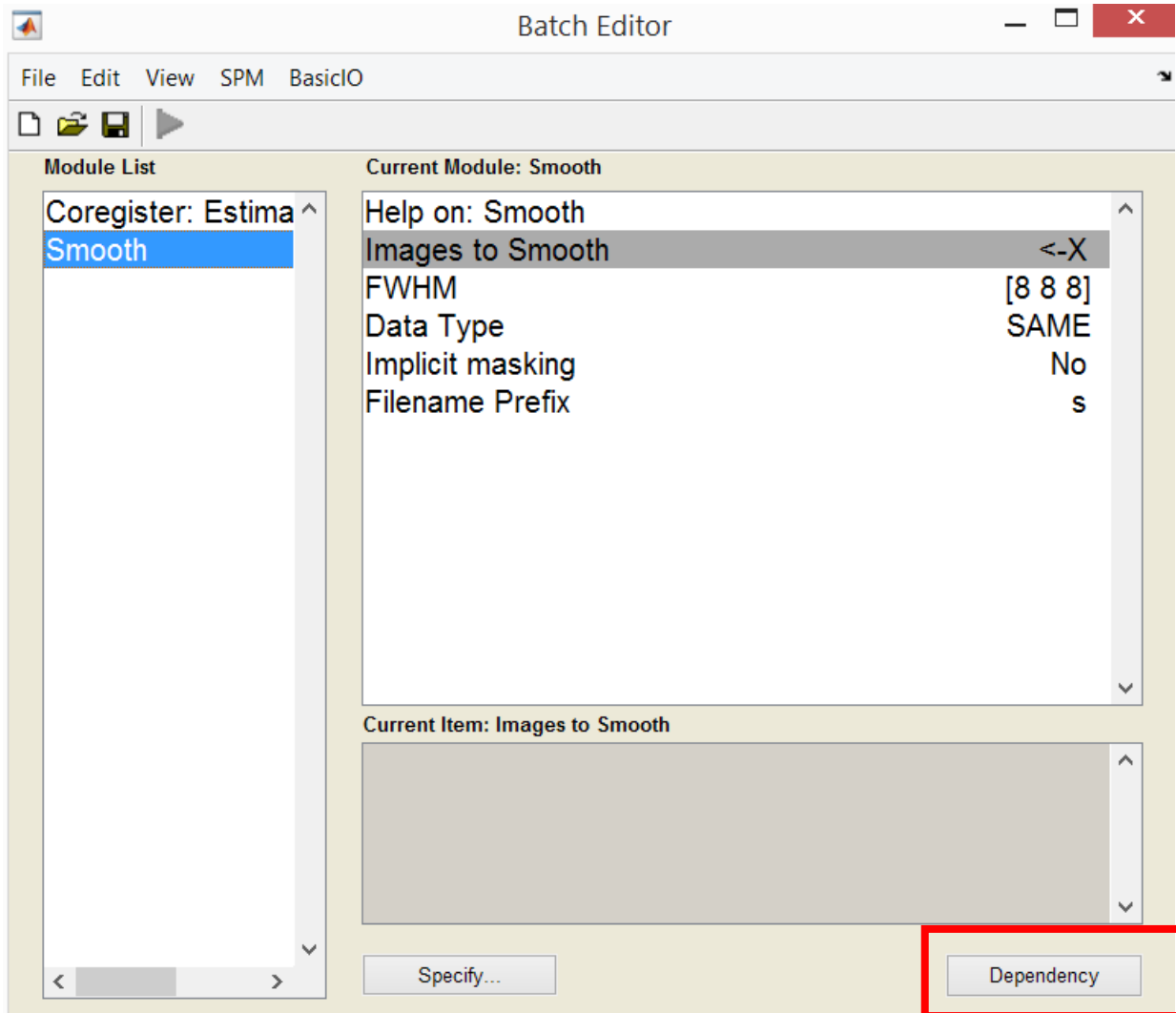
Task 4

- Coregister the anatomy (source) to the mean of the rafmri images (reference).
- Use the function Coregister (Estimate and reslice) directly, or open the Batch editor and find the function there.
- Then directly smooth the coregistered anatomy with a FWHM [2 10 2]
- Save everything as «Batch and Script» and check what was saved.

Task 4 - Hints



Task 4 - Hints



Task 5

- Use Check reg to compare mean rafmri...., srafmri..., the smoothed mean and the coregistered sksrtuct.nii. (Select these four images.)
- Play around with the options you get when you right click on the images.
- Check whether and where the two smoothed images differ.
- Right click on the anatomical image and select «Contour», «all but current» to see, how well the images are aligned.

Task 5

