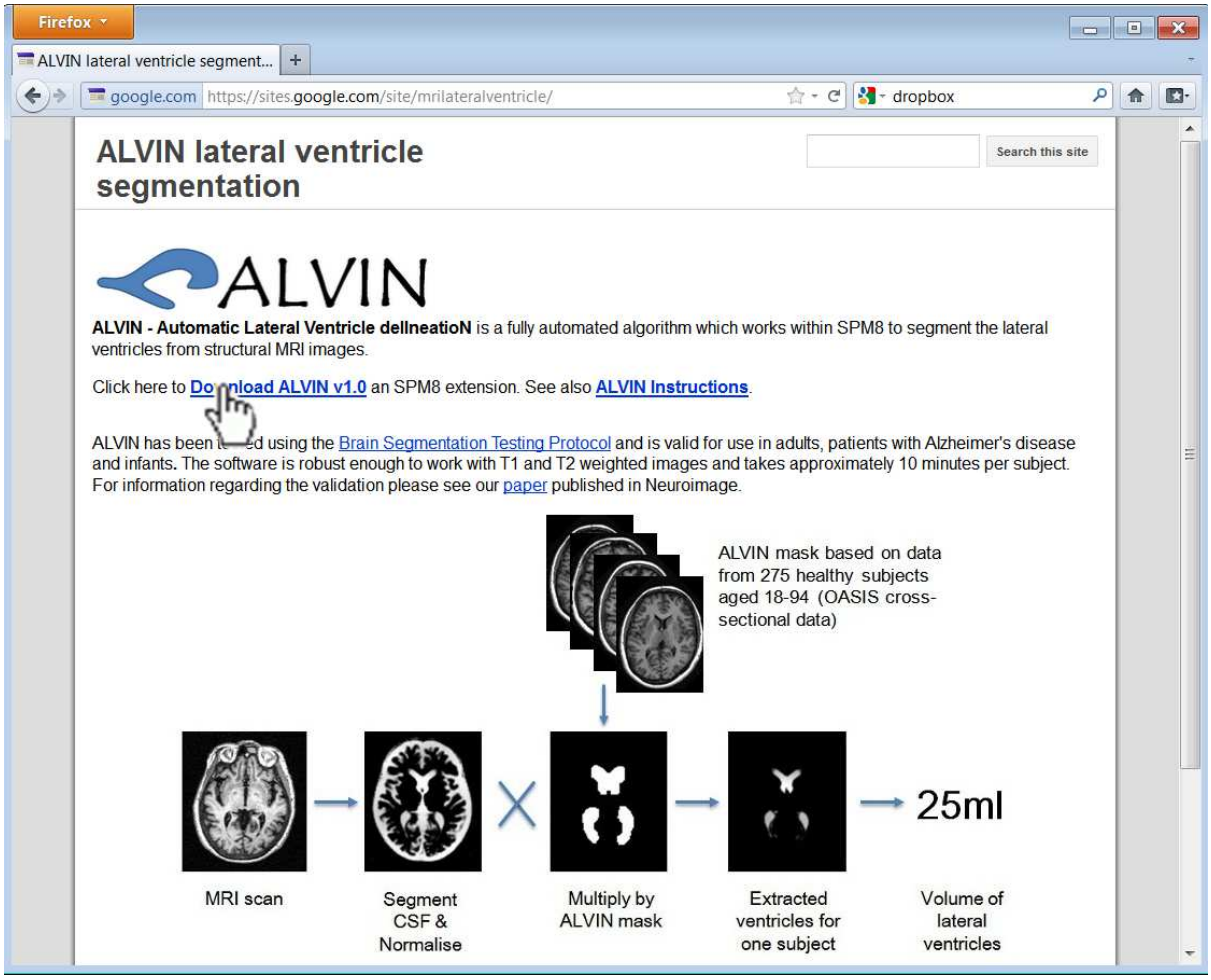
Instructions for using ALVIN

Please also see our publication validating this method which may be found here:
http://dx.doi.org/10.1016/j.neuroimage.2011.06.080

1. Firstly download the software from the ALVIN website if you haven't done this already
http://sites.google.com/site/mrilateralventricle/

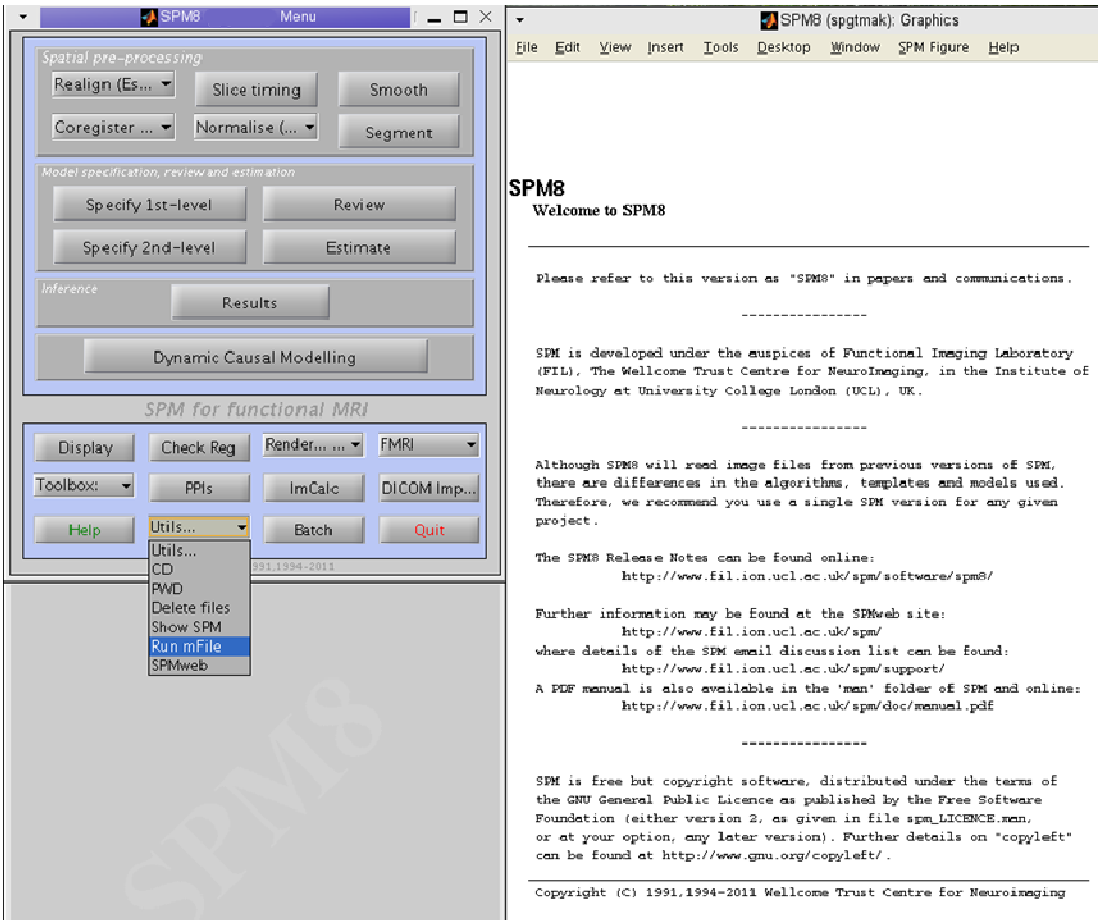
Click on the download link on the webpage as shown below.



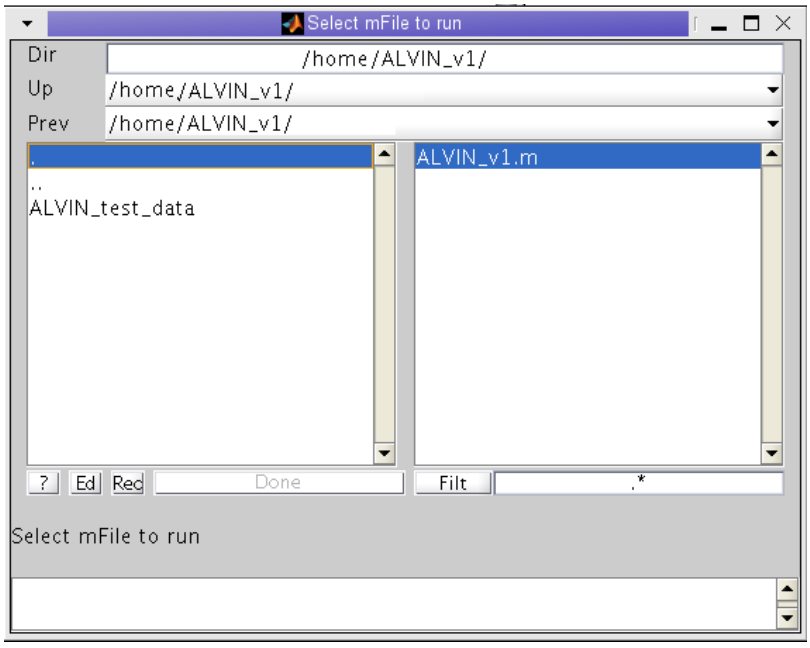
2. Unzip the downloaded file ALVIN_v1.zip
In Windows this can be done by right clicking on the downloaded file and selecting Extract all...
In Linux/unix at the command prompt navigate to the downloaded file then type 'unzip ALVIN_v1.zip'. Move the unzipped directory to a directory of your choosing. In the examples below the ALVIN_v1 directory as been moved to '/home' in unix but this could be your desktop or a directory where your analysis is.

[Continued...]

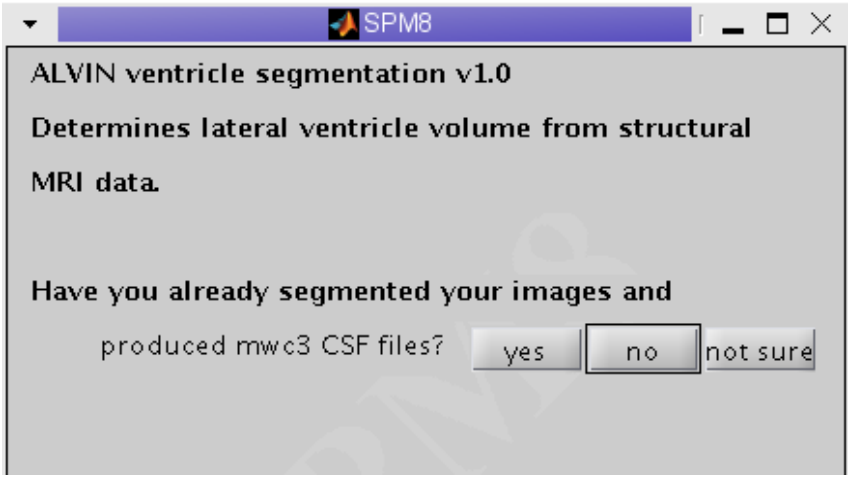
3. Load up SPM8 within Matlab, click either fMRI or PET&VBM (it doesn't matter which). Click on the Utils... button and select 'Run mfile' (see below).



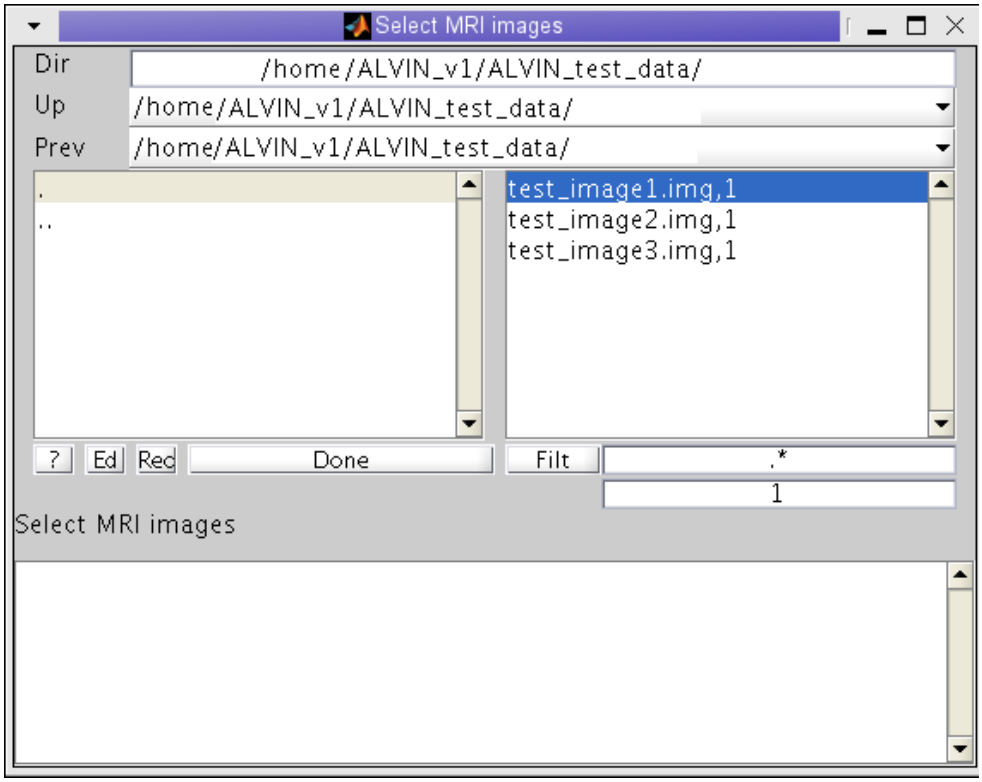
4. Navigate and locate the unzipped ALVIN file downloaded from the website and select ALVIN_v1.m (see below), click Done. The file location will depend on where you downloaded the file.



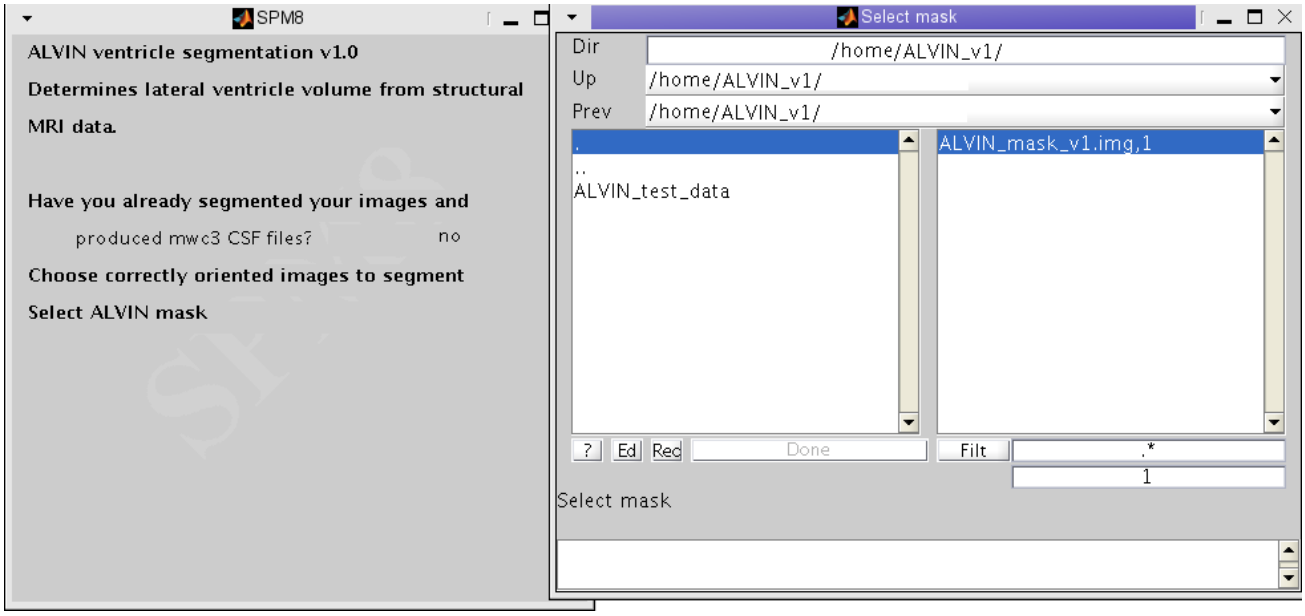
5. Most users have not already produced CSF segmented images, and should click ‘no’ to the first question (see below).
-If you have already produced segmented, modulated, normalised CSF images click yes. You will be asked to select these files. In this case only files with the prefix mwc3 will be shown in the file selection window. Once you have selected these files go to step 7
-If you click ’not sure’, ALVIN will proceed as if you had clicked no.



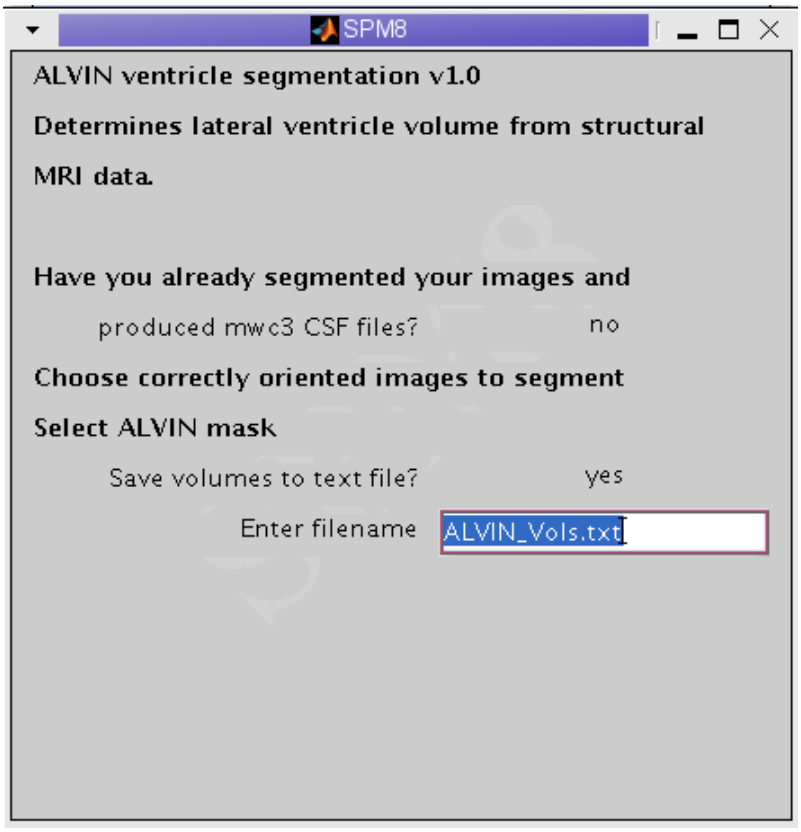
6. Choose the images you want ALVIN to determine lateral ventricle volumes from. The downloaded data contains 3 example MRI scans within the subdirectory ‘ALVIN test data’. To select these navigate to this directory and select all 3 images. Alternatively select your own MRI scans, these should be structural MRI scans in ANALYZE or NIfTI format (ending .img or .nii) and in roughly the correct orientation (i.e. close to the orientation of the SPM template images), the images can be T1 or T2 weighted.



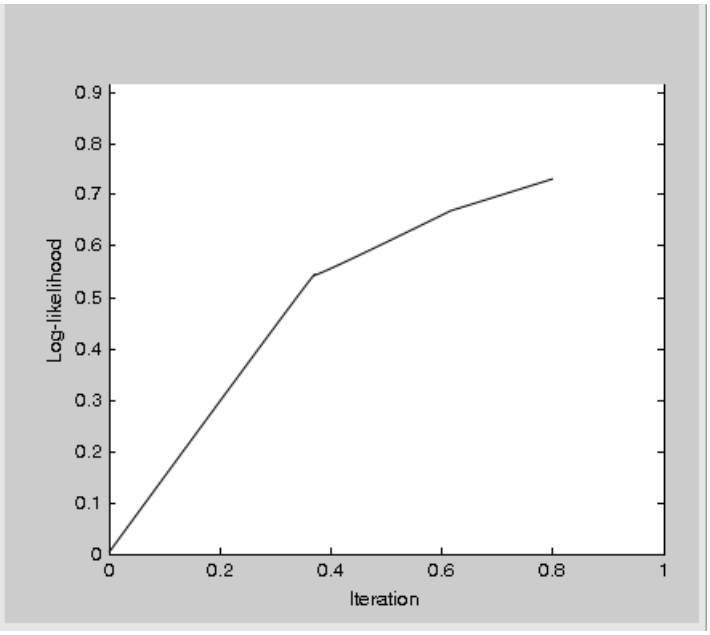
7. The next prompt asks you to select the ALVIN mask which was downloaded in the zipped file from the website (see below). The file is called **ALVIN_mask_v1.img**.



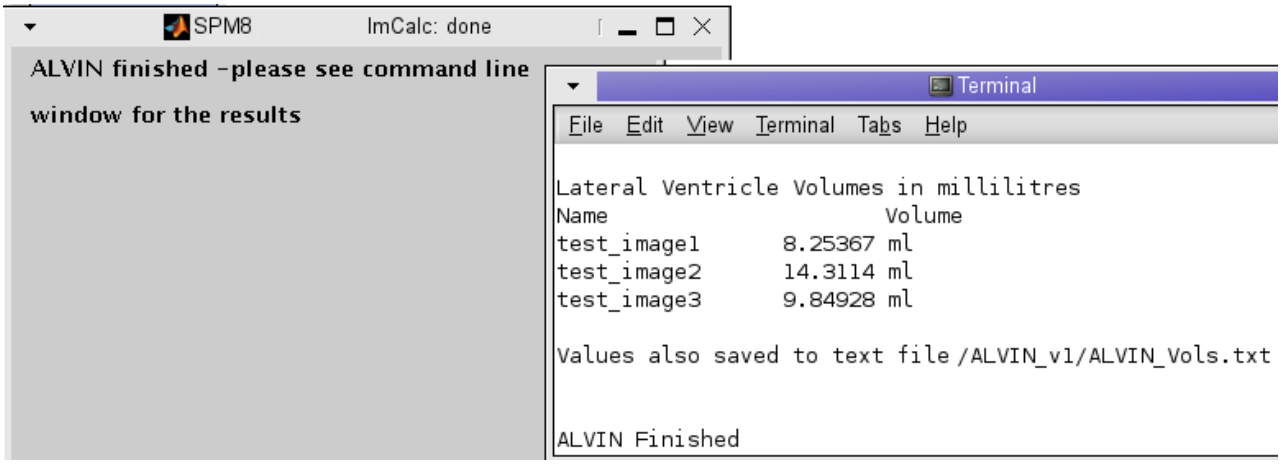
7. If you want to save a text file with the lateral ventricle volumes in (recommended) click yes, then change the suggested filename if you wish (see below) and press enter.



8. ALVIN will then start processing the images (see below, the processing takes approx 10 minutes per subject depending on the computer system you use).



9. When ALVIN is finished the volumes are produced (in millilitres) in the command line window and are also saved in the text file if specified by the user. The screen shot below shows the output when the 3 test images are selected



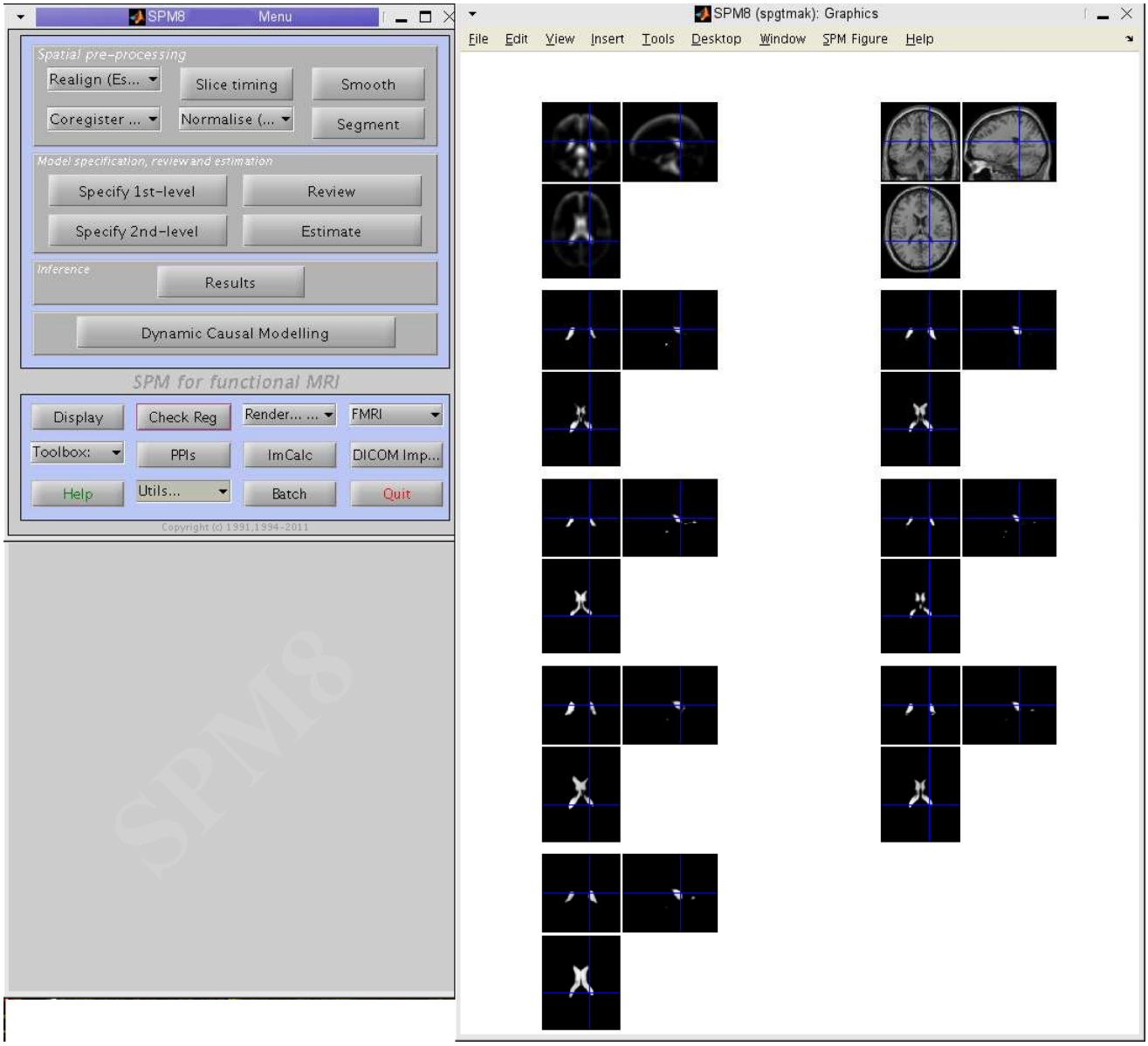
10. The text file can be viewed and imported into a spreadsheet such as Excel for statistical analysis.

Other functionality –see next page

Other functionality

ALVIN produces normalised lateral ventricle images of each subject which can be checked if required. The images contain the initial filename and the prefix 'ALVIN_' and are saved as ANALYZE files.

Using the SPM8 Check Reg button it is possible to inspect the lateral ventricle segmentations. In the image below, the segmentations are compared with the templates provided in the SPM directories, apriori/csf.nii and canonical/single_subj_T1.nii



Questions?
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