1 Program imrotate

1.1 Purpose

This program rotates and shifts one image with given Δx, Δy, and $\Delta\theta$ values. *AFNI* requires that the functional and anatomical datasets be acquired on parallel grids. This means that the acquisition planes must be parallel or perpendicular — oblique (to the anatomy) functional data is not supported at this time. An application of imrotate might be to rotate a whole set of images before input to to3d, as a way around this limitation of *AFNI*.

1.2 Usage

imrotate [-linear|-Fourier] dx dy phi input_image output_image

1.3 Options

The above command line shifts and rotates an image:

dx	pixels rightwards (not necessarily an integer)
dy	pixels downwards
phi	degrees clockwise

-linear means to use bilinear interpolation (default is bicubic)

-Fourier means to use Fourier interpolation

Values outside the input_image are taken to be zero.

1.4 Example

Example 1. Suppose that the functional data is gathered in a set of oblique coronal slices, and the anatomical data is in a set of sagittal slices. By rotating the sagittal images to be aligned with the functional image axes, the whole to3d+*AFNI* process can be carried out.

I have not tried this, since at **MCW**, we do not gather oblique functional data. Here is a possible set of C-shell commands to do the desired work:

```
foreach slice ( `count 1 124` )
    imrotate 0 0 15.0 sag_in.${slice} sag_out.${slice}
end
to3d -spgr sag_out.*
```

This assumes that the functional slices are 15° oblique to the axes defined by the MR gradient coil set. The necessary steps would be considerably more complicated if the functional and anatomical data were “doubly oblique” to one another.