1 Program from3d

1.1 Purpose

Program from3d is used to extract 2D data files from a 3D or a 3D+time data set. As such, it may be considered as an inverse to program to3d, which combines 2D data files into a 3D data set. The slices are extracted only along the z-direction of the dataset, which can be determined by using program 3dinfo.

1.2 Usage

The command line format for program from3d is as follows:

from3d [**-v**] [**-nsize**][**-zfirst num**] [**-zlast num**] [**-tfirst num**] [**-tlast num**] **-input fname -prefix rname**

1.3 Options

-v Print out "verbose" information. At present, this just prints the names of the 2D data files that are being created.

-nsize It may be desirable, particularly for Fast Fourier Transform applications, that the dimensions of the 2D dataset be powers of 2. The -nsize option adjusts the size of the 2D data file to be NxN, by padding with zeros, where N is a power of 2. The value of N is chosen to be the smallest power of 2 greater than or equal to the dimensions of the original dataset.

-zfirst num This command sets 'num' = number of first z slice to be extracted. The default value is 1.

-zlast num Set 'num' = number of last z slice to be extracted. The default value is the largest z slice present in the 3D dataset.

-tfirst num This command sets 'num' = number of first time slice to be extracted. The default value is 1.

-tlast num Set 'num' = number of last time slice to be extracted. The default value is the last time slice present in the 3D+time dataset.

-input fname Read 3d data set from file 'fname'.

-prefix rname Write 2d data sets using prefix 'rname'.

1.4 Examples

Example 1: Suppose that file fred.anat+orig (.HEAD and .BRIK) contains a 256×256×124 voxel AFNI 3D dataset. The user wishes to extract the 61st through 67th z-slices. The command line to do this is:

```
from3d -v -zfirst 61 -zlast 67 -input fred.anat+orig -prefix fred.anat
```

The output on the screen (obtained by using the -v option) is:

```
3d Dataset File: fred.anat+orig
nx = 256 ny = 256 nz = 124 nv = 1
Data type: short
Writing 2d data file: fred.anat.061
Writing 2d data file: fred.anat.062
Writing 2d data file: fred.anat.063
    etc.
Writing 2d data file: fred.anat.067
Created 7 2d data files.
```

Program from3d has created 7 2D data files. Since the output option -prefix fred.anat was used, the output file names have the form "fred.anat.ijk", where "ijk" = number of the z-slice.

Example 2: Suppose that file fred.ts+orig (.HEAD and .BRIK) contains a 3D+time *AFNI* dataset (64×64×16 voxels for each of 68 time steps).

In order to extract the 8th through 10th z-slices, for time steps 40 through 45, the command line is:

```
from3d -v -zfirst 8 -zlast 10 -tfirst 40 -tlast 45 \
-input fred.ts+orig -prefix fred.ts.2d
```

The output on the screen (obtained by using the -v option) is:

```
3d Dataset File: fred.ts+orig
nx = 64 ny = 64 nz = 16 nv = 68
Data type: short
Writing 2d data file: fred.ts.2d08.0040
Writing 2d data file: fred.ts.2d09.0040
Writing 2d data file: fred.ts.2d10.0040
Writing 2d data file: fred.ts.2d08.0041
Writing 2d data file: fred.ts.2d09.0041
    etc.
```

Writing 2d data file: fred.ts.2d10.0045
Created 18 2d data files.

As a result, program from3d has created 18 2D data files. Since the output option -prefix fred.ts.2d was used, the output file names have the form "fred.ts.2d$ij.klmn$", where "ij" = number of z-slice, and "$klmn$" = number of time step.