NAME

EXT − NMRPipe Extract Region

SYNOPSIS

nmrPipe −fn EXT [**−time | −left | −right | −mid**] [**−round** *n*] [**−pow2**] [**−sw**] [**−x1** *xFirst*] [**−xn** *xLast*] [**−y1** *yFirst*] [**−yn** *yLast*]

DESCRIPTION

EXT extracts a selected region of the given data. The location of the region can be specified in units of points, Hz, PPM or percent, or in generalized terms such as left half or right half. Generally, only an extract region for the X−Axis will be specified, but options are available for limiting the region coordinates in the Y−Axis is well. If the **−sw** flag is used, PPM calibration and other header information will be updated automatically to reflect the coordinates of the extracted region.

OPTIONS

−left This flag will set the extract region so that the left half of the data will be retained. The right half will be discarded, reducing the data size by a factor of two.

−right This flag will set the extract region so that the right half of the data will be retained. The left half will be discarded, reducing the data size by a factor of two.

−mid This flag will set the extract region so that the central 50% of the data will be retained. The left and right quarters will be discarded, reducing the data size by a factor of two.

−time When used on time−domain data, this flag will reduce the data size to the valid complex time−domain size recorded in the header. It is commonly used to remove padding added by the spectrometer (see **EXAMPLES** below).

−round *N*

This flag will increase the size of the extracted region so that it is a multiple of N. The default value is 1, which means no adjustment will be made.

−pow2 This option will increase the size of the extracted region so that it is a power of two.

−sw When the **−sw** flag is used on frequency−domain data, it will update the sweep width and other chemical shift calibration information to accommodate the new range of the extracted data region. It will also adjust the recorded number of valid−time domain points, to reflect the number of points which would be available if the extracted region was inverse transformed.

When the **−sw** flag is used on time−domain data, it will adjust the recorded time−domain size to reflect the size of the extracted region.

−x1 *xFirst*

Specifies the X−Axis location of the first point of the region to extract. By default, this is point 1. The point location can be specified with no units for points, or with units Hz, PPM, or %. When specifying a location with a unit label, there should be no spaces between the numerical value and the unit label.

−xn *xLast*

Specifies the X−Axis location of the last point of the region to extract. By default, this is the last point in the X−Axis. The point location can be specified with no units for points, or with units Hz, PPM, or %. When specifying a location with a unit label, there should be no spaces between the numerical value and the unit label.

−y1 *yFirst*

Specifies the Y−Axis location of the first point of the region to extract. By default, this is point 1. The point location can be specified with no units for points, or with units Hz, PPM, or %. When specifying a location with a unit label, there should be no spaces between the numerical value and the unit label. Note that for hypercomplex data, a Y−Axis point location should be specified in terms of interleaved points, rather than complex points.

−yn *yLast*

Specifies the Y−Axis location of the last point of the region to extract. By default, this is the last point in the Y−Axis. The point location can be specified with no units for points, or with units Hz, PPM, or %. When specifying a location with a unit label, there should be no spaces between the numerical value and the unit label. Note that for hypercomplex data, a Y−Axis point location should be specified in terms of interleaved points, rather than complex points.

EXAMPLES

Extract the left half of the spectrum, update the PPM calibration and other header information accordingly:

```
nmrPipe −fn EXT −left −sw
```

Extract the range of data from 10.5 PPM to 6.2 PPM, and update the PPM calibration and other header information accordingly:

```
nmrPipe −fn EXT −x1 10.5ppm −xn 6.2ppm −sw
```

Extract the central 90% of the data, update the header:

```
nmrPipe −fn EXT −x1 5% −xn 95% −sw
```

Extract the first 512 points from the given data:

```
nmrPipe −fn EXT −xn 512
```

In the following scheme, **EXT −time** is used to strip the zero padding which was added by the spectrometer to extend a 500 complex−point acquisition to 512 points on disk:

```
bruk2pipe −in ser −noswap \
  −xN           1024    −yN         256  \
  −xT            500    −yT         128  \
  −xMODE     Complex    −yMODE  Complex  \
  −xSW       9259.26    −ySW    1330.23  \
  −xOBS       499.53    −yOBS     50.62  \
  −xCAR         4.79    −yCAR     116.5  \
  −xLAB           HN    −yLAB         N  \
  −ndim            2    −aq2D    States  \
 | nmrPipe −fn EXT −time                 \
   −out test.fid −verb −ov
```

BUGS

Options to round up the extracted region size (**−round** and **−pow2) will not work if the rounded size exceeds the original size of the data.**

The −sw flag is almost always required; this should probably be a default mode.