You can apply the saved IIR filter to other data using the **FilterIIR** operation:

```
Duplicate/O otherData, otherDataFiltered
FilterIIR/DIM=0/COEF=savedIIRfilter otherDataFiltered
```

You can also apply the saved IIR filter to other data using the **Select Filter Coefficients Wave** tab of the Filter dialog.

Rotate Operation

The **Rotate** operation (see page V-810) rotates the data values of the selected waves by a specified number of points. Choose Data→Rotate Waves to display the Rotate dialog.

Think of the data values of a wave as a column of numbers. If the specified number of points is positive the points in the wave are rotated downward. If the specified number of points is negative the points in the wave are rotated upward. Values that are rotated off one end of the column wrap to the other end.

The rotate operation shifts the X scaling of the rotated wave so that, except for the points which wrap around, the X value of a given point is not changed by the rotation. To observe this, display the X scaling and data values of the wave in a table and notice the effect of Rotate on the X values.

This change in X scaling may or may not be what you want. It is usually not what you want if you are rotating an XY pair. In this case, you should undo the X scaling change using the SetScale operation:

```
SetScale/P x,0,1,"",waveName     // replace waveName with name of your wave
```

Also see the example of rotation in **Spectral Windowing** on page III-275.

For multi-dimensional wave rotation, see the **MatrixOp** rotateRows, rotateCols, rotateLayers, and rotateChunks functions.

Unwrap Operation

The **Unwrap** operation (see page V-1050) scans through each specified wave trying to undo the effect of a modulus operation. For example, if you perform an FFT on a wave, the result is a complex wave in rectangular coordinates. You can create a real wave which contains the phase of the result of the FFT with the command:

```
wave2 = imag(r2polar(wave1))
```

However the rectangular-to-polar conversion leaves the phase information modulo 2π. You can restore the continuous phase information with the command:

```
Unwrap 2*Pi, wave2
```

The Unwrap operation is designed for 1D waves only. Unwrapping 2D data is considerably more difficult. See the **ImageUnwrapPhase** operation on page V-433 for more information

Choose Analysis→Unwrap to display the Unwrap Waves dialog.

References

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