For information on dates and times in graphs, see **Date/Time Axes** on page II-315.

Duplicate Operation

Duplicate is a handy and frequently-used operation. It can make new waves that are exact clones of existing waves. It can also clone a section of a wave and thus provides an easy way to break a big wave up into smaller waves.

Here are some reasons to use Duplicate:

• To hold the results of a transformation (e.g. integration, differentiation, FFT) while preserving the original data.

• To hold the "destination" of a curve fit.

• For holding temporary results within an Igor procedure.

• To extract a section of a wave.

The Duplicate Waves dialog provides an interface to the **Duplicate** operation (see page V-185). To use it, choose Duplicate Waves from the Data menu.

The cursors button is used in conjunction with a graph. You can make a graph of your template wave. Then put the cursors on the section of the template that you want to extract. Choose Duplicate Waves from the Data menu and click the cursors button. Then click Do It. This clones the section of the template wave identified by the cursors.

People sometimes make the mistake of using the **Make** operation when they should be using Duplicate. For example, the destination wave in a curve fit must have the same number of points, numeric type and numeric precision as the source wave. Duplicating the source wave insures that this will be true.

Duplicate Operation Examples

Clone a wave and then transform the clone:

```
Duplicate/O wave0, wave0_d1; Differentiate wave0_d1
```

Use Duplicate to inherit the properties of the template wave:

```
Make/N=200 wave0; SetScale x 0, 2*PI, wave0; wave0 = sin(x)
Duplicate wave0, wave1; wave1 = cos(x)
```

Make a destination wave for a curve fit:

```
Duplicate/O data1, data1_fit
CurveFit gauss data1 /D=data1_fit
```

Compare the first half of a wave to the second:

```
Duplicate/O/R=[0,99] data1, data1_1
Duplicate/O/R=[100,199] data1, data1_2
Display data1_1, data1_2
```

We often use the /O flag (overwrite) with Duplicate because we don't know or care if a wave already exists with the new wave name.

Killing Waves

The **KillWaves** operation (see page V-471) removes waves from the current experiment. This releases the memory used by the waves. Waves that you no longer need clutter up lists and pop-up menus in dialogs. By killing them, you reduce this clutter.

Here are some situations in which you would use KillWaves:

• You are finished examining data that you loaded from a file.

• You are finished using a wave that you created for experimentation.