```
   variable result
   if (x < w[4])
    result = w[0]+w[1]*x
   else                          ———————— The actual function code.
    result = w[2]+w[3]*x
   endif
   return result
End
```

If you click the Edit Fit Function button, the function code is analyzed to determine the number of coeffi-
cients. If the comments that name the coefficients are present, the dialog uses those names. If they are not
present, the coefficient wave name is used with the index number appended to it as the coefficient name.

Having mnemonic names for the fit coefficients is very helpful when you look at the curve fit report in the
history area. The minimum set of comments required to have names appear in the dialog and in the history
is a lead-in comment line, plus the Coefficients comment lines. For instance, the following version of the
function above will allow the Curve Fitting dialog and history report to use coefficient names:

```
Function PieceWiseLineFit(w,x) : FitFunc
    WAVE w
    Variable x

    //CurveFitDialog/
    //CurveFitDialog/ Coefficients 5
    //CurveFitDialog/ w[0] = a1
    //CurveFitDialog/ w[1] = b1
    //CurveFitDialog/ w[2] = a2
    //CurveFitDialog/ w[3] = b2
    //CurveFitDialog/ w[4] = breakX

    Variable result
    if (x < w[4])
     result = w[0]+w[1]*x
    else
     result = w[2]+w[3]*x
    endif
    return result
End
```

The blank comment before the line with the number of coefficients on it is required- the parser that looks at
these comments needs one lead-in line to throw away. That line can contain anything as long as it includes
the lead-in "`//CurveFitDialog/`".

Functions that the Fit Function Dialog Doesn't Handle Well

In the example functions it is quite clear by looking at the function code how many fit coefficients a function
requires, because the coefficient wave is indexed with a literal number. The number of coefficients is simply
one more than the largest index used in the function.

Occasionally a fit function uses constructions other than a literal number for indexing the coefficient wave.
This will make it impossible for the Curve Fitting dialog to figure out how many coefficients are required. In
this case, the Coefficients tab can't be constructed until you specify how many coefficients are needed. You do
this by choosing a coefficient wave having the right number of points from the Coefficient Wave menu.

You cannot edit such a function by clicking the Edit Fit Function button. You must write and edit the func-
tion in the Procedure window.

Here is an example function that can fit an arbitrary number of Gaussian peaks. It uses the length of the
coefficient wave to determine how many peaks are to be fit. Consequently, it uses a variable (cfi) rather
than a literal number to access the coefficients:

```
Function FitManyGaussian(w, x) : FitFunc
    WAVE w
    Variable x

    Variable returnValue = w[0]     ———————— The first coefficient is a baseline offset.
```