The assignment to "dummy" is required because you must explicitly do something with the return value of a built-in function.

If the waves do not satisfy the number type requirements, the function returns NaN. A successful invocation returns zero.

See Also

All-At-Once Fitting Functions on page III-256

MPFXVoigtPeak

MPFXVoigtPeak(cw, yw, xw)

The MPFXVoigtPeak function implements a single Voigt peak with no Y offset in the format of an all-at-once fitting function. It fills the wave yw with values defined by a Voigt peak as if this wave assignment statement was executed:

```
yw = cw[2]*VoigtFunc(cw[1]*(xw-cw[0]), cw[3])
```

The **VoigtFunc** function here is a basic Voigt peak shape, a convolution of a Gaussian and Lorentzian peak shapes. The first parameter of VoigtFunc controls the shape. A value of zero results in a peak shape that is 100% Gaussian. As the first parameter approaches infinity the shape transitions to 100% Lorentzian. At a value of sqrt(ln(2)) ≅ 0.832555 the mix is 50/50.

Parameters

cw Coefficient wave. The Gaussian peak shape is defined by the coefficients as follows:

cw[0]:	Peak location.
cw[1]:	Affects the width; the actual width is a complicated function of cw[1], cw[2], and cw[3]
cw[2]:	Amplitude factor; the actual amplitude is affected by the other parameters.
cw[3]:	Shape factor. Zero results in pure Gaussian, infinity results in pure Lorentzian, one is 50% Gaussian and 50% Lorentzian.

cw must be a double precision wave.

yw Y wave into which values are stored.

yw may be either double precision or single precision.

xw X wave containing the X values at which the peak function is to be evaluated.

xw may be either double precision or single precision.

Details

This function is primarily intended to support the Multipeak Fitting package. For other purposes we recommend the **VoigtPeak** function which has more convenient parameters.

To use MPFXVoigtPeak as a fitting function, wrap it in an all-at-once user-defined fitting function:

```
Function FitVoigtPeak(Wave cw, Wave yw, Wave xw) : FitFunc
   Variable dummy = MPFXVoigtPeak(cw, yw, xw)
End
```

The assignment to "dummy" is required because you must explicitly do something with the return value of a built-in function.

If the waves do not satisfy the number type requirements, the function returns NaN. A successful invocation returns zero.

References

The code used to compute VoigtPeak was written by Steven G. Johnson of MIT. You can learn more about it at http://ab-initio.mit.edu/Faddeeva.

See Also

All-At-Once Fitting Functions on page III-256, **VoigtPeak**, **VoigtFunc**