

AH_{ELP} for CIAO 3.4

grpNumCounts

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Synopsis

Group an array by the number of counts per group.

Syntax

```
grpNumCounts( Array_Type countsArray, Double_Type numCounts )
grpNumCounts( Array_Type countsArray, Double_Type numCounts,
Integer_Type maxLength )
grpNumCounts( Array_Type countsArray, Double_Type numCounts,
Integer_Type maxLength, Array_Type tabStops )
```

```
Returns: ( Array_Type grouping, Array_Type quality )
```

Description

This function returns the grouping and quality arrays that represent the input data (countsArray) after it has been grouped so that each group contains at least numCounts counts. The optional parameters maxLength and tabStops represent the maximum number of elements that can be combined and an array representing those elements that should be ignored respectively.

This function provides the same functionality as the NUM_CTS option of dmgroup.

Example 1

```
chips> (g,q) = grpNumCounts( y, 20 )
```

This example calculates the grouping and quality arrays that represent the input data (here the contents of the y array) after it has been grouped to at least 20 counts per group.

Example 2

```
chips> x = [0.5:6.0:0.05]
chips> y = 3 + 30 * exp( - (x-2.0)^2 / 0.1 )
chips> (g,q) = grpNumCounts( y, 15 )
chips> ysum = grpGetGroupSum( y, g )
chips> nchan = grpGetChansPerGroup( g )
chips> i = where( g == 1 )
```

```
chips> yavg = ysum[i] / nchan[i]
chips> curve( x, y )
chips> simpleline
chips> curve( x[i], yavg )
chips> symbol square
chips> symbol red
```

Here we take the function

$$y = 3 + 30 * \exp(-(x-2)^2 / 0.1)$$

and group it by 15 counts per group. The plot shows the original data (the solid line and the crosses) and the grouped data (as the red squares); the latter has been normalised by the width of each group and is displayed at the left-edge of each group.

In this example we have ignored the quality array; the last group (corresponding to the last 3 elements of the x and y arrays) has a quality value of 2, indicating that the total number of counts for the group (9) is less than 15. The code below identifies this element as the solid-yellow circle.

```
chips> i = where( g == 1 )
chips> j = where( q[i] != 0 )
chips> curve( x[i][j], yavg[j] )
chips> symbol bigpoint
chips> symbol yellow
```

Bugs

See the [bugs page for the group library](#) on the CIAO website for an up-to-date listing of known bugs.

See Also

group

[grpadaptive](#), [grpadaptivesnr](#), [grpbin](#), [grpbinfile](#), [grpbinwidth](#), [grpgetchanspergroup](#), [grpgetgroupsum](#), [grpgetgrpnum](#), [grpmaxslope](#), [grpminslope](#), [grpnumbins](#), [grpnumcounts](#), [grpsnr](#)

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