Synopsis

Defines an expression to be used to specify the statistical errors for background data. The commands BACKERRORS and BSTATERRORS are equivalent.

Syntax

```
sherpa> BERRORS [<dataset range> | ALLSETS] [ID] = <errorExpr>
```

<dataset range> = # (or more generally #:#, #:#, etc.) such that # specifies a dataset number and #:# represents an inclusive range of datasets; one may specify multiple inclusive ranges by separating them with commas. The default dataset is dataset 1. The ID modifier is used if and only if the Sherpa state object variable multiback is set to 1, i.e., if more than one background dataset is to be associated with a single source dataset. The ID modifier may be any unreserved string (e.g., A, foo, etc.), i.e., a string that is not a parsable command.

Description

The error expression, <errorExpr>, may be composed of one or more (algebraically–combined) of the following elements:

<table>
<thead>
<tr>
<th>Component:</th>
<th>Description:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BACK</td>
<td>An input background dataset</td>
</tr>
<tr>
<td>numericals</td>
<td>Numerical values</td>
</tr>
<tr>
<td>operators</td>
<td>+ − * ⟨(⟩</td>
</tr>
</tbody>
</table>

A few things to note:

- Background error expressions cannot be defined without first reading in a background dataset.
- The background errors can be specified in an input file; see READ BERRORS for more information.
- If the background errors are not defined using BERRORS or input using READ BERRORS, then they are computed as defined for the current statistic; see the documentation on the STATISTIC command.
See the related command BSYSERRORS.

The background errors are accessible to the Sherpa/S−Lang module user via the functions get_berrors and set_berrors.

**Example 1**

Define an expression to be used for the background errors. They are set to 1.5 in each bin.

```
sherpa> DATA data.dat
sherpa> BACK back.dat
sherpa> BERRORS = 1.5
```

**Example 2**

Define an expression to be used for the background errors. They are set to 0.5 times the background datum in each bin.

```
sherpa> BERRORS = 0.5*BACK
```

**Bugs**

See the Sherpa bug pages online for an up−to−date listing of known bugs.

**See Also**

chandra
guide

sherpa
autoest, back, bsyserrors, compute_errors, compute_statistic, coord, covariance, data, dataspace, errors, fakeit, feffile, ftest, get paramest, get paramestint, get paramestlim, get paramestreg, goodness, group, guess, interval−projection, interval−uncertainty, is subtracted, list paramest, load, load arf, load ascii, load back from, load backset, load dataset, load fitsbin, load image, load inst, load inst from, load pha, load pha2, load rmf, mlf, projection, read, region−projection, region−uncertainty, restore paramest, run paramest, run paramestint, run paramestlim, run paramestreg, set analysis, set axes, set backscale, set coord, set data, set errors, set exptime, set subtract, set syerrors, set weights, setback, setdata, staterrors, subtract, syerrors, uncertainty, ungroup, unsubtract, use