URL: http://cxc.harvard.edu/sherpa3.4/bugs/inst_general.html
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Instrument Model Bugs: general

Bugs

1. ***If the NAXIS keywords in the PSF image file are odd, Sherpa does not convolve the PSF with the model correctly.***

   For example, if you have an image that is 55x55 pixels. To check these keywords, you must examine the raw file header:

   ```
   unix% dmlist odd_psf.fits header,raw | grep AXIS
   Key    3: I             *NAXIS        = 2                    / number of data axes
   Key    4: I             *NAXIS1       = 55                   / length of data axis
   Key    5: I             *NAXIS2       = 55                   / length of data axis
   ```

   Workaround:

   if the PSF image is binned to an even number, e.g. 56x56 pixels instead of 55x55, it will have even NAXIS keywords and no model distortion will occur.
2. ***In order to replace the instrument model with a different ARF on multiple loops of a script, it is necessary to call "`erase data`" inbetween resetting the instruments.***

   Otherwise you will see an error of the form:

   ```
   Error: illegal instrument definition.
          Mapping from ARF to PHA bin unknown - provide RMF.
          Instrument definition deleted.
   ```
3. ***Cases where source and instrument model reinitialization does not occur.***

   The current version of Sherpa is designed such that source and instrument models are not "reinitialized" with every fit, goodness, or visualization command; reinitialization only takes place if a change has occurred (e.g., one has changed the filter) such that reinitialization is required. However, there are some cases where reinitialization does not occur, but should:

   - If one changes the normalization within a FARF or FARF2D (FEXPMAP) model, that change is not noticed in subsequent fits.
   - If one subtracts/unsubtracts, sometimes the change is not noticed, e.g.,

     ```
     sherpa> print(get_dcounts_sum(foo).value)
     264.124
     sherpa> unsubtract
     sherpa> print(get_dcounts_sum(foo).value)
     264.124
     ```

   Problems such as these are being fixed as they are discovered.

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