Chandra X-ray Center

Bugs: acisspec

`acisspec` is not a CIAO tool; it is a script which is available for download from the Scripts page.

Users are encouraged to use `specextract` in place of `acisspec` for new analyses, noting that `specextract` does not yet offer the option to coadd spectra as `acisspec` does; refer to the specextract thread for more information.

Caveats

1. *Script failed to create weighted RMF (`.wrmf`) files*

   If the script ends without producing any `.wrmf` files, it is possible that the mkrmf step was not completed. Check for an error log named `.psp.mlog` which may contain information on why the tool failed.

2. *The script will fail if it is run on any of the ACIS "blank−sky" datasets obtained directly from Maxim's page.*

   The script will fail if it is run on any of the ACIS "blank−sky" datasets obtained directly from Maxim's page. This is due to the fact that they do not have completely valid header information, in particular that `TSTART = 0`. quizcaldb doesn't understand this incorrect value, causing it (and therefore `acisspec`) to quit.

   Workaround:

   Add a sensible `TSTART` value to the header with dmhedit. *Try* setting `TSTART` to match that of the observation and `TSTOP = TSTART + EXPOSURE` (of the background file), rounded up to the nearest second. The rounding is just to make sure that `TSTOP-TSTART >= EXPOSURE`; it could be rounded to the highest 100 or 1000 seconds.

   The "blank−sky" files that have been incorporated into the CALDB have had the headers corrected, but it is worthwhile to check that the `TSTART` value has been altered properly.

3. *`exclude` filters cannot be used with the source file parameters*

   When the script appends an energy filter and binning specification to make the WMAP, it violates the DM rule that `exclude` and other filters can't be mixed. It exits with an error message:

   ```
   Failed to open virtual file
   events.fits[exclude sky=region(zero.reg)][energy=300:2000][bin det=8]
   Parse error: cannot mix EXCLUDE and FILTER

   Error when running
     dmcopy "events.fits[exclude sky=region(zero.reg)][energy=300:2000][bin det=8]"
     outfile="exclude_sou1.wmap_tmp" clobber=no
   ```

Workaround:

Use the `exclude` statement with <u>dmcopy</u> to create a new event file *before* running `acisspec`.

Bugs

1. ***The script exits with misleading error if it cannot find one of the input files.***

   A typo in a filename may lead to a message like:

   ```
   Error. The primary source file is a spectrum, but no associated WMAP
   has been provided. If the WMAP is stored in the WMAP extension of the
   spectrum, please input it as a virtual file in the souwmap1 paramater.
   ```
   when the input file is an event list not a spectrum.

   If `acisspec` prints an error message that does not make sense, check your input parameters for typos in the data and region filenames.