Coding sprint preparation

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Status

Code structure

- Top level main class GOnOffFitter
    - … holding GOnOffBgd instance to prepare the ON-OFF data
        - ….holding an GOnOffBin array storing the ON-OFF data
- Try to have something that can accomodate addition of other analysis features

Available

- Class header drafts for all objects
- Virtual analysis script to illustrate philosophy

Till the end of the week

- Continue setting up class interfaces (with your feedback)
- Clean up Redmine
- Clarify who can/want to do what
- Have git installed on your laptops

GSkyRegion

Properties

- …container, derived classes,…etc
- Independent of use in ON-OFF analyses
- Already discussed last time

Functionalities to be implemented

- Input from/ouput in DS9 region file format
- Calculation of subtended solid angle
- Handling of CEL/GAL coordinate systems
- Housekeeping (constructor, destructor, copy,…etc)

GOnOffBin

Properties

• Atomic container for ON-OFF data

• Holds number of counts, exposure time, acceptance for ON and OFF regions

• One per observation run and energy bin

• From arrays of such elements: spectra and maps

Functionalities to be implemented

• Housekeeping (constructor, destructor, copy,…etc)

• … not much more, this is a container class

GOnOffBgd

Properties

- Interface to ON and OFF region definition and corresponding data preparation
- Instance stored in GOnOffFitter class
- Model parameters accessible through operator[…]
- To be decided: Abstract class with derived classes GOnOffBgdReflected/ GOnOffBgdRing ?
- To be decided: Model parameters in the form of GModelPar ?

Functionalities to be implemented

- Regions creation
- Integration of quantities over regions (counts, exposure,…)
- Creation and filling of GOnOffBin array
- Access to model parameters
- Housekeeping (constructor, destructor, copy,…etc)

GOnOffFitter

Properties

• Top-level object

• To be decided: Can iterate over fit parameters through operator[…] ?

• To be decided: Abstract class with derived classes GOnOffFitterSpec/GOnOffFitterMap ?
   (connected with similar question on GOnOffBgd)

Functionalities to be implemented

• Spectra and maps preparation from array of GOnOffBin elements

• Handling of input source spectrum

• Convolution with response

• Calculation of average true energy for each reconstructed energy bin

• Optimizer functions and calls (for spectral points and spectral shape)

• Significance arithmetics (Li&Ma)

• Result output

• Log file output

• Housekeeping (constructor, destructor, copy,…etc)

Extra remarks

To be done later

- Upper limits (more general for whole gammalib)
- Exclusion regions
- …