

ctools - Bug #1510

ctselect does not transfer Rol to selected file in case no event passes cuts

07/09/2015 03:09 PM - Mayer Michael

Status:	Closed	Start date:	07/09/2015
Priority:	Normal	Due date:	
Assigned To:	Mayer Michael	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	1.0.0		

Description

I have the following use case:

I have multiple observations with various energy thresholds. They were already preselected with ctselect usepnt=yes rad=2.5. Now, I want to run/test csspec in binned mode, which first calls ctselect on the input observation file. Since my observations have different energy thresholds, the energy selection in a particular slice might result in some runs having no event left (because their threshold is higher than the slice maximum).

Using csspec in binned mode, this selected GObservations object is then passed to ctbin to create a count cube. However, it seems ctselect has removed the previously applied Rol definition from the event list in case no event passes the selection.

The problem seems to be in ctselect.cpp:886

```
// If ROI selection has been applied then set the event list ROI
if (m_select_roi) {
    GCTAInstDir instdir;
    instdir.dir().radec_deg(ra, dec);
    list->roi(GCTARoi(instdir, rad));
}
```

Since in csspec, we pass "UNDEFINED" as Rol parameters, m_select_roi is set to false and thus no Rol gets assigned to the new event list. This causes an exception in ctbin as an Rol is required.

I see two options to solve this issue:

1. Change ctselect to transfer the old Rol to the new event list (even though it is empty)
2. Change ctbin::fill_cube() to check for the number of events before filling the cube. In case no event is given, the function could be left without checking the Rol information

I guess I would vote for option 2, what do you think? This should also be solved before 1.0

History

#1 - 07/09/2015 03:17 PM - Mayer Michael

This problem also transfers to ctexpcube etc which throw an exception if no Rol is found. So maybe option 1 might be better suited after all? Or we change the exception to warning, stating that this GCTAObservation is not used.

#2 - 07/17/2015 12:11 PM - Mayer Michael

- Status changed from New to Pull request

- Assigned To set to Mayer Michael

- % Done changed from 0 to 100

After some thinking, I decided to go for option 1.

Now the ctselect::select_events checks for previously existing GCTARol and GEbounds. In case no Rol selection is performed, the old Rol will be restored and assigned to the new event list. The same now holds for the energy boundaries.

The fix is available on [1510-ctselect-should-consider-old-Rol](#)

#3 - 07/23/2015 05:33 PM - Knödseder Jürgen

I see that this pull request includes also a change in csspec that seems not to be related to this issue:

```
psfcube["anumbins"] = 20
```

```
# Compute Npred value
Npred = 0.0
if not self.m_binned:
    for observation in like.obs():
        Npred += observation.npred(source)
```

I would be concerned of fixing the number of bins for the PSF to 20. This is probably not enough. Normally you'd like a coarser grid for the spatial parameters.

Can you clarify what should go in with this pull request?

#4 - 07/23/2015 06:05 PM - Mayer Michael

Apologize for this commit on this branch. Apparently, I mixed up some commits. Please ignore this, I made the changes for testing purposes and they somehow got pushed together with the other changes. In #1513, however, I added the user parameter anumbins to csspec, and also that the npred-value is only computed if we have are in unbinned mode.

#5 - 07/23/2015 11:25 PM - Knödseder Jürgen

Okay, no worries. I think I sorted things out. This one got also merged in when I merged #1513. Seems that you started #1513 not from devel but from your commit.

Anyways, I should have been faster in merging in your changes :-)

#6 - 07/23/2015 11:36 PM - Knödseder Jürgen

- Status changed from Pull request to Closed

Merged into devel.