GammaLib - Bug #3541

csspec aborts if there is an energy bin with 0 observed/predicted events

02/17/2021 10:43 AM - Tibaldo Luigi

Status:	Closed	Start date:	02/17/2021
Priority:	Urgent	Due date:	
Assigned To:	Knödlseder Jürgen	% Done:	100%
Category:		Estimated time:	0.00 hour
Target version:	2.0.0		
Description			
This issue was reported by Marianne, here's an extract from the debug output			
2021-02-16T16:27:33: +=====+ 2021-02-16T16:27:33: Input observation 2021-02-16T16:27:33: +==================================			
A likelihood fit can certainly not work with 0 observed and predicted events, we should add a check and skip bins for which this situation occurs.			

History

#1 - 05/07/2021 11:04 PM - Knödlseder Jürgen

- Priority changed from Normal to High
- Target version set to 2.0.0

I have this same error recently quite often, not sure why it did not show up before.

#2 - 05/10/2021 08:01 AM - Knödlseder Jürgen

- Status changed from New to In Progress
- Assigned To set to Knödlseder Jürgen
- % Done changed from 0 to 10

I modified the

GMatrixSparse::GMatrixSparse(const int& rows, const int& columns, const int& elements)

constructor so that it allows also zero number of rows or columns. This was a todo that was identified. Nevertheless, I need to check that the sparse matrix class allows to operate on empty matrices. I did the same in the GMatrix and GMatrixSymmetric class.

#3 - 05/10/2021 08:36 AM - Knödlseder Jürgen

It seems that the sparse matrix class is not yet working properly on empty matrices:

0libgamma.8.dylib0x000000107e9e6b9 cs_transpose(GMatrixSparse const&, int) + 121 (GMatrixSparse.cpp:3810)1libgamma.8.dylib0x000000107e9e5d0 GMatrixSparse::transpose() const + 224

#4 - 05/10/2021 11:13 AM - Knödlseder Jürgen

- Project changed from ctools to GammaLib

- Target version deleted (2.0.0)
- % Done changed from 10 to 30

I added unit tests to verify that all methods and operators of GMatrixSparse work seamlessly on empty matrices. This needed a few code adaptions.

I still need to do the same for the other two storage classes.

#5 - 05/10/2021 11:14 AM - Knödlseder Jürgen

- Target version set to 2.0.0

#6 - 05/10/2021 12:34 PM - Knödlseder Jürgen

- Status changed from In Progress to Pull request
- % Done changed from 30 to 90

I implement unit tests also for all other storage classes. Things seem to work well now.

In addition, I modified the code in GObservation and GResponse so that no issues occur in case that there are no events. I tested the code on cssens where I had the same error before and now it works fine.

#7 - 05/10/2021 01:56 PM - Knödlseder Jürgen

- Status changed from Pull request to Closed
- % Done changed from 90 to 100

The code was merged into devel.

#8 - 05/10/2021 05:21 PM - Knödlseder Jürgen

- Status changed from Closed to In Progress
- Priority changed from High to Urgent
- % Done changed from 100 to 50

There seems still to be a problem when passing an observation without any event. Such a problem occurs in the csphasecrv unit test.

#9 - 05/11/2021 10:39 PM - Knödlseder Jürgen

- Status changed from In Progress to Pull request

- % Done changed from 50 to 90

Found it. It was an exception in GMatrixSparse::stack_push_column() that I moved and that I shouldn't. I fixed the issue.

#10 - 05/12/2021 07:18 AM - Knödlseder Jürgen

- Status changed from Pull request to Closed
- % Done changed from 90 to 100

The code was merged into devel.