

## CoCoALib - Bug #834

### Fix test failures (after revising MatrixForOrdering)

09 Dec 2015 13:40 - John Abbott

<b>Status:</b>	Closed	<b>Start date:</b>	09 Dec 2015
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Anna Maria Bigatti	<b>% Done:</b>	100%
<b>Category:</b>	Tidying	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	CoCoALib-0.99540 Feb 2016	<b>Spent time:</b>	2.25 hours
<b>Description</b>			
The current CVS produces 3 failed CoCoALib tests: test-MatrixForOrdering1, test-RingWeyl1, test-SparsePolyRing1 and 2 failed examples: ex-RingWeyl2, ex-RingWeyl3 The following CoCoA-5 tests failed too: demo-Osaka2015.cocoa5 primary.cocoa5 lecture-HF1.cocoa5 lecture-HF4.cocoa5 radical.cocoa5 SourceAnna.cocoa5  Compilation with <b>debugging activated</b> produced 7 failed tests: test-GOperations1, test-GOperations2, test-MatrixForOrdering1, test-QuotientRing1, test-RingWeyl1, test-SparsePolyRing1, test-TmpMorseGraph and 4 failed examples: ex-module2 ex-PPMonoidElem2 ex-RingWeyl2 ex-RingWeyl3			
<b>Related issues:</b>			
Related to CoCoALib - Design #827: NewPositiveMat also for matrices over QQ? ...		<b>Closed</b>	<b>26 Nov 2015</b>
Related to CoCoALib - Bug #820: NewMatMinimize, NewMatCompleteOrd - a godfors...		<b>Closed</b>	<b>25 Nov 2015</b>

### History

#### #1 - 09 Dec 2015 13:41 - John Abbott

JAA believes the root cause is the check that a grading is strictly positive when weakly positive is sufficient.

#### #2 - 09 Dec 2015 22:08 - Anna Maria Bigatti

- Status changed from New to In Progress

- Assignee set to Anna Maria Bigatti

- % Done changed from 0 to 10

First bug trapped:

IsPositiveOrd wants  $\text{rk}(M) == \text{NumRows}(M)$ .

This function is called when making a term ordering out of a possibly redundant matrix. Obviously incompatible (Failure in test-SparsePolyRing1)

I think the check on the columns should be an independent function called by IsPositiveOrd which will also do the extra check on the rank.

.. Need to find a good name for it..

#### #3 - 10 Dec 2015 10:17 - John Abbott

I have just checked in a modified version of MatrixForOrdering.C following Anna's suggestion in comment 2.

Now "only" 5 tests fail (with debugging on).

I have added a new fn called ColCheck; I think its interface is reasonable, but I am not happy with its name.

I note that MatrixForOrdering.C still contains a lot of cruft :-/

#### #4 - 10 Dec 2015 13:11 - Anna Maria Bigatti

lines 304 and following (#ifdef) in PPOrdering.C should be deleted:

we do not require to have a PositiveGrading for making an ordering. It is only necessary if we want to compute a Hilbert Series. (the check should be there... maybe it isn't... yet)

#### #5 - 10 Dec 2015 14:36 - Anna Maria Bigatti

- % Done changed from 10 to 20

I'm writing another function **HasNegEntry** which checks whether there is a negative entry.  
(then we can think of a better name ;-)

#### #6 - 10 Dec 2015 15:03 - Anna Maria Bigatti

I'm also writing **IsUpperTriangular**.

**Addendum** (JAA) also **IsLowerTriangular**? Will these go into a "matrix" source file?

#### #7 - 10 Dec 2015 15:04 - Anna Maria Bigatti

- Subject changed from *Fix test failures (after revising MatrixFroOrdering)* to *Fix test failures (after revising MatrixForOrdering)*

#### #8 - 10 Dec 2015 15:59 - John Abbott

- % Done changed from 20 to 10

Ignoring the question of the name for ColCheck, is it better to have a single fn with a flag to say whether or not to allow zero cols, or is it better to have 2 fns (with similar names) one allowing zero cols and the other not?

The current situation is a single fn with a "flag", so a call looks like this:

```
matrix M;
...
if (ColCheck(M, WithoutZeroCol)) ...
...
if (ColCheck(M, PossiblyWithZeroCol)) ...
```

The alternative would look something like this:

```
matrix M;
...
if (ColCheckWithoutZeroCol(M)) ...
...
if (ColCheckWithZeroCol(M)) ...
```

Not sure which I prefer. It would be nice to have a general guideline, but that may be difficult to achieve universally.

Comments? Ideas? Criticisms?

**#9 - 22 Mar 2016 17:44 - Anna Maria Bigatti**

I think there are no more failures now. Close this issue?

**#10 - 24 Mar 2016 11:42 - Anna Maria Bigatti**

- *Status changed from In Progress to Closed*

- *% Done changed from 10 to 100*

All tests pass (no idea how long we have spent on this). Closing.

John Abbott wrote:

Ignoring the question of the name for ColCheck, is it better to have a single fn with a flag to say whether or not to allow zero cols, or is it better to have 2 fns (with similar names) one allowing zero cols and the other not?

OK with the flag.