

CoCoALib - Bug #1790

saturate with zero ideals

13 Mar 2024 19:26 - John Abbott

Status:	Closed	Start date:	13 Mar 2024
Priority:	High	Due date:	
Assignee:	John Abbott	% Done:	100%
Category:	Maths Bugs	Estimated time:	0.00 hour
Target version:	CoCoALib-0.99850	Spent time:	1.30 hour
Description			
The following two bugs were also present in Singular...			
<pre>I := ideal(R, []); I:I; // --> ideal(1) saturate(I,I); // --> ERROR J := ideal(zero(R)); J:J; // --> ideal(1) saturate(J,J); // --> ERROR, but a different error from above!</pre>			
Related issues:			
Related to CoCoALib - Slug #967: Improve saturate		Resolved	10 Nov 2016

History

#1 - 13 Mar 2024 19:27 - John Abbott

It should be easy to fix these two cases. Are there any others involving the zero ideal?
Make several tests and adjoin them to the test suite!

#2 - 13 Mar 2024 19:27 - John Abbott

- Related to Slug #967: Improve saturate added

#3 - 13 Mar 2024 20:37 - John Abbott

- Status changed from New to In Progress
- % Done changed from 0 to 10

The relevant source code is in **TmpGOperations.C** near line 864.

One problem is that an empty PolyList does know to which ring its elements belong, so the function **ComputeSaturation** cannot return ideal(1) since it does not have the information needed to know which ring the ideal is in.

It really would be helpful to have a RingElemVector which guarantees that all its elements are in the same ring, and even knows the ring when the list is empty!

#4 - 13 Mar 2024 20:44 - John Abbott

The code probably needs to be redesigned: we spoke about this last time, that ideals should not be modifiable, but that an operation should (almost?) always produce a new ideal object.

#5 - 15 Mar 2024 19:25 - John Abbott

- Status changed from In Progress to Resolved
- Assignee set to John Abbott

- % Done changed from 10 to 80

The problem was that in BuiltInFunctions-CoCoALib.C there was a call to I->mySaturate(J) instead of saturate(I,J), which was not declared in ideal.H. I have also inserted CoCoA_ASSERT in mySaturate and myColon so that the rings are checked when debugging is active.

#6 - 21 Mar 2024 13:27 - Anna Maria Bigatti

John Abbott wrote:

The problem was that in BuiltInFunctions-CoCoALib.C there was a call to I->mySaturate(J) instead of saturate(I,J), which was not declared in ideal.H.

Now moved to BuiltInOneLiner-CoCoALib.C

#7 - 21 Mar 2024 17:56 - Anna Maria Bigatti

- Status changed from Resolved to Closed

- % Done changed from 80 to 100