

CoCoALib - Bug #736

QuotientRing: is it correct to prohibit quotient by ideal(1)?

21 Jun 2015 21:06 - John Abbott

Status:	Closed	Start date:	21 Jun 2015
Priority:	Normal	Due date:	
Assignee:	Anna Maria Bigatti	% Done:	100%
Category:	Improving	Estimated time:	1.11 hour
Target version:	CoCoALib-0.99700	Spent time:	1.05 hour
Description			
The quotient ring R/I where $I=ideal(1)$ gives the trivial ring.			
Currently the quotienting operation gives a specific error because we do not want users trying to compute in the trivial ring. However this also blocks reasonable operations such as $dim(R/I)$ and $multiplicity(R/I)$.			
Should we really forbid the creation of the trivial ring?			

History

#1 - 21 Jun 2015 21:09 - John Abbott

The problem arose while doing some computations for Ulrich where it was known/expected that some ideals would be $ideal(1)$.

Is there an easy way to test whether an ideal is $ideal(1)$? We have $IsZero$, but not $IsOne$.

#2 - 25 Jun 2015 12:52 - John Abbott

Robbiano confirms that it is best to avoid the null ring (which has surprising properties such as $1 = 0$).

In this case we should offer an easy/natural way of testing whether an ideal is $ideal(1)$. What do you think about the readability of the following:

- if $1 \in I$ then
- if $IsOne(I)$ then

Given that $IsZero$ already exists, it seems coherent to offer $IsOne$ too (for which types of arg?)

#3 - 25 Jun 2015 14:30 - Anna Maria Bigatti

- Status changed from New to In Progress

- Assignee set to Anna Maria Bigatti

- % Done changed from 0 to 10

John Abbott wrote:

- if $1 \in I$ then
- if $IsOne(I)$ then

the first already works. The second should be easy to add (I can do it).

#4 - 25 Jun 2015 15:34 - Anna Maria Bigatti

- Status changed from *In Progress* to *Resolved*
- % Done changed from 10 to 30

done: added IsOne(IDEAL)

#5 - 27 Jan 2020 17:43 - John Abbott

- Status changed from *Resolved* to *Closed*
- Target version changed from *CoCoALib-1.0* to *CoCoALib-0.99700*
- % Done changed from 30 to 100
- Estimated time set to 1.11 h

This was presumably done about 4 years ago, but we forgot to close the issue...
Closing now.