

## CoCoALib - Bug #1484

### ker bug (quotientinghom for R/ideal())

14 Sep 2020 17:38 - John Abbott

<b>Status:</b>	Closed	<b>Start date:</b>	14 Sep 2020
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Anna Maria Bigatti	<b>% Done:</b>	100%
<b>Category:</b>	Maths Bugs	<b>Estimated time:</b>	2.52 hours
<b>Target version:</b>	CoCoALib-0.99800	<b>Spent time:</b>	2.55 hours
<b>Description</b> Bernhard Andraschko reports the following bug:  <pre>/**/ R ::= QQ[x,y,z]; /**/ I := ideal(R, []); /**/ S := R/I; /**/ phi := QuotientingHom(S); /**/ ker(phi); --&gt; ERROR</pre>			
<b>Related issues:</b>			
Related to CoCoALib - Feature #1329: New syntax for creating homomorphisms (P...		<b>Closed</b>	<b>08 Oct 2019</b>
Related to CoCoALib - Bug #1571: ker_H needs care		<b>New</b>	<b>29 Jan 2021</b>

### History

#### #1 - 14 Sep 2020 18:07 - John Abbott

I have blindly changed the code in HomomorphismOps.C.  
The problem was in MakeRichHom (and presumably an analogous problem in MakeRichHom\_H).  
The changes are on lines 167 and 244.

**Anna:** could you check that what I have done is reasonable? Bernhard's example works OK now.

#### #2 - 14 Sep 2020 18:08 - John Abbott

- Status changed from New to Resolved  
- % Done changed from 0 to 80

There are two more suspect creations of ideals: line 325 and 347.  
I have changed these too, but am less sure that what I have done is correct (not even sure how to test my changes). **Could you do this, Anna?**

#### #3 - 30 Oct 2020 14:49 - Anna Maria Bigatti

- Assignee set to Anna Maria Bigatti

#### #4 - 30 Oct 2020 14:51 - Anna Maria Bigatti

For me: test, and add CoCoALib tests

#### #5 - 08 Jan 2021 11:58 - Anna Maria Bigatti

Anna! check ring for empty lists!

#### #6 - 22 Jan 2021 10:34 - Anna Maria Bigatti

John Abbott wrote:

There are two more suspect creations of ideals: line 325 and 347.

I have changed these too, but am less sure that what I have done is correct (not even sure how to test my changes). **Could you do this, Anna?**

I confirm the rings are right.

Now I inserted some verbosity to properly check it.

#### #7 - 29 Jan 2021 09:45 - Anna Maria Bigatti

For proper testing I added some verbosity, but I cannot see it.

```
/**/ SetVerbosityLevel(91);  
/**/ ker(QuotientingHom(R/ideal(R, [])));  
/**/ ker(QuotientingHom(R/ideal(x^2+1)));
```

what am I missing? investigating...

#### #8 - 29 Jan 2021 15:07 - Anna Maria Bigatti

- Related to Feature #1329: New syntax for creating homomorphisms (PolyAlgebraHom) added

#### #9 - 29 Jan 2021 15:26 - Anna Maria Bigatti

Anna Maria Bigatti wrote:

For proper testing I added some verbosity, but I cannot see it.

[...]

what am I missing? investigating...

those were easy cases! ;-)

```
ker(InducedHom(R/ideal(x-y), PolyAlgebraHom(R, R/ideal(x-y), "x, y, z")));
```

this works and triggers the verbosity

**#10 - 29 Jan 2021 15:27 - Anna Maria Bigatti**

- *Status changed from Resolved to Feedback*
- *% Done changed from 80 to 90*

**#11 - 29 Jan 2021 15:40 - Anna Maria Bigatti**

- *Related to Bug #1571: ker\_H needs care added*

**#12 - 16 Sep 2021 13:33 - John Abbott**

- *Status changed from Feedback to Closed*
- *% Done changed from 90 to 100*
- *Estimated time set to 2.52 h*

Added test to test-exbugs.C.

Closing.