

## CoCoA-5 - Bug #1230

### PrimaryDecomposition with lex ordering

19 Oct 2018 17:19 - John Abbott

<b>Status:</b>	Closed	<b>Start date:</b>	19 Oct 2018
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Anna Maria Bigatti	<b>% Done:</b>	100%
<b>Category:</b>	Incomplete function	<b>Estimated time:</b>	1.23 hour
<b>Target version:</b>	CoCoA-5.3.0	<b>Spent time:</b>	1.25 hour
<b>Description</b>			
Robbiano reports the following problem:			
<pre>Use P ::= QQ[x,y,z]; f1:=z^2-y; f2:= x^2 -2*x*z +y; f3:=y^2-y-z; J:=ideal(f1,f2,f3); PrimaryDecomposition(J); --&gt; [ideal(z^2 -y, y^2 -y -z, x^2 -2*x*z +y, z), ideal(z^2 -y, y^2 -y -z, x^2 -2*x*z +y, z ^3 -z -1)] -- Change ordering, same ideal Use P ::= QQ[x,y,z],Lex; f1:=z^2-y; f2:= x^2 -2*x*z +y; f3:=y^2-y-z; J:=ideal(f1,f2,f3); PrimaryDecomposition(J); --&gt; ERROR: NOT YET IMPLEMENTED -- please be patient, we're working on it --&gt; [CoCoALib] GBasisByHomog not drl</pre>			
<b>Related issues:</b>			
Related to CoCoALib - Feature #1212: New function: GBasisByHomog		<b>Closed</b>	<b>05 Aug 2018</b>
Related to CoCoALib - Slug #1105: Primary Decompositon (zero-dim) slow cases		<b>Closed</b>	<b>02 Oct 2017</b>

### History

#### #1 - 22 Oct 2018 16:04 - Anna Maria Bigatti

- Related to Feature #1212: New function: GBasisByHomog added

#### #2 - 01 Oct 2019 14:44 - John Abbott

- Status changed from New to In Progress

- Assignee set to Anna Maria Bigatti

- % Done changed from 0 to 20

The given example seems to work now. Has this been fixed?

If so, close; otherwise postpone to next version.

#### #3 - 02 Oct 2019 16:12 - John Abbott

- Related to Slug #1105: Primary Decompositon (zero-dim) slow cases added

#### #4 - 11 Oct 2019 22:03 - John Abbott

- Status changed from In Progress to Resolved

- % Done changed from 20 to 80

I think this has already been done. Changed status to "resolved".

**#5 - 14 Oct 2019 17:32 - Anna Maria Bigatti**

- Status changed from Resolved to In Progress

- % Done changed from 80 to 70

Not quite :-/

there is still something dodgy:

```
/**/ J:=ideal(f1,f2,f3);
/**/ GBasisByHomog(J);
[y -z^2, y^2 -z^2 -z, x^2 -2*x*z +z^2, y*z^2 -z^2 -z, z^4 -z^2 -z]
/**/ PrimaryDecomposition(J);
--> ERROR: NOT YET IMPLEMENTED -- please be patient, we're working on it
--> [CoCoALib] myPrimaryDecomposition() -- general ideal
--> PrimaryDecomposition(J);
--> ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
```

**#6 - 16 Jan 2020 12:15 - John Abbott**

This seems to work for me now.

We must add a test to exbugs.cocoa5; we can simply copy the failing case from the issue description.

Then close?

**#7 - 13 Feb 2020 09:25 - Anna Maria Bigatti**

- Status changed from In Progress to Feedback

- % Done changed from 70 to 90

Seems to work now.

We did not note how we fixed the problem in comment 5. :-/  
closing?

**#8 - 13 Feb 2020 10:09 - John Abbott**

- Status changed from Feedback to Closed

- % Done changed from 90 to 100

- Estimated time set to 1.23 h

I have added the example to exbugs.cocoa5

Closing!