

## CoCoALib - Bug #1205

### SyzOfGens: bug with zero generators

01 Aug 2018 08:19 - Anna Maria Bigatti

<b>Status:</b>	Closed	<b>Start date:</b>	01 Aug 2018
<b>Priority:</b>	Urgent	<b>Due date:</b>	
<b>Assignee:</b>	Anna Maria Bigatti	<b>% Done:</b>	100%
<b>Category:</b>	Improving	<b>Estimated time:</b>	5.01 hours
<b>Target version:</b>	CoCoALib-0.99600	<b>Spent time:</b>	5.00 hours
<b>Description</b>			
<pre>/**/ use R ::= QQ[x,y,z]; /**/ I := ideal([x, y, x+y, 0]); /**/ SyzOfGens(I);</pre>			
gives error.			
(translate cocoa5 fix into cocoalib)			
<b>Related issues:</b>			
Related to CoCoALib - Feature #1206: syz, SyzOfGens: which shifts for zero?		<b>Closed</b>	<b>02 Aug 2018</b>
Related to CoCoA-5 - Bug #1781: GenReprCompute: SERIOUS ERROR		<b>Feedback</b>	<b>08 Feb 2024</b>
Related to CoCoALib - Design #1647: Suppress zero from ideal generators? Det...		<b>Closed</b>	<b>20 Jan 2022</b>

### History

#### #1 - 02 Aug 2018 14:55 - Anna Maria Bigatti

- Related to Feature #1206: syz, SyzOfGens: which shifts for zero? added

#### #2 - 02 Aug 2018 15:09 - Anna Maria Bigatti

- Status changed from In Progress to Feedback

- % Done changed from 10 to 90

```
/**/ use R ::= QQ[x,y,z];
/**/ I := ideal([x, y, x+y, 0]);
/**/ SyzOfGens(I);
```

but syzygies are automatically shifted with the degrees of the generators, and what's the degree of 0?  
To avoid having to guess, we force the user to create the free module.

```
/**/ use R ::= QQ[x,y,z];
/**/ I := ideal([x, y, x+y, 0]);
/**/ R4 := NewFreeModule(R, 4);
/**/ SyzOfGens(R4, I);
```

See [#1206](#) for follow-ups.

**#3 - 02 Aug 2018 15:10 - Anna Maria Bigatti**

- Estimated time changed from 3.01 h to 5.01 h

**#4 - 03 Aug 2018 18:09 - John Abbott**

- Status changed from Feedback to Closed

- % Done changed from 90 to 100

**#5 - 09 Feb 2024 08:28 - Anna Maria Bigatti**

- Related to Bug #1781: GenReprCompute: *SERIOUS ERROR* added

**#6 - 09 Feb 2024 08:28 - Anna Maria Bigatti**

- Related to Design #1647: Suppress zero from ideal generators? Detect 1 and simplify generators? added