

## CoCoA-5 - Feature #1072

### syz: apply to ModuleElem?

18 May 2017 21:55 - John Abbott

<b>Status:</b>	Rejected	<b>Start date:</b>	18 May 2017
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	Anna Maria Bigatti	<b>% Done:</b>	100%
<b>Category:</b>	enhancing/improving	<b>Estimated time:</b>	1.01 hour
<b>Target version:</b>	CoCoA-5.4.2	<b>Spent time:</b>	0.75 hour
<b>Description</b> Would it make sense to allow syz to be applied to a ModuleElem?  <pre>use P ::= QQ[x,y,z]; M3 := NewFreeModule(P,3); v := ModuleElem(M3, [0,z,-y]); syz(v); --&gt; ERROR</pre>			
<b>Related issues:</b> Related to CoCoALib - Feature #1206: syz, SyzOfGens: which shifts for zero? <span style="float: right;">Closed 02 Aug 2018</span>			

### History

#### #1 - 18 May 2017 21:57 - John Abbott

The current solution is to do the following:

```
use P ::= QQ[x,y,z];
M3 := NewFreeModule(P,3);
v := ModuleElem(M3, [0,z,-y]);
/// syz(v); --> ERROR
S := submodule(M3, [v]);
syz(S);
```

Note that even to create a mono-generator ("cyclic") submodule it is necessary to put the generator inside a list.

#### #2 - 18 May 2017 21:59 - John Abbott

The man page still calls th fn Syz with a capital S; it should be syz, shouldn't it?

#### #3 - 18 May 2017 22:03 - John Abbott

Is it right that syz should give error if one of the coords is zero?

```
use P ::= QQ[x,y,z];
syz([0,x,y]);
--> ERROR: Non-zero RingElem required
```

Shouldn't the answer be  $[[1,0,0],[0,y,-x]]$ ?

**#4 - 26 Mar 2024 09:59 - Anna Maria Bigatti**

- Status changed from *New* to *Resolved*
- Target version changed from *CoCoA-5.??* to *CoCoA-5.4.2*
- % Done changed from 0 to 80

I'm inclined to reject this.  
It would be ambiguous: *syz* of the components, or of the cyclic module it generates?

**#5 - 26 Mar 2024 09:59 - Anna Maria Bigatti**

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

**#6 - 26 Mar 2024 13:35 - Anna Maria Bigatti**

- Status changed from *Resolved* to *Rejected*
- Assignee set to *Anna Maria Bigatti*
- % Done changed from 80 to 100
- Estimated time set to 1.01 h

**#7 - 26 Mar 2024 17:12 - John Abbott**

Agreed that we should reject.