

CoCoA-5 - Bug #918

UniversalGBasis: sometimes gives error

01 Sep 2016 11:37 - John Abbott

Status:	Closed	Start date:	01 Sep 2016
Priority:	Normal	Due date:	
Assignee:	Anna Maria Bigatti	% Done:	100%
Category:	Incomplete function	Estimated time:	2.05 hours
Target version:	CoCoA-5.2.0 spring 2017	Spent time:	1.95 hour
Description			
The following input produces an error (cannot index empty list)			
<pre>S := support (sum (indets (R)) ^5); J := RandomSubset (S, 10); I := ideal (J); UniversalGBasis (I);</pre>			

History

#1 - 01 Sep 2016 15:32 - John Abbott

The code for UniversalGBasis simply makes the union of all the reduced GBases produced by GroebnerFanIdeals. Should there be a call to monic somewhere? Is it possible that the same poly appears but with different scalar factors? I know the reduced GBases are monic **BUT** only wrt. their own ordering.

#2 - 01 Sep 2016 16:02 - Anna Maria Bigatti

try now (just checked it the new code using CallOnGroebnerFan)

#3 - 02 Sep 2016 13:45 - John Abbott

- Status changed from New to In Progress

- % Done changed from 0 to 10

A simpler failing case is:

```
S := support (sum (indets (R) ) ^2);  
J := RandomSubset (S, 3);  
I := ideal (J);  
UniversalGBasis (I);
```

The problem is that MarkedPolynomialsToInequalitiesPositiveOrthant on line 69 of GroebnerFan.cpkg produces an empty list.

#4 - 07 Sep 2016 17:09 - Anna Maria Bigatti

- *Status changed from In Progress to Feedback*
- *Assignee set to Anna Maria Bigatti*
- *% Done changed from 10 to 90*

Fixed.
The list to create the matrix is empty (special case: monomial input), so CoCoA didn't know how to set the number of columns (yes, it makes sense to set the number of columns even if you have 0 rows).
So the function now call ZeroMat in that case.

#5 - 10 Oct 2016 13:40 - Anna Maria Bigatti

- *Status changed from Feedback to Closed*
- *% Done changed from 90 to 100*

#6 - 12 Oct 2016 15:01 - Anna Maria Bigatti

- *Estimated time set to 2.05 h*