

CoCoA-5 - Slug #1047

NewPolyRing with user defined ordering is slower than CoCoALib

18 Apr 2017 10:58 - Anna Maria Bigatti

Status:	Closed	Start date:	18 Apr 2017
Priority:	High	Due date:	
Assignee:	Anna Maria Bigatti	% Done:	100%
Category:	enhancing/improving	Estimated time:	5.31 hours
Target version:	CoCoA-5.2.0 spring 2017	Spent time:	5.20 hours
Description			
Related issues:			
Related to CoCoALib - Slug #1049: GroebnerFan: slow examples		In Progress	19 Apr 2017
Related to CoCoALib - Slug #1057: Slug: Polynomial ring constructor slow with ...		In Progress	04 May 2017

History

#1 - 18 Apr 2017 11:11 - Anna Maria Bigatti

- Category set to enhancing/improving
- Status changed from New to Feedback
- Assignee set to Anna Maria Bigatti
- Priority changed from Normal to High
- Target version set to CoCoA-5.2.0 spring 2017
- % Done changed from 0 to 90
- Estimated time set to 4.01 h

Of course I wrote this issue after solving it ;-)

While comparing two functions using GBases with an elimination ordering we (Robbiano and myself) realized that the CoCoA-5 function was curiously a lot slower than the similar CoCoALib one.

After a long investigation (and resurrecting the old code for GRStats) I understood that the problem had to be in the underlying polynomial arithmetic. Indeed NewPolyRing in BuiltinFunctions-CoCoALib.C was calling NewPolyRing(R->theRing, NewPPMonoid(syms, PPO)), which forces a PPMonoid, then preventing the use of \$DMP11\$ (I think this was implemented before we wrote the new function below). The correct call is NewPolyRing(R->theRing, syms, PPO).

#2 - 19 Apr 2017 18:43 - Anna Maria Bigatti

- Related to Slug #1049: GroebnerFan: slow examples added

#3 - 29 Apr 2017 08:39 - Anna Maria Bigatti

- Estimated time changed from 4.01 h to 5.01 h

Still missing: make speed tests with GroebnerFan (I had some strange results)

#4 - 01 May 2017 10:43 - Anna Maria Bigatti

- Status changed from Feedback to Closed
- % Done changed from 90 to 100
- Estimated time changed from 5.01 h to 5.31 h

Anna Maria Bigatti wrote:

Still missing: make speed tests with GroebnerFan (I had some strange results)

The timing for GroebnerFan is identical because GBasis make its own ring (DMPI/DMP1I) for the computation. Our experiments, instead, had some computations in the cocoa5 ring (implemented as DMP).

#5 - 16 May 2017 15:24 - Anna Maria Bigatti

- Related to Slug #1057: Slug: Polynomial ring constructor slow with (big) matrix ordering added