

CoCoA-5 - Slug #480

gcd too slow for large degree univariate poly

18 Mar 2014 10:34 - John Abbott

Status:	New	Start date:	18 Mar 2014
Priority:	Normal	Due date:	
Assignee:		% Done:	0%
Category:	Cleaning	Estimated time:	0.00 hour
Target version:	CoCoA-5.?.?	Spent time:	0.20 hour
Description			
CoCoA-5 used more than 6Gbytes of memory while trying to compute $\text{gcd}(f, x^{31^6} - x)$ in $\mathbb{ZZ}/(31)[x]$ where $f := x^{15} + x^{14} + x^{13} + x^{12} - x^{11} - x^{10} - x^7 - x^6 - x^3 + x^2 + x + 1$			
Why so much memory? Was it using a dense representation?			
Related issues:			
Related to CoCoALib - Slug #129: Better GCD		New	15 Apr 2012
Related to CoCoALib - Slug #952: GCD very slow		Closed	25 Oct 2016
Related to CoCoALib - Feature #257: Transcribe C4 code for GCD in QQ[x]		New	09 Oct 2012

History

#1 - 02 Apr 2014 17:34 - Anna Maria Bigatti

- Target version set to CoCoA-5.1.0 Easter14

#2 - 04 Apr 2014 14:32 - John Abbott

- Target version changed from CoCoA-5.1.0 Easter14 to CoCoA-5.?.?

#3 - 24 Nov 2016 13:20 - John Abbott

- Related to Slug #129: Better GCD added

#4 - 24 Nov 2016 13:20 - John Abbott

- Related to Slug #952: GCD very slow added

#5 - 24 Nov 2016 13:24 - John Abbott

- Related to Feature #257: Transcribe C4 code for GCD in QQ[x] added

#6 - 30 Oct 2019 22:44 - John Abbott

This slug still exists: on my current machine, top reports that CoCoA-5 is using 13Gbyte of memory. The computation completed in about 131s.

No doubt it is using a dense repr. Perhaps there should be special handling if there is a large disparity in degree?

The speed is not ideal, but the memory consumption is embarrassing.