CoCoALib - Slug #837

factor is very slow on some simple input polynomials

06 Jan 2016 14:32 - John Abbott

Status:	New	**Start date:**	06 Jan 2016
Priority:	Normal	**Due date:**	
Assignee:		**% Done:**	0%
Category:	Improving	**Estimated time:**	0.00 hour
Target version:	CoCoALib-1.0	**Spent time:**	0.25 hour

Description

The problem lies in CoCoALib, but for simplicity I present it here as CoCoA-5 code.

factor(x^780+780) is very slow; so is factor(x^988+988).

In contrast factor((3*5*7*11*17*x)^988+988) is fairly fast (about 5s);
and factor((7*11*17*19*x)^780+780) is fairly fast (about 9s).

Presumably the problem is that not enough primes are tried; NTL uses a trick where extra primes are tried if the factor search becomes slow. Perhaps do something similar?

History

#1 - 06 Jan 2016 14:40 - John Abbott

My "fast" machine in Kassel takes more than 60000s for x^780+780, and 1333s for x^988+988.

In comparison all polys of the form x^n+n for n ranging from 1 to 1000 (but excluding the two slow cases) can be factorized in just 164s on my "fast" machine in Kassel.