CoCoALib - Feature #1417

RadicalZeroDim with extra parameter for GBasis timeout

14 Feb 2020 16:05 - Anna Maria Bigatti

Status:	In Progress	**Start date:**	14 Feb 2020
Priority:	Normal	**Due date:**	
Assignee:	Anna Maria Bigatti	**% Done:**	20%
Category:	Improving	**Estimated time:**	6.00 hours
Target version:	CoCoALib-0.99880	**Spent time:**	0.50 hour

Description

We have seen how changing the timeout for GBasis can affect the time dramatically.
Should we make a function RadicalZeroDim(I, GBTimeout) so that the user can choose?

Related issues:

Related to CoCoA-5 - Slug #1114: Some other examples for 0-dim radical	**Closed**	**31 Oct 2017**
Related to CoCoALib - Slug #1375: Radical 0-dim: varied timings	**Closed**	**09 Dec 2019**
Related to CoCoALib - Design #1378: Create two separate radical fns (for 0-di...	**New**	**20 Dec 2019**
Related to CoCoALib - Feature #1780: radical for ideals in SparsePolyRing: c...	**Closed**	**06 Feb 2024**

History

#1 - 14 Feb 2020 16:05 - Anna Maria Bigatti

- Related to Slug #1114: Some other examples for 0-dim radical added

#2 - 14 Feb 2020 16:06 - Anna Maria Bigatti

- Related to Slug #1375: Radical 0-dim: varied timings added

#3 - 14 Feb 2020 16:06 - Anna Maria Bigatti

- Related to Design #1378: Create two separate radical fns (for 0-dim ideals) added

#4 - 14 Feb 2020 16:10 - Anna Maria Bigatti

This is related but not quite the same as #1378.
The point is this: if we let more time to compute the partial GBases, we'll also have a better chance to compute the GBasis of the radical ideal.
If we just use "Seidenberg" (with a very fast radical computation) then its GBasis might be much slower!

Compare, think, decide.

#5 - 12 Mar 2021 10:08 - John Abbott

What is the status of this issue?
As I recall radical now works fairly well for 0-dim ideals (see issue #948). But see also issue #1375.

A problem with the "timeout" parameter is that it could be hard to describe what exactly the parameter does/means.
Also what would the "timeout" parameter mean if the given ideal is not 0-dim?

#6 - 12 Mar 2021 10:37 - John Abbott

- % Done changed from 10 to 20

If no timeout is specified (*i.e.* the current situation) then some "heuristic" timeout is used.
Currently the heuristic seems to be 30s plus epsilon -- I did not investigate to see where epsilon comes from.

It might be nice to use a better heuristic? Or just KISS?

#7 - 03 Nov 2021 16:55 - John Abbott

- Target version changed from CoCoALib-0.99800 to CoCoALib-0.99850

#8 - 06 Feb 2024 09:03 - Anna Maria Bigatti

- Related to Feature #1780: radical for ideals in SparsePolyRing: code in C++ added

#9 - 16 Mar 2024 21:42 - John Abbott

- Target version changed from CoCoALib-0.99850 to CoCoALib-0.99880

I am currently unsure how useful it would be to let the caller choose a time-out in seconds.
It may be simpler to offer just vaguer options *e.g.* "low, medium, high" (or even just "low, high"). What do you think?