

CoCoA-5 - Design #1508

Initial ring

13 Oct 2020 15:11 - John Abbott

Status:	In Progress	Start date:	13 Oct 2020
Priority:	Normal	Due date:	
Assignee:		% Done:	50%
Category:	enhancing/improving	Estimated time:	0.00 hour
Target version:	CoCoA-5.4.2	Spent time:	1.80 hour
<p>Description</p> <p>After lunch with Robbiano today...</p> <p>The question of the initial ring in CoCoA-5 came up. There are two proposals to consider:</p> <ul style="list-style-type: none">• (A) Right after the banner print a message saying what the current ring is;• (B) start with no current ring, so the user is forced to set it. <p>Thoughts? Opinions?</p>			

History

#1 - 13 Oct 2020 15:13 - John Abbott

I'm not entirely sure how to achieve technically "start with no current ring":

- **(1)** use an extra flag to say no ring has been set
- **(2)** set a "strange" initial ring (*e.g.* ZZ)

#2 - 19 Oct 2020 11:51 - John Abbott

The technically easiest solution would be start with the ring ZZ; while not exactly what was suggested, I suspect that it would work well. We could also use QQ, which also has no indeterminates.

An important point is that such a change would break *backward compatibility*.

We could implement a flag saying which ring to use upon start-up (*i.e.* choosing between ZZ and the current choice, namely QQ[x,y,z])
A possible name for the flag is **--use-QQxyz**.

#3 - 19 Oct 2020 19:59 - John Abbott

- Status changed from New to In Progress
- % Done changed from 0 to 10

A relevant line in the source code is Interpreter.C:1212 which contains:

```
this->setTopLevelVar("R", new RING(NewPolyRing(RingQQ(),symbols("x,y,z"))), VariableSlot::VSF_None);
```

I removed use R from init.cocoa5, and indeed CurrentRing then returns nothing (presumably NULL). I think I'd feel easier with having ZZ or QQ as the initial ring (rather than nothing at all).

#4 - 23 Oct 2020 10:00 - Anna Maria Bigatti

- % Done changed from 10 to 20

I vote for **(A)** Right after the banner print a message saying what the current ring is

Cleanliness would demand having no initial ring, and indeed CoCoALib has no "CurrentRing".

However, for CoCoA5, I much prefer having an initial ring ready available for two reasons.

1. for the beginner: experience says people don't read the manual, especially when using a program for the first time. We don't want to put them off
2. for all those little computations one user (like me) may run on the fly.

I understand that some user might forget to set his ring "R", and then use the predefined "R", leading to unexpected behaviour.

So my suggestion is:

1. leave the initial current ring as is, activated in init.cocoa5
2. give it an awkward/explanatory name, like QQxyz_StartingRing, instead of R
3. possibly, add a flag for those who want CoCoA to start clean (but I'm not in that list!)

#5 - 23 Oct 2020 16:08 - John Abbott

I like Anna's suggestions:

- by default start with the initial ring QQ[x,y,z] (why should it be assigned to a variable?)
- have a start-up flag to say to start without an initial ring
- if we want the initial ring to be in a variable, how about **CoCoAInitialRing**? Or perhaps **CoCoA_Initial_Ring**?

There is an important technical point: currently the initial ring is set by the line **use R**; in the file **init.cocoa5**.

The changes above require that the initial ring be set by C++ code; finding what changes to the code are needed may be non trivial :-/

#6 - 26 Oct 2020 10:15 - John Abbott

Presumably the CoCoA-5 interpreter has a function which performs the command **source**. If this function can accept an istream then we could just create a string containing **"use CoCoAInitialRing;"**, and then pass an istringstream to the code for executing the source command. This is a short-cut (and avoids having to create a special init file).

HINT: relevant part of Interpreter.C seems to be SourceStatement::implExecute(RuntimeEnvironment *runtimeEnv) around line 4030

PS does not look easy to use as I had hoped :-/

#7 - 04 Nov 2021 23:04 - John Abbott

- Target version changed from CoCoA-5.4.0 to CoCoA-5.4.2

#8 - 05 May 2024 20:17 - John Abbott

- % Done changed from 20 to 50

This issue has been dormant for too long. Here is what I now think:

- the initial ring should have a longer name, I like **QQxyz** (and do not really see the advantage of the rather longer QQxyz_InitialRing*)
- the initial ring appears to be set inside the package **init.cocoa5** which is not user modifiable if CoCoA is system-wide installed; this package could print out the short message saying what the initial ring is
- there used to be the possibility of each user having a userinit.coc file -- should we reactive this (in some form?)

We can start cocoa5 with a flag to suppress printing of the banner; not sure how to use that the suppress printing of the initial ring (not even sure whether we would want to do that).

KISS: change the name in line 1229 of Interpreter.C, and change also the package init.cocoa5 so it uses the new name, and also prints out a short message saying what the initial ring is.

NOTE: there must be a pre-initial ring before the use line in init.cocoa5 is executed; presumably this must be ZZ or QQ since no other rings exist at the start.

#9 - 10 May 2024 10:50 - Anna Maria Bigatti

I'm undecided about changing the name (some beginner user might think that the name "QQxyz" has some interpretation by CoCoA)

Let's say we call it "P", as we usually do now, I would add the line in the banner

```
CurrentRing is P ::= QQ[x,y,z];
```

This could help a beginner user in changing it, if he needs it.