CoCoA-5 - Feature #1503

More flexible ring creation syntax (after use or ::=)

08 Oct 2020 14:02 - John Abbott

Status:	New	Start date:	08 Oct 2020	
Priority:	Normal	Due date:		
Assignee:		% Done:	0%	
Category:	enhancing/improving	Estimated time:	0.00 hour	
Target version:	CoCoA-5.4.2	Spent time:	0.35 hour	
Description				
This request comes from Florian Walsh.				
The suggestion is permit the following syntax:				
use QQ(a,b)[x,y];				
which is intended to be shorthand for the cumbersome				
<pre>QQab ::= Q[a,b]; k := NewFractionField(QQab); use k[x,y];</pre>				
Note that the cumbersome approach also uses two variables (and someone has to think of names for them).				
Related issues:				
Related to CoCoA-5 - Feature #657: use command, ring syntax, RingOf			New	20 Jan 2015
Related to CoCoA-5 - Feature #1003: New syntax for creating poly rings?			In Progress	27 Jan 2017

History

#1 - 08 Oct 2020 14:02 - John Abbott

- Related to Feature #657: use command, ring syntax, RingOf added

#2 - 08 Oct 2020 14:02 - John Abbott

- Related to Feature #1003: New syntax for creating poly rings? added

#3 - 08 Oct 2020 14:11 - John Abbott

We discussed this over lunch today.

JAA thinks that this is not incompatible with #657.

Which term order should be used in the implicitly created ring QQ[a,b]? JAA thinks the default order can be used; if the user really wants to specify some other order then the current "cumbersome" approach can be used.

If we want to implement this then we must change the parser/interpreter... ouch! Relevant places in the source code are: Parser.C: 356 inside parseUseStatement Parser.C: 1397 inside parseFunBodyStatement Parser.C: 1428 inside parseRingDefinition

Looks pretty scary to me!

#4 - 08 Oct 2020 14:16 - John Abbott

How flexible/limited should a new syntax be?

Should it be possible to make arbitrarily long extensions? Such as

QQ(a)[x](b)[y][z]

A first attempt should probably allow just two levels (incl. QQ[x][y]???)

JAA is inclined to exclude quotient rings; so it would not be possible to write something like

(QQ[sqrt2]/ideal(sqrt2^2-2))[x]