

CoCoALib - Feature #1330

New syntax for NewQuotientRing

08 Oct 2019 12:20 - Anna Maria Bigatti

Status:	Closed	Start date:	08 Oct 2019
Priority:	Normal	Due date:	
Assignee:	Anna Maria Bigatti	% Done:	100%
Category:	Improving	Estimated time:	0.00 hour
Target version:	CoCoALib-0.99650 November 2019	Spent time:	2.70 hours
Description			
Making a quotient ring is often tedious. In CoCoA-5 we need to write (the best we can do):			
<pre>QQy ::= QQ[y]; R := NewQuotientRing(QQy, ideal(RingElem(QQy, "y^2-5")));</pre>			
Consider the syntax:			
<pre>R := NewQuotientRing(NewPolyRing(QQ, "a, i"), "a^2-5, i^2+1");</pre>			
where the string is automatically read as an ideal in the base ring. (similar syntax for PolyAlgebraHom)			
Related issues:			
Related to CoCoA-5 - Design #1327: Inconvenient PolyRingHom, PolyAlgebraHom		Closed	07 Oct 2019
Related to CoCoALib - Feature #1332: New function: vector of RingElem from st...		Closed	08 Oct 2019
Related to CoCoA-5 - Feature #1003: New syntax for creating poly rings?		In Progress	27 Jan 2017
Related to CoCoALib - Feature #1485: Simple syntax for making a quotient ring?		New	14 Sep 2020

History

#1 - 08 Oct 2019 12:20 - Anna Maria Bigatti

- Related to Design #1327: Inconvenient PolyRingHom, PolyAlgebraHom added

#2 - 08 Oct 2019 12:21 - Anna Maria Bigatti

- Subject changed from New syntax for creating QuotientRing to New syntax for creating QuotientRing

#3 - 08 Oct 2019 14:41 - Anna Maria Bigatti

- Target version set to CoCoALib-0.99700

- % Done changed from 10 to 50

Implemented in CoCoALib, passed to CoCoA-5
For the moment, only for principal ideal

```
/**/ S := NewQuotientRing(NewPolyRing(QQ, "x, y, z"), "x-3"); -- string shortcut  
/**/ use S;  
/**/ (x+y)^2;  
(y^2 +6*y +9)
```

#4 - 08 Oct 2019 14:44 - Anna Maria Bigatti

- Description updated

#5 - 08 Oct 2019 14:46 - Anna Maria Bigatti

- Description updated

#6 - 08 Oct 2019 15:04 - Anna Maria Bigatti

documented, cvs-ed.

#7 - 08 Oct 2019 15:50 - Anna Maria Bigatti

- Related to Feature #1332: New function: vector of RingElem from string -- in CoCoALib added

#8 - 09 Oct 2019 17:48 - Anna Maria Bigatti

- Related to Feature #1243: New function: Read a string into a list (of RingElem) -- CoCoA-5 added

#9 - 09 Oct 2019 17:50 - Anna Maria Bigatti

- Related to deleted (Feature #1243: New function: Read a string into a list (of RingElem) -- CoCoA-5)

#10 - 09 Oct 2019 18:22 - Anna Maria Bigatti

- Description updated

- Status changed from In Progress to Resolved

Now also for non principal ideals

```
R := NewQuotientRing(NewPolyRing(QQ, "a, i"), "a^2-5, i^2+1");
/**/ use R;
/**/ (a+i)^2;
(2*a*i +4)
```

#11 - 10 Oct 2019 09:34 - Anna Maria Bigatti

- Assignee set to Anna Maria Bigatti

- Target version changed from CoCoALib-0.99700 to CoCoALib-0.99650 November 2019

- % Done changed from 50 to 80

#12 - 10 Oct 2019 09:51 - Anna Maria Bigatti

- Description updated

#13 - 10 Oct 2019 09:55 - Anna Maria Bigatti

reminder: write doc for cocoalib

#14 - 10 Oct 2019 18:35 - Anna Maria Bigatti

- Subject changed from New syntax for creating QuotientRing to New syntax for NewQuotientRing

#15 - 10 Oct 2019 18:40 - Anna Maria Bigatti

- Status changed from Resolved to Feedback

- % Done changed from 80 to 90

#16 - 15 Oct 2019 17:52 - Anna Maria Bigatti

- Status changed from Feedback to Closed

- % Done changed from 90 to 100

#17 - 15 May 2020 10:39 - Anna Maria Bigatti

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

#18 - 02 Jan 2024 11:19 - Anna Maria Bigatti

- Related to Feature #1485: Simple syntax for making a quotient ring? added