

## CoCoA-5 - Design #656

### eval: in which ring should the result be?

20 Jan 2015 20:19 - John Abbott

<b>Status:</b>	New	<b>Start date:</b>	20 Jan 2015
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>		<b>% Done:</b>	0%
<b>Category:</b>	enhancing/improving	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	CoCoA-5.?.?	<b>Spent time:</b>	0.40 hour
<b>Description</b>			
Currently <code>eval(f,[xval,yval])</code> wants <code>xval</code> and <code>yval</code> to be in the same ring as <code>f</code> ; and the result is then naturally in that ring too.			
It would be quite natural to have evaluation produce a value in the coeff ring (if <code>xval</code> and <code>yval</code> are in the coeff ring, or integers, or rationals).			
Do we want this? Do we want both possibilities?			

### History

#### #1 - 20 Jan 2015 20:24 - John Abbott

Currently `eval` is written in CoCoA-5, and just checks args before calling `subst`.

I find the version which returns a result in the coeff ring to be more "natural". Unfortunately I cannot simply call `LC(eval(...))` because that fails when the result is 0 (and it is less readable than straight `eval(...)`).

We could make `eval` accept evaluation coords either in the poly ring or in the coeff ring; and the result would then be in the same ring as the coords. What to do if all the coords are INT or RAT? I suggest putting the result in the coeff ring. This would be backward compatible, but it is a nuisance to document (and might be confusing for users?).

#### #2 - 20 Jan 2015 20:25 - John Abbott

We could make obsolescent the version which wants coords in the poly ring -- so it still works but produces a warning message. I wonder how much code would be affected by that.

Or we could have two fns with similar names: one for coords and result in coeff ring, and the other which works as the current fn.

What do you think?