

## CoCoA-5 - Bug #189

### malloc ERROR

18 Jun 2012 14:32 - Laura Torrente

<b>Status:</b>	Closed	<b>Start date:</b>	18 Jun 2012
<b>Priority:</b>	Normal	<b>Due date:</b>	
<b>Assignee:</b>	John Abbott	<b>% Done:</b>	100%
<b>Category:</b>	Parser/Interpreter	<b>Estimated time:</b>	0.00 hour
<b>Target version:</b>	CoCoA-5.0.3	<b>Spent time:</b>	5.30 hours
<b>Description</b>			
I get the following error			
<pre>CoCoAInterpreter(13411) malloc: *** error for object 0x10156fcb8: incorrect checksum for freed object - object was probably modified after being freed. *** set a breakpoint in malloc_error_break to debug</pre>			
I hope it can be fixed soon.			
Ciao, Laura			
<b>Related issues:</b>			
Related to CoCoALib - Bug #190: Subtle ref count bug for poly rings (via Coef...		<b>Closed</b>	<b>19 Jun 2012</b>

### History

#### #1 - 18 Jun 2012 15:10 - John Abbott

- Assignee set to John Abbott

Recompiled with MemPool debugging and linking with debug\_new.o  
The problem disappears... this may be enough to let Laura continue for a while.

JAA thinks we'll need valgrind or similar to sort this one out.  
Hard to estimate how long it'll take.

#### #2 - 19 Jun 2012 09:46 - John Abbott

Laura's code works fine on my Linux VM.  
However, **Valgrind** confirms that there is a memory access problem (seems to be a pointer/reference to a deleted ring). Will continue to investigate.

#### #3 - 19 Jun 2012 11:04 - John Abbott

- File *genus.cocoa5* added  
- File *SSE.cocoa5* added

The problem appears to be a **RingHomValue** in the interpreter which has a reference to a CoCoALib **RingHom** which has been destroyed.  
Unfortunately everything seems to have a ref count.

Attached are Laura's sources.

#### #4 - 19 Jun 2012 12:51 - Anna Maria Bigatti

- Category set to Parser/Interpreter

I finally reduced the example: (quite a lot reduced ;-)  
it seems due to having both a redefinition of the PolyRing and its CoeffEmbeddingHom

```
For i := 1 To 10 Do
  PrintLn i;
  QQX := NewPolyRing(QQ, ["x"]);
  phi := CoeffEmbeddingHom(QQX);
EndFor;
```

#### #5 - 19 Jun 2012 13:47 - John Abbott

According to **valgrind** the following input is enough to do damage:

```
QQx ::= QQ[x];
phi := CoeffEmbeddingHom(QQx);
QQx ::= QQ[x];
```

Time to do some single stepping... sigh!

#### #6 - 19 Jun 2012 14:06 - John Abbott

Valgrind even complains about the following two lines!!

```
QQx ::= QQ[x];
phi := CoeffEmbeddingHom(QQx);
```

The error happens when the interpreter ends itself.

PS if I continue at this rate, in half an hour I'll have a 0 line program that causes a problem :-)

**#7 - 19 Jun 2012 14:33 - John Abbott**

- Status changed from *New* to *In Progress*

- % Done changed from 0 to 50

If you add

```
phi := 0;
```

after the two lines in my previous post, then the problem goes away!

As far as I can tell, the problem arises inside the dtor for **RuntimeEnvironment**; unfortunately this is "invisible" code.

Even more unfortunately gdb does not work properly in my Linux VM :-)

[or it may just be a consequence of trying to debug invisible code]

So I shall have to try debugging on a real linux box... so I'm putting this issue "on hold" for a little while.

**#8 - 19 Jun 2012 16:44 - John Abbott**

- Status changed from *In Progress* to *Closed*

- % Done changed from 50 to 100

The cause of the problem is a design bug in CoCoALib (see issue [#190](#)).

As a consequence I shall close this issue.

The recommended **WORKAROUND** is to assign an innocuous value (*e.g.* 0) to any variable used for holding a RINGHOM value when you have finished using it. Unfortunately, I fear the real bug will be time-consuming to kill. Apologies to all those who have to bespoil their code with the workaround.

**#9 - 04 Jul 2012 10:01 - Anna Maria Bigatti**

- Target version set to *CoCoA-5.0.3*

**Files**

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genus.cocoa5	16.1 KB	19 Jun 2012	John Abbott
SSE.cocoa5	5.21 KB	19 Jun 2012	John Abbott