

CoCoA-5 - Design #1546

Improve 'describe' or 'print' for a function

04 Dec 2020 12:53 - Julian Danner

Status:	Closed	Start date:	04 Dec 2020
Priority:	Normal	Due date:	
Assignee:	Anna Maria Bigatti	% Done:	100%
Category:	CoCoA-5 function: new	Estimated time:	2.89 hours
Target version:	CoCoA-5.4.0	Spent time:	2.90 hours
Description			
<p>Hi, sadly CoCoA does not offer a (nice) way to save objects (rings, polys, lists,...) in such a way that they can be loaded later on. But it is possible to write most of my objects using Sprint to a file in such a way that using source on that file reconstructs these objects, e.g. lists of integers, polynomials (after corr rings are generated, etc). This, however, does not at all work for (local) functions, as Sprint only prints out <function>.</p> <p>While describe prints out a description of the function which I need, it is not possible to get that output as it is directly printed in the console and returned as a string. My proposal is to change describe to a function that actually returns the description as a string. Then one can still write describe(foo); to get a description of foo, but then one could also store the description in a variable, or even print it to a chosen output-device. Then the function foo could be reconstructed without problems. (Or is there some other function, that serves this purpose, but I do not know?)</p> <p>As an example, I would like to save it as follows:</p> <pre>foo:=func(t) /* do stuff with t */ return t; endfunc;</pre> <pre>O:=OpenOFile("path/to/file"); println "foo:=", describe(foo), ";" on O; close(D);</pre> <p>and load it with</p> <pre>source "path/to/file";</pre> <p>The only support that is dropped in this way is that describe foo; (without parenthesis) would not work any more, but that is -- I think -- not too much of a trouble.</p> <p>In any case, a <i>real</i> support for saving objects would be much nicer ;)</p>			
Related issues:			
Related to CoCoA-5 - Feature #346: Describe should indicate package name		Closed	29 Apr 2013

History

#1 - 07 Dec 2020 16:17 - John Abbott

- Category set to CoCoA-5 function: new

- Target version set to CoCoA-5.4.2

I have had a (not so) quick look at the code involved.

describe like all CoCoA commands returns no value, and this cannot easily be changed.

A reasonable suggestion could be to make a **describe ... on** variant, much like print...on.

#2 - 09 Dec 2020 08:03 - Anna Maria Bigatti

- Tracker changed from Bug to Design
- Subject changed from Improve 'describe' to Improve 'describe' or 'print'
- % Done changed from 0 to 10

Julian Danner wrote:

sadly CoCoA does not offer a (nice) way to save objects (rings, polys, lists,...) in such a way that they can be loaded later on.

We used to have this (a long long time ago) but it seemed it was faster to recompute the objects, in many cases, and there is also the risk of loading malformed objects (which makes parsing and interpreting a nightmare, and also using the loaded data potentially risky), and we realized the reading the printed object was the safest solution.

That said, reading a very long polynomial can be quite slow, and maybe we should offer a way to read a "sorted polynomial".

But it is possible to write most of my objects using Sprint to a file in such a way that using source on that file reconstructs these objects, e.g. lists of integers, polynomials (after corr rings are generated, etc).

I would use directly print ... on ...

(I see sprint as a "buffer", for example if I need to know the length of the printed object before I actually print it)

This, however, does not at all work for (local) functions, as Sprint only prints out <function>.

While describe prints out a description of the function which I need, it is not possible to get that output as it is directly printed in the console and returned as a string.

describe has actually another meaning: print a richer description of the object, which is not necessarily readable. Example: describe CurrentRing;

But you have a point: describe is currently ;-)) the only way to have the code for a function, so we should think about this point. Maybe we could have print/print .. on .. actually printing the function.

That should be an easy fix, and it would make printing functions aligned with printing other objects.

John Abbott wrote:

A reasonable suggestion could be to make a describe ... on variant, much like print...on.

This is a good idea (even though, for this issue, about printing functions, I'd rather change print).

Should also consider all "print only" functions and offer a way to print on file/device. Which are they? (indent is one)

#3 - 09 Dec 2020 08:54 - Julian Danner

Anna Maria Bigatti wrote:

Julian Danner wrote:

sadly CoCoA does not offer a (nice) way to save objects (rings, polys, lists,...) in such a way that they can be loaded later on.

We used to have this (a long long time ago) but it seemed it was faster to recompute the objects, in many cases, and there is also the risk of loading malformed objects (which makes parsing and interpreting a nightmare, and also using the loaded data potentially risky), and we realized the reading the printed object was the safest solution.

That said, reading a very long polynomial can be quite slow, and maybe we should offer a way to read a "sorted polynomial".

Hmm, not too sure about the timing issues. In my case I have a large lookup-table that involves many (long) computations with which my final algorithm is extremely fast. However, computing this table takes several days. As of now, loading this table takes less than 30secs, so this is quite acceptable.

But, yeah I guess its safer to recompute the results instead of saving and loading them.

Still an optimized 'loading' function for polynomials in standard representation would be highly appreciated!

But it is possible to write most of my objects using Sprint to a file in such a way that using source on that file reconstructs these objects, e.g. lists of integers, polynomials (after corr rings are generated, etc).

I would use directly print ... on ...

(I see sprint as a "buffer", for example if I need to know the length of the printed object before I actually print it)

Well yes, I also use print ... on ... but in combination with sprint which I just noticed is actually not necessary here... thanks! ;)

This, however, does not at all work for (local) functions, as Sprint only prints out <function>.

While describe prints out a description of the function which I need, it is not possible to get that output as it is directly printed in the console and returned as a string.

describe has actually another meaning: print a richer description of the object, which is not necessarily readable. Example: describe CurrentRing;

But you have a point: describe is currently ;-)) the only way to have the code for a function, so we should think about this point. Maybe we could have print/print .. on .. actually printing the function.

That should be an easy fix, and it would make printing functions aligned with printing other objects.

Yeah, that's the reason I tried to use describe to get the function body.

Actually, I would prefer a function that returns a string containing the body of the function, then one does not need an output device first to just get the string. This could, for instance, be done by sprint. (But still, I think printing a function with print ... on ... should return the function-body.)

#4 - 11 Dec 2020 09:38 - Anna Maria Bigatti

- % Done changed from 10 to 60

Anna Maria Bigatti wrote:

Maybe we could have print/print .. on .. actually printing the function.

I have it working. Discuss with John in a moment.

#5 - 11 Dec 2020 11:48 - Anna Maria Bigatti

- Related to Feature #346: Describe should indicate package name added

#6 - 11 Dec 2020 11:49 - Anna Maria Bigatti

- Subject changed from Improve 'describe' or 'print' to Improve 'describe' or 'print' for a function

#7 - 11 Dec 2020 11:55 - John Abbott

- Status changed from New to In Progress

If the fn comes from a package, can the name of the pkg be given (perhaps in a comment)?

#8 - 22 Dec 2020 15:03 - Anna Maria Bigatti

- % Done changed from 60 to 70

Now "print/println ... (on ...)" prints the body of used defined functions.
To do: "describe" should give the name of the package.

#9 - 08 Jan 2021 11:31 - Anna Maria Bigatti

And also fix the manual.

#10 - 15 Jan 2021 21:05 - John Abbott

- Status changed from In Progress to Feedback

- Assignee set to Anna Maria Bigatti

- % Done changed from 70 to 90

- Estimated time set to 2.89 h

This is now working fine (after Anna changed the impl of print in the interpreter). Moving to **feedback**.

#11 - 22 Jan 2021 09:34 - Anna Maria Bigatti

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

#12 - 04 Mar 2021 17:27 - John Abbott

- Status changed from Feedback to Closed

- % Done changed from 90 to 100