

Knitr Engine Throws Error when Solving Rational Inequalities by fourier_elim

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I can solve this inequality in Xmaxima.

```
load("fourier_elim");
fourier_elim([x^2-1>0],[x]);
(%o1) /usr/local/share/maxima/5.47.0/share/fourier_elim/fourier_elim.lisp
(%i2)
(%o2) [1 < x] or [x < - 1]
```

Then I try to test this route with rim in R.

```
library(rim)
```

```
## Maxima successfully registered as knitr engine!
```

```
maxima.start()
maxima.version()
```

```
## [1] '5.47.0'
```

But fourier_elim cannot be knitted,

```
(%i1) load("fourier_elim");
```

```
## (%o1) "/usr/local/share/maxima/5.47.0/share/fourier_elim/fourier_elim.lisp"
```

which throw the error as below:

```
[fourier_elim_1] Error in `if (grepl("no-convert", p <- private$reply$result$wol$rstr)) ...`:
! the condition has length > 1
```

Backtrace:

1. rmarkdown::render(...)
2. knitr::knit(knit_input, knit_output, envir = envir, quiet = quiet)
3. knitr::process_file(text, output)
6. knitr::process_group(group)
7. knitr::call_block(x)
8. knitr::block_exec(params)
11. rim (local) engine(options)
12. maxima.env\$mx\$get(pc)

Warning message:

```
In maxima.env$mx$get(pc) : WARNING: redefining BIGFLOAT::WHILE in DEFMACRO
```

```
Quitting from lines 701-703 [fourier_elim_1] (rim123.Rmd)
```

Execution halted

Then I find that `solve_rat_ineq` can be knitted well.

```
(%i2) load(solve_rat_ineq);
(%i3) solve_rat_ineq(x^2-1>0);
```

```
## (%o2) "/usr/local/share/maxima/5.47.0/share/solve_rat_ineq/solve_rat_ineq.mac"
## (%o3) [[x < -1],[x > 1]]
```

My environment is

```
sessionInfo()
```

```
## R version 4.4.1 (2024-06-14)
## Platform: x86_64-redhat-linux-gnu
## Running under: Rocky Linux 9.4 (Blue Onyx)
##
## Matrix products: default
## BLAS/LAPACK: FlexiBLAS OPENBLAS-OPENMP; LAPACK version 3.9.0
##
## locale:
## [1] LC_CTYPE=en_US.UTF-8      LC_NUMERIC=C
## [3] LC_TIME=en_US.UTF-8        LC_COLLATE=en_US.UTF-8
## [5] LC_MONETARY=en_US.UTF-8    LC_MESSAGES=en_US.UTF-8
## [7] LC_PAPER=en_US.UTF-8      LC_NAME=C
## [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
##
## time zone: Asia/Shanghai
## tzcode source: system (glibc)
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods    base
##
## other attached packages:
## [1] rim_0.6.4
##
## loaded via a namespace (and not attached):
## [1] compiler_4.4.1    R6_2.5.1        fastmap_1.2.0
## [4] cli_3.6.3         tools_4.4.1     htmltools_0.5.8.1
## [7] GlobalOptions_0.1.2 rstudioapi_0.16.0 yaml_2.3.10
## [10] Rcpp_1.0.13       rmarkdown_2.28  knitr_1.48
## [13] xfun_0.47         digest_0.6.37   rlang_1.1.4
## [16] evaluate_1.0.0
```

```
maxima.version()
```

```
## [1] '5.47.0'
```

There is some other inequalities to be tested.