

axiom™



The 30 Year Horizon

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Volume BugList: Axiom Bugs

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New Foreword

On October 1, 2001 Axiom was withdrawn from the market and ended life as a commercial product. On September 3, 2002 Axiom was released under the Modified BSD license, including this document. On August 27, 2003 Axiom was released as free and open source software available for download from the Free Software Foundation's website, Savannah.

Work on Axiom has had the generous support of the Center for Algorithms and Interactive Scientific Computation (CAISS) at City College of New York. Special thanks go to Dr. Gilbert Baumslag for his support of the long term goal.

The online version of this documentation is roughly 1000 pages. In order to make printed versions we've broken it up into three volumes. The first volume is tutorial in nature. The second volume is for programmers. The third volume is reference material. We've also added a fourth volume for developers. All of these changes represent an experiment in print-on-demand delivery of documentation. Time will tell whether the experiment succeeded.

Axiom has been in existence for over thirty years. It is estimated to contain about three hundred man-years of research and has, as of September 3, 2003, 143 people listed in the credits. All of these people have contributed directly or indirectly to making Axiom available. Axiom is being passed to the next generation. I'm looking forward to future milestones.

With that in mind I've introduced the theme of the "30 year horizon". We must invent the tools that support the Computational Mathematician working 30 years from now. How will research be done when every bit of mathematical knowledge is online and instantly available? What happens when we scale Axiom by a factor of 100, giving us 1.1 million domains? How can we integrate theory with code? How will we integrate theorems and proofs of the mathematics with space-time complexity proofs and running code? What visualization tools are needed? How do we support the conceptual structures and semantics of mathematics in effective ways? How do we support results from the sciences? How do we teach the next generation to be effective Computational Mathematicians?

The "30 year horizon" is much nearer than it appears.

Tim Daly
CAISS, City College of New York
November 10, 2003 ((iHy))

Chapter 1

Introduction

1.1 The Numbering Scheme

bug 7336:
todo 342:
wish 1012:
meh 5:
errors 10016:
warnings 20574:
typos 40363:
dup 50006:
nonextend 60077:

1.1.1 bug 7335: type resolution failure

Infinite recursion in type checking. See `resolveTTSpecial`

$2^{(1/2)}/x/(i)^{(1/2)}$

This happens during type resolution between
`Fraction(Polynomial(AlgebraicNumber))` and `Expression(Complex(Integer))`

see https://groups.google.com/forum/#!topic/fricas-devel/czk7Y-m_uWk

1.1.2 bug 7334: coerce missing from `EXPR(Quaternion (Complex (Float)))`

```
t1:Quaternion Complex Expression Integer:=quatern(1.1,1.2,1.3,1.4)
Function:  coerce : Quaternion(Complex(Float)) -> % is missing from domain:
          Expression(Quaternion(Complex(Float)))
Internal Error
The function coerce with signature $(Quaternion (Complex (Float))) is
missing from domain Expression(Quaternion (Complex (Float)))
```

1.1.3 bug 7333: elt: index out of range

```
-- fix bug 7324
bmt:=zero(2,2)$Matrix(POLY PF 2)
determinant bmt
```

1.1.4 bug 7332: cannot be coerced to mode (SUP(INT))

```
-- regression test of bug 7298: coercion to SUP failure in factor
-- fixed by 20150126.02.wxh.patch

rh1:=(4*x^3+2*y^2+1)*(12*x^5-x^3*y+12)*(x+1)*(y^2+3)*(x^2-1)
rh2:=factor(rh1)
```

1.1.5 bug 7331: raise an error but works interpreted

```
f==n+-->sum(sum(1/i,i=1..j),j=1..n)
f(3)
```

1.1.6 bug 7330: does not modify emptybst

```
emptybst := empty()$BSTREE(INT)
t1 := insert!(8,emptybst)
t1
emptybst
```

1.1.7 bug 7329: fails

```
lm := [3,5,7,11]
t := balancedBinaryTree(#lm, 0)
setleaves!(t,lm)
mapDown!(t,12,rem)
```

1.1.8 bug 7328: delete! does not delete first table item

```
Data := Record(monthsOld : Integer, gender : String)
al : AssociationList(String,Data) := table()
al."bob" := [407,"male"]$Data
```

```
al."judith" := [366,"female"]$Data
al
delete!(al,1)
al
```

1.1.9 bug 7327: This truncates the list

```
l := [1,4,2,-6,0,3,5,4,2,3]
reverse! l
l
```

1.1.10 bug 7326: insert! does not modify the list

```
)d op insert!
```

```
This modifies the list
l := [1,4,2,-6,0,3,5,4,2,3]
insert!(l,1,4)
l
```

```
But this does not
l := [1,4,2,-6,0,3,5,4,2,3]
insert!(2,1,1)
l
```


Chapter 2

book0 Jenks

2.0.11 todo 341: merge endpapers with text

The books/endpaper.pamphlet should be added to the Jenks book

Chapter 3

book5 Interpreter

3.0.12 bug 7322:)co dh)constructor DHMATRIX)functions identity

```
)co dh )constructor DHMATRIX )functions identity
```

```
Compiling AXIOM source code from dh.spad
DHMATRIX abbreviates domain DenavitHartenbergMatrix
processing macro definition minrow ==> One
processing macro definition mincolumn ==> One
processing macro definition nx ==> ::(x(One,One),R)
processing macro definition ny ==> ::(x(2,One),R)
processing macro definition nz ==> ::(x(3,One),R)
processing macro definition ox ==> ::(x(One,2),R)
processing macro definition oy ==> ::(x(2,2),R)
processing macro definition oz ==> ::(x(3,2),R)
processing macro definition ax ==> ::(x(One,3),R)
processing macro definition ay ==> ::(x(2,3),R)
processing macro definition az ==> ::(x(3,3),R)
processing macro definition px ==> ::(x(One,4),R)
processing macro definition py ==> ::(x(2,4),R)
processing macro definition pz ==> ::(x(3,4),R)
processing macro definition row ==> Vector R
processing macro definition col ==> Vector R
processing macro definition radians ==> /(pi,180)
processing macro definition SIG ==> -- the constructor category
processing macro definition CODE ==> -- the constructor capsule
```

```
-----
initializing nrlib DHMATRIX for DenavitHartenbergMatrix
compiling into nrlib DHMATRIX
***** Domain: R already in scope
compiling exported identity : () -> $
```

```
Error: ERROR "Caught fatal error [memory may be damaged]"
Fast links are on: do (si::use-fast-links nil) for debugging
Signalled by |COMPILERDOITWITHSCREENEDLISPLIB|.
ERROR "Caught fatal error [memory may be damaged]"
```

```
Broken at APPLY.  Type :H for Help.
  1 Return to top level.
BOOT>>
```

3.0.13 bug 7321: missing spaces in)show output

```
)show INTABL
InnerTable(Key: SetCategory,Entry: SetCategory,addDom)where
  addDom: TableAggregate(Key,Entry)with
    finiteAggregate is a domain constructor
Abbreviation for InnerTable is INTABL
This constructor is not exposed in this frame.
Issue )edit bookvol10.3.pamphlet to see algebra source code for INTABL
```

3.0.14 todo 334: eliminate bcString2HyString

```
eliminate bcString2HyString
```

3.0.15 todo 333: eliminate bcFindString, replace with position

```
eliminate bcFindString, replace with position
```

3.0.16 todo 332: rename linkGen to bcGen in all source files

```
rename linkGen to bcGen in all source files. linkGen is obsolete.
```

3.0.17 bug 7250: print(typeOf(1)::OutputForm) Value Stack Overflow

```
(1) -> typeOf(1)
      (1) PositiveInteger
                                           Type: Domain
(2) -> typeOf(1)::OutputForm
      (2) PositiveInteger()
                                           Type: OutputForm
(3) -> print(typeOf(1)::OutputForm)
```

```
>> System error:
Value stack overflow.
```

3.0.18 bug 7262: bad expression parse

reported by Ralf Hemmecke)

```
~/2
```

3.0.19 bug 7265: interpreter does early retract to Taylor series

```
Z ==> Integer
Q ==> Fraction Z
z:Symbol := 'z
L ==> UnivarianteLaurentSeries(Q,z,0)
q:L := z::Variable(z)::L
t1:L := (1/((1-q)*(1-q^2)))
t2 := t1-1
recip t2
t3 := recip t2
t4:Union(L,"failed") := recip t2 -- bug in interpreter
t5:Union(L,"failed") := (recip t2)$L
t6:Union(L,"failed") := t3
```

3.0.20 bug 7269: hash does not work for Record

```
(1) -> T:=Record(f1:Integer)

(1) Record(f1: Integer)
Type: Domain

(2) -> hash(t)

(2) 116
Type: SingleInteger

(3) -> t:=[0]@T

(3) [f1= 0]
Type: Record(f1: Integer)

(4) -> hash(t)
There are 8 exposed and 1 unexposed library operations named hash
having 1 argument(s) but none was determined to be applicable.
Use HyperDoc Browse, or issue
)display op hash
to learn more about the available operations. Perhaps
package-calling the operation or using coercions on the arguments
will allow you to apply the operation.
```

Cannot find a definition or applicable library operation named hash
with argument type(s)

Record(f1: Integer)

Perhaps you should use "@" to indicate the required return type,
or "\$" to specify which version of the function you need.

3.0.21 bug 7268: Typechecker gets confused by flow control

Spad typechecker is supposed to track type tests, and
allow operation which are safe due to dynamic tests.
However, tis works for 'if' but fails for loops, as in:

```
a:R
b:R
c:=a exquo b
while c case R repeat
  a:=c
  c:=a exquo b
```

Spad compiler report type error on assignment to a.

But both of these work:

```
a:R
b:R
c:=a exquo b
if c case R then
  while c case R repeat
    a:=c
    c:=a exquo b
```

and

```
a:R
b:R
c:=a exquo b
while c case R repeat
  if c case R then
    a:=c
    c:=a exquo b
```

3.0.22 bug 7272:)savesystem does not build a restorable session

Raymond Rogers <raymond.rogers72@gmail.com> reports that

```
a:=4
```

```

)savesystem foo

./foo
a <=== should be 4 but is a Variable

```

3.0.23 todo 336: getdatabase should handle special forms

This code should not exist. Fix getdatabase to return the right answer.

```

((BOOT-EQUAL name '|Union|') '(|Union| (|:| |a| A) (|:| |b| B)))
((BOOT-EQUAL name '|UntaggedUnion|') '(|Union| A B))
((BOOT-EQUAL name '|Record|') '(|Record| (|:| |a| A) (|:| |b| B)))
((BOOT-EQUAL name '|Mapping|') '(|Mapping| T S))
((BOOT-EQUAL name '|Enumeration|') '(|Enumeration| |a| |b|))
(t (GETDATABASE name 'CONSTRUCTORFORM)))

```

3.0.24 bug 7285: tracing of Kernel failed

```

)trace Kernel )math

Parameterized constructors traced:
  KERNEL
(22) -> sin(1)
1<enter Kernel.kernel,30 :
  arg1= pi
  arg2= []
  arg3= 1
1<enter Kernel.setPosition,26 :
  arg1= %pi
  arg2= 1024
1>exit Kernel.setPosition,26
  >> System error:
  1024 is not of type CHARACTER.

```

3.0.25 bug 7282: Cannot convert from type Matrix(Integer)...

```

K := Fraction Integer
g := matrix [[1,0,0,0], [0,-1,0,0], [0,0,-1,0], [0,0,0,-1]]
D := CliffordAlgebra(4, K, g)
D::InputForm
unparse %
parse(%)@InputForm
1::D

```


3.0.30 bug 7283: printing of typeOf failed

```
print(typeOf(1)::OutputForm)

>> System error:
Caught fatal error [memory may be damaged]
```

3.0.31 bug 7293:)trace EXPR)math

```
)trace EXPR )math

Parameterized constructors traced:
  EXPR
(1) -> exp(x)
1<enter Expression.coerce,360 :
  arg1= x
...
          arg1= x

>> System error:
Bind stack overflow.
```

3.0.32 bug 7292:)with API fails

```
)with API

>> System error:
The function |with| is undefined.

(1) -> )library API
)library cannot find the file API.
```

3.0.33 bug 7291: cos(2/3@Float) parses wrong

```
--S 8 of 51
cos(2/3@Float)
```

Daly Bug

An expression involving @ Float actually evaluated to one of type
PositiveInteger . Perhaps you should use :: Float .

```
--R
--R
--R (8)  0.7858872607 7694800072
--R                                          Type: Float
--E 8
```

```
--S 9 of 51
cos((2/3)@Float)
```

```
(8)  0.7858872607 7694800072
                                          Type: Float
--R
--R
--R (9)  0.7858872607 7694800072
--R                                          Type: Float
--E 9
```

3.0.34 bug 7290:)d op coerce fails

```
)d op coerce
```

```
There are 195 exposed functions called coerce :
[1] List(D2) -> D from D if D2 has FIELD and D has AFSPCAT(D2)
[2] D -> List(D2) from D if D has AFSPCAT(D2) and D2 has FIELD
[3] D1 -> D from D if D has ALGEBRA(D1) and D1 has COMRING

>> System error:
D2 is not of type SEQUENCE.
```

3.0.35 bug 7303: Duplicate signature in)show ALIST

```
parts : % -> List(Record(key: Key,entry: Entry))
occurs twice in )show ALIST
```

3.0.36 todo 338: Convert to Float fails

```
(1) -> eval(integrate(x*exp(-(x-u)^2/2)/(sqrt(2*pi)),x=a..%plusInfinity),[a=1,u=0.5])

(1)  - 0.25 erf(0.3535533905 932737622) + 0.6020653267 6429947778
                                          Type: Expression(Float)
(2) -> eval(integrate(x*exp(-(x-u)^2/2)/(sqrt(2*pi)),x=a..%plusInfinity),[a=1,u=0.5])::Float

Cannot convert from type Expression(Float) to Float for value
- 0.25 erf(0.3535533905 932737622) + 0.6020653267 6429947778
```


3.0.37 bug 7302: rich12b.input 457 failed

The storage for STRING is exhausted.
Currently, 710 pages are allocated.
Use ALLOCATE to expand the space.

Chapter 4

book7 Hyperdoc

4.0.38 bug 7320: bookvol7.1 ugInOutFortranPage fails

Attempting to format page crashes hyperdoc

Reference

- > Axiom Book
- > Input Files and Output Styles
- > Fortran Format

\end{chunk}

%%%

\subsection{todo 331: in bookvol7.1 this is commented out}

\begin{verbatim}

```
todo 331: in bookvol7.1 this is commented out but appears to be implemented
        be sure to update bookvol11, search for "Do a summation"
        be sure to generate v5bcproduct.eps and uncomment the minipage
        in bookvol5
```

%\menulispdownlink{Compute a product}{(|bcProduct|)}\space{}

4.0.39 bug 7277: Hyperdoc fails to reconnect after failure

Hyperdoc crash

)hd

Hyperdoc -> Referecne -> Language -> block

page: Not Connected to Axiom

Hyperdoc isn't connected to Axiom, therefore cannot execute
the button you pressed.

binding UNIX server socket: Address already in use
 (HyperDoc) Warning: Not connected to AXIOM Server!

4.0.40 bug 7308: Hyperdoc page Menuexlap fails to format

bookvol5: bcLinearSolveMatrixInhomo

unknown itemType

(inputStrings ({\em Coefficient 1:}\space{2} 30 0 c1 P) ({\em Coefficient 2:}\space{2} 30 0 c2 P))

Hyperdoc ->

Solve ->

A System of Linear Equations ->

In Matrix Form ->

Continue ->

Not Zero ->

FAIL

Chapter 5

book8 Graphics

5.0.41 bug 7319: ignoring return values

```
edin.c: In function do_reading:
edin.c:632:11: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, &in_buff[num_proc], num_read - num_proc);
    ^

edin.c:634:13: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, "\n", 1);
    ^

edin.c:641:8: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, "\n", 1);
    ^

edin.c:659:10: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, "\n", 1);
    ^

edin.c: In function send_line_to_child:
edin.c:718:8: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, converted_buffer, converted_num);
    ^

edin.c: In function send_function_to_child:
edin.c:1126:8: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, buff, buff_ptr);
    ^

edin.c: In function send_buff_to_child:
edin.c:1145:10: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(chann, buff, buff_ptr);
    ^

fnct-key.c: In function get_str:
fnct-key.c:406:9: warning: ignoring return value of read, declared with attribute warn_unused_result [-Wunused-result]
    read(fd, &c, 1);
    ^

fnct-key.c:408:13: warning: ignoring return value of read, declared with attribute warn_unused_result [-Wunused-result]
    read(fd, &c, 1);
    ^

fnct-key.c: In function handle_function_key:
```

```

fncf-key.c:497:18: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(fd, buff, buff_ptr);
    ^
fncf-key.c:504:22: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(fd, buff, buff_ptr);
    ^
sockio-c.c: In function remote_stdio:
sockio-c.c:837:12: warning: ignoring return value of fgets, declared with attribute warn_unused_result [-Wunused-result]
    fgets(buf,1024,stdin);
    ^
ar: creating libspad.a
edible.c: In function main:
edible.c:550:7: warning: missing sentinel in function call [-Wformat=]
    execlp( program,program, 0);
    ^
edible.c:626:16: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(1,out_buff, num_read);
    ^
edible.c:629:19: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    else write(1,out_buff, num_read);
    ^
edible.c:642:16: warning: ignoring return value of write, declared with attribute warn_unused_result [-Wunused-result]
    write(contNum, in_buff, num_read);
    ^

```

5.0.42 bug 7245: graphs differ from CRC book

v81crp50-2.6.5.2 and v81crp50-2.6.5.3 graphs differ from CRC
 (see ps/v81crp50-2.6.5.1-3.eps)

5.0.43 bug 7242: calling title on an empty viewport shows no title

```

)clear all
f(c,x,n) == c/x^n
lineColorDefault(green())
viewport1:=draw(f(0.01,x,1),x=-2..2,adaptive==true,unit==[1.0,1.0])
graph2121:=getGraph(viewport1,1)
lineColorDefault(blue())
viewport2:=draw(f(0.01,x,3),x=-2..2,adaptive==true,unit==[1.0,1.0])
graph2122:=getGraph(viewport2,1)
lineColorDefault(red())
viewport3:=draw(f(0.01,x,5),x=-2..2,adaptive==true,unit==[1.0,1.0])
graph2123:=getGraph(viewport3,1)
viewall:=viewport2D()$TwoDimensionalViewport
title(viewall,"p27-2.1.2.1-3")
putGraph(viewall,graph2122,1)
putGraph(viewall,graph2122,2)
putGraph(viewall,graph2123,3)
units(viewall,1,"on")

```

```

points(viewall,1,"off")
points(viewall,2,"off")
points(viewall,3,"off")
makeViewport2D(viewall,title=="test")
close(viewport1)
close(viewport2)
close(viewport3)

```

5.0.44 bug 7244: graphs differ from CRC book

v81crp50-2.5.5.2 and v81crp50-2.5.5.3 graphs differ from CRC
(see ps/v81crp50-2.5.5.1-3.eps)

5.0.45 bug 7243: graphs differ from CRC book

v81crp27-2.1.2.1-3.eps differs from CRC (see bookvol8.1)

5.0.46 bug 7266: integration failure for $1/(\sin(x)^4+1)$

```

f:=1/(sin(x)^4+1)
a:=integrate(f,x)
b:=differentiate(a,x,1)
draw(b,x=0..4)
draw(f,x=0..4)

```

reported by Yanyang Xiao <xyy82148@sjtu.edu.cn> 30 Nov 2014

5.0.47 bug 7296: connect from VIEW2D is not graph specific

The connect function in VIEW2D globally turns lines on or off.
This doesn't allow for overlaying lines on a set of points.

```

)clear all
FIN:=FiniteField(67,1) -- declare a field p**n, p=67, n=1
f(x:INT,y:INT):FIN == (y^2-x^3-7)::FIN -- compute a finite point
m():LIST(POINT(DFLOAT)) ==
  lli:LIST(LIST(INT)) := []
  for x in 0..66 repeat
    for y in 0..66 repeat
      a:FIN:=f(x,y)
      if a = 0 then lli:=concat(lli,[[x,y]])
  ld:=lli::LIST(LIST(DFLOAT))

```

```

    lpd:=[point(p) for p in ld]
m()
line(x1:INT,y1:INT,x2:INT,y2:INT):EXPR(INT) ==
    -- y-y1 = m(x-x1) where m = (y2-y1)/(x2-x1)
    (y2-y1)/(x2-x1)*(x-x1) + y1
line1:=draw(line(2,22,6,25),x=0..67)
line1graph:=getGraph(line1,1)
line2:=draw(line(30,26,47,39),x=0..67)
line2graph:=getGraph(line2,1)
ldo:=title("BitCoin Modular Points")
vp:=draw(m(),[ldo])$DRAWPT
putGraph(vp,line1graph,2)
putGraph(vp,line2graph,3)
axes(vp,1,"on")$VIEW2D -- turn on the axes
units(vp,1,"on")$VIEW2D -- turn on the units
connect(vp,2,"on")$VIEW2D -- turn on the lines
connect(vp,3,"on")$VIEW2D -- turn on the lines
connect(vp,1,"off")$VIEW2D -- turn off the lines
makeViewport2D(vp)

```


Chapter 6

book9 Compiler

Chapter 7

book10.2 Algebra Categories

7.1 U

7.1.1 bug 7318: ULSCAT undefined variables

```
finalizing nrlib ULSCAT
; (DEFUN |UnivariateLaurentSeriesCategory| ...) is being compiled.
;; The variable |UnivariateLaurentSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariateLaurentSeriesCategory;| ...) is being compiled.
;; The variable |UnivariateLaurentSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

7.1.2 bug 7316: UPOLYC undefined variable

```
finalizing nrlib UPOLYC
; (DEFUN |UnivariatePolynomialCategory| ...) is being compiled.
;; The variable |UnivariatePolynomialCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariatePolynomialCategory;| ...) is being compiled.
;; The variable |UnivariatePolynomialCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

7.1.3 bug 7317: UPOLYC- not known that (Ring) is of mode...

```
finalizing nrlib UPOLYC-
Warnings:
```

```

[1] solveLinearPolynomialEquation: not known that (Ring) is of mode...
[2] factorPolynomial: not known that (Ring) is of mode...
[3] factor: not known that (IntegralDomain) is of mode...
[4] elt: not known that (IntegralDomain) is of mode...

```

7.1.4 bug 7314: URAGG undefined variables

```

finalizing nrlib URAGG
; (DEFUN |UnaryRecursiveAggregate| ...) is being compiled.
;; The variable |UnaryRecursiveAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnaryRecursiveAggregate;| ...) is being compiled.
;; The variable |UnaryRecursiveAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

Chapter 8

book10.3 Algebra Domains

8.0.5 bug 7325: Won't Parse

```
Won't parse: (: (K,Field), : (symb,List(Symbol)),
  PolynomialCategory(K,E,OrderedVariableList(symb)),
  DirectProductCategory(#(symb),NonNegativeInteger),
  ProjectiveSpaceCategory(K), : (PCS,LocalPowerSeriesCategory(K)),
  PlacesCategory(K,PCS),NIL,BlowUpMethodCategory)->Category
(SparseMultivariateTaylorSeries documentation) missing right brace-->
"\spad{coefficients(s)} gives a stream of coefficients of \spad{s,}
for example, [coefficient(s,0), coefficient(s,1), ...]"
```

8.1 E

8.1.1 bug 7311: EQ undefined variable

```
>compiling EQ.spad to EQ.nrlib

; (DEFUN |Equation;| ...) is being compiled.
;; The variable IDENTITY is undefined.
```

8.2 F

8.2.1 bug 7312: FDIV undefined variable

```
>compiling FDIV.spad to FDIV.nrlib

-----constructor-----
; (DEFUN |FiniteDivisor;| ...) is being compiled.
```


8.5.2 bug 7287: TexFormat is incorrect

```
)set output fraction horizontal
```

```
(1) -> (1/2)::TEX
```

```
(1) ["$$","SLASH ","\\left(","{1, \\: 2} ","\\right)","$$"]
```

```
Type: TexFormat
```

8.6 U

8.6.1 bug 7286: UPXS arithmetic fails

```
a := series(z, z = 0)
```

```
(1) z
```

```
Type: UnivariantePuisseuxSeries(Expression(Integer),z,0)
```

```
(2) -> b := series(1, x = 0)
```

```
(2) 1
```

```
Type: UnivariantePuisseuxSeries(Expression(Integer),x,0)
```

```
(3) -> a + b
```

```
>> Error detected within library code:
```

```
division by zero
```


Chapter 9

book10.4 Algebra Packages

9.1 A

9.1.1 bug 7313: AXSERV undefined variables

```
>compiling AXSERV.spad to AXSERV.nrlib
```

```
; (DEFUN |AXSERV;getCommand| ...) is being compiled.
;; The variable |tmpmathml| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |tmpalgebra| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |savemathml| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$texOutputStream| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |savealgebra| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |resultmathml| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |resultalgebra| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |AXSERV;getShow| ...) is being compiled.
;; The variable SAVESTREAM is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |AXSERV;lastType| ...) is being compiled.
;; The variable |first| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |stepSav| is undefined.
;; The compiler will assume this variable is a global.
```

9.2 N

9.2.1 bug 7309: NAGE04 undefined variable

```
>compiling NAGE04.spad to NAGE04.nrlib
```

```
; (DEFUN |NAGE04;e04dgm;I2DfIDfB2Df4IMIUR;1| ...) is being compiled.
;; The variable OBJFUN is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGE04;e04fdf;4IMIUR;2| ...) is being compiled.
;; The variable LSFUN1 is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGE04;e04gcf;4IMIUR;3| ...) is being compiled.
;; The variable LSFUN2 is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGE04;e04jaf;4I3MIUR;4| ...) is being compiled.
;; The variable FUNCT1 is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGE04;e04naf;8IDf6M3B2IMMIUR;6| ...) is being compiled.
;; The variable QPHESS is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGE04;e04ucf;6I3M2IBDfI2DfB4DfB5I3Df5IM4MIUUR;7| ...) is being compiled.
;; The variable CONFUN is undefined.
;; The compiler will assume this variable is a global.
```

9.2.2 bug 7310: NAGD02 undefined variables

```
>compiling NAGD02.spad to NAGD02.nrlib
```

```
; (DEFUN |NAGD02;d02bbf;Df3IDfMDfIUUR;1| ...) is being compiled.
;; The variable FCN is undefined.
;; The compiler will assume this variable is a global.
;; The variable OUTPUT is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGD02;d02bhf;Df2I2DfMDfIUUR;2| ...) is being compiled.
;; The variable G is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGD02;d02ejf;Df2ISIDfMDfIUUUUR;4| ...) is being compiled.
;; The variable PEDERV is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGD02;d02gbf;2DfIDf3I4M2IUUR;6| ...) is being compiled.
;; The variable FCNF is undefined.
;; The compiler will assume this variable is a global.
;; The variable FCNG is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGD02;d02kef;M2IDf2I2DfM2IUUR;7| ...) is being compiled.
;; The variable COEFFN is undefined.
;; The compiler will assume this variable is a global.
```

```
;; The variable BDYVAL is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGD02;d02raf;4IDf6I2MDfIUUR;9| ...) is being compiled.
;; The variable JACOBf is undefined.
;; The compiler will assume this variable is a global.
;; The variable JACEPS is undefined.
;; The compiler will assume this variable is a global.
;; The variable JACOBG is undefined.
;; The compiler will assume this variable is a global.
;; The variable JACGEP is undefined.
;; The compiler will assume this variable is a global.
```

9.2.3 bug 7273: SOLVERAD wester algebra radicalSolve bug

```
--S 26 of 63
```

```
radicalSolve(x**3 + x**2 - 7 = 0, x)
```

```
(26)
```

```
[
```

```
  x =
```

$$\frac{(-9\sqrt{-3} + 9) \sqrt[3]{\frac{|9\sqrt{1295} + 187\sqrt{3}}{54\sqrt{3}}}}{(-9\sqrt{-3} - 3) \sqrt[3]{\frac{|9\sqrt{1295} + 187\sqrt{3}}{54\sqrt{3}}}} - 2$$

```
,
```

```
  x =
```

$$(-9\sqrt{-3} - 9) \sqrt[3]{\frac{|9\sqrt{1295} + 187\sqrt{3}}{54\sqrt{3}}}$$

```

+
      +-----+
      | +---+ +---+
      | 9\|1295 + 187\|3
      |-----+ + 2
      3| +---+
      \| 54\|3
/
      +-----+
      | +---+ +---+
      | 9\|1295 + 187\|3
      |-----+
      3| +---+
      \| 54\|3
,
      +-----+2 +-----+
      | +---+ +---+ | +---+ +---+
      | 9\|1295 + 187\|3 | 9\|1295 + 187\|3
      |-----+ - 3 |-----+ + 1
      3| +---+ 3| +---+
      \| 54\|3 \| 54\|3
x= -----]
      +-----+
      | +---+ +---+
      | 9\|1295 + 187\|3
      |-----+
      9 | 3| +---+
      \| 54\|3
Type: List(Equation(Expression(Integer)))

--R
--R
--R (26)
--R
--R      +-----+2 +-----+
--R      | +---+ | +---+
--R      | |1295 | |1295
--R      | 9 |---+ + 187 | 9 |---+ + 187
--R      | \| 3 | \| 3
--R      +---+ +---+
--R      (- \| - 3 + 1) 3|-----+ + (- \| - 3 - 1) 3|-----+ - 2
--R      \| 2 \| 2
--R [x= -----,
--R
--R      +-----+
--R      | +---+
--R      | |1295
--R      | 9 |---+ + 187
--R      | \| 3
--R      +---+
--R      (3\| - 3 + 3) 3|-----+
--R      \| 2
--R
--R      +-----+2 +-----+
--R      | +---+ | +---+
--R      | |1295 | |1295
--R      | 9 |---+ + 187 | 9 |---+ + 187
--R      | \| 3 | \| 3
--R      +---+ +---+
--R      (- \| - 3 - 1) 3|-----+ + (- \| - 3 + 1) 3|-----+ + 2
--R      \| 2 \| 2

```

```

--R      x= -----,
--R                                     +-----+
--R                                     |  +----+
--R                                     |  |1295
--R                                     |9  |---- + 187
--R                                     |  \ |  3
--R                                     +---+
--R                                (3\|- 3  - 3) 3|-----
--R                                     \ |      2
--R      +-----+2  +-----+
--R      |  +----+      |  +----+
--R      |  |1295      |  |1295
--R      |9  |---- + 187  |9  |---- + 187
--R      |  \ |  3      |  \ |  3
--R      3|-----      - 3|----- + 1
--R      \ |      2      \ |      2
--R      x= -----]
--R                                     +-----+
--R                                     |  +----+
--R                                     |  |1295
--R                                     |9  |---- + 187
--R                                     |  \ |  3
--R                                3 3|-----
--R                                \ |      2
--R
--R                                     Type: List Equation Expression Integer
--E 26

```

--S 27 of 63

```
reduce(*, map(e +-> lhs(e) - rhs(e), %))
```

$$(27) \quad \frac{(9x^3 + 9x^2 - 63)\sqrt{3}\sqrt{1295} + 561x^3 + 561x^2 - 3927}{9\sqrt{3}\sqrt{1295} + 187\sqrt{3}}$$

Type: Expression(Integer)

--R

--R

$$(27) \quad x^3 + x^2 - 7$$

--R

Type: Expression Integer

--E 27

Chapter 10

book10.5 Algebra Numerics

Chapter 11

Build System

11.0.4 bug 7278: make complains on TESTSET=notests

reported by "leonbaum" <notifications@github.com>

Chapter 12

CATS

12.0.5 bug 7246: kamke tests missing

kamke1 seems to be missing ode97
kamke2 missing 104, 105
kamke6 missing 332
kamke7 missing 357, 359, 360, 362 and many others
kamke7 repeats 776 with different equations

Chapter 13

Testing

13.0.6 bug 7240: in richtrig800-899 there is an occasional failure

```
--S 349 of 526
a0864:= integrate(t0864,x)
--R
--R
--R >> Error detected within library code:
--R (1 . failed) cannot be coerced to mode (SparseUnivariatePolynomial (Integer))
--R
--R Continuing to read the file...
--R
--E 349
```

13.0.7 bug 7238: en.regress failures

```
int/input/en.regress

MISMATCH
expected:"      ,"
got:"      4503599627370496 4503599627370496 576460752303423488 576460752303423488"
MISMATCH
expected:"      1152921504606846976"
got:"      [-----,-----,-----,-----],"
```

13.0.8 bug 7241: missing algebra

```
in li.input.pamphlet, chunks 2, 6, 34, 38, 42 could be integrated
and were not.
```


Chapter 14

Documentation

14.0.9 todo 330: fix the inheritance graph for these

todo 330: fix the inheritance graph for these

```
"AHYP" [color="#4488FF",href="bookvol10.2.pdf#nameddest=AHYP"]
"AHYP" -> "Category"

"ATTREG" [color="#4488FF",href="bookvol10.2.pdf#nameddest=ATTREG"]
"ATTREG" -> "Category"

/* nobody seems to go to bastype by itself */
/* we combine these two to minimize edges in the graph */
/* note that koerce is duplicated */
"BASTYPE/KOERCE" [color="blue",href="bookvol10.2.pdf#nameddest=BASTYPE"]
"BASTYPE/KOERCE" -> "Category"

"KOERCE" [color="#4488FF",href="bookvol10.2.pdf#nameddest=KOERCE"]
"KOERCE" -> "Category"

"BASTYPE-" [color="#88FF44",href="bookvol10.3.pdf#nameddest=BASTYPE"]
"BASTYPE-" -> "Domain"

"CFCAT" [color="#4488FF",href="bookvol10.2.pdf#nameddest=CFCAT"]
"CFCAT" -> "Category"

"ELTAB" [color="#4488FF",href="bookvol10.2.pdf#nameddest=ELTAB"]
"ELTAB" -> "Category"

"ESCONT1" [color="#FF4488",href="bookvol10.4.pdf#nameddest=ESCONT1"]
"ESCONT1" -> "Package"
/*"ESCONT1" -> "DFLOAT"*/
/*"ESCONT1" -> "BOOLEAN"*/

"GRDEF" [color="#FF4488",href="bookvol10.4.pdf#nameddest=GRDEF"]
"GRDEF" -> "Package"
```

```

/*"GRDEF" -> "BOOLEAN"*/

"INTBIT" [color="#FF4488",href="bookvol10.4.pdf#nameddest=INTBIT"]
"INTBIT" -> "Package"
/*"INTBIT" -> "INT"*/

"KONVERT" [color="#4488FF",href="bookvol10.2.pdf#nameddest=KONVERT"]
"KONVERT" -> "Category"

"MAGCDOC" [color="#4488FF",href="bookvol10.2.pdf#nameddest=MAGCDOC"]
"MAGCDOC" -> "Category"

"MSYSCMD" [color="#FF4488",href="bookvol10.4.pdf#nameddest=MSYSCMD"]
"MSYSCMD" -> "Package"

"ODEIFTBL" [color="#88FF44",href="bookvol10.3.pdf#nameddest=ODEIFTBL"]
"ODEIFTBL" -> "Domain"

"OM" [color="#4488FF",href="bookvol10.2.pdf#nameddest=OM"]
"OM" -> "Category"

"OMCONN" [color="#88FF44",href="bookvol10.3.pdf#nameddest=OMCONN"]
"OMCONN" -> "Domain"

"OMDEV" [color="#88FF44",href="bookvol10.3.pdf#nameddest=OMDEV"]
"OMDEV" -> "Domain"

"PRIMCAT" [color="#4488FF",href="bookvol10.2.pdf#nameddest=PRIMCAT"]
"PRIMCAT" -> "Category"

"PRINT" [color="#FF4488",href="bookvol10.4.pdf#nameddest=PRINT"]
"PRINT" -> "Package"

"PTRANFN" [color="#4488FF",href="bookvol10.2.pdf#nameddest=PTRANFN"]
"PTRANFN" -> "Category"

"RFDIST" [color="#FF4488",href="bookvol10.4.pdf#nameddest=RFDIST"]
"RFDIST" -> "Package"
/*"RFDIST" -> {"INT"; "PI"; "NNI"; "BOOLEAN"; "SINT"}*/

"RIDIST" [color="#FF4488",href="bookvol10.4.pdf#nameddest=RIDIST"]
"RIDIST" -> "Package"
/*"RIDIST" -> {"SINT"; "NNI"; "INT"}*/

"SPFCAT" [color="#4488FF",href="bookvol10.2.pdf#nameddest=SPFCAT"]
"SPFCAT" -> "Category"

"TYPE" [color="#4488FF",href="bookvol10.2.pdf#nameddest=TYPE"]
"TYPE" -> "Category"

```


Chapter 15

Unclassified

15.0.10 warning 20573: rec has no value

```
finalizing nrlib CWMMT
Warnings:
[1] test6:  rec has no value
[2] test7:  rec has no value
[3] test8:  rec has no value
[4] test9:  rec has no value
[5] test10: rec has no value
```

15.0.11 bug 7249: radicalSolve($z^7=1$, z)

Obviously, all the roots of the equation $z^7 = 1$ can be expressed in radicals, and Mathematica can easily produce the explicit expressions in terms of radicals.

```
Solve[z^7 == 1, z]
```

```
{z -> 1}, {z -> -(-1)^(1/7)}, {z -> (-1)^(2/7)}, {z -> -(-1)^(3/7)},
{z -> {z -> (-1)^(4/7)}, {z -> -(-1)^(5/7)}, {z -> (-1)^(6/7)}}
```

To save the space, below the only example is given.

```
FunctionExpand[ComplexExpand[-(-1)^(1/7)]]
```

```
(1/2)*((1/3)*((1/2)*(-1 + I*Sqrt[7]) + ((-1 + I*Sqrt[3])*((1/2)*(-1 +
I*Sqrt[7]) + (1/2)*(-1 - I*Sqrt[7]))*(1/2)*(-1 + I*Sqrt[3]) +
(1/4)*(-1 + I*Sqrt[3])^2)))/(2*(6 + (3/4)*(-1 + I*Sqrt[3])*(-1 +
I*Sqrt[7]) + (1/2)*(-1 - I*Sqrt[7])*(1 + (3/4)*(-1 +
I*Sqrt[3])^2))^^(1/3)) + (1/4)*(-1 + I*Sqrt[3])^2*(6 + (3/4)*(-1 +
I*Sqrt[3])*(-1 + I*Sqrt[7]) + (1/2)*(-1 - I*Sqrt[7])*(1 + (3/4)*(-1 +
I*Sqrt[3])^2))^^(1/3)) + (1/3)*((1/2)*(1 + I*Sqrt[7]) - ((-1 +
```

$$\begin{aligned}
& I\sqrt{3})^2*((1/2)*(-1 - I\sqrt{7}) + (1/2)*(-1 + \\
& I\sqrt{7}))*((1/2)*(-1 + I\sqrt{3}) + (1/4)*(-1 + I\sqrt{3})^2))/ (4*(6 \\
& + (3/4)*(-1 + I\sqrt{3}))*(-1 - I\sqrt{7}) + (1/2)*(-1 + I\sqrt{7}))* (1 \\
& + (3/4)*(-1 + I\sqrt{3})^2))^ (1/3)) - (1/2)*(-1 + I\sqrt{3}))* (6 + \\
& (3/4)*(-1 + I\sqrt{3}))*(-1 - I\sqrt{7}) + (1/2)*(-1 + I\sqrt{7}))* (1 + \\
& (3/4)*(-1 + I\sqrt{3})^2))^ (1/3)) + (1/2)*((1/3))*((1/2)*(-1 + \\
& I\sqrt{7}) + ((-1 + I\sqrt{3}))*((1/2)*(-1 + I\sqrt{7}) + (1/2)*(-1 - \\
& I\sqrt{7}))*((1/2)*(-1 + I\sqrt{3}) + (1/4)*(-1 + I\sqrt{3})^2))/ (2*(6 \\
& + (3/4)*(-1 + I\sqrt{3}))*(-1 + I\sqrt{7}) + (1/2)*(-1 - I\sqrt{7}))* (1 \\
& + (3/4)*(-1 + I\sqrt{3})^2))^ (1/3)) + (1/4)*(-1 + I\sqrt{3})^2*(6 + \\
& (3/4)*(-1 + I\sqrt{3}))*(-1 + I\sqrt{7}) + (1/2)*(-1 - I\sqrt{7}))* (1 + \\
& (3/4)*(-1 + I\sqrt{3})^2))^ (1/3)) + (1/3)*((1/2)*(-1 - I\sqrt{7})) \\
& + ((-1 + I\sqrt{3})^2*((1/2)*(-1 - I\sqrt{7}) + (1/2)*(-1 + \\
& I\sqrt{7}))*((1/2)*(-1 + I\sqrt{3}) + (1/4)*(-1 + I\sqrt{3})^2))/ (4*(6 \\
& + (3/4)*(-1 + I\sqrt{3}))*(-1 - I\sqrt{7}) + (1/2)*(-1 + I\sqrt{7}))* (1 \\
& + (3/4)*(-1 + I\sqrt{3})^2))^ (1/3)) + (1/2)*(-1 + I\sqrt{3}))* (6 + \\
& (3/4)*(-1 + I\sqrt{3}))*(-1 - I\sqrt{7}) + (1/2)*(-1 + I\sqrt{7}))* (1 + \\
& (3/4)*(-1 + I\sqrt{3})^2))^ (1/3))
\end{aligned}$$

According to the AXIOM Book

AXIOM Book> Use radicalSolve if you want your solutions expressed in
 AXIOM Book> terms of radicals.

However, already for $z^7 = 1$ this is not so,

```
-> radicalSolve(z^7=1, z)
```

```
[z= 1]
```

and the problem exists for 11, 13, 14, 15, 17, 19 etc

```
-> for i in 1..20 repeat print([i,#radicalSolve(z^i=1,z)])
```

```

[1,1]
[2,2]
[3,3]
[4,4]
[5,5]
[6,6]
[7,1]  <-- not good
[8,8]
[9,9]
[10,10]
[11,1] <-- not good
[12,12]
[13,1] <-- not good
[14,2] <-- not good
[15,7] <-- not good
[16,16]
[17,1] <-- not good
[18,18]
[19,1] <-- not good

```


So if you compare the constructible regular n-gons, you can see why Axiom's results are reasonable: radicalSolve only finds solutions that are expressible in terms of radicals and arithmetic operations. It did not find those for n = 15 and 17 probably (I am guessing) because at the time of implementation, these constructions were not known (at least to the programmer). On the other hand, for n = 9, 18, the solutions are expressible in radicals only if radicals of *complex* numbers are allowed and Axiom found those (perhaps it shouldn't?). The expansion for $(-1)^{1/7}$ that Vladimir gave involves radicals of complex numbers, as theory predicts.

When Axiom cannot find solutions, it is (presumably) a PROOF that the other solutions are NOT solvable by radicals (using *real* numbers), or at least, there is no known proof that it is solvable at the time of implementation=2E (That is why I am surprised at the above result for $z^7=2$).

In other words, rather than viewing the answer for $z^7=1$ as a bug, we should view the answers for $z^7=2$, $z^7=3$ (and may be even $z^9=1$, $z^{18}=1$) as bugs!

Still, the package should be upgraded.

(1) -> radicalSolve($z^9=1, z$)

```
(1)
      +-----+
      | +---+
      +-----+ +---+ +-+ | - \|- 3 - 1
      | +---+      (\|- 1 \|3 - 1) 3|-----
      | - \|- 3 - 1      \|      2
[z= 3|-----, z= -----,
  \|      2              2

      +-----+
      | +---+
      +---+ +-+ | - \|- 3 - 1 +-----+
      (- \|- 1 \|3 - 1) 3|----- | +---+
      \|      2          \|- 3 - 1
z= -----, z= 3|-----,
      2              \|      2

      +-----+ +-----+
      | +---+      | +---+
      +---+ +-+ | \|- 3 - 1 +---+ +-+ | \|- 3 - 1
      (\|- 1 \|3 - 1) 3|----- (- \|- 1 \|3 - 1) 3|-----
      \|      2          \|      2

z= -----, z= -----=
---,
      2              2

      +---+ +---+
      - \|- 3 - 1 \| - 3 - 1
z= -----, z= -----, z= 1]
```

2

2

Type: List Equation Expression Integer
=

(2) -> radicalSolve(z^7=3)

(2)

$$[z = \sqrt[7]{3}, z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{2\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{2\pi}{7}\right),$$

$$z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{4\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{4\pi}{7}\right),$$

$$z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{6\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{6\pi}{7}\right),$$

$$z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{8\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{8\pi}{7}\right),$$

$$z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{10\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{10\pi}{7}\right),$$

$$z = \sqrt[7]{-1} \sqrt[7]{3} \sin\left(\frac{12\pi}{7}\right) + \sqrt[7]{3} \cos\left(\frac{12\pi}{7}\right)]$$

Type: List Equation Expression Integer
=

(3) -> radicalSolve(z^7=1.)

7

WARNING (genufact): No known algorithm to factor ? - 1.0
, trying square-free.

(3)

$$[z = 1.0, z = 0.7818314824 \ 6802980871 \sqrt[7]{-1.0} + 0.6234898018 \ 5873353=053,$$

$$z = 0.9749279121 \ 8182360702 \sqrt[7]{-1.0} - 0.2225209339 \ 5631440428,$$

$$z = 0.4338837391 \ 1755812048 \sqrt[7]{-1.0} - 0.9009688679 \ 0241912624,$$

$$z = -0.4338837391 \ 1755812046 \sqrt[7]{-1.0} - 0.9009688679 \ 0241912625,$$

$$z = -0.9749279121 \ 8182360702 \sqrt[7]{-1.0} - 0.2225209339 \ 563144043,$$

$$z = -0.7818314824 \ 6802980872 \sqrt[7]{-1.0} + 0.6234898018 \ 5873353052]$$

Type: List Equation Expression Float
=

(4) -> radicalSolve(z^6+z^5+z^4+z^3+z^2+z+1=0)

(4) []

Type: List Equation Expression Integer

15.0.12 bug 7248: differentiation bug in D(1,z)

```
(94) -> D(sin(z)^2+cos(z)^2, z)
```

```
(94) 0
```

```
(98) -> D(simplify(sin(z)^2+cos(z)^2), z)
```

```
(98) 0
```

BUT

```
(95) -> D(1, z)
```

```
There are 5 exposed and 0 unexposed library operations named D
  having 2 argument(s) but none was determined to be applicable.
  Use HyperDoc Browse, or issue
                                )display op D
  to learn more about the available operations. Perhaps
  package-calling the operation or using coercions on the arguments
  will allow you to apply the operation.
```

```
Cannot find a definition or applicable library operation named D
  with argument type(s)
```

```
      PositiveInteger
      Variable z
```

```
Perhaps you should use "@" to indicate the required return type,
or "$" to specify which version of the function you need.
```

15.0.13 bug 7142: $\exp \log(x)$ Cannot take first of an empty list

```
WS> ElementaryFunctionCategory(): Category == with
WS>   log : $ -> $      ++ log(x) returns the natural logarithm of x.
WS>   exp : $ -> $      ++ exp(x) returns %e to the power x.
WS>   "**": ($, $) -> $  ++ x**y returns x to the power y.
WS>   add
WS>   if $ has Monoid then
WS>     x ** y == exp(y * log x)
```

```
The error apparently comes from EXPR where the implementation is
  x**y == exp(y * log(x))
```

so $\exp \log(x)$ is computed as

```
exp(log(x) * log(exp))
```

which should be ok, but then the system handles $\log \exp$ and tries to simplify it to the identity map, and not finding the argument.

```
(3) -> exp^log(x)
```

```
>> System error:
Cannot take first of an empty list
```

```
(1) -> integrate(%i^log(z), z)
```

$$(1) \quad \frac{\log(i)\log(z)}{\log(i) + 1}$$

Type: Union(Expression(Complex(Integer)),...)

```
(2) -> integrate(f^log(z), z)
```

$$(2) \quad \frac{\log(f)\log(z)}{\log(f) + 1}$$

Type: Union(Expression(Integer),...)

```
(3) -> integrate(sin^log(z), z)
```

$$(3) \quad \frac{\log(\sin)\log(z)}{\log(\sin) + 1}$$

Type: Union(Expression(Integer),...)

```
(4) -> integrate(tan^log(z), z)
```

$$(4) \quad \frac{\log(\tan)\log(z)}{\log(\tan) + 1}$$

Type: Union(Expression(Integer),...)

```
(5) -> integrate(sqrt^log(z), z)
```

$$(5) \quad \frac{\log(\sqrt{z})\log(z)}{\log(\sqrt{z}) + 1}$$

Type: Union(Expression(Integer),...)

```
(6) -> integrate(atan^log(z), z)
```

$$(6) \quad \frac{\log(\operatorname{atanh}(z))\log(z)}{\log(\operatorname{atanh}(z)) + 1}$$

Type: Union(Expression(Integer),...)

```
(7) -> integrate(asinh^log(z), z)
```

```

      log(asinh)log(z)
      z %e
(7)  -----
      log(asinh) + 1
                                         Type: Union(Expression(Integer),...)
(8) -> integrate(exp^log(z), z)

>> System error:
Cannot take first of an empty list

(8) -> integrate(log^log(z), z)

>> System error:
Cannot take first of an empty list

```

15.0.14 bug 7259: in taylor expansion

```

x:=taylor 'x
y:=taylor 'y
sinh(x)*cosh(y)

```

15.0.15 wish 1011: sum(1/(k+a), k=1..n) by Gosper's method

```

(1) -> sum(1/(k+a), k=1..n)

      n
      --+      1
(1)  >  -----
      --+      k + a
      k= 1
                                         Type: Union(Expression(Integer),...)

```

but evaluating by Gosper's method should give

```
digamm(n+a+1)-digamma(a+1)
```

15.0.16 bug 7258: acosh(0.0) invalid argument to acosh

```

(1) -> acosh(0.0)

>> Error detected within library code:
invalid argument to acosh

(1) -> acosh(0)::Complex Float

```



```
(1) 0.6776263578 0344027125 E -20 + 1.5707963267 948966192 %i
                                         Type: Complex(Float)
```

15.0.17 bug 7257: normalize(subst(asin(z),z=-1)) division by zero

```
(1) -> normalize(subst(asin(z),z=-1))

>> Error detected within library code:
catdef: division by zero

(1) -> asin(-1)

      %pi
(1)  - ---
      2
                                         Type: Expression(Integer)

(2) -> subst(asin(z),z=-1)

(2)  asin(- 1)
                                         Type: Expression(Integer)

(3) -> normalize %

>> Error detected within library code:
catdef: division by zero

(3) -> normalize %%(1)

      %pi
(3)  - ---
      2
                                         Type: Expression(Integer)

(4) -> normalize(asin(- 1))

      %pi
(4)  - ---
      2
                                         Type: Expression(Integer)
```

15.0.18 bug 7256: acot(-1) values differ

```
(1) -> normalize(acot(-1))

      3%pi
(1)  ----
      4
                                         Type: Expression(Integer)

(2) -> normalize(subst(acot(z),z=-1))

      %pi
```

```
(2) - ---
      4
```

Type: Expression(Integer)

15.0.19 bug 7254: `f==n+->sum(sum(1/i,i=1..j),j=1..n)` complains

```
f==n+->sum(sum(1/i,i=1..j),j=1..n)
```

Type: Void

```
(2) -> f(1)
```

There are 6 exposed and 2 unexposed library operations named sum
having 2 argument(s) but none was determined to be applicable.
Use HyperDoc Browse, or issue

```
)display op sum
```

to learn more about the available operations. Perhaps
package-calling the operation or using coercions on the arguments
will allow you to apply the operation.

Cannot find a definition or applicable library operation named sum
with argument type(s)

```
Union(Fraction(Polynomial(Integer)),Expression(Integer))
```

```
SegmentBinding(PositiveInteger)
```

Perhaps you should use "@" to indicate the required return type,
or "\$" to specify which version of the function you need.

AXIOM will attempt to step through and interpret the code.

```
(2) 1
```

Type: Expression(Integer)

```
(3) ->
```

15.0.20 bug 7253: There are no library operations named 'when'

```
(1) -> ch : Integer -> UnivariatePolynomial(x,FRAC(INT))
```

Type: Void

```
(2) -> ch(0) == 1
```

Type: Void

```
(3) -> ch(1) == x
```

Type: Void

```
(4) -> ch(n) == 2 * x * ch(n-1) - ch(n-2) when n > 1
```

Type: Void

```
(5) -> ch(2)
```

There are no library operations named when

Use HyperDoc Browse or issue

```
)what op when
```

to learn if there is any operation containing " when " in its
name.

Cannot find a definition or applicable library operation named when
with argument type(s)

```
Integer
```

Perhaps you should use "@" to indicate the required return type,
 or "\$" to specify which version of the function you need.
 AXIOM will attempt to step through and interpret the code.
 Compiling function ch with type Integer -> UnivariatePolynomial(x,
 Fraction(Integer))
 There are no library operations named when
 Use HyperDoc Browse or issue
)what op when
 to learn if there is any operation containing " when " in its
 name.

Cannot find a definition or applicable library operation named when
 with argument type(s)
 Integer

Perhaps you should use "@" to indicate the required return type,
 or "\$" to specify which version of the function you need.

15.0.21 bug 7252: argument(-%i)

```
> AXIOM ->      complexForm(log(%i) - log(-%i))
>
>      0
```

could you please file this as a bug on issuetracker? The problem is in the
 operation "argument":

```
(8) -> argument(%i)
```

```
      %pi
(8)  ---
      2
```

Type: Expression Integer

```
(9) -> argument(-%i)
```

```
      %pi
(9)  ---
      2
```

Type: Expression Integer

the latter should be $-\pi/2$, of course. The problem is in gaussian.spad,
 COMPCAT:

```
if R has TranscendentalFunctionCategory then
  half := recip(2::R)::R

if R has RealNumberSystem then
  atan2loc(y: R, x: R): R ==
    pi1 := pi()$R
    pi2 := pi1 * half
    x = 0 => if y >= 0 then pi2 else -pi2
```

```

-- Atan in (-pi/2,pi/2]
theta := atan(y * recip(x)::R)
while theta <= -pi/2 repeat theta := theta + pi/2
while theta > pi/2 repeat theta := theta - pi/2

x >= 0 => theta      -- I or IV

if y >= 0 then
  theta + pi/2      -- II
else
  theta - pi/2      -- III

argument x == atan2loc(imag x, real x)

else
  -- Not ordered so dictate two quadrants
  argument x ==
    zero? real x => pi()$R * half
    atan(imag(x) * recip(real x)::R)

```

so the problem occurs if R does not have "RealNumberSystem":

```
(15) -> argument(-%i*1.0)
```

```
(15) - 1.5707963267 948966192
```

since Float does have RNS, but INT does not. I'm not quite sure what the condition should be. OrderedSet?

15.0.22 bug 7251: integrate(1/(1+z⁴), z=0..1) :: Complex Float

```
integrate(1/(1+z^4), z=0..1) :: Complex Float
```

```
(1) - 0.2437477471 9968052418
```

Type: Complex(Float)

```
(2) -> integrate(1/(1+z^4), z=0..1)
```

```
(2)
```

$$\frac{\sqrt{2} \log(\sqrt{2} + 2) - \sqrt{2} \log(-\sqrt{2} + 2) - 2\sqrt{2} \operatorname{atan}\left(\frac{1}{\sqrt{2} - 1}\right)}{8}$$

$$+ \frac{-2\sqrt{2} \operatorname{atan}\left(\frac{1}{\sqrt{2} + 1}\right)}{8}$$

/

8

Type: Union(f1: OrderedCompletion(Expression(Integer)),...)

should be

(4) -> integrate(1/(1+z^4),z=0..1)

```
(4)
      +-+
      1
- 4\|2 atan(-----)
      +-----+
      +-+ | +-+ +-+
      \|2 \|- \|2 + 2 + \|2 - 1
+
      +-+
      1
- 4\|2 atan(-----) + \|2 log(\|2 + 2)
      +-----+
      +-+ | +-+ +-+
      \|2 \|\|2 + 2 + \|2 + 1
+
      +-+ +-+ +-+ 1 +-+ 1
      - \|2 log(- \|2 + 2) + 4\|2 atan(-----) + 4\|2 atan(-----)
                                  +-+ +-+
                                  \|2 - 1 \|2 + 1
/
8
Type: Union(f1: OrderedCompletion(Expression(Integer)),...)
```

(5) -> integrate(1/(1+z^4),z=0..1)::Complex Float

(5) 0.8669729873_3991103758

Type: Complex(Float)

15.0.23 bug 7261: wrong integral

reported by Thomas Baruchel <baruchel@gmx.com>

```
t1:=(16*x^14-125*x^10+150*x^6+375*x^2)/(256*x^16+480*x^12+1025*x^8+750*x^4+625)
integrate(t1,x)
```

15.0.24 bug 7267: src/input/liu is not always **

This makes it clear that the exponential operation semantics is different for the use of “\verb|^|” and “\verb|**|” in some cases.

Does exponential operation “\verb|^|” and “\verb|**|” of a differential operator, say L, means repeating multiplications of L in Axiom ? If so, it seems the following code produced an unexpected result:

15.0.26 bug 7275: typos in axbook

(reported by Doug Stewart <doug.dastew@gmail.com>)

section-0.3.xhtml

"but integer division isn't quite so obvious, For example, if one types:
 23
 Type: Fraction Integer
 a fractional result is obtained. The function used to display fractions
 attempts to produce the most readable answer. In the example:

probably should read 2/3

Also

"4.6
 Type: Float
 Although Axiom can convert this back to a fraction it might not be
 the same fraction you started with as due to rounding errors. For example,
 the following conversion appears to be without error but others might not:

235
 Type: Fraction Integer

15.0.27 bug 7276: The axbook does not display correctly in Chrome

(reported by Doug Stewart <doug.dastew@gmail.com>)

15.0.28 bug 7306: bad counter in)regress function

There are 27 stanzas in src/input/intalgorithm.input.pamphlet
 All 27 stanzas pass regression tests but...

regression result passed 25 of 25 stanzas file intalgorithm

15.0.29 bug 7305: series should simplify

-> series(sin(x),x=0)

$$(1) \quad x - \frac{1}{6}x^3 + \frac{1}{120}x^5 - \frac{1}{5040}x^7 + \frac{1}{362880}x^9 - \frac{1}{39916800}x^{11} + 0(x^{12})$$

(2) -> %/x

$$(2) \quad -\frac{1}{x} - \frac{1}{6x} - \frac{1}{120x} + \frac{1}{5040x} - \frac{1}{362880x} + \frac{1}{39916800x} + 0(x^{12})$$

(3) -> %-1

$$(3) \quad -1 + \frac{1}{x} - \frac{1}{6x} - \frac{1}{120x} + \frac{1}{5040x} - \frac{1}{362880x} + 0(x^{11})$$

15.0.30 todo 340: exponential-linear

t1:=(1.6)^x + 122.35*x - 5054.4

Type: Expression(Float)

solve(t1,x) fails

see: Corl93.pdf On the Lambert W Function

see: Kalm01.pdf A Generalized Logarithm for Exponential-Linear Equations

15.0.31 todo 339: missing side conditions

integrate((x-b)^(-1),x)

(1) log(x - b)

Type: Union(Expression(Integer),...)

should show the side-condition $x > b$ or should be $\log(\text{abs}(x-b))$

15.0.32 todo 337: erf does not evaluate

(2) -> - 0.25* erf(0.3535533905932737622) + 0.60206532676429947778

(2) - 0.25 erf(0.3535533905 932737622) + 0.6020653267 6429947778

Type: Expression(Float)

(3) -> erf(0.3535533905932737622)

(3) erf(0.3535533905 932737622)

15.0.33 bug 7301: rich12c.input 310 failed

Error detected within library code: index out of range

Regression computation shows prior correct output

15.0.34 bug 7300: outputDomainConstructor failure

```
outputDomainConstructor(Integer)$Lisp
```

```
>> System error:
```

```
Caught fatal error [memory may be damaged]
```

15.0.35 bug 7295: guessRat : (1 . arbitrary) cannot be coerced

```
t1:=guessRat(q)([1,q,q^2], [])
```

```
--R
```

```
--R
```

```
--R >> Error detected within library code:
```

```
--R (1 . arbitrary) cannot be coerced to mode (NonNegativeInteger)
```

```
--R
```

```
--R Continuing to read the file...
```

```
--R
```

15.0.36 bug 7294: GuessOption: displayAsGF not set

```
--S 7 of 102
```

```
t1:=[0,1,0,1,1,0,0,0,0,0,0,0,0,0]
```

```
--R
```

```
--R
```

```
--R (1) [0,1,0,1,1,0,0,0,0,0,0,0,0,0]
```

```
--R
```

```
Type: List(NonNegativeInteger)
```

```
--E 7
```

```
--S 8 of 102
```

```
t2:=first guessADE first(t1,10)
```

```
--R
```

```
--R
```

```
--R >> Error detected within library code:
```

```
--R GuessOption: displayAsGF not set
```

```
--R
```

```
--R Continuing to read the file...
```

```
--R
```

```
--E 8
```

15.0.37 warnings 20572: IDPAM

```
finalizing nrlib IDPAM
Warnings:
  [1] +: res has no value
  [2] +: endcell has no value
```

15.0.38 warnings 20571: INBFF

```
>compiling INBFF.spad to INBFF.nrlib

Warnings:
  [1] dAndcExp: erg has no value
```

15.0.39 warnings 20570: DFLOAT

```
>compiling DFLOAT.spad to DFLOAT.nrlib

Warnings:
  [1] mantissa: MANTISSA has no value
  [2] exponent: EXPONENT has no value
  [3] hash: signature of lhs not unique: (Integer)$ chosen
```

15.0.40 warnings 20569: LIST

```
>compiling LIST.spad to LIST.nrlib

Warnings:
  [1] setIntersection: u has no value
  [2] setDifference: lu has no value
```

15.0.41 warnings 20568: MFLOAT

```
>compiling MFLOAT.spad to MFLOAT.nrlib

Warnings:
  [1] normalise: man has no value
  [2] changeBase: newMan has no value
  [3] changeBase: newExp has no value
  [4] changeBase: f has no value
```

15.0.42 nonextend 60076: AFFSP

```
>compiling AFFSP.spad to AFFSP.nrlib

-----non extending category-----
.. AffineSpace(#1,#2) of cat
(|AffineSpaceCategory| |#2|) has no
(|ListAggregate| |#2|) finalizing nrlib AFFSP
```

15.0.43 nonextend 60075: BSTREE

```
>compiling BSTREE.spad to BSTREE.nrlib
-----non extending category-----
.. BinarySearchTree(#1) of cat
(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |shallowlyMutable|) (ATTRIBUTE |finiteAggregate|
```

15.0.44 nonextend 60074: BTOURN

```
>compiling BTOURN.spad to BTOURN.nrlib

-----non extending category-----
.. BinaryTournament(#1) of cat
(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |shallowlyMutable|) (SIGNATURE |binaryTournament|
```

15.0.45 nonextend 60073: BBTREE

```
>compiling BBTREE.spad to BBTREE.nrlib

-----non extending category-----
.. BalancedBinaryTree(#1) of cat
(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |finiteAggregate|) (ATTRIBUTE |shallowlyMutable|
```

15.0.46 nonextend 60072: D01GBFA

```
>compiling D01GBFA.spad to D01GBFA.nrlib

-----non extending category-----
.. d01gbfAnnaType of cat
(|NumericalIntegrationCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01GBFA
```

15.0.47 nonextend 60071: D02EJFA

```
>compiling D02EJFA.spad to D02EJFA.nrlib
-----non extending category-----
.. d02ejfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02EJFA
```

15.0.48 nonextend 60070: D03FAFA

```
>compiling D03FAFA.spad to D03FAFA.nrlib
-----non extending category-----
.. d03fafAnnaType of cat
(|PartialDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D03FAFA
```

15.0.49 nonextend 60069: D01FCFA

```
>compiling D01FCFA.spad to D01FCFA.nrlib
-----non extending category-----
.. d01fcfAnnaType of cat
(|NumericalIntegrationCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01FCFA
```

15.0.50 nonextend 60068: LPOLY

```
>compiling LPOLY.spad to LPOLY.nrlib
-----non extending category-----
.. LiePolynomial(#1,#2) of cat
(|Join| (|FreeLieAlgebra| |#1| |#2|) (|FreeModuleCat| |#2| (|LyndonWord| |#1|))) (CATEGORY |domain| (SIGNATURE |L|
```

15.0.51 nonextend 60067: DBASE

```
>compiling DBASE.spad to DBASE.nrlib
-----non extending category-----
.. Database(#1) of cat
(|Join| (|SetCategory|) (CATEGORY |domain| (SIGNATURE |elt| ($ $ (|QueryEquation|))) (SIGNATURE |elt| ((|DataList|
(|ListAggregate| |#1|) finalizing nrlib DBASE
```

15.0.52 nonextend 60066: DHMATRIX

>compiling DHMATRIX.spad to DHMATRIX.nrlib

```
-----non extending category-----
.. DenavitHartenbergMatrix(#1) of cat
(|Join| (|MatrixCategory| |#1| (|Vector| |#1|) (|Vector| |#1|)) (CATEGORY |domain| (SIGNATURE * ((|Point| |#1|)
```

15.0.53 nonextend 60065: D02BBFA

>compiling D02BBFA.spad to D02BBFA.nrlib

```
-----non extending category-----
.. d02bbfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02BBFA
```

15.0.54 nonextend 60064: D02BHFA

>compiling D02BHFA.spad to D02BHFA.nrlib

```
-----non extending category-----
.. d02bhfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02BHFA
```

15.0.55 nonextend 60063: D02CJFA

>compiling D02CJFA.spad to D02CJFA.nrlib

```
-----non extending category-----
.. d02cjfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02CJFA
```

15.0.56 nonextend 60062: FNLA

>compiling FNLA.spad to FNLA.nrlib

```
-----non extending category-----
.. FreeNilpotentLie(#1,#2,#3) of cat
(|Join| (|NonAssociativeAlgebra| |#3|) (CATEGORY |domain| (SIGNATURE |dimension| ((|NonNegativeInteger|))) (SIGN
```

```
(|IndexedDirectProductCategory| |#3| (|OrdSetInts|))      finalizing nrlib FNLA
  Processing FreeNilpotentLie for Browser database:
```

15.0.57 nonextend 60061: POINT

```
>compiling POINT.spad to POINT.nrlib
-----non extending category-----
.. Point(#1) of cat
(|PointCategory| |#1|)      has no  vector : List(#1) -> %
```

15.0.58 nonextend 60060: STRING

```
>compiling STRING.spad to STRING.nrlib

-----non extending category-----
.. String of cat
(|StringCategory|)      has no  hash : % -> Integer
```

15.0.59 nonextend 60059: BINARY

```
>compiling BINARY.spad to BINARY.nrlib
-----non extending category-----
.. BinaryExpansion of cat
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $
```

15.0.60 nonextend 60058: DECIMAL

```
>compiling DECIMAL.spad to DECIMAL.nrlib
-----non extending category-----
.. DecimalExpansion of cat
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $
  finalizing nrlib DECIMAL
```

15.0.61 nonextend 60057: E04DGFA

```
>compiling E04DGFA.spad to E04DGFA.nrlib
-----non extending category-----
.. e04dgfAnnaType of cat
(|NumericalOptimizationCategory|)      has no
```

```
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrllib E04DGFA
Processing e04dgfAnnaType for Browser database:
```

15.0.62 nonextend 60056: E04FDFA

```
>compiling E04FDFA.spad to E04FDFA.nrllib
-----non extending category-----
.. e04fdfAnnaType of cat
(|NumericalOptimizationCategory|)    has no
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrllib E04FDFA
```

15.0.63 nonextend 60055: E04GCFA

```
>compiling E04GCFA.spad to E04GCFA.nrllib
-----non extending category-----
.. e04gcfAnnaType of cat
(|NumericalOptimizationCategory|)    has no
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrllib E04GCFA
```

15.0.64 nonextend 60054: E04JAFA

```
>compiling E04JAFA.spad to E04JAFA.nrllib
-----non extending category-----
.. e04jafAnnaType of cat
(|NumericalOptimizationCategory|)    has no
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrllib E04JAFA
Processing e04jafAnnaType for Browser database:
```

15.0.65 nonextend 60053: E04UCFA

```
>compiling E04UCFA.spad to E04UCFA.nrllib
-----non extending category-----
.. e04ucfAnnaType of cat
(|NumericalOptimizationCategory|)    has no
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrllib E04UCFA
```

15.0.66 nonextend 60052: FRAC

```
>compiling FRAC.spad to FRAC.nrllib
```



```
(|Join| (|FortranMachineTypeCategory|) (|IntegerNumberSystem|) (CATEGORY |domain| (SIGNATURE |maxint| ((|PositiveInteger|) (|ConvertableTo| (|String|))) finalizing nrllib MINT
```

15.0.71 nonextend 60047: NSUP

```
>compiling NSUP.spad to NSUP.nrllib
```

```
-----non extending category-----
.. NewSparseUnivariatePolynomial(#1) of cat
(|Join| (|UnivariatePolynomialCategory| |#1|) (|CoercibleTo| (|SparseUnivariatePolynomial| |#1|)) (|RetractableTo| (|IntegerNumberSystem|)))
```

15.0.72 nonextend 60046: SMTS

```
>compiling SMTS.spad to SMTS.nrllib
```

```
-----non extending category-----
.. SparseMultivariateTaylorSeries(#1,#2,#3) of cat
(|Join| (|MultivariateTaylorSeriesCategory| |#1| |#2|) (CATEGORY |domain| (SIGNATURE |coefficient| (|#3| $ (|NonNegativeInteger|))))
```

15.0.73 nonextend 60045: SUP

```
>compiling SUP.spad to SUP.nrllib
```

```
-----non extending category-----
.. SparseUnivariatePolynomial(#1) of cat
(|Join| (|UnivariatePolynomialCategory| |#1|) (CATEGORY |domain| (SIGNATURE |outputForm| ((|OutputForm|) $ (|OutputForm|))))
(IF (|has| |#1| (|IntegralDomain|)) (IF (|has| (|NonNegativeInteger|) (|CancellationAbelianMonoid|)) (SIGNATURE |coefficient| (|#3| $ (|NonNegativeInteger|))))
```

15.0.74 nonextend 60044: SUEXPR

```
>compiling SUEXPR.spad to SUEXPR.nrllib
```

```
-----non extending category-----
.. SparseUnivariatePolynomialExpressions(#1) of cat
(|Join| (|UnivariatePolynomialCategory| |#1|) (CATEGORY |package| (IF (|has| |#1| (|TranscendentalFunctionCategory|)) (SIGNATURE |coefficient| (|#3| $ (|NonNegativeInteger|))))
```

15.0.75 nonextend 60043: UP

```
>compiling UP.spad to UP.nrllib
```

```
-----non extending category-----
.. UnivariatePolynomial(#1,#2) of cat
(|Join| (|UnivariatePolynomialCategory| |#2|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|Variable| |#1|))) (SIG
```

15.0.76 nonextend 60042: EXPUPXS

```
>compiling EXPUPXS.spad to EXPUPXS.nrlib
```

```
-----non extending category-----
.. ExponentialOfUnivariatePuisseuxSeries(#1,#2,#3) of cat
(|Join| (|UnivariatePuisseuxSeriesCategory| |#1|) (|OrderedAbelianMonoid|) (CATEGORY |domain| (SIGNATURE |exponen
(|UnivariatePuisseuxSeriesConstructorCategory| |#1| (|UnivariateLaurentSeries| |#1| |#2| |#3|)) finalizing nrl
```

15.0.77 nonextend 60041: BSD

```
>compiling BSD.spad to BSD.nrlib
```

```
-----non extending category-----
.. BasicStochasticDifferential of cat
(|Join| (|OrderedSet|) (CATEGORY |domain| (ATTRIBUTE (|ConvertibleTo| (|Symbol|))) (SIGNATURE |convertIfCan| ((
(|ConvertibleTo| (|InputForm|)) finalizing nrlib BSD
```

15.0.78 nonextend 60040: ANTISYM

```
>compiling ANTISYM.spad to ANTISYM.nrlib
```

```
-----non extending category-----
.. AntiSymm(#1,#2) of cat
(|Join| (|LeftAlgebra| |#1|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE |leadingCoefficient| (|#1| $))
(|BiModule| |#1| |#1|) finalizing nrlib ANTISYM
```

15.0.79 nonextend 60039: FEXPR

```
>compiling FEXPR.spad to FEXPR.nrlib
```

```
-----non extending category-----
.. FortranExpression(#1,#2,#3) of cat
(|Join| (|ExpressionSpace|) (|Algebra| |#3|) (|RetractableTo| |#3|) (|PartialDifferentialRing| (|Symbol|)) (CATE
(|FunctionSpace| |#3|) finalizing nrlib FEXPR
```

15.0.80 nonextend 60038: GDMP

>compiling GDMP.spad to GDMP.nrlib

```
-----non extending category-----
.. GeneralDistributedMultivariatePolynomial(#1,#2,#3) of cat
(|Join| (|PolynomialCategory| |#2| |#3| (|OrderedVariableList| |#1|)) (CATEGORY |domain| (SIGNATURE |reorder| ($
(IF (|has| |#2| (|IntegralDomain|)) (IF (|has| |#3| (|CancellationAbelianMonoid|)) (SIGNATURE |fmecg| ($ $ |#3|
```

15.0.81 nonextend 60037: HACKPI

>compiling HACKPI.spad to HACKPI.nrlib

```
-----non extending category-----
.. Pi of cat
(|Join| (|Field|) (|CharacteristicZero|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fraction| (|Integer|))
(|QuotientFieldCategory| (|SparseUnivariatePolynomial| (|Integer|))) finalizing nrlib HACKPI
```

15.0.82 nonextend 60036: LIB

>compiling LIB.spad to LIB.nrlib

```
-----non extending category-----
.. Library of cat
(|Join| (|TableAggregate| (|String|) (|Any|)) (CATEGORY |domain| (SIGNATURE |library| ($ (|FileName|))) (SIGNATURE
(|FileCategory| (|FileName|) (|Record| (|key| (|String|)) (|entry| (|Any|)))) finalizing nrlib LIB
```

15.0.83 nonextend 60035: LODO

>compiling LODO.spad to LODO.nrlib

```
-----non extending category-----
.. LinearOrdinaryDifferentialOperator(#1,#2) of cat
(|LinearOrdinaryDifferentialOperatorCategory| |#1|) has no outputForm : (%,OutputForm) -> OutputForm
```

15.0.84 nonextend 60034: M3D

>compiling M3D.spad to M3D.nrlib

```
-----non extending category-----
```

```
.. ThreeDimensionalMatrix(#1) of cat
(|Join| (|HomogeneousAggregate| |#1|) (CATEGORY |domain| (IF (|has| |#1| (|Ring|)) (PROGN (SIGNATURE |zeroMatrix|
(|OneDimensionalArrayAggregate| (|PrimitiveArray| (|PrimitiveArray| |#1|)))    finalizing nrlib M3D
```

15.0.85 nonextend 60033: NSDPS

```
>compiling NSDPS.spad to NSDPS.nrlib
```

```
-----non extending category-----
.. NeitherSparseOrDensePowerSeries(#1) of cat
(|Join| (|LocalPowerSeriesCategory| |#1|) (|LazyStreamAggregate| (|Record| (|:| |k| (|Integer|)) (|:| |c| |#1|))
(ATTRIBUTE |shallowlyMutable|)    finalizing nrlib NSDPS
```

15.0.86 nonextend 60032: RESULT

```
>compiling RESULT.spad to RESULT.nrlib
```

```
-----non extending category-----
.. Result of cat
(|Join| (|TableAggregate| (|Symbol|) (|Any|)) (CATEGORY |package| (SIGNATURE |showScalarValues| ((|Boolean|) (|E
(ATTRIBUTE |finiteAggregate|)    finalizing nrlib RESULT
```

15.0.87 nonextend 60031: RMATRIX

```
>compiling RMATRIX.spad to RMATRIX.nrlib
```

```
-----non extending category-----
.. RectangularMatrix(#1,#2,#3) of cat
(|Join| (|RectangularMatrixCategory| |#1| |#2| |#3| (|DirectProduct| |#2| |#3|) (|DirectProduct| |#1| |#3|)) (|C
(|MatrixCategory| |#3| (|Vector| |#3|) (|Vector| |#3|))    finalizing nrlib RMATRIX
```

15.0.88 nonextend 60030: ROMAN

```
>compiling ROMAN.spad to ROMAN.nrlib
```

```
(|RealConstant|)    extends
(|ConvertibleTo| (|DoubleFloat|))    but not
(|ConvertibleTo| (|String|)) -----non extending category-----
.. RomanNumeral of cat
(|Join| (|IntegerNumberSystem|) (CATEGORY |domain| (ATTRIBUTE |canonical|) (ATTRIBUTE |canonicalsClosed|) (ATTRI
(|ConvertibleTo| (|String|))    finalizing nrlib ROMAN
```

15.0.89 nonextend 60029: ROUTINE

>compiling ROUTINE.spad to ROUTINE.nrlib

-----non extending category-----

.. RoutinesTable of cat

(|Join| (|TableAggregate| (|Symbol|) (|Any|)) (CATEGORY |domain| (SIGNATURE |concat| (\$ \$ \$)) (SIGNATURE |routin

15.0.90 nonextend 60028: SQMATRIX

>compiling SQMATRIX.spad to SQMATRIX.nrlib

-----non extending category-----

.. SquareMatrix(#1,#2) of cat

(|Join| (|SquareMatrixCategory| |#1| |#2| (|DirectProduct| |#1| |#2|) (|DirectProduct| |#1| |#2|)) (|CoercibleTo

(|MatrixCategory| |#2| (|Vector| |#2|) (|Vector| |#2|)) finalizing nrlib SQMATRIX

15.0.91 nonextend 60027: ALGSC

>compiling ALGSC.spad to ALGSC.nrlib

-----non extending category-----

.. AlgebraGivenByStructuralConstants(#1,#2,#3,#4) of cat

(|Join| (|FramedNonAssociativeAlgebra| |#1|) (|LeftModule| (|SquareMatrix| |#2| |#1|)) (CATEGORY |domain| (SIGNA

(|DirectProductCategory| |#2| |#1|) finalizing nrlib ALGSC

Processing AlgebraGivenByStructuralConstants for Browser database:

15.0.92 nonextend 60026: AN

>compiling AN.spad to AN.nrlib

(|RealConstant|) extends

(|ConvertibleTo| (|DoubleFloat|)) but not

(|ConvertibleTo| (|Complex| (|Float|))) -----non extending category-----

.. AlgebraicNumber of cat

(|Join| (|ExpressionSpace|) (|AlgebraicallyClosedField|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fracti

15.0.93 nonextend 60025: D03EEFA

>compiling D03EEFA.spad to D03EEFA.nrlib

-----non extending category-----

```

.. d03eefAnnaType of cat
(|PartialDifferentialEquationsSolverCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrllib D03EEFA
Processing d03eefAnnaType for Browser database:
-----constructor-----

```

15.0.94 nonextend 60024: D01AGNT

```
>compiling D01AGNT.spad to D01AGNT.nrllib
```

```

-----non extending category-----
.. d01AgentsPackage of cat
(CATEGORY |package| (SIGNATURE |rangeIsFinite| ((|Union| (|:| |finite| "The range is finite") (|:| |lowerInfinite|

```

15.0.95 nonextend 60023: DERHAM

```
>compiling DERHAM.spad to DERHAM.nrllib
```

```

-----non extending category-----
.. DeRhamComplex(#1,#2) of cat
(|Join| (|LeftAlgebra| (|Expression| |#1|)) (|RetractableTo| (|Expression| |#1|)) (CATEGORY |domain| (SIGNATURE

```

15.0.96 nonextend 60022: D01TRNS

```
>compiling D01TRNS.spad to D01TRNS.nrllib
```

```

-----non extending category-----
.. d01TransformFunctionType of cat
(|NumericalIntegrationCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrllib D01TRNS

```

15.0.97 nonextend 60021: E04NAFA

```
>compiling E04NAFA.spad to E04NAFA.nrllib
```

```

-----non extending category-----
.. e04nafAnnaType of cat
(|NumericalOptimizationCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrllib E04NAFA
Processing e04nafAnnaType for Browser database:

```

15.0.98 nonextend 60020: EXPEXPAN

>compiling EXPEXPAN.spad to EXPEXPAN.nrlib

```
-----non extending category-----
.. ExponentialExpansion(#1,#2,#3,#4) of cat
(|Join| (|QuotientFieldCategory| (|UnivariatePuisseuxSeriesWithExponentialSingularity| |#1| |#2| |#3| |#4|)) (|Re
(IF (|has| (|UnivariatePuisseuxSeriesWithExponentialSingularity| |#1| |#2| |#3| |#4|) (|IntegerNumberSystem|)) (I
```

15.0.99 nonextend 60019: GCNAALG

>compiling GCNAALG.spad to GCNAALG.nrlib

```
(|Module| (|Fraction| (|Polynomial| |#1|))) extends
(|LeftModule| (|Fraction| (|Polynomial| |#1|))) but not
(|LeftModule| (|SquareMatrix| |#2| (|Fraction| (|Polynomial| |#1|)))) finalizing nrlib GCNAALG
```

15.0.100 nonextend 60018: IAN

>compiling IAN.spad to IAN.nrlib

```
-----non extending category-----
.. InnerAlgebraicNumber of cat
(|Join| (|ExpressionSpace|) (|AlgebraicallyClosedField|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fracti
(|FunctionSpace| (|Integer|)) finalizing nrlib IAN
```

15.0.101 nonextend 60017: LSQM

>compiling LSQM.spad to LSQM.nrlib

```
-----non extending category-----
.. LieSquareMatrix(#1,#2) of cat
(|Join| (|SquareMatrixCategory| |#1| |#2| (|DirectProduct| |#1| |#2|) (|DirectProduct| |#1| |#2|)) (|CoercibleTo
(|CoercibleTo| (|SquareMatrix| |#1| |#2|)) finalizing nrlib LSQM
```

15.0.102 nonextend 60016: MCMPLEX

>compiling MCMPLEX.spad to MCMPLEX.nrlib

```
-----non extending category-----
.. MachineComplex of cat
```

```
(|Join| (|FortranMachineTypeCategory|) (|ComplexCategory| (|MachineFloat|)) (CATEGORY |domain| (SIGNATURE |coerc|
```

15.0.103 nonextend 60015: MYUP

```
>compiling MYUP.spad to MYUP.nrlib
```

```
-----non extending category-----
.. MyUnivariatePolynomial(#1,#2) of cat
(|Join| (|UnivariatePolynomialCategory| |#2|) (CATEGORY |domain| (ATTRIBUTE (|RetractableTo| (|Symbol|))) (SIGNA
```

15.0.104 nonextend 60014: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrlib
```

```
-----non extending category-----
.. MyExpression(#1,#2) of cat
(|Join| (|FunctionSpace| |#2|) (|IntegralDomain|) (|RetractableTo| (|MyUnivariatePolynomial| |#1| |#2|)) (|Retra
(IF (|has| |#2| (|IntegralDomain|)) (PROGN (ATTRIBUTE (|AlgebraicallyClosedFunctionSpace| |#2|)) (ATTRIBUTE (|Tr
```

15.0.105 nonextend 60013: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrlib
```

```
-----non extending category-----
.. MyUnivariatePolynomial(#1,#2) of cat
(|Join| (|UnivariatePolynomialCategory| |#2|) (CATEGORY |domain| (ATTRIBUTE (|RetractableTo| (|Symbol|))) (SIGNA

-----non extending category-----
.. MyExpression(#1,#2) of cat
(|Join| (|FunctionSpace| |#2|) (|IntegralDomain|) (|RetractableTo| (|MyUnivariatePolynomial| |#1| |#2|)) (|Retra
(IF (|has| |#2| (|IntegralDomain|)) (PROGN (ATTRIBUTE (|AlgebraicallyClosedFunctionSpace| |#2|)) (ATTRIBUTE (|Tr
```

15.0.106 nonextend 60012: SD

```
>compiling SD.spad to SD.nrlib
```

```
-----non extending category-----
.. StochasticDifferential(#1) of cat
(|Join| (|Rng|) (|Module| (|Expression| |#1|)) (CATEGORY |domain| (ATTRIBUTE (|RetractableTo| (|BasicStochasticD
(|PolynomialCategory| (|Expression| |#1|) (|IndexedExponents| (|BasicStochasticDifferential|)) (|BasicStochastic
```


15.0.107 nonextend 60011: SUTS

>compiling SUTS.spad to SUTS.nrlib

```
(|UnivariateTaylorSeriesCategory| |#1|) extends
(|UnivariatePowerSeriesCategory| |#1| (|NonNegativeInteger|)) but not
(|UnivariatePowerSeriesCategory| |#1| (|Integer|)) -----non extending category-----
.. SparseUnivariateTaylorSeries(#1,#2,#3) of cat
(|Join| (|UnivariateTaylorSeriesCategory| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|UnivariatePolynomial|
(|UnivariatePowerSeriesCategory| |#1| (|Integer|)) finalizing nrlib SUTS
```

15.0.108 nonextend 60010: UPXSSING

>compiling UPXSSING.spad to UPXSSING.nrlib

```
-----non extending category-----
.. UnivariatePuisseuxSeriesWithExponentialSingularity(#1,#2,#3,#4) of cat
(|Join| (|FiniteAbelianMonoidRing| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|) (|ExponentialOfUnivariatePuisseuxSe
(IF (|has| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|) (|IntegralDomain|)) (IF (|has| (|ExponentialOfUnivariatePu
```

15.0.109 nonextend 60009: ESCONT

>compiling ESCONT.spad to ESCONT.nrlib

```
-----non extending category-----
.. ExpertSystemContinuityPackage of cat
(CATEGORY |package| (SIGNATURE |getlo| ((|DoubleFloat|) (|Segment| (|OrderedCompletion| (|DoubleFloat|)))))) (SIG
```

15.0.110 nonextend 60008: GSERIES

>compiling GSERIES.spad to GSERIES.nrlib

```
-----non extending category-----
.. GeneralUnivariatePowerSeries(#1,#2,#3) of cat
(|Join| (|UnivariatePuisseuxSeriesCategory| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|Variable| |#2|))) (
(|UnivariatePuisseuxSeriesConstructorCategory| |#1| (|UnivariateLaurentSeries| |#1| |#2| |#3|)) finalizing nrl
```

15.0.111 nonextend 60007: RGCHAIN

>compiling RGCHAIN.spad to RGCHAIN.nrlib

15.0.112 nonextend 60006: SULS

15.0.113 nonextend 60005: UTS

15.0.114 nonextend 60004: UTSZ

15.0.115 nonextend 60003: INFCLSPT

15.0.116 nonextend 60002: GUESSUP

```
>compiling GUESSUP.spad to GUESSUP.nrllib
```

```
-----non extending category-----
```

```
.. GuessUnivariatePolynomial(#1) of cat
```

```
(CATEGORY |package| (SIGNATURE |guess| ((|List| (|Record| (|:| |function| (|MyExpression| |#1| (|Integer|))) (|:|  
(IF (|has| (|Fraction| (|MyUnivariatePolynomial| |#1| (|Integer|))) (|RetractableTo| (|Symbol|))) (IF (|has| (|M
```

15.0.117 nonextend 60001: NNI

```
>compiling NNI.spad to NNI.nrllib
```

```
-----non extending category-----
```

```
.. NonNegativeInteger of cat
```

```
(|Join| (|OrderedAbelianMonoidSup|) (|Monoid|) (CATEGORY |domain| (SIGNATURE |quo| ($ $ $)) (SIGNATURE |rem| ($  
(|IntegerNumberSystem|) finalizing nrllib NNI
```

15.0.118 nonextend 60000: PI

```
>compiling PI.spad to PI.nrllib
```

```
-----non extending category-----
```

```
.. PositiveInteger of cat
```

```
(|Join| (|AbelianSemiGroup|) (|OrderedSet|) (|Monoid|) (CATEGORY |domain| (SIGNATURE |gcd| ($ $ $)) (ATTRIBUTE (|  
(|OrderedAbelianMonoidSup|) finalizing nrllib PI
```

15.0.119 dup 50004: duplication definition

```
Warning: RPOLCAT-;exactQuo has a duplicate definition in this file
```

```
Warning: RPOLCAT-;ZToR has a duplicate definition in this file
```

```
Warning: RPOLCAT-;PZToPR has a duplicate definition in this file
```

15.0.120 dup 50003: duplication definition

```
Warning: PFO;cmult has a duplicate definition in this file
```

15.0.121 dup 50002: duplication definition

```
Warning: REGSET;decompose has a duplicate definition in this file
```



```
----- (measure ((Record (: measure (Float)) (: explanations (String)) (: extra (Result))) (RoutinesTable) NIAE
----- (measure ((Record (: measure (Float)) (: explanations (String)) (: extra (Result))) (RoutinesTable) MDNI
```

15.0.127 typos 40343: SETCATD

```
>compiling SETCATD.spad to SETCATD.nrllib
```

```
--->bookvol10.2.pamphlet-->SetCategoryWithDegree((degree ((PositiveInteger) %))): Not documented!!!!
```

15.0.128 typos 40337: AFSPCAT

```
>compiling AFSPCAT.spad to AFSPCAT.nrllib
```

```
--->bookvol10.2.pamphlet-->AffineSpaceCategory((origin (%))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->AffineSpaceCategory((definingField (K %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->AffineSpaceCategory((coerce ((List K) %))): Not documented!!!!
```

15.0.129 typos 40328: PlacesCategory

```
--->bookvol10.2.pamphlet-->PlacesCategory((+ ((Divisor %) % %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((+ ((Divisor %) (Divisor %) %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((+ ((Divisor %) % (Divisor %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((- ((Divisor %) % %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((- ((Divisor %) (Divisor %) %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((- ((Divisor %) % (Divisor %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((- ((Divisor %) %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((* ((Divisor %) (Integer) %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((reduce ((Divisor %) (List %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((create (% (List K))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->PlacesCategory((create (% (Symbol))): Not documented!!!!
```

15.0.130 typos 40327: PRSPCAT

```
>compiling PRSPCAT.spad to PRSPCAT.nrllib
```

```
--->bookvol10.2.pamphlet-->ProjectiveSpaceCategory((lastNonNul (INT %))): Not documented!!!!
```

```
--->bookvol10.2.pamphlet-->ProjectiveSpaceCategory((definingField (K %))): Not documented!!!!
```

15.0.131 typos 40324: IFAMON

```
>compiling IFAMON.spad to IFAMON.nrlib
```

```
.. InnerFreeAbelianMonoid(#1,#2,#3) of cat
(|FreeAbelianMonoidCategory| |#1| |#2|) has no outputForm : (%,(OutputForm,OutputForm) -> OutputForm),((Out
```

15.0.132 typos 40321a: BSTREE

```
>compiling BSTREE.spad to BSTREE.nrlib
```

```
-----non extending category-----
```

```
.. BinarySearchTree(#1) of cat
(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |shallowlyMutable|) (ATTRIBUTE |finiteAggregat
```

15.0.133 typos 40317: FACTFUNC

```
>compiling FACTFUNC.spad to FACTFUNC.nrlib
```

```
-----nthRoot ((Record (: exponent N) (: coef M) (: radicand (List M))) (Factored M) N))-----
-----log ((List (Record (: coef N) (: logand M))) (Factored M))-----
```

15.0.134 typos 40301: DIRRING

```
>compiling DIRRING.spad to DIRRING.nrlib
```

```
--->bookvol10.3.pamphlet-->DirichletRing((coerce (% FUN))): Not documented!!!!
--->bookvol10.3.pamphlet-->DirichletRing((coerce (FUN %))): Not documented!!!!
--->bookvol10.3.pamphlet-->DirichletRing((coerce (% (Stream Coef)))): Not documented!!!!
--->bookvol10.3.pamphlet-->DirichletRing((coerce ((Stream Coef) %))): Not documented!!!!
```

15.0.135 typos 40300: DIV

```
>compiling DIV.spad to DIV.nrlib
```

```
--->bookvol10.3.pamphlet-->Divisor((head (PT %))): Not documented!!!!
--->bookvol10.3.pamphlet-->Divisor((reductum (% %))): Not documented!!!!
```

15.0.136 typos 40299: D01GBFA

```
>compiling D01GBFA.spad to D01GBFA.nrlib

-----non extending category-----
.. d01gbfAnnaType of cat
(|NumericalIntegrationCategory|) has no
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01GBFA
Processing d01gbfAnnaType for Browser database:
```

15.0.137 typos 40294: LIECAT

```
>compiling LIECAT.spad to LIECAT.nrlib

--->LieAlgebra(): Spurious comments: \indented{1}{\axiom{JacobiIdentity} means that} \axiom{[x,[y,z]]+[y,[z,
-----constructor-----
--->bookvol10.2.pamphlet-->LieAlgebra(): Spurious comments: \indented{1}{\axiom{JacobiIdentity} means that} \axi
```

15.0.138 typos 40288: PACPERC

```
>compiling PACPERC.spad to PACPERC.nrlib

--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((definingPolynomial ((SUP %))): Not doc
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((definingPolynomial ((SUP %) %)): Not d
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((lift ((SUP %) %)): Not documented!!!!
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((lift ((SUP %) % %)): Not documented!!!!
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((reduce (% (SUP %))): Not documented!!!!
-----distinguishedRootsOf ((List %) (SparseUnivariatePolynomial %) %))-----
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((ground? ((Boolean) %)): Not documented
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((vectorise ((Vector %) % %)): Not docum
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((conjugate (% %)): Not documented!!!!
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((newElement (% (SUP %) % (Symbol))): No
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((newElement (% (SUP %) (Symbol))): Not
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((setTower! ((Void) %)): Not documented!
--->bookvol10.2.pamphlet-->PseudoAlgebraicClosureOfPerfectFieldCategory((fullOutput ((OutputForm) %)): Not docu
```

15.0.139 typos 40265a: LOCPOWC

```
>compiling LOCPOWC.spad to LOCPOWC.nrlib

--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((findCoef (K % (Integer))): Not documented!!!!
```

```

--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((coerce (% SER))): Not documented!!!!
--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((coerce (SER %))): Not documented!!!!

--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((orderIfNegative ((Union (Integer) failed) %))): Not document
--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((removeFirstZeroes (% %))): Not documented!!!!
--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory((sbt (% % %))): Not documented!!!!

--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory(constructor): Not documented!!!!
--->bookvol10.2.pamphlet-->LocalPowerSeriesCategory(): Missing Description

```

15.0.140 typos 40248a: LOP

```

>compiling LOP.spad to LOP.nrlib

--->bookvol10.4.pamphlet-->LinesOpPack((rowEchWoZeroLinesWOVectorise ((Matrix K) (Matrix K)))): Not documented!!
--->bookvol10.4.pamphlet-->LinesOpPack((rowEchWoZeroLines ((Matrix K) (Matrix K)))): Not documented!!!!

```

15.0.141 typos 40246: PERMAN

```

>compiling PERMAN.spad to PERMAN.nrlib

--->bookvol10.4.pamphlet-->Permanent((commutative (attribute *))): Not documented!!!!

```

15.0.142 typos 40242: ASP24

```

>compiling ASP24.spad to ASP24.nrlib

--->bookvol10.3.pamphlet-->Asp24((coerce ($ FEXPR))): (coerce ($ FEXPR)) has varying indentation levels

```

15.0.143 typos 40241: AXSERV

```

>compiling AXSERV.spad to AXSERV.nrlib

--->bookvol10.4.pamphlet-->AxiomServer((axServer ((Void) (Integer) (Mapping (Void) (SExpression))))): Not document
--->bookvol10.4.pamphlet-->AxiomServer((multiServ ((Void) (SExpression)))): Not documented!!!!
--->bookvol10.4.pamphlet-->AxiomServer((getDatabase ((String) (String) (String))): Not documented!!!!

```

15.0.144 typos 40224: FFSQFR


```
>compiling FFSQFR.spad to FFSQFR.nrllib
```

```
--->bookvol10.4.pamphlet-->FiniteFieldSquareFreeDecomposition((Musser ((Factored PolK) PolK))): Not documented!!!
--->bookvol10.4.pamphlet-->FiniteFieldSquareFreeDecomposition((Yun ((Factored PolK) PolK))): Not documented!!!!
```

15.0.145 typos 40212a: GOSPER

```
>compiling GOSPER.spad to GOSPER.nrllib
```

```
--->bookvol10.4.pamphlet-->GosperSummationMethod((coerce (% P))): Not documented!!!!
--->bookvol10.4.pamphlet-->GosperSummationMethod((numer (P %))): Not documented!!!!
--->bookvol10.4.pamphlet-->GosperSummationMethod((denom (P %))): Not documented!!!!
```

15.0.146 typos 40211: GRIMAGE

```
>compiling GRIMAGE.spad to GRIMAGE.nrllib
```

```
--->bookvol10.3.pamphlet-->GraphImage((figureUnits (UNITSF (L (L P))))): Not documented!!!!
```

15.0.147 typos 40205: INTERGB

```
>compiling INTERGB.spad to INTERGB.nrllib
```

```
--->bookvol10.4.pamphlet-->InterfaceGroebnerPackage((groebner ((List R) (List R)))): Not documented!!!!
```

15.0.148 typos 40202: LISYSER

```
>compiling LISYSER.spad to LISYSER.nrllib
```

```
--->bookvol10.4.pamphlet-->LinearSystemFromPowerSeriesPackage((finiteSeries2LinSysW0Vectorise ((Matrix K) (List
--->bookvol10.4.pamphlet-->LinearSystemFromPowerSeriesPackage((finiteSeries2Vector ((List K) PCS INT))): Not doc
```

15.0.149 typos 40193: PARAMP

```
>compiling PARAMP.spad to PARAMP.nrllib
```

```
--->bookvol10.4.pamphlet-->ParametrizationPackage((parametrize (PCS PolyRing (List PCS)))): Not documented!!!!
----- (parametrize (PCS PolyRing Plc)) -----
```

```
----- (parametrize (PCS PolyRing PolyRing Plc)) -----
----- (parametrize (PCS PolyRing Plc (Integer))) -----
```

15.0.150 typos 40192: PFORP

```
>compiling PFORP.spad to PFORP.nrllib
```

```
--->bookvol10.4.pamphlet-->PackageForPoly((mapExponents (PolyRing (Mapping E E) PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((degree (NNI PolyRing (Integer)))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((univariate ((SparseUnivariatePolynomial R) PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((totalDegree (NNI PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((subs1stVar (PolyRing PolyRing PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((subs2ndVar (PolyRing PolyRing PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((subsInVar (PolyRing PolyRing PolyRing (Integer)))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForPoly((listVariable ((List PolyRing)))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForPoly((monomials ((List PolyRing) PolyRing))): Not documented!!!!
```

15.0.151 typos 40189: POLYCATQ

```
>compiling POLYCATQ.spad to POLYCATQ.nrllib
```

```
--->bookvol10.4.pamphlet-->PolynomialCategoryQuotientFunctions((coerce (% P))): Not documented!!!!
--->bookvol10.4.pamphlet-->PolynomialCategoryQuotientFunctions((numer (P %))): Not documented!!!!
--->bookvol10.4.pamphlet-->PolynomialCategoryQuotientFunctions((denom (P %))): Not documented!!!!
```

15.0.152 typos 40188: POLYLIFT

```
>compiling POLYLIFT.spad to POLYLIFT.nrllib
```

```
--->bookvol10.4.pamphlet-->PolynomialCategoryLifting((+ (% % %))): Not documented!!!!
--->bookvol10.4.pamphlet-->PolynomialCategoryLifting((* (% % %))): Not documented!!!!
--->bookvol10.4.pamphlet-->PolynomialCategoryLifting(** (% % (NonNegativeInteger))): Not documented!!!!
```

15.0.153 typos 40184: RINTERP

```
>compiling RINTERP.spad to RINTERP.nrllib
```

```
--->bookvol10.4.pamphlet-->RationalInterpolation((interpolate ((Fraction (Polynomial F)) (List F) (List F) (NonN
```

15.0.154 typos 40180: SOLVEFOR

```
>compiling SOLVEFOR.spad to SOLVEFOR.nrllib
```

```
--->bookvol10.4.pamphlet-->PolynomialSolveByFormulas((** (% % (Fraction (Integer))))): Not documented!!!!
```

15.0.155 typos 40166: FACTRN

```
>compiling FACTRN.spad to FACTRN.nrllib
```

```
--->bookvol10.4.pamphlet-->FactorisationOverPseudoAlgebraicClosureOfRationalNumber((factor ((Factored UP) UP K))
```

```
--->bookvol10.4.pamphlet-->FactorisationOverPseudoAlgebraicClosureOfRationalNumber((factorSqFree ((Factored UP)
```

15.0.156 typos 40165: FFFACTSE

```
>compiling FFFACTSE.spad to FFFACTSE.nrllib
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((factorSquareFree ((List PolK) PolK
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((factorCantorZassenhaus ((List PolK
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((factor ((Factored PolK) PolK)): M
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((factorUsingYun ((Factored PolK) Po
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((factorUsingMusser ((Factored PolK)
```

```
--->bookvol10.4.pamphlet-->FiniteFieldFactorizationWithSizeParseBySideEffect((irreducible? ((Boolean) PolK)): M
```

15.0.157 typos 40163: INTFRSP

```
>compiling INTFRSP.spad to INTFRSP.nrllib
```

```
--->bookvol10.4.pamphlet-->InterpolateFormsPackage((basisOfInterpolateForms ((List (Vector K)) DIVISOR (List Pol
```

```
--->bookvol10.4.pamphlet-->InterpolateFormsPackage((basisOfInterpolateFormsForFact ((List (Vector K)) DIVISOR (L
```

```
--->bookvol10.4.pamphlet-->InterpolateFormsPackage((interpolateFormsForFact ((List PolyRing) DIVISOR (List PolyR
```

15.0.158 typos 40161: NPOLYGON

```
>compiling NPOLYGON.spad to NPOLYGON.nrllib
```

```
--->bookvol10.4.pamphlet-->NewtonPolygon((newtonPolygon ((List (List PolyRing)) PolyRing (Integer) (Integer) (Un
```

```
--->bookvol10.4.pamphlet-->NewtonPolygon((multiplicity ((NonNegativeInteger) (List (List PolyRing))): Not docu
```

```
--->bookvol10.4.pamphlet-->NewtonPolygon((negAndPosEdge ((List (List PolyRing)) PolyRing (List (List PolyRing))
```

```
--->bookvol10.4.pamphlet-->NewtonPolygon((slope (recSlope PolyRing PolyRing)): Not documented!!!!
```

```
--->bookvol10.4.pamphlet-->NewtonPolygon((slope (recSlope (List PolyRing)))): Not documented!!!!
```

15.0.159 typos 40158: AFALGGRO

```
>compiling AFALGGRO.spad to AFALGGRO.nrlib
```

```
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithGroebnerBasis((affineAlgSet ((Union (List ProjPt) failed
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithGroebnerBasis((affineSingularPoints ((Union (List ProjPt)
```

15.0.160 typos 40157: AFALGRES

```
>compiling AFALGRES.spad to AFALGRES.nrlib
```

```
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((affineSingularPoints ((Union (List ProjPt) fa
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((affineSingularPoints ((Union (List ProjPt) fa
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((affineAlgSetLocal ((Union (List ProjPt) faile
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((affineAlgSet ((Union (List ProjPt) failed Inf
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((polyRing2UPUP (UPUP PolyRing))): Not document
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((allPairsAmong ((List (List UPUP)) (List UPUP))
--->bookvol10.4.pamphlet-->AffineAlgebraicSetComputeWithResultant((affineRationalPoints ((Union (List ProjPt) fa
```

15.0.161 typos 40134b: BlowUpPackage

```
--->bookvol10.4.pamphlet-->BlowUpPackage((newtonPolySlope ((List (List NNI)) BUpRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->BlowUpPackage((polyRingToBUpRing (BUpRing PolyRing BLMET))): Not documented!!!!
--->bookvol10.4.pamphlet-->BlowUpPackage((biringToPolyRing (PolyRing BUpRing BLMET))): Not documented!!!!
```

15.0.162 typos 40126b: Float

```
--->bookvol10.3.pamphlet-->Float(constructor): Not documented!!!!
--->bookvol10.3.pamphlet-->Float(): Missing Description
```

15.0.163 typos 40120a: INFCLCT

```
>compiling INFCLCT.spad to INFCLCT.nrlib
```

```
--->bookvol10.2.pamphlet-->InfinitelyClosePointCategory((create (% ProjPt PolyRing))): Not documented!!!!
--->bookvol10.2.pamphlet-->InfinitelyClosePointCategory((setpoint! (ProjPt % ProjPt))): Not documented!!!!
```

```
>compiling NAGD02.spad to NAGD02.nrlib
```

[illegible]

```
>compiling NAGD03.spad to NAGD03.nrlib
```

```

-->bookvol10.4.pamphlet-->NagPartialDifferentialEquationsPackage((d03faf ((Result) (DoubleFloat) (DoubleFloat)
"d03faf(xs,xf,l,lbcnd,bdxs,bdxf,ys,yf,m,mbdcnd,bdys,bdyf,zs, \indented{7}{zf,n,nbdcnd,bdzs,bdzf,lambda,ldimf,m

```

```
>compiling NAGE04.spad to NAGE04.nrlib
```

```
-->bookvol10.4.pamphlet-->NagOptimisationPackage((e04mbf ((Result) (Integer) (Integer) (Integer) (Integer) (Int  
"e04mbf(itmax,msglvl,n,nclin,nctotl,nrowa,a,b1,bu, \\indented{7}{cvec,linobj,liwork,lwork,x,ifail})} is an easy-t  
  
--->bookvol10.4.pamphlet-->NagOptimisationPackage((e04naf ((Result) (Integer) (Integer) (Integer) (Integer) (Int  
"e04naf(itmax,msglvl,n,nclin,nctotl,nrowa,nrowh,ncolh,bigbnd,a,b1, bu,cvec,featol,hess,cold,lpp,orthog,liwork,lw  
  
--->bookvol10.4.pamphlet-->NagOptimisationPackage((e04ucf ((Result) (Integer) (Integer) (Integer) (Integer) (Int
```

```
"e04ucf(n,nclin,ncnln,nrowa,nrowj,nrowr,a,bl,bu,liwork,lwork,sta, \\indented{7}{cra,der,fea,fun,hes,infb,info,li
```

15.0.167 typos 70111: NSDPS

```
>compiling NSDPS.spad to NSDPS.nrlib
```

```
--->bookvol10.3.pamphlet-->NeitherSparseOrDensePowerSeries((findTerm (TERM % (Integer)))): Not documented!!!!
-----constructor-----
```

15.0.168 typos 40107: PACOFF

```
>compiling PACOFF.spad to PACOFF.nrlib
```

```
--->bookvol10.3.pamphlet-->PseudoAlgebraicClosureOfFiniteField((fullOutput ((OutputForm) %))): Not documented!!!!
```

15.0.169 typos 40106: PACRAT

```
>compiling PACRAT.spad to PACRAT.nrlib
```

```
--->bookvol10.3.pamphlet-->PseudoAlgebraicClosureOfRationalNumber((fullOutput ((OutputForm) %))): Not documented
--->bookvol10.3.pamphlet-->PseudoAlgebraicClosureOfRationalNumber(newElement (% (SUP %) (SUP %) PI % (Symbol)))
```

15.0.170 typos 40096: SAOS

```
>compiling SAOS.spad to SAOS.nrlib
```

```
--->bookvol10.3.pamphlet-->SingletonAsOrderedSet((create (%))): Not documented!!!!
--->bookvol10.3.pamphlet-->SingletonAsOrderedSet((convert ((Symbol) %))): Not documented!!!!
```

15.0.171 typos 40082a: DTP

```
>compiling DTP.spad to DTP.nrlib
```

```
--->bookvol10.4.pamphlet-->DesingTreePackage((blowUp ((List InfClsPoint) InfClsPoint))): Not documented!!!!
--->bookvol10.4.pamphlet-->DesingTreePackage((blowUpWithExcpDiv ((Void) DesTree))): Not documented!!!!
--->bookvol10.4.pamphlet-->DesingTreePackage((inBetweenExcpDiv (DIVISOR DesTree))): Not documented!!!!
```

15.0.172 nonextend 40081: D01TRNS

```
>compiling D01TRNS.spad to D01TRNS.nrllib
--->bookvol10.3.pamphlet-->d01TransformFunctionType(): Missing Description
```

15.0.173 typos 40078: EXPRODE

```
>compiling EXPRODE.spad to EXPRODE.nrllib
--->bookvol10.4.pamphlet-->ExpressionSpaceODESolver((seriesSolve ((Any) (List F) (List OP) EQ (List EQ)))): Miss
"seriesSolve([eq1,...,eqn], [y1,...,yn], \spad{x} = \spad{a,[y1] a = b1,..., \spad{yn} a = bn]) is equivalent
```

15.0.174 typos 40069: MYUP

```
>compiling MYUP.spad to MYUP.nrllib
-----fmeceg (% % (NonNegativeInteger) R %))-----
--->bookvol10.3.pamphlet-->MyUnivariatePolynomial((coerce (% R))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyUnivariatePolynomial((coerce (% (Polynomial R))): Not documented!!!!
```

15.0.175 typos 40068: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrllib
--->bookvol10.3.pamphlet-->MyExpression((* (% % %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression(/ (% % %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression(** (% % %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression((numerator (% %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression((denominator (% %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression((ground? ((Boolean) %))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression((coerce (% (Fraction UP))): Not documented!!!!
--->bookvol10.3.pamphlet-->MyExpression((retract ((Fraction UP) %))): Not documented!!!!
```

15.0.176 typos 40067: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrllib
-----fmeceg (% % (NonNegativeInteger) R %))-----
```


15.0.180 typos 40058: TRMANIP

>compiling TRMANIP.spad to TRMANIP.nrllib

```
--->bookvol10.4.pamphlet-->TranscendentalManipulations((expand (F F))): \item appears outside a \begin-\end
--->bookvol10.4.pamphlet-->TranscendentalManipulations((expand (F F))): \item appears outside a \begin-\end
--->bookvol10.4.pamphlet-->TranscendentalManipulations((expand (F F))): \item appears outside a \begin-\end
"\spad{expand(f)} performs the following expansions on f:\begin{items} \item 1. logs of products are expanded

--->bookvol10.4.pamphlet-->TranscendentalManipulations((simplify (F F))): \item appears outside a \begin-\end
--->bookvol10.4.pamphlet-->TranscendentalManipulations((simplify (F F))): \item appears outside a \begin-\end
--->bookvol10.4.pamphlet-->TranscendentalManipulations((simplify (F F))): \item appears outside a \begin-\end
--->bookvol10.4.pamphlet-->TranscendentalManipulations((simplify (F F))): \item appears outside a \begin-\end
"\spad{simplify(f)} performs the following simplifications on f:\begin{items} \item 1. rewrites trigs and hyp
```

15.0.181 typos 40057: UPXSSING

>compiling UPXSSING.spad to UPXSSING.nrllib

```
-----non extending category-----
.. UnivariatePuisseuxSeriesWithExponentialSingularity(#1,#2,#3,#4) of cat
(|Join| (|FiniteAbelianMonoidRing| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|) (|ExponentialOfUnivariatePuisseuxSeries| |#2| |#3| |#4|) (|IntegralDomain|))) (IF (|has| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|) (|IntegralDomain|))) (IF (|has| (|ExponentialOfUnivariatePuisseuxSeries| |#2| |#3| |#4|) (|IntegralDomain|))))
```

15.0.182 typos 40056: UTSSOL

>compiling UTSSOL.spad to UTSSOL.nrllib

```
--->bookvol10.4.pamphlet-->TaylorSolve((seriesSolve (UTSF (Mapping UTSSUPF UTSSUPF) (List F)))): Not documented!!!
```

15.0.183 typos 40050: EXPRSOL

>compiling EXPRSOL.spad to EXPRSOL.nrllib

```
--->bookvol10.4.pamphlet-->ExpressionSolve((seriesSolve (UTSF F OP SY (List F)))): Not documented!!!!
--->bookvol10.4.pamphlet-->ExpressionSolve((replaceDiffs (F F OP (Symbol)))): Not documented!!!!
```

15.0.184 typos 40049: FACTEXT

>compiling FACTEXT.spad to FACTEXT.nrllib

```
--->bookvol10.4.pamphlet-->FactorisationOverPseudoAlgebraicClosureOfAlgExtOfRationalNumber((factor ((Factored UP
--->bookvol10.4.pamphlet-->FactorisationOverPseudoAlgebraicClosureOfAlgExtOfRationalNumber((factorSqFree ((Facto
```

15.0.185 typos 40047: GSERIES

```
>compiling GSERIES.spad to GSERIES.nrlib
```

```
-----non extending category-----
.. GeneralUnivariatePowerSeries(#1,#2,#3) of cat
(|Join| (|UnivariatePuisseuxSeriesCategory| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|Variable| |#2|))) (
(|UnivariatePuisseuxSeriesConstructorCategory| |#1| (|UnivariateLaurentSeries| |#1| |#2| |#3|)) finalizing nrl
```

15.0.186 typos 40046: REGSET

```
>compiling REGSET.spad to REGSET.nrlib
```

Warning: REGSET;decompose has a duplicate definition in this file

15.0.187 typos 40044: RSDCMPK

```
>compiling RSDCMPK.spad to RSDCMPK.nrlib
```

```
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((KrullNumber (N LP Split))): Not documented!!!!
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((numberOfVariables (N LP Split))): Not documented!!!!
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((algebraicDecompose ((Record (: done Split) (: todo (L
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((transcendentalDecompose ((Record (: done Split) (: to
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((transcendentalDecompose ((Record (: done Split) (: to
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (: todo (Li
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (: todo (Li
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (: todo (Li
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((decompose (Split LP Split B B))): Not documented!!!!
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((decompose (Split LP Split B B B B B B))): Not documente
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((updateBranches ((List LpWT) LP Split (List LpWT) Wip
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((convert ((String) (Record (: val (List P)) (: tower T
--->bookvol10.4.pamphlet-->RegularSetDecompositionPackage((printInfo ((Void) (List (Record (: val (List P)) (: t
```

15.0.188 typos 40040: UFPS1

```
>compiling UFPS1.spad to UFPS1.nrlib
```



```

--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stopTableInvSet! ((Void))): Not documented
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stosePrepareSubResAlgo ((List LpWT) P P TS)):
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInternalLastSubResultant ((List PWT) P
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInternalLastSubResultant ((List PWT) P
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseIntegralLastSubResultant ((List PWT) P
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseLastSubResultant ((List PWT) P P TS)):
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible? (B P TS))): Not documented
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?sqfreg ((List BWT) P TS))):
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSetsqfreg (Split P TS))): No
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?reg ((List BWT) P TS))): No
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSetreg (Split P TS))): Not d
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible? ((List BWT) P TS))): Not d
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSet (Split P TS))): Not docu
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stoseSquareFreePart ((List PWT) P TS))): No

```

15.0.193 typos 40033: SRDCMPK

>compiling SRDCMPK.spad to SRDCMPK.nrlib

```

--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((KrullNumber (N LP Split))): Not documented!
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((numberOfVariables (N LP Split))): Not docum
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((algebraicDecompose ((Record (: done Split)
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((transcendentalDecompose ((Record (: done Sp
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((transcendentalDecompose ((Record (: done Sp
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((internalDecompose ((Record (: done Split) (
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((decompose (Split LP Split B B))): Not docum
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((decompose (Split LP Split B B B B))): Not
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((updateBranches ((List LpWT) LP Split (List
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((convert ((String) (Record (: val (List P))
--->bookvol10.4.pamphlet-->SquareFreeRegularSetDecompositionPackage((printInfo ((Void) (List (Record (: val (Lis

```

15.0.194 typos 40031: GUESS

>compiling GUESS.spad to GUESS.nrlib

```

--->bookvol10.4.pamphlet-->Guess((* (% % %))): Not documented!!!!
--->bookvol10.4.pamphlet-->Guess(/ (% % %))): Not documented!!!!
--->bookvol10.4.pamphlet-->Guess(** (% % %))): Not documented!!!!
--->bookvol10.4.pamphlet-->Guess((numerator (% %))): Not documented!!!!
--->bookvol10.4.pamphlet-->Guess((denominator (% %))): Not documented!!!!
--->bookvol10.4.pamphlet-->Guess((ground? ((Boolean) %))): Not documented!!!!

```

```

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((homogenize (PolyRing PolyRing (Integer)))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((interpolateFormsForFact ((List PolyRing) DIVISOR (List PolyRing) DIVISOR))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((fullDesTree ((Void)))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((fullInfClsPt ((Void)))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((setCurve (PolyRing PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((projectivePoint (ProjPt (List K))): Not documented!!!!
-----
(pointDominateBy (ProjPt Plc))-----
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((placesAbove ((List Plc) ProjPt)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((setSingularPoints ((List ProjPt) (List ProjPt))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((goppaCode ((Matrix K) DIVISOR DIVISOR))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((goppaCode ((Matrix K) DIVISOR (List Plc))): Not documented!!!!
-----
(rationalPlaces ((List Plc)))-----
-----
(theCurve (PolyRing))-----
-----
(genus (NNI))-----
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((genusNeg ((Integer)))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((rationalPoints ((List ProjPt))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((lBasis ((List FRACPOLY) DIVISOR NNI)): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((findOrderOfDivisor ((Record (: ord (Integer)) (: num (Integer)) (List PolyRing) DIVISOR))): Not documented!!!!

```

```

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((homogenize (PolyRing PolyRing (Integer)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((fullDesTree ((Void)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((fullInfClsPt ((Void)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((setCurve (PolyRing PolyRing))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((translateToOrigin (PolyRing2 PolyRing))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((goppaCode ((Matrix K) DIVISOR DIVISOR))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((goppaCode ((Matrix K) DIVISOR (List Divisor)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((placesAbove ((List Plc) ProjPt)): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((projectivePoint (ProjPt (List DK)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((setSingularPoints ((List ProjPt) (List Divisor)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((genusNeg ((Integer)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((rationalPoints ((List ProjPt)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((lBasis ((List FracPoly) DIVISOR NNI))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((homogenize (PolyRing PolyRing (Integer)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((interpolateFormsForFact ((List PolyRing) DIVISOR (List Divisor)))): Not documented
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((fullDesTree ((Void)))): Not documented!!!!

```

```

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((fullInfClsPt ((Void))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((setCurve (PolyRing PolyRing)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((projectivePoint (ProjPt (List K))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((placesAbove ((List Plc) ProjPt)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((setSingularPoints ((List ProjPt) (List ProjPt))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((goppaCode ((Matrix K) DIVISOR DIVISOR)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((goppaCode ((Matrix K) DIVISOR (List Plc))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((genusNeg ((Integer))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((rationalPoints ((List ProjPt))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((lBasis ((List FRACPOLY) DIVISOR NNI)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionField((findOrderOfDivisor ((Record (: ord (Integer)) (: nu
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((interpolateFormsForFact ((List PolyR
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((homogenize (PolyRing PolyRing (Integ
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((fullDesTree ((Void))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((fullInfClsPt ((Void))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((setCurve (PolyRing PolyRing)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((translateToOrigin (PolyRing2 PolyRing
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((goppaCode ((Matrix K) DIVISOR DIVISOR
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((goppaCode ((Matrix K) DIVISOR (List

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((placesAbove ((List Plc) ProjPt)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((projectivePoint (ProjPt (List DK))): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((setSingularPoints ((List ProjPt) (List

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((genusNeg ((Integer))): Not documented!!!!

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((rationalPoints ((List ProjPt))): Not documented!!!!

PAFFFF abbreviates package
  PackageForAlgebraicFunctionFieldOverFiniteField

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((lBasis ((List FracPoly) DIVISOR NNI)): Not documented!!!!
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((findOrderOfDivisor ((Record (: ord (Integer)) (: nu
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((interpolateFormsForFact ((List PolyR

```

15.0.197 warnings 20566: MAPPKG1

```
>compiling MAPPKG1.spad to MAPPKG1.nrllib
```

Warnings:

- [1] Use: import (MappingPackageInternalHacks1 A)
- [2] fixedPoint: :A -- should replace by pretend
- [3] **: a1 has no value
- [4] recur: n1 has no value
- [5] recur: a2 has no value

15.0.198 warnings 20565: MAPPKG2

```
>compiling MAPPKG2.spad to MAPPKG2.nrlib
```

```
Warnings:
```

```
[1] Use: import (MappingPackageInternalHacks2 A C)
[2] const: a1 has no value
[3] constant: a1 has no value
[4] diag: a1 has no value
```

15.0.199 warnings 20564: MAPPKG3

```
>compiling MAPPKG3.spad to MAPPKG3.nrlib
```

```
Warnings:
```

```
[1] Use: import (MappingPackageInternalHacks3 A B C)
[2] curryRight: a has no value
[3] curryLeft: b has no value
[4] constantRight: a has no value
[5] constantLeft: b has no value
[6] twist: a has no value
[7] twist: b has no value
[8] *: a has no value
```

15.0.200 warnings 20563: MKBCFUNC

```
>compiling MKBCFUNC.spad to MKBCFUNC.nrlib
```

```
Warnings:
```

```
[1] binaryFunction: d1 has no value
[2] binaryFunction: d2 has no value
```

15.0.201 warnings 20562: MKUCFUNC

```
>compiling MKUCFUNC.spad to MKUCFUNC.nrlib
```

```
Warnings:
```

```
[1] unaryFunction: d1 has no value
```

15.0.202 warnings 20561: NIPROB

```
>compiling NIPROB.spad to NIPROB.nrllib
```

```
Warnings:
```

```
[1] coerce:  nia has no value  
[2] coerce:  mdnia has no value  
[3] retract:  nia has no value  
[4] retract:  mdnia has no value
```

15.0.203 warnings 20560: OPTPROB

```
>compiling OPTPROB.spad to OPTPROB.nrllib
```

```
Warnings:
```

```
[1] coerce:  noa has no value  
[2] coerce:  lsa has no value  
[3] retract:  noa has no value  
[4] retract:  lsa has no value
```

15.0.204 warnings 20559: PATTERN1

```
>compiling PATTERN1.spad to PATTERN1.nrllib
```

```
Warnings:
```

```
[1] predicate:  d1 has no value  
[2] satisfy?:  var has no value  
[3] satisfy?:  pred has no value
```

15.0.205 warnings 20558: ASP29

```
>compiling ASP29.spad to ASP29.nrllib
```

```
Warnings:
```

```
[1] ISTATE has no value  
[2] NEXTIT has no value  
[3] NEVALS has no value  
[4] NVECS has no value  
[5] K has no value  
[6] F has no value  
[7] D has no value
```

15.0.206 warnings 20557: BEZIER


```
>compiling BEZIER.spad to BEZIER.nrlib
```

```
Warnings:
```

```
[1] linearBezier:  t has no value
[2] quadraticBezier:  t has no value
[3] cubicBezier:  t has no value
```

15.0.207 warnings 20556: FCOMP

```
>compiling FCOMP.spad to FCOMP.nrlib
```

```
Warnings:
```

```
[1] elt:  y has no value
[2] eval:  y has no value
```

15.0.208 warnings 20555: IDPAG

```
>compiling IDPAG.spad to IDPAG.nrlib
```

```
Warnings:
```

```
[1] -:  res has no value
[2] -:  endcell has no value
```

15.0.209 warnings 20554: IDPAM

```
>compiling IDPAM.spad to IDPAM.nrlib
```

```
Warnings:
```

```
[1] +:  res has no value
[2] +:  endcell has no value
```

15.0.210 warnings 20553: INCRMAPS

```
>compiling INCRMAPS.spad to INCRMAPS.nrlib
```

```
Warnings:
```

```
[1] increment:  x has no value
[2] incrementBy:  x has no value
```

15.0.211 warnings 20552: MONADWU

```
>compiling MONADWU.spad to MONADWU.nrllib
```

```
Warnings:
```

- ```
[1] rightPower: signature of lhs not unique: SS(NonNegativeInteger) chosen
[2] leftPower: signature of lhs not unique: SS(NonNegativeInteger) chosen
```

**15.0.212 warnings 20551: PATMATCH**

```
>compiling PATMATCH.spad to PATMATCH.nrllib
```

```
Warnings:
```

- ```
[1] ist: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE is? ((Boolean) Subject Pat))
```

15.0.213 warnings 20550: AUTOMOR

```
>compiling AUTOMOR.spad to AUTOMOR.nrllib
```

```
Warnings:
```

- ```
[1] inv: r1 has no value
[2] inv: i2 has no value
[3] **: signature of lhs not unique: $$ (Integer) chosen
[4] **: r1 has no value
[5] **: i2 has no value
[6] morphism: i2 has no value
[7] morphism: r1 has no value
[8] *: u1 has no value
[9] *: v1 has no value
[10] *: i2 has no value
[11] *: r1 has no value
```

**15.0.214 warnings 20549: CHARPOL**

```
>compiling CHARPOL.spad to CHARPOL.nrllib
```

```
Warnings:
```

- ```
[1] characteristicPolynomial: :(PositiveInteger) -- should replace by pretend
```

15.0.215 warnings 20548: ELAGG

```
>compiling ELAGG.spad to ELAGG.nrlib
```

```
Warnings:
```

```
[1] remove!: y has no value
```

15.0.216 warnings 20547: ES2

```
>compiling ES2.spad to ES2.nrlib
```

```
Warnings:
```

```
[1] map: IN has no value
```

```
[2] map: x has no value
```

15.0.217 warnings 20546: MKCHSET

```
>compiling MKCHSET.spad to MKCHSET.nrlib
```

```
Warnings:
```

```
[1] coerce: x has no value
```

```
[2] <: x1 has no value
```

```
[3] =: x1 has no value
```

15.0.218 warnings 20545: IFAMON

```
>compiling IFAMON.spad to IFAMON.nrlib
```

```
Warnings:
```

```
[1] *: x has no value
```

```
[2] coerce: y has no value
```

```
[3] coerce: x has no value
```

15.0.219 warnings 20544: CARD

```
>compiling CARD.spad to CARD.nrlib
```

```
Warnings:
```

```
[1] **: signature of lhs not unique: $$$ chosen
```

```
[2] **: :(NonNegativeInteger) -- should replace by pretend
```

15.0.220 warnings 20543: FACTFUNC

```
>compiling FACTFUNC.spad to FACTFUNC.nrllib
```

```
Warnings:
  [1] nthRoot:  radi has no value
```

15.0.221 warnings 20541: AMR

```
>compiling AMR.spad to AMR.nrllib
```

```
Warnings:
  [1] *:  x1 has no value
```

15.0.222 warnings 20540: DEGRED

```
>compiling DEGRED.spad to DEGRED.nrllib
```

```
Warnings:
  [1] reduce: :(PositiveInteger) -- should replace by pretend
```

15.0.223 warnings 20539: DLP

```
>compiling DLP.spad to DLP.nrllib
```

```
Warnings:
  [1] shanksDiscLogAlgorithm:  found has no value
  [2] shanksDiscLogAlgorithm:  disclog has no value
  [3] shanksDiscLogAlgorithm:  pretend(Integer) -- should replace by @
```

15.0.224 warnings 20538: FAGROUP

```
>compiling FAGROUP.spad to FAGROUP.nrllib
```

```
Warnings:
  [1] <:  exp has no value
  [2] <:  gen has no value
```

15.0.225 warnings 20537: FIELD

```
>compiling FIELD.spad to FIELD.nrlib
```

```
Warnings:
```

```
[1] squareFree: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE / (S S S)) (SIGNATURE
```

15.0.226 warnings 20536: FLAGG

```
>compiling FLAGG.spad to FLAGG.nrlib
```

```
Warnings:
```

```
[1] sorted?: x has no value
```

```
[2] sorted?: y has no value
```

15.0.227 warnings 20535: FLINEXP

```
>compiling FLINEXP.spad to FLINEXP.nrlib
```

```
Warnings:
```

```
[1] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE reducedSystem ((Matrix (In
```

15.0.228 warnings 20534: MAPPKG4

```
>compiling MAPPKG4.spad to MAPPKG4.nrlib
```

```
Warnings:
```

```
[1] +: c has no value
```

```
[2] -: c has no value
```

```
[3] *: c has no value
```

```
[4] /: c has no value
```

15.0.229 warnings 20533: OMLO

```
>compiling OMLO.spad to OMLO.nrlib
```

```
Warnings:
```

```
[1] op: :$ -- should replace by @
```

```
[2] po: :P -- should replace by pretend
```

```
[3] *: :P -- should replace by pretend
```

```
[4] coerce: :P -- should replace by pretend
```

15.0.230 warnings 20532: PRODUCT

```
>compiling PRODUCT.spad to PRODUCT.nrllib
```

```
Warnings:
```

```
[1] count:  n has no value
```

15.0.231 warnings 20531: ARR2CAT

```
>compiling ARR2CAT.spad to ARR2CAT.nrllib
```

```
Warnings:
```

```
[1] count:  num has no value
```

```
[2] count:  x has no value
```

15.0.232 warnings 20530: ASP34

```
>compiling ASP34.spad to ASP34.nrllib
```

```
Warnings:
```

```
[1] IFLAG has no value
```

```
[2] N has no value
```

```
[3] X has no value
```

```
[4] Y has no value
```

```
[5] LRWORK has no value
```

```
[6] LIWORK has no value
```

```
[7] RWORK has no value
```

```
[8] IWORK has no value
```

```
[9] coerce:  I has no value
```

```
[10] coerce:  J has no value
```

```
[11] coerce:  W1 has no value
```

```
[12] coerce:  W2 has no value
```

```
[13] coerce:  MS has no value
```

15.0.233 warnings 20529: BFUNCT

```
>compiling BFUNCT.spad to BFUNCT.nrllib
```

```
Warnings:
```

```
[1] bf:  x1 has no value
```

15.0.234 warnings 20528: BTREE

```
>compiling BTREE.spad to BTREE.nrlib
```

```
Warnings:
```

- [1] empty: pretend\$ -- should replace by @
- [2] node: :Rep -- should replace by pretend
- [3] setvalue!: :Rep -- should replace by pretend
- [4] setleft!: :Rep -- should replace by pretend
- [5] setright!: :(List (Tree S)) -- should replace by pretend

15.0.235 warnings 20527: CRAPACK

```
>compiling CRAPACK.spad to CRAPACK.nrlib
```

```
Warnings:
```

- [1] chineseRemainder: a has no value
- [2] chineseRemainder: d has no value
- [3] chineseRemainder: b has no value
- [4] chineseRemainder: c has no value

15.0.236 warnings 20526: DIRRING

```
>compiling DIRRING.spad to DIRRING.nrlib
```

```
Warnings:
```

- [1] per: pretend\$ -- should replace by @
- [2] rep: pretendRep -- should replace by @
- [3] coerce: n has no value
- [4] One: n has no value
- [5] +: n has no value
- [6] -: n has no value
- [7] *: n has no value
- [8] *: a has no value
- [9] *: b has no value
- [10] recip: n has no value
- [11] multiplicative?: not known that (IntegralDomain) is of mode (CATEGORY domain (IF (has Coef (Commutati
- [12] multiplicative?: r has no value
- [13] multiplicative?: s has no value
- [14] additive?: r has no value
- [15] additive?: s has no value

15.0.237 warnings 20525: DIV

```
>compiling DIV.spad to DIV.nrlib
```

```
Warnings:
[1] reductum: pretendRep -- should replace by @
[2] head: pretendRep -- should replace by @
[3] coefficient: r has no value
[4] collect: inList? has no value
[5] collect: t has no value
[6] +: pretendRep -- should replace by @
[7] *: pretendRep -- should replace by @
```

15.0.238 warnings 20524: D01GBFA

```
>compiling D01GBFA.spad to D01GBFA.nrlib
```

```
Warnings:
[1] numericalIntegration: x has no value
```

15.0.239 warnings 20523: FAMR

```
>compiling FAMR.spad to FAMR.nrlib
```

```
Warnings:
[1] pomopo!: x1 has no value
[2] /: x1 has no value
[3] exquo: signature of lhs not unique: (Union S failed)SR chosen
```

15.0.240 warnings 20522: FM1

```
>compiling FM1.spad to FM1.nrlib
```

```
Warnings:
[1] listOfTerms: :(List (Record (: k S) (: c R))) -- should replace by pretend
```

15.0.241 warnings 20521: FMONOID

```
>compiling FMONOID.spad to FMONOID.nrlib
```

```
Warnings:
[1] overlap: l has no value
[2] divide: l has no value
[3] hclf: h has no value
```



```
[4] lquo:  gen has no value
[5] lquo:  exp has no value
```

15.0.242 warnings 20520: IPADIC

```
>compiling IPADIC.spad to IPADIC.nrlib
```

Warnings:

```
[1] padic: pretend$ -- should replace by @
[2] =: st has no value
[3] intToPAdic: digit has no value
[4] intToPAdic: carry has no value
[5] intPlusPAdic: digit has no value
[6] intPlusPAdic: carry has no value
[7] intMinusPAdic: digit has no value
[8] intMinusPAdic: carry has no value
[9] plusAux: digit has no value
[10] plusAux: carry has no value
[11] minusAux: digit has no value
[12] minusAux: carry has no value
[13] intMult: digit has no value
[14] intMult: carry has no value
[15] timesAux: digit has no value
[16] timesAux: carry has no value
[17] coerce: pretend(Integer) -- should replace by @
[18] coerce: 1 has no value
```

15.0.243 warnings 20519: LIST2MAP

```
>compiling LIST2MAP.spad to LIST2MAP.nrlib
```

Warnings:

```
[1] match: z1 has no value
```

15.0.244 warnings 20518: LMOPS

```
>compiling LMOPS.spad to LMOPS.nrlib
```

Warnings:

```
[1] mapExpon: ans has no value
[2] outputForm: The conditional modes (List (OutputForm)) and $ conflict
```

15.0.245 warnings 20517: MESH

```
>compiling MESH.spad to MESH.nrlib
```

```
Warnings:
```

```
[1] ptFunc:  z1 has no value
[2] ptFunc:  z2 has no value
[3] meshFun2Var:  z1 has no value
[4] meshFun2Var:  x2 has no value
```

15.0.246 warnings 20516: MOEBIUS

```
>compiling MOEBIUS.spad to MOEBIUS.nrlib
```

```
Warnings:
```

```
[1] recip: signature of lhs not unique: $$ chosen
[2] proportional?:  f1 has no value
[3] proportional?:  g1 has no value
```

15.0.247 warnings 20515: MRING

```
>compiling MRING.spad to MRING.nrlib
```

```
Warnings:
```

```
[1] index:  ans has no value
[2] retractIfCan:  coef has no value
[3] retractIfCan:  monom has no value
[4] recip:  monom has no value
[5] recip:  coef has no value
[6] coerce:  coef has no value
[7] coerce:  monom has no value
[8] =:  coef has no value
[9] =:  monom has no value
[10] sortAndAdd:  m has no value
[11] sortAndAdd:  res has no value
```

15.0.248 warnings 20514: ODR

```
>compiling ODR.spad to ODR.nrlib
```

```
Warnings:
```

```
[1] not known that (IntegralDomain) is of mode (CATEGORY domain (IF (has R (Field)) (ATTRIBUTE (Field)) no
```

15.0.249 warnings 20513: ORDCOMP

```
>compiling ORDCOMP.spad to ORDCOMP.nrllib
```

Warnings:

```
[1] retract:  fin has no value
[2] retractIfCan:  fin has no value
[3] coerce:  fin has no value
[4] coerce:  inf has no value
[5] whatInfinity:  inf has no value
[6] =:  inf has no value
[7] =:  fin has no value
[8] *:  inf has no value
[9] *:  fin has no value
[10] -:  inf has no value
[11] -:  fin has no value
[12] +:  inf has no value
[13] +:  fin has no value
[14] recip:  fin has no value
[15] <:  inf has no value
[16] <:  fin has no value
```

15.0.250 warnings 20512: PARTPERM

```
>compiling PARTPERM.spad to PARTPERM.nrllib
```

Warnings:

```
[1] partitions:  l1 has no value
[2] shuffle:  l1 has no value
[3] shuffle:  l2 has no value
[4] shufflein:  l1 has no value
```

15.0.251 warnings 20511: PENDTREE

```
>compiling PENDTREE.spad to PENDTREE.nrllib
```

Warnings:

```
[1] ptree: pretend$ -- should replace by @
[2] ptree: :Rep -- should replace by pretend
[3] ptree: :$ -- should replace by @
[4] =: :Rep -- should replace by pretend
```

15.0.252 warnings 20510: PLOTTOOL

```
>compiling PLOTTOOL.spad to PLOTTOOL.nrlib
```

```
Warnings:
```

```
[1] xRange:  u1 has no value
[2] xRange:  v1 has no value
[3] yRange:  u1 has no value
[4] yRange:  v1 has no value
```

15.0.253 warnings 20509: PFR

```
>compiling PFR.spad to PFR.nrlib
```

```
Warnings:
```

```
[1] LessThan:  :(Boolean) -- should replace by pretend
[2] multiplyFracTerms:  :Rep -- should replace by pretend
[3] multiplyFracTerms:  c has no value
[4] compactFraction:  :(NonNegativeInteger) -- should replace by pretend
[5] compactFraction:  s has no value
[6] compactFraction:  bf has no value
```

15.0.254 warnings 20508: PMDOWN

```
>compiling PMDOWN.spad to PMDOWN.nrlib
```

```
Warnings:
```

```
[1] fixPredicate:  a1 has no value
[2] patternMatch:  a1 has no value
[3] patternMatch:  not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE fixPredicate ((Map
[4] fixPredicates:  l1 has no value
```

15.0.255 warnings 20507: PMINS

```
>compiling PMINS.spad to PMINS.nrlib
```

```
Warnings:
```

```
[1] patternMatchInner:  i1 has no value
[2] patternMatchInner:  i2 has no value
```

15.0.256 warnings 20506: PMLSAGG

```
>compiling PMLSAGG.spad to PMLSAGG.nrlib
```

Warnings:

```
[1] match: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE patternMatch ((PatternMatch
```

15.0.257 warnings 20505: PMTOOLS

```
>compiling PMTOOLS.spad to PMTOOLS.nrlib
```

Warnings:

```
[1] patternMatchTimes: l1 has no value
[2] patternMatch: p1 has no value
[3] patternMatch: z2 has no value
[4] patternMatch: z1 has no value
[5] patternMatch: p2 has no value
```

15.0.258 warnings 20504: PRITITION

```
>compiling PRITITION.spad to PRITITION.nrlib
```

Warnings:

```
[1] coerce: signature of lhs not unique: (List (Integer))$ chosen
[2] partition: i2 has no value
[3] partition: i1 has no value
[4] conjugate: pretendRep -- should replace by @
[5] coerce: pretendRep -- should replace by @
[6] pdct: pretendRep -- should replace by @
```

15.0.259 warnings 20503: PSCAT

```
>compiling PSCAT.spad to PSCAT.nrlib
```

Warnings:

```
[1] *: r1 has no value
[2] -: r1 has no value
[3] /: r1 has no value
```

15.0.260 warnings 20502: SCACHE

```
>compiling SCACHE.spad to SCACHE.nrlib
```

Warnings:

```
[1] enterInCache: pos has no value
```

15.0.261 warnings 20500: STTAYLOR

```
>compiling STTAYLOR.spad to STTAYLOR.nrlib
```

```
Warnings:
```

```
[1] +: z has no value
[2] -: z has no value
[3] *: z has no value
[4] exquo: z has no value
[5] /: z has no value
[6] nnintegers: y has no value
[7] integers: y has no value
[8] oddintegers: y has no value
[9] int: y has no value
[10] eval: y has no value
[11] eval: z has no value
[12] lagrange: y has no value
[13] generalLambert: x has no value
[14] generalLambert: y has no value
[15] comps: y has no value
[16] nlde: y has no value
[17] smult: y has no value
[18] powern: order has no value
[19] powern: y has no value
[20] power: y has no value
```

15.0.262 warnings 20499: TABLBUMP

```
>compiling TABLBUMP.spad to TABLBUMP.nrlib
```

```
Warnings:
```

```
[1] bumptab1: s1 has no value
[2] bumptab1: s2 has no value
[3] lex: s1 has no value
[4] lex: s2 has no value
[5] slex: s1 has no value
[6] slex: s2 has no value
[7] inverse: s1 has no value
[8] inverse: s2 has no value
[9] untab: s2 has no value
[10] untab: s1 has no value
```

15.0.263 warnings 20498: UDPO

```
>compiling UDPO.spad to UDPO.nrlib
```

```
Warnings:
```

```
[1] more?: y has no value
[2] more?: z has no value
[3] largest: y has no value
[4] largest: z has no value
```

15.0.264 warnings 20497: UNISEG

```
>compiling UNISEG.spad to UNISEG.nrlib
```

```
Warnings:
[1] expand: x has no value
```

15.0.265 warnings 20496: XPR

```
>compiling XPR.spad to XPR.nrlib
```

```
Warnings:
[1] quasiRegular?: k has no value
[2] *: k has no value
[3] *: c has no value
```

15.0.266 warnings 20495: AFFSP

```
>compiling AFFSP.spad to AFFSP.nrlib
```

```
Warnings:
[1] removeConjugate: conjrem has no value
```

15.0.267 warnings 20494: COMBINAT

```
>compiling COMBINAT.spad to COMBINAT.nrlib
```

```
Warnings:
[1] binomial: s has no value
[2] binomial: b has no value
```

15.0.268 warnings 20493: D01FCFA

```
>compiling D01FCFA.spad to D01FCFA.nrlib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.269 warnings 20492: IFARRAY

```
>compiling IFARRAY.spad to IFARRAY.nrlib
```

```
Warnings:
```

```
[1] remove!: k has no value
```

```
[2] select!: k has no value
```

15.0.270 warnings 20491: INTHEORY

```
>compiling INTHEORY.spad to INTHEORY.nrlib
```

```
Warnings:
```

```
[1] fibonacci: f2 has no value
```

```
[2] jacobi: j has no value
```

```
[3] eulerPhi: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE bernoulli ((Fraction
```

```
[4] divisors: i1 has no value
```

```
[5] divisors: i2 has no value
```

15.0.271 warnings 20490: LWORD

```
>compiling LWORD.spad to LWORD.nrlib
```

```
Warnings:
```

```
[1] factor1: d has no value
```

```
[2] LyndonWordsList1: :(Integer) -- should replace by pretend
```

```
[3] LyndonWordsList1: lbase1 has no value
```

15.0.272 warnings 20489: MATCAT

```
>compiling MATCAT.spad to MATCAT.nrlib
```

```
Warnings:
```

```
[1] matrix: rows has no value
```

```
[2] -: r1 has no value
```

```
[3] *: r1 has no value
```

```
[4] columnSpace: basis has no value
```



```
[5] PfChar:  g has no value
[6] /:  r1 has no value
```

15.0.273 warnings 20488: PLOT3D

```
>compiling PLOT3D.spad to PLOT3D.nrlib
```

```
Warnings:
[1] select:  fp has no value
[2] rangeRefine:  c has no value
[3] rangeRefine:  q has no value
[4] rangeRefine:  NUMFUNNEVALS has no value
[5] refine:  curves has no value
[6] plot:  curves has no value
[7] plot:  z has no value
```

15.0.274 warnings 20487: POLYVEC

```
>compiling POLYVEC.spad to POLYVEC.nrlib
```

```
Warnings:
[1] extendedgcd:  swapped has no value
```

15.0.275 warnings 20486: PR

```
>compiling PR.spad to PR.nrlib
```

```
Warnings:
[1] times!:  endcell has no value
[2] times!:  res has no value
[3] times:  x1 has no value
[4] addm!:  newcell has no value
[5] addm!:  res has no value
[6] addm!:  endcell has no value
[7] **:  pretend(NonNegativeInteger) -- should replace by @
[8] ^:  pretend(NonNegativeInteger) -- should replace by @
[9] unitNormal:  lcf has no value
[10] unitCanonical:  lcf has no value
[11] fmeq:  rout has no value
```

15.0.276 warnings 20485: PROJSP

```
>compiling PROJSP.spad to PROJSP.nrlib
```

```
Warnings:
```

- [1] definingField: pretendRep -- should replace by @
- [2] coerce: pretendRep -- should replace by @
- [3] list: pretendRep -- should replace by @
- [4] pointValue: pretendRep -- should replace by @
- [5] removeConjugate: conjrem has no value
- [6] lastNonNull: pretendRep -- should replace by @
- [7] lastNonNull: pretend(Integer) -- should replace by @

15.0.277 warnings 20484: STREAM

```
>compiling STREAM.spad to STREAM.nrlib
```

```
Warnings:
```

- [1] pretendS -- should replace by @
- [2] showAllElements: not known that (LazyStreamAggregate S) is of mode (CATEGORY domain (SIGNATURE repeating))
- [3] remove: signature of lhs not unique: \$(Mapping (Boolean) S)\$ chosen
- [4] lazyEval: :(Mapping \$) -- should replace by pretend
- [5] expand!: d has no value

15.0.278 warnings 20483: VECTCAT

```
>compiling VECTCAT.spad to VECTCAT.nrlib
```

```
Warnings:
```

- [1] -: x has no value
- [2] *: x has no value

15.0.279 warnings 20482: XRPOLY

```
>compiling XRPOLY.spad to XRPOLY.nrlib
```

```
Warnings:
```

- [1] unexpand: z has no value
- [2] unexpand: y has no value

15.0.280 warnings 20481: IMATRIX

```
>compiling IMATRIX.spad to IMATRIX.nrlib
```

Warnings:

```
[1] determinant: not known that (CommutativeRing) is of mode (CATEGORY R (ATTRIBUTE (commutative *)))
```

15.0.281 warnings 20479: ASSOCEQ

```
>compiling ASSOCEQ.spad to ASSOCEQ.nrlib
```

Warnings:

```
[1] uncouplingMatrices: z1 has no value
```

15.0.282 warnings 20478: CARTEN

```
>compiling CARTEN.spad to CARTEN.nrlib
```

Warnings:

```
[1] index2int: n has no value
[2] permsign!: nTrans has no value
[3] elt: n has no value
```

15.0.283 warnings 20477: CLIF

```
>compiling CLIF.spad to CLIF.nrlib
```

Warnings:

```
[1] addMonomProd: c has no value
```

15.0.284 warnings 20476: CLIP

```
>compiling CLIP.spad to CLIP.nrlib
```

Warnings:

```
[1] iClipParametric: x has no value
[2] iClipParametric: y has no value
[3] iClipParametric: z has no value
[4] discardAndSplit: ans has no value
[5] clip: x has no value
[6] clip: y has no value
[7] clip: yMax has no value
[8] clip: yMin has no value
[9] clipWithRanges: x has no value
```

15.0.285 warnings 20475: COORDSYS

```
>compiling COORDSYS.spad to COORDSYS.nrllib
```

```
Warnings:
```

```
[1] elliptic: x has no value
[2] prolateSpheroidal: x has no value
[3] oblateSpheroidal: x has no value
[4] bipolar: x has no value
[5] toroidal: x has no value
[6] conical: x has no value
```

15.0.286 warnings 20474: DHMATRIX

```
>compiling DHMATRIX.spad to DHMATRIX.nrllib
```

```
Warnings:
```

```
[1] *: signature of lhs not unique: (Point R)$(Point R) chosen
```

15.0.287 warnings 20473: DIOSP

```
>compiling DIOSP.spad to DIOSP.nrllib
```

```
Warnings:
```

```
[1] dioSolve: c has no value
```

15.0.288 warnings 20472: DIRPCAT

```
>compiling DIRPCAT.spad to DIRPCAT.nrllib
```

```
Warnings:
```

```
[1] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S (Fraction (Integ
```

15.0.289 warnings 20471: D02CJFA

```
>compiling D02CJFA.spad to D02CJFA.nrllib
```

```
Warnings:
```

```
[1] ODESolve: i has no value
```

15.0.290 warnings 20470: FAXF

```
>compiling FAXF.spad to FAXF.nrllib
```

```
Warnings:
```

```
[1] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
```

```
[2] minimalPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S f
```

```
[3] degree: signature of lhs not unique: (PositiveInteger)S chosen
```

15.0.291 warnings 20469: FFPOLY2

```
>compiling FFPOLY2.spad to FFPOLY2.nrllib
```

```
Warnings:
```

```
[1] rootOfIrreduciblePoly: basispointer has no value
```

```
[2] rootOfIrreduciblePoly: beta has no value
```

15.0.292 warnings 20468: FNLA

```
>compiling FNLA.spad to FNLA.nrllib
```

```
Warnings:
```

```
[1] have: hi has no value
```

15.0.293 warnings 20466: HB

```
>compiling HB.spad to HB.nrllib
```

```
Warnings:
```

```
[1] lfunc: sum has no value
```

```
[2] generate: newNumComms has no value
```

15.0.294 warnings 20464: IRSN

```
>compiling IRSN.spad to IRSN.nrllib
```

```
Warnings:
```

```
[1] aIdInverse: :(NonNegativeInteger) -- should replace by @
```

```
[2] signum: s has no value
```

```
[3] signum: z has no value
```

```
[4] testPermutation: n has no value
```

```
[5] testPermutation: ok has no value
```

15.0.295 warnings 20463: LOP

```
>compiling LOP.spad to LOP.nrllib
```

```
Warnings:
```

```
[1] rowEchWoZeroLines: pretend(NonNegativeInteger) -- should replace by @
[2] rowEchWoZeroLinesWOVectorise: pretend(NonNegativeInteger) -- should replace by @
```

15.0.296 warnings 20462: MHROWRED

```
>compiling MHROWRED.spad to MHROWRED.nrllib
```

```
Warnings:
```

```
[1] nonzero?: s has no value
[2] non0: allZero has no value
[3] non0: ans has no value
[4] mkMat: STEP has no value
[5] mkMat: i has no value
[6] diagSubMatrix: IN has no value
[7] diagSubMatrix: r has no value
[8] diagSubMatrix: STEP has no value
[9] diagSubMatrix: z has no value
[10] vconc: s has no value
[11] rowEchelonLocal: pivord has no value
```

15.0.297 warnings 20461: NUMQUAD

```
>compiling NUMQUAD.spad to NUMQUAD.nrllib
```

```
Warnings:
```

```
[1] romberg: change has no value
[2] simpson: change has no value
[3] trapezoidal: change has no value
[4] rombergo: change has no value
[5] simpsono: change has no value
[6] trapezoidalo: change has no value
```

15.0.298 warnings 20460: ODESYS

```
>compiling ODESYS.spad to ODESYS.nrllib
```

Warnings:

- [1] solve: f1 has no value
- [2] triangulate: f1 has no value
- [3] backsolve: part has no value
- [4] solveInField: l1 has no value
- [5] solveInField: f2 has no value

15.0.299 warnings 20459: ODETOOLS

>compiling ODETOOLS.spad to ODETOOLS.nrlib

Warnings:

- [1] wronskianMatrix: f1 has no value

15.0.300 warnings 20458: PERMAN

>compiling PERMAN.spad to PERMAN.nrlib

Warnings:

- [1] permanent3: a has no value
- [2] permanent: :(Integer) -- should replace by pretend
- [3] permanent: :(PositiveInteger) -- should replace by pretend
- [4] permanent: a has no value
- [5] permanent2: :(Integer) -- should replace by pretend
- [6] permanent2: :(PositiveInteger) -- should replace by pretend
- [7] permanent2: :(NonNegativeInteger) -- should replace by pretend
- [8] permanent2: a has no value

15.0.301 warnings 20457: PFECAT

>compiling PFECAT.spad to PFECAT.nrlib

Warnings:

- [1] gcdPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S failed
- [2] charthRoot: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S failed)
- [3] solveLinearPolynomialEquation: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot

15.0.302 warnings 20456: PSEUDLIN

>compiling PSEUDLIN.spad to PSEUDLIN.nrlib

Warnings:

- [1] changeBase: k1 has no value
- [2] normalForm0: B has no value
- [3] normalForm0: Binv has no value

15.0.303 warnings 20455: REP2

>compiling REP2.spad to REP2.nrlib

Warnings:

- [1] cyclicSubmodule: basis has no value
- [2] standardBasisOfCyclicSubmodule: standardBasis has no value
- [3] splitInternal: submoduleRepresentation has no value
- [4] splitInternal: factormoduleRepresentation has no value
- [5] areEquivalent?: x0 has no value
- [6] areEquivalent?: x1 has no value
- [7] areEquivalent?: foundResult has no value
- [8] areEquivalent?: result has no value
- [9] areEquivalent?: transitionM has no value
- [10] isAbsolutelyIrreducible?: result has no value
- [11] meatAxe: :(PositiveInteger) -- should replace by pretend
- [12] meatAxe: x has no value
- [13] meatAxe: foundResult has no value
- [14] meatAxe: result has no value
- [15] meatAxe: signature of lhs not unique: (List (List (Matrix R)))(List (Matrix R))(Boolean) chosen

15.0.304 warnings 20454: SETMN

>compiling SETMN.spad to SETMN.nrlib

Warnings:

- [1] elements: l has no value
- [2] replaceKthElement: found has no value
- [3] replaceKthElement: i has no value

15.0.305 warnings 20453: STRING

>compiling STRING.spad to STRING.nrlib

Warnings:

- [1] OMwrite: pretend(String) -- should replace by @

15.0.306 warnings 20452: ASP1

```
>compiling ASP1.spad to ASP1.nrllib
```

```
Warnings:
```

```
[1] X has no value
```

15.0.307 warnings 20451: ASP10

```
>compiling ASP10.spad to ASP10.nrllib
```

```
Warnings:
```

```
[1] P has no value
```

```
[2] Q has no value
```

```
[3] DQDL has no value
```

```
[4] X has no value
```

```
[5] ELAM has no value
```

```
[6] JINT has no value
```

15.0.308 warnings 20450: ASP24

```
>compiling ASP24.spad to ASP24.nrllib
```

```
Warnings:
```

```
[1] N has no value
```

```
[2] XC has no value
```

```
[3] FC has no value
```

```
[4] coerce: FC has no value
```

15.0.309 warnings 20449: ASP4

```
>compiling ASP4.spad to ASP4.nrllib
```

```
Warnings:
```

```
[1] NDIM has no value
```

```
[2] X has no value
```

15.0.310 warnings 20448: ASP50

```
>compiling ASP50.spad to ASP50.nrllib
```

```
Warnings:
[1] M has no value
[2] N has no value
[3] XC has no value
[4] FVECC has no value
[5] I has no value
[6] coerce: FVECC has no value
```

15.0.311 warnings 20447: ASP6

```
>compiling ASP6.spad to ASP6.nrlib
```

```
Warnings:
[1] N has no value
[2] X has no value
[3] FVEC has no value
[4] IFLAG has no value
[5] coerce: FVEC has no value
```

15.0.312 warnings 20446: ASP73

```
>compiling ASP73.spad to ASP73.nrlib
```

```
Warnings:
[1] X has no value
[2] Y has no value
[3] ALPHA has no value
[4] BETA has no value
[5] GAMMA has no value
[6] DELTA has no value
[7] EPSOLN has no value
[8] PHI has no value
[9] PSI has no value
```

15.0.313 warnings 20445: AXSERV

```
>compiling AXSERV.spad to AXSERV.nrlib
```

```
Warnings:
[1] getFile: contentType has no value
[2] getContentType: contentType has no value
```

15.0.314 warnings 20444: BALFACT

```
>compiling BALFACT.spad to BALFACT.nrllib
```

```
Warnings:
```

- [1] balancedFactorisation: z1 has no value
- [2] balancedFactorisation: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE balance

15.0.315 warnings 20443: BOUNDZRO

```
>compiling BOUNDZRO.spad to BOUNDZRO.nrllib
```

```
Warnings:
```

- [1] bringDown: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integerBound ((Integer
- [2] integerBound: z1 has no value
- [3] qbound: bound has no value

15.0.316 warnings 20442: CDEN

```
>compiling CDEN.spad to CDEN.nrllib
```

```
Warnings:
```

- [1] clearDenominator: x has no value
- [2] splitDenominator: x has no value
- [3] commonDenominator: x has no value

15.0.317 warnings 20441: CHVAR

```
>compiling CHVAR.spad to CHVAR.nrllib
```

```
Warnings:
```

- [1] eval: s has no value
- [2] eval: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE mkIntegral ((Record (: c
- [3] chvar: s has no value
- [4] rootPoly: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE mkIntegral ((Record

15.0.318 warnings 20440: CONTFRAC

```
>compiling CONTFRAC.spad to CONTFRAC.nrllib
```

```
Warnings:
```

```

[1] =: whole has no value
[2] =: den has no value
[3] partialNumerators: x1 has no value
[4] partialDenominators: x1 has no value
[5] partialQuotients: whole has no value
[6] extend: fract has no value
[7] complete: fract has no value
[8] iGenApproximants: num has no value
[9] iGenApproximants: den has no value
[10] iGenConvergents: num has no value
[11] iGenConvergents: den has no value
[12] +: x has no value
[13] +: y has no value
[14] -: x has no value
[15] -: y has no value
[16] *: x has no value
[17] *: y has no value
[18] /: x has no value
[19] /: y has no value
[20] recip: x has no value
[21] coerce: 1 has no value

```

15.0.319 warnings 20439: DDFACT

```
>compiling DDFACT.spad to DDFACT.nrllib
```

Warnings:

```

[1] notSqFr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored FP)
[2] exptMod: :FP -- should replace by pretend
[3] ddffact1: ddfact has no value
[4] separateFactors: n1 has no value
[5] separateFactors: ris has no value
[6] separateFactors: newaux has no value
[7] distdfact: factlist has no value

```

15.0.320 warnings 20438: DIRPROD

```
>compiling DIRPROD.spad to DIRPROD.nrllib
```

Warnings:

```

[1] same?: x has no value
[2] Zero: pretend$ -- should replace by @
[3] One: pretend$ -- should replace by @
[4] *: x has no value
[5] *: STEP has no value
[6] *: i has no value
[7] *: pretend$ -- should replace by @
[8] subtractIfCan: pretend$ -- should replace by @

```

```
[9] recip: pretend$ -- should replace by @
[10] unitVector: pretend$ -- should replace by @
```

15.0.321 warnings 20437: DISPLAY

```
>compiling DISPLAY.spad to DISPLAY.nrllib
```

```
Warnings:
[1] sayLength: sum has no value
```

15.0.322 warnings 20436: DPOLCAT

```
>compiling DPOLCAT.spad to DPOLCAT.nrllib
```

```
Warnings:
[1] makeVariable: n has no value
[2] degree: d has no value
[3] weights: ws has no value
[4] initial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (A A)) (SIGNATURE coerce
[5] eval: IN has no value
[6] eval: s has no value
[7] eval: e has no value
```

15.0.323 warnings 20435: DSTREE

```
>compiling DSTREE.spad to DSTREE.nrllib
```

```
Warnings:
[1] tree: :(Record (: value S) (: args (List $))) -- should replace by @
[2] tree: :$ -- should replace by pretend
[3] value: :(Record (: value S) (: args (List $))) -- should replace by pretend
[4] children: :(Record (: value S) (: args (List $))) -- should replace by pretend
[5] children: :(List $) -- should replace by @
[6] setchildren!: :(Record (: value S) (: args (List $))) -- should replace by pretend
[7] setchildren!: pretend$ -- should replace by @
[8] setvalue!: :(Record (: value S) (: args (List $))) -- should replace by pretend
```

15.0.324 warnings 20434: D01AMFA

```
>compiling D01AMFA.spad to D01AMFA.nrllib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.325 warnings 20433: D01APFA

```
>compiling D01APFA.spad to D01APFA.nrlib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.326 warnings 20432: D01AQFA

```
>compiling D01AQFA.spad to D01AQFA.nrlib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.327 warnings 20431: EQ

```
>compiling EQ.spad to EQ.nrlib
```

```
Warnings:
```

```
[1] factorAndSplit: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE factorAndSplit
[2] factorAndSplit: not known that (IntegralDomain) is of mode (CATEGORY S (SIGNATURE factor ((Factored S
```

15.0.328 warnings 20430: MDDFACT

```
>compiling MDDFACT.spad to MDDFACT.nrlib
```

```
Semantic Errors:
```

```
[1] ddfactor: degree is BOTH a variable and a literal
[2] ddfact: degree is BOTH a variable and a literal
[3] ddFact: degree is BOTH a variable and a literal
[4] sepfact: degree is BOTH a variable and a literal
[5] separateFactors: degree is BOTH a variable and a literal
[6] sepFact1: degree is BOTH a variable and a literal
```

15.0.329 warnings 20429: MMAP

```
>compiling MMAP.spad to MMAP.nrlib
```

```
Warnings:
  [1] map:  x has no value
```

15.0.330 warnings 20428: MODMON

```
>compiling MODMON.spad to MODMON.nrlib
```

```
Warnings:
  [1] :(NonNegativeInteger) -- should replace by pretend
  [2] lift: pretendRep -- should replace by @
  [3] not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
  [4] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
  [5] not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
```

15.0.331 warnings 20427: MONOTOOL

```
>compiling MONOTOOL.spad to MONOTOOL.nrlib
```

```
Warnings:
  [1] splitSquarefree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE split ((Recon
  [2] splitSquarefree:  s has no value
```

15.0.332 warnings 20426: MPCPF

```
>compiling MPCPF.spad to MPCPF.nrlib
```

```
Warnings:
  [1] factor: not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGORY domain (S
```

15.0.333 warnings 20425: MPC2

```
>compiling MPC2.spad to MPC2.nrlib
```

```
Warnings:
  [1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE map (PS (Mapping S R) PR)) (SIGNATU
```

15.0.334 warnings 20424: MPC3

```
>compiling MPC3.spad to MPC3.nrlib
```

Warnings:

```
[1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE map (PR2 (Mapping Vars2 Vars1) PR1))
```

15.0.335 warnings 20423: MPRFF

```
>compiling MPRFF.spad to MPRFF.nrlib
```

Warnings:

```
[1] factor: not known that (PolynomialCategory (Fraction (Integer)) (IndexedExponents (Symbol)) (Symbol))
[2] factor: pretend(Factored (Polynomial R)) -- should replace by @
[3] factor: flist has no value
[4] pushdown: not known that (Ring) is of mode (CATEGORY package (SIGNATURE totalfract ((Record (: sup (Po
[5] pushup: y has no value
```

15.0.336 warnings 20422: MULTSQFR

```
>compiling MULTSQFR.spad to MULTSQFR.nrlib
```

Warnings:

```
[1] nsqfree: lcf has no value
[2] nsqfree: z2 has no value
[3] nsqfree: z1 has no value
[4] nsqfree: leadpol has no value
[5] nsqfree: sqlc has no value
[6] nsqfree: :(NonNegativeInteger) -- should replace by pretend
[7] nsqfree: sqlead has no value
[8] nsqfree: unitsq has no value
[9] nsqfree: sqdec has no value
[10] squareFree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE squareFree ((Fact
[11] squareFree: fctr has no value
[12] squareFree: xpnt has no value
[13] squareFree: p has no value
[14] squareFree: result1 has no value
[15] squareFree: lvar has no value
[16] squareFree: not known that (Ring) is of mode (CATEGORY package (SIGNATURE squareFree ((Factored P) P)
[17] intChoose: :R -- should replace by @
[18] intChoose: d1 has no value
[19] coefChoose: lcoef has no value
[20] lift: leadlist has no value
[21] lift: p0 has no value
[22] lift: p1 has no value
```


15.0.337 warnings 20421: NPCOEF

```
>compiling NPCOEF.spad to NPCOEF.nrlib
```

```
Warnings:
```

```
[1] npcoef: :(NonNegativeInteger) -- should replace by pretend
[2] npcoef: ndet has no value
[3] npcoef: detufact has no value
[4] npcoef: n2 has no value
[5] npcoef: n1 has no value
[6] npcoef: ltodel has no value
[7] npcoef: detcoef has no value
[8] check: :(NonNegativeInteger) -- should replace by pretend
[9] check: doit has no value
[10] check: cfu has no value
[11] check: poselt has no value
[12] check: pp has no value
[13] buildtable: table has no value
[14] modify: :(NonNegativeInteger) -- should replace by pretend
[15] modify: lterase has no value
[16] modify: n2 has no value
[17] modify: n1 has no value
```

15.0.338 warning 20420: NSUP

```
>compiling NSUP.spad to NSUP.nrlib
```

```
Warnings:
```

```
[1] subResultantGcd: not known that (UnivariatePolynomialCategory R) is of mode (CATEGORY domain (SIGNATURE
```

15.0.339 warnings 20419: ODEPRIM

```
>compiling ODEPRIM.spad to ODEPRIM.nrlib
```

```
Warnings:
```

```
[1] UP2UP2: f1 has no value
[2] indicialEquations: eq has no value
[3] Npmulambda: lamb has no value
[4] Npmulambda: lf has no value
```

15.0.340 warnings 20418: ODEPRRIC

```
>compiling ODEPRRIC.spad to ODEPRRIC.nrlib
```

Warnings:

```
[1] lambda: z has no value
[2] inflambda: z has no value
[3] infmax: z has no value
[4] dmax: z has no value
[5] padicsol: z has no value
[6] leadingDenomRicDE: ind has no value
[7] leadingDenomRicDE: z2 has no value
[8] leadingDenomRicDE: z1 has no value
[9] constantCoefficientOperator: ans has no value
[10] innermax: ans has no value
[11] leadingCoefficientRicDE: ind has no value
[12] leadingCoefficientRicDE: z2 has no value
[13] leadingCoefficientRicDE: z1 has no value
[14] innerlb: lb has no value
[15] polysol: z has no value
```

15.0.341 warnings 20417: OMPKG

>compiling OMPKG.spad to OMPKG.nrlib

Warnings:

```
[1] OMreadStr: pretend(String) -- should replace by @
[2] OMlistCDs: pretend(List (String)) -- should replace by @
[3] OMlistSymbols: pretend(List (String)) -- should replace by @
```

15.0.342 warnings 20416: PADICRC

>compiling PADICRC.spad to PADICRC.nrlib

Warnings:

```
[1] coerce: 1 has no value
```

15.0.343 warnings 20415: PFBR

>compiling PFBR.spad to PFBR.nrlib

Warnings:

```
[1] hensel: z1 has no value
[2] hensel: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolynomialEquationByR
[3] hensel: foundFactors has no value
[4] factorSFBRlcUnitInner: z1 has no value
[5] factorSFBRlcUnitInner: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolyno
[6] factorSFBRlcUnitInner: fctr has no value
[7] bivariateSLPEBR: z1 has no value
```

```

[8] chooseFSQViableSubstitutions:  z1 has no value
[9] chooseFSQViableSubstitutions:  ppR has no value
[10] chooseSLPEViableSubstitutions:  z1 has no value
[11] chooseSLPEViableSubstitutions:  lpolysR has no value
[12] raise:  z1 has no value
[13] raise: :R -- should replace by pretend
[14] raise: :R -- should replace by @
[15] lower:  z1 has no value
[16] SLPEBR:  z1 has no value
[17] factorByRecursion: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solveLinea
[18] factorByRecursion:  z1 has no value
[19] factorByRecursion: :S -- should replace by @
[20] factorSquareFreeByRecursion:  lcppPow has no value

```

15.0.344 warnings 20414: PFBRU

>compiling PFBRU.spad to PFBRU.nrllib

Warnings:

```

[1] solveLinearPolynomialEquationByRecursion:  z1 has no value
[2] solveLinearPolynomialEquationByRecursion: not known that (Ring) is of mode (CATEGORY package (SIGNATUR
[3] solveLinearPolynomialEquationByRecursion:  answer has no value
[4] hensel:  z1 has no value
[5] hensel:  foundFactors has no value
[6] chooseFSQViableSubstitutions:  z1 has no value
[7] chooseFSQViableSubstitutions:  ppR has no value
[8] raise:  z1 has no value
[9] raise: :R -- should replace by pretend
[10] raise: :R -- should replace by @
[11] lower:  z1 has no value
[12] factorSFBRLcUnitInner:  z1 has no value
[13] factorSFBRLcUnitInner: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolyn
[14] factorSFBRLcUnitInner:  fctr has no value
[15] factorByRecursion: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solveLinea
[16] factorByRecursion:  z1 has no value
[17] factorByRecursion: :S -- should replace by pretend
[18] factorByRecursion: :S -- should replace by @
[19] factorSquareFreeByRecursion:  lcppPow has no value

```

15.0.345 warnings 20413: PFORP

>compiling PFORP.spad to PFORP.nrllib

Warnings:

```

[1] translateLocal: The conditional modes (List R) and (Mapping E (Integer)) conflict
[2] minimalForm:  lminForm has no value
[3] listAllMonoExp: pretend(Integer) -- should replace by @

```

15.0.346 warnings 20412: PFRPAC

```
>compiling PFRPAC.spad to PFRPAC.nrlib
```

```
Warnings:
```

```
[1] makeSup: not known that (Ring) is of mode (CATEGORY package (SIGNATURE partialFraction ((Any) (Fraction
[2] makeSup: z1 has no value
```

15.0.347 warnings 20411: PGCD

```
>compiling PGCD.spad to PGCD.nrlib
```

```
Warnings:
```

```
[1] gcdPrimitive: b has no value
[2] gcdPrimitive: a has no value
[3] localgcd: s has no value
[4] gcdTermList: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcd (P P P)) (SIGNATURE gcd
[5] lift: p0 has no value
[6] gcd: z1 has no value
[7] gcd: z2 has no value
```

15.0.348 warnings 20410: PLEQN

```
>compiling PLEQN.spad to PLEQN.nrlib
```

```
Warnings:
```

```
[1] regime: wcd has no value
[2] regime: yzero has no value
[3] bsolve: rksoln has no value
[4] bsolve: lrec3 has no value
[5] ParCondList: covered has no value
[6] ParCondList: zro has no value
[7] ParCondList: npc has no value
[8] ParCondList: done has no value
[9] ParCondList: rcl has no value
[10] pr2dmp: pretendGR -- should replace by @
[11] dmp2rfi: v1 has no value
[12] dmp2rfi: r1 has no value
[13] sqfree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE psolve ((List (Record
[14] ParCond: found has no value
[15] ParCond: DetEqn has no value
[16] ParCond: z1 has no value
[17] ParCond: z2 has no value
```

15.0.349 warnings 20409: PMPLCAT

```
>compiling PMPLCAT.spad to PMPLCAT.nrllib
```

```
Warnings:
```

```
[1] patternMatch: l1 has no value
[2] patternMatch: p1 has no value
[3] patternMatch: p2 has no value
[4] patternMatch: p3 has no value
```

15.0.350 warnings 20408: PNTHEORY

```
>compiling PNTHEORY.spad to PNTHEORY.nrllib
```

```
Warnings:
```

```
[1] cyclotomic: s has no value
[2] cyclotomic: c has no value
```

15.0.351 warnings 20407: POLUTIL

```
>compiling POLUTIL.spad to POLUTIL.nrllib
```

```
Warnings:
```

```
[1] sylvesterSequence: res has no value
[2] sturmVariationsOf: l1 has no value
```

15.0.352 warnings 20406: POLYCATQ

```
>compiling POLYCATQ.spad to POLYCATQ.nrllib
```

```
Warnings:
```

```
[1] isPower: var has no value
[2] P2UP: z has no value
[3] P2UP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE variables ((List V) F)) (SIGNATURE
```

15.0.353 warnings 20405: POLYLIFT

```
>compiling POLYLIFT.spad to POLYLIFT.nrllib
```

```
Warnings:
```

```
[1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE map (S (Mapping S Vars) (Mapping S
```

15.0.354 warnings 20404: POLYROOT

```
>compiling POLYROOT.spad to POLYROOT.nrllib
```

```
Warnings:
```

```
[1] zroot: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE rroot ((Record (: expon
```

15.0.355 warnings 20403: POLY2

```
>compiling POLY2.spad to POLY2.nrllib
```

```
Warnings:
```

```
[1] map: x1 has no value
```

```
[2] map: x2 has no value
```

15.0.356 warnings 20402: POLY2UP

```
>compiling POLY2UP.spad to POLY2UP.nrllib
```

```
Warnings:
```

```
[1] univariate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE univariate ((UnivariatePolyn
```

```
[2] univariate: x1 has no value
```

15.0.357 warnings 20401: PRS

```
>compiling PRS.spad to PRS.nrllib
```

```
Warnings:
```

```
[1] exquo: p1 has no value
```

```
[2] resultantnaif: a has no value
```

```
[3] resultantEuclideanNaif: a has no value
```

```
[4] semiResultantEuclideanNaif: a has no value
```

```
[5] chainSubResultants: L has no value
```

```
[6] schema: L has no value
```

15.0.358 warnings 20400: PSQFR

```
>compiling PSQFR.spad to PSQFR.nrllib
```

```
Warnings:
```

- [1] pPolRoot: not known that (Ring) is of mode (CATEGORY package (SIGNATURE squareFree ((Factored P) P)))
- [2] pthPower: isSq has no value
- [3] pthPower: fctr has no value
- [4] pthPower: xpnt has no value
- [5] finSqFr: :(NonNegativeInteger) -- should replace by pretend
- [6] finSqFr: cont1 has no value

15.0.359 warnings 20399: PUSHVAR

```
>compiling PUSHVAR.spad to PUSHVAR.nrllib
```

```
Warnings:
```

- [1] map: x has no value
- [2] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE pushdown (PPR PPR OV)) (SIGNATURE p
- [3] pushup: y has no value

15.0.360 warnings 20398: QALGSET

```
>compiling QALGSET.spad to QALGSET.nrllib
```

```
Warnings:
```

- [1] npoly: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has (NonNegativeInteger)
- [2] idealSimplify: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has (NonNegative
- [3] idealSimplify: not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has (NonNegat
- [4] idealSimplify: not known that (PolynomialCategory R (Product (NonNegativeInteger) Expon) Var) is of mo
- [5] idealSimplify: gb has no value

15.0.361 warnings 20397: RADIX

```
>compiling RADIX.spad to RADIX.nrllib
```

```
Warnings:
```

- [1] fractionPart: signature of lhs not unique: (Fraction (Integer))\$ chosen
- [2] coerce: le has no value
- [3] radixFrac: c has no value
- [4] unknown Functor code (error Radix base must be at least 2)

15.0.362 warnings 20396: RCFIELD

```
>compiling RCFIELD.spad to RCFIELD.nrlib
```

```
Warnings:
```

- [1] rootOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE sqrt (S (Integer))) (SIGNATURE sq
- [2] allRootsOf: z has no value
- [3] allRootsOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE sqrt (S (Integer))) (SIGNATUR

15.0.363 warnings 20395: RDETR

```
>compiling RDETR.spad to RDETR.nrlib
```

```
Warnings:
```

- [1] polyRDE: eq has no value
- [2] SPDEnocancel1: q has no value
- [3] SPDEnocancel2: q has no value

15.0.364 warnings 20394: RDETRS

```
>compiling RDETRS.spad to RDETRS.nrlib
```

```
Warnings:
```

- [1] baseRDEsys: z1 has no value
- [2] baseRDEsys: z2 has no value
- [3] baseRDEsys: z3 has no value
- [4] baseRDEsys: z4 has no value
- [5] baseRDEsys: z5 has no value
- [6] baseRDEsys: z6 has no value
- [7] DSPDEsys: z1 has no value
- [8] DSPDEsys: z2 has no value
- [9] DSPDEsys: z3 has no value
- [10] DSPDEsys: z4 has no value
- [11] DSPDEsys: z5 has no value

15.0.365 warnings 20393: REAL0

```
>compiling REAL0.spad to REAL0.nrlib
```

```
Warnings:
```

- [1] makeSqfr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE realZeros ((List (Re
- [2] Zero1: G has no value
- [3] rootBound: i has no value
- [4] transMultInv: :(NonNegativeInteger) -- should replace by pretend
- [5] var: i has no value

15.0.366 warnings 20392: REALSOLV

```
>compiling REALSOLV.spad to REALSOLV.nrllib
```

```
Warnings:
```

```
[1] prn2rfi:  x has no value
```

15.0.367 warnings 20391: RESRING

```
>compiling RESRING.spad to RESRING.nrllib
```

```
Warnings:
```

```
[1] unknown Functor code (error the residue ring is the zero ring)
```

15.0.368 warnings 20390: RETSOL

```
>compiling RETSOL.spad to RETSOL.nrllib
```

```
Warnings:
```

```
[1] PQ2P:  q1 has no value
```

```
[2] PQIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveRetract ((List (List (Equa
```

15.0.369 warnings 20389: RF

```
>compiling RF.spad to RF.nrllib
```

```
Warnings:
```

```
[1] peval:  z1 has no value
```

```
[2] peval:  z2 has no value
```

15.0.370 warnings 20388: RFFACTOR

```
>compiling RFFACTOR.spad to RFFACTOR.nrllib
```

```
Warnings:
```

```
[1] factorFraction: not known that (PolynomialCategory (Fraction (Integer)) (IndexedExponents (Symbol)) (S
```

15.0.371 warnings 20387: SHP

```
>compiling SHP.spad to SHP.nrllib
```

```
Warnings:
```

```
[1] subresultantSequenceNext: :(List (UnivariatePolynomial x R)) -- should replace by @
[2] subresultantSequenceInner: :(UnivariatePolynomial x R) -- should replace by @
[3] subresultantSequenceInner: :(List (UnivariatePolynomial x R)) -- should replace by @
[4] subresultantSequence: :(List (UnivariatePolynomial x R)) -- should replace by @
[5] polsth1: :(List (UnivariatePolynomial x R)) -- should replace by @
[6] polsth1: Listf has no value
[7] polsth2: :(List (UnivariatePolynomial x R)) -- should replace by @
[8] polsth3: :(List (UnivariatePolynomial x R)) -- should replace by @
[9] wfunctaux: :(List R) -- should replace by @
[10] wfunctaux: :(NonNegativeInteger) -- should replace by @
[11] wfunct: :(List R) -- should replace by @
[12] SturmHabicht: :(UnivariatePolynomial x R) -- should replace by @
[13] SturmHabichtMultiple: :(UnivariatePolynomial x R) -- should replace by @
[14] SturmHabichtMultiple: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE countRea
```

15.0.372 warnings 20386: SIGNRF

```
>compiling SIGNRF.spad to SIGNRF.nrllib
```

```
Warnings:
```

```
[1] psign: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE sign ((Union (Integer)
```

15.0.373 warnings 20385: SMITH

```
>compiling SMITH.spad to SMITH.nrllib
```

```
Warnings:
```

```
[1] elRow2: x has no value
[2] elColumn2: x has no value
[3] ijDivide: x has no value
[4] findEqMat: x has no value
```

15.0.374 warnings 20384: SMP

```
>compiling SMP.spad to SMP.nrllib
```

```
Warnings:
```

```
[1] moreThanOneVariable?: x1 has no value
[2] ^: pretend(NonNegativeInteger) -- should replace by @
[3] **: pretend(NonNegativeInteger) -- should replace by @
[4] exquo: The conditional modes (SparseUnivariatePolynomial $) and D conflict
[5] map: x1 has no value
```

```

[6] evalSortedVarlist:  x1 has no value
[7] eval:  x2 has no value
[8] eval:  x1 has no value
[9] eval:  IN has no value
[10] eval:  val has no value
[11] differentiate:  x1 has no value

```

15.0.375 warnings 20382: SOLVEFOR

```
>compiling SOLVEFOR.spad to SOLVEFOR.nrllib
```

Warnings:

```

[1] mapSolve:  x has no value
[2] intsolve: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solve ((List F) UP))

```

15.0.376 warnings 20381: SPLTREE

```
>compiling SPLTREE.spad to SPLTREE.nrllib
```

Warnings:

```
[1] splitNodeOf!:  la has no value
```

15.0.377 warnings 20380: STINPROD

```
>compiling STINPROD.spad to STINPROD.nrllib
```

Warnings:

```

[1] applyOverQF:  z1 has no value
[2] infiniteProduct:  z1 has no value
[3] evenInfiniteProduct:  z1 has no value
[4] oddInfiniteProduct:  z1 has no value
[5] generalInfiniteProduct:  z1 has no value

```

15.0.378 warnings 20379: STTF

```
>compiling STTF.spad to STTF.nrllib
```

Warnings:

```

[1] exp:  y has no value
[2] sincos:  y has no value
[3] tan:  y has no value
[4] cot:  y has no value

```

```
[5] sinhcosh: y has no value
[6] tanh: y has no value
```

15.0.379 warnings 20378: SUBRESP

```
>compiling SUBRESP.spad to SUBRESP.nrllib
```

```
Warnings:
[1] primitivePart: x1 has no value
```

15.0.380 warnings 20377: SUMRF

```
>compiling SUMRF.spad to SUMRF.nrllib
```

```
Warnings:
[1] sum: z has no value
```

15.0.381 warnings 20376: SUP

```
>compiling SUP.spad to SUP.nrllib
```

```
Warnings:
[1] **: pretend(NonNegativeInteger) -- should replace by @
[2] ^: pretend(NonNegativeInteger) -- should replace by @
[3] **: y has no value
[4] pomopo!: rout has no value
[5] exquo: signature of lhs not unique: (Union $ failed)$$ chosen
[6] fmeeg: rout has no value
[7] pseudoRemainder: :(Integer) -- should replace by pretend
[8] pseudoRemainder: :(NonNegativeInteger) -- should replace by pretend
[9] elt: :(NonNegativeInteger) -- should replace by pretend
```

15.0.382 warnings 20375: SUPFRACF

```
>compiling SUPFRACF.spad to SUPFRACF.nrllib
```

```
Warnings:
[1] squareFree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored
```

15.0.383 warnings 20374: TEX

```
>compiling TEX.spad to TEX.nrllib
```

```
Warnings:
```

- [1] display: pretend(Integer) -- should replace by @
- [2] coerce: pretend(Integer) -- should replace by @
- [3] stringify: pretend(String) -- should replace by @
- [4] splitLong1: 1 has no value
- [5] splitLong1: 1s has no value
- [6] splitLong1: s has no value
- [7] formatSpecial: form has no value
- [8] formatSpecial: prescript has no value
- [9] formatPlex: s has no value
- [10] formatTex: pretend(Boolean) -- should replace by @

15.0.384 warnings 20373: TEXTFILE

```
>compiling TEXTFILE.spad to TEXTFILE.nrllib
```

```
Warnings:
```

- [1] endOfFile?: pretend(Boolean) -- should replace by @

15.0.385 warnings 20372: TREE

```
>compiling TREE.spad to TREE.nrllib
```

```
Warnings:
```

- [1] children: node has no value
- [2] setchildren!: node has no value
- [3] setchildren!: pretend\$ -- should replace by @
- [4] setvalue!: node has no value
- [5] count: signature of lhs not unique: (NonNegativeInteger)\$ chosen
- [6] value: node has no value
- [7] node?: t has no value
- [8] multipleOverbar: The conditional modes (String) and S conflict

15.0.386 warnings 20371: TWOFAC

```
>compiling TWOFAC.spad to TWOFAC.nrllib
```

```
Warnings:
```

- [1] pthRoot: x has no value
- [2] generalSqFr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE generalTwoFactor

```

[3] generalSqFr: flg has no value
[4] generalSqFr: xpnt has no value
[5] generalSqFr: :(NonNegativeInteger) -- should replace by pretend
[6] generalSqFr: fctr has no value
[7] generalTwoFactor: flg has no value
[8] generalTwoFactor: fctr has no value
[9] generalTwoFactor: xpnt has no value
[10] generalTwoFactor: ll has no value
[11] generalTwoFactor: x has no value
[12] generalTwoFactor: unitPart has no value
[13] twoFactor: x has no value
[14] twoFactor: n has no value
[15] twoFactor: look has no value
[16] twoFactor: umv has no value
[17] twoFactor: umex has no value

```

15.0.387 warnings 20370: UNIFACT

>compiling UNIFACT.spad to UNIFACT.nrlib

Warnings:

```

[1] eisenstein: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored
[2] negShiftp: x has no value
[3] bound: :(NonNegativeInteger) -- should replace by pretend
[4] bound: cbound has no value
[5] numFactors: pretend(Integer) -- should replace by @
[6] numFactors: ans has no value
[7] choose: qSave has no value
[8] choose: ddSave has no value
[9] quadratic: beta has no value
[10] quadratic: alpha has no value
[11] subMinusX: :ZP -- should replace by pretend
[12] henselFact: c has no value
[13] henselFact: factorlist has no value
[14] henselFact: :(List ZP) -- should replace by pretend

```

15.0.388 warnings 20369: UPCDEN

>compiling UPCDEN.spad to UPCDEN.nrlib

Warnings:

```

[1] clearDenominator: x has no value
[2] splitDenominator: x has no value

```

15.0.389 warnings 20368: UPDECOMP

```
>compiling UPDECOMP.spad to UPDECOMP.nrlib
```

```
Warnings:
```

```
[1] leftFactorIfCan: g has no value
```

15.0.390 warnings 20367: UPDIVP

```
>compiling UPDIVP.spad to UPDIVP.nrlib
```

```
Warnings:
```

```
[1] divideIfCan: x has no value
```

15.0.391 warnings 20366: UPSQFREE

```
>compiling UPSQFREE.spad to UPSQFREE.nrlib
```

```
Warnings:
```

```
[1] BumInSepFFE: :(NonNegativeInteger) -- should replace by @
```

```
[2] squareFree: lffe has no value
```

```
[3] squareFree: dunit has no value
```

15.0.392 warnings 20365: VIEWDEF

```
>compiling VIEWDEF.spad to VIEWDEF.nrlib
```

```
Warnings:
```

```
[1] viewWriteDefault: thingsToWrite has no value
```

15.0.393 warnings 20364: WEIER

```
>compiling WEIER.spad to WEIER.nrlib
```

```
Warnings:
```

```
[1] transback: :(Stream (Stream (Polynomial R))) -- should replace by pretend
```

```
[2] transback: :(TaylorSeries R) -- should replace by pretend
```

```
[3] transback: :(Stream (TaylorSeries R)) -- should replace by pretend
```

```
[4] clikeUniv: p has no value
```

```
[5] clikeUniv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE crest ((Mapping (Stream (Poly
```

```
[6] streamlikeUniv: :(NonNegativeInteger) -- should replace by pretend
```

```

[7] sts2stst:  x has no value
[8] sts2stst:  y has no value
[9] sts2stst: :(Stream (NonNegativeInteger)) -- should replace by pretend
[10] weier: :(TaylorSeries R) -- should replace by pretend
[11] cfirst:   s has no value
[12] crest:    s has no value
[13] qq:       s has no value
[14] wei: :(Stream (Polynomial R)) -- should replace by pretend

```

15.0.394 warnings 20363: WP

```
>compiling WP.spad to WP.nrlib
```

```

Warnings:
[1] innercoerce:  ans has no value
[2] unknown Functor code (error incompatible length lists in WeightedPolynomial)

```

15.0.395 warnings 20362: DIAGG

```
>compiling DIAGG.spad to DIAGG.nrlib
```

```

Warnings:
[1] select!:  x has no value

```

15.0.396 warnings 20361: DSMP

```
>compiling DSMP.spad to DSMP.nrlib
```

```

Warnings:
[1] retractIfCan:  x has no value
[2] retractIfCan:  y has no value
[3] coerce:  x has no value
[4] coerce:  y has no value

```

15.0.397 warnings 20360: FACTRN

```
>compiling FACTRN.spad to FACTRN.nrlib
```

```

Warnings:
[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored (SparseUnivariatePolynomial R))))))
[2] norm: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored (SparseUnivariatePolynomial R))))))

```


15.0.398 warnings 20359: FFFACTSE

```
>compiling FFFACTSE.spad to FFFACTSE.nrllib
```

```
Warnings:
```

- [1] exp: Q has no value
- [2] internalFactorCZ: result has no value
- [3] internalFactorCZ: listOfFactors has no value
- [4] internalFactorSquareFree: S has no value

15.0.399 warnings 20358: FRAMALG

```
>compiling FRAMALG.spad to FRAMALG.nrllib
```

```
Warnings:
```

- [1] coordinates: signature of lhs not unique: (Matrix R)(Vector S) chosen
- [2] characteristicPolynomial: y has no value

15.0.400 warnings 20357: INTFRSP

```
>compiling INTFRSP.spad to INTFRSP.nrllib
```

```
Warnings:
```

- [1] sbSpcOfCurve: pretend(Integer) -- should replace by @

15.0.401 warnings 20356: LPARSPT

```
>compiling LPARSPT.spad to LPARSPT.nrllib
```

```
Warnings:
```

- [1] valuationAndMore: pretend(Integer) -- should replace by @
- [2] localize: pretend(Integer) -- should replace by @

15.0.402 warnings 20355: NPOLYGON

```
>compiling NPOLYGON.spad to NPOLYGON.nrllib
```

```
Warnings:
```

- [1] slope: pretend(Integer) -- should replace by @
- [2] slope: remainder has no value

15.0.403 warnings 20354: PLOT

```
>compiling PLOT.spad to PLOT.nrlib
```

```
Warnings:
[1] listBranches: newl has no value
[2] listBranches: outList has no value
[3] rangeRefine: c has no value
[4] rangeRefine: q has no value
[5] rangeRefine: NUMFUNNEVALS has no value
[6] refine: curves has no value
[7] plot: curves has no value
[8] plot: u1 has no value
[9] plot: z1 has no value
[10] plot: t has no value
[11] plotPolar: u1 has no value
[12] plotPolar: v1 has no value
[13] coerce: l has no value
```

15.0.404 warnings 20353: RFP

```
>compiling RFP.spad to RFP.nrlib
```

```
Warnings:
[1] distinguishedRootsOf: not known that (Ring) is of mode (CATEGORY package (SIGNATURE distinguishedRootsOf))
[2] distinguishedRootsOf: pretend(List (Integer)) -- should replace by 0
[3] distinguishedRootsOf: not known that (UnivariatePolynomialCategory (Fraction (Integer))) is of mode (CATEGORY package (SIGNATURE distinguishedRootsOf))
```

15.0.405 warnings 20352: ROIRC

```
>compiling ROIRC.spad to ROIRC.nrlib
```

```
Warnings:
[1] invert: z has no value
```

15.0.406 warnings 20351: SMATCAT

```
>compiling SMATCAT.spad to SMATCAT.nrlib
```

```
Warnings:
[1] equation2R: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE ** (S S (Integer))) (SIGNATURE ** (S S (Integer))))
```

15.0.407 warnings 20350: AFALGGRO

```
>compiling AFALGGRO.spad to AFALGGRO.nrllib
```

```
Warnings:
  [1] affineAlgSetLocal: listPtsId1 has no value
```

15.0.408 warnings 20349: AFALGRES

```
>compiling AFALGRES.spad to AFALGRES.nrllib
```

```
Warnings:
  [1] affineAlgSetLocal: listPtsId1 has no value
```

15.0.409 warnings 20348: FFINTBAS

```
>compiling FFINTBAS.spad to FFINTBAS.nrllib
```

```
Warnings:
  [1] squaredFactors: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE integralBasis
```

15.0.410 warnings 20347: FRIDEAL

```
>compiling FRIDEAL.spad to FRIDEAL.nrllib
```

```
Warnings:
  [1] upmat: s has no value
  [2] ret?: s has no value
  [3] inv: s has no value
```

15.0.411 warnings 20346: FRIDEAL2

```
>compiling FRIDEAL2.spad to FRIDEAL2.nrllib
```

```
Warnings:
  [1] map: s has no value
```

15.0.412 warnings 20345: FRMOD

```
>compiling FRMOD.spad to FRMOD.nrlib
```

```
Warnings:
```

```
[1] vectProd: pretend(Vector A) -- should replace by @
```

15.0.413 warnings 20344: INTFACT

```
>compiling INTFACT.spad to INTFACT.nrlib
```

```
Warnings:
```

```
[1] PollardSmallFactor: G has no value
```

15.0.414 warnings 20343: MONOGEN

```
>compiling MONOGEN.spad to MONOGEN.nrlib
```

```
Warnings:
```

```
[1] derivationCoordinates: x has no value
```

15.0.415 warnings 20342: NFINTBAS

```
>compiling NFINTBAS.spad to NFINTBAS.nrlib
```

```
Warnings:
```

```
[1] wildPrimes: ans has no value  
[2] tameProduct: ans has no value  
[3] integralBasis: runningRbden has no value  
[4] iWildLocalIntegralBasis: rbden has no value
```

15.0.416 warnings 20341: CCLASS

```
>compiling CCLASS.spad to CCLASS.nrlib
```

```
Warnings:
```

```
[1] remove!: signature of lhs not unique: $(Character)$ chosen
```

15.0.417 warnings 20340: CPIMA

```
>compiling CPIMA.spad to CPIMA.nrlib
```

Warnings:

[1] XtoY: x has no value

15.0.418 warnings 20339: GALFACT

>compiling GALFACT.spad to GALFACT.nrllib

Warnings:

[1] eisensteinIrreducible?: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE makeFR
 [2] modularFactor: s has no value
 [3] completeFactor: g0 has no value
 [4] completeFactor: degg has no value
 [5] completeFactor: g has no value
 [6] completeFactor: x has no value
 [7] completeFactor: ltrue has no value
 [8] completeFactor: level has no value
 [9] divideSet: l has no value
 [10] btwFactor: reverse? has no value
 [11] btwFactor: negativelc? has no value
 [12] btwFactor: x has no value
 [13] btwFactor: lf has no value
 [14] henselFact: c has no value
 [15] henselFact: factorlist has no value
 [16] henselFact: z has no value
 [17] btwFact: x has no value
 [18] btwFact: c has no value
 [19] btwFact: factorlist has no value
 [20] btwFact: z has no value

15.0.419 warnings 20338: IALGFACT

>compiling IALGFACT.spad to IALGFACT.nrllib

Warnings:

[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored AlPo
 [2] x has no value

15.0.420 warnings 20337: IBACHIN

>compiling IBACHIN.spad to IBACHIN.nrllib

Warnings:

[1] applyFrobToMatrix: k1 has no value

```
[2] listConjugateBases: k1 has no value
[3] approximateExtendedEuclidean: r1 has no value
[4] approximateExtendedEuclidean: z1 has no value
```

15.0.421 warnings 20336: MMLFORM

```
>compiling MMLFORM.spad to MMLFORM.nrlib
```

```
Warnings:
[1] exprex: s has no value
[2] formatSub: j has no value
[3] formatSub: s has no value
[4] formatSub1: s has no value
[5] formatPlex: checkarg has no value
[6] formatPlex: s has no value
[7] formatNaryNoGroup: checkargs has no value
```

15.0.422 warnings 20335: NORMMA

```
>compiling NORMMA.spad to NORMMA.nrlib
```

```
Warnings:
[1] PolR2SUP: x has no value
```

15.0.423 warnings 20334: ODERED

```
>compiling ODERED.spad to ODERED.nrlib
```

```
Warnings:
[1] matF2L: f1 has no value
[2] reduceLODE: f1 has no value
```

15.0.424 warnings 20333: PERM

```
>compiling PERM.spad to PERM.nrlib
```

```
Warnings:
[1] rotateCycle: minpos has no value
[2] coerceToCycle: nextCycle has no value
[3] coercePreimagesImages: preImage has no value
[4] coercePreimagesImages: image has no value
```

15.0.425 warnings 20332: PERMGRP

>compiling PERMGRP.spad to PERMGRP.nrllib

Warnings:

- [1] shortenWord: newlw has no value
- [2] orbitInternal: pos has no value
- [3] orbitInternal: orbitList has no value
- [4] bsgs1: j has no value
- [5] bsgs1: out has no value
- [6] bsgs1: outword has no value
- [7] bsgs1: baseOfGroup has no value
- [8] reduceGenerators: wordlist has no value
- [9] bsgs: gpbase has no value
- [10] bsgs: baseOfGroup has no value
- [11] bsgs: wordProblem has no value
- [12] bsgs: wordlist has no value
- [13] bsgs: gporb has no value
- [14] bsgs: noresult has no value
- [15] bsgs: newBasePoint has no value
- [16] bsgs: basePoint has no value
- [17] memberInternal: supp has no value
- [18] memberInternal: sgs has no value
- [19] memberInternal: baseOfGroup has no value
- [20] memberInternal: gporb has no value
- [21] coerce: :(Symbol) -- should replace by pretend

15.0.426 warnings 20331: PRIMES

>compiling PRIMES.spad to PRIMES.nrllib

Warnings:

- [1] rabinProvesComposite: rootsMinus1 has no value

15.0.427 warnings 20330: PRJALGPK

>compiling PRJALGPK.spad to PRJALGPK.nrllib

Warnings:

- [1] singularPoints: listPtsIdl2 has no value
- [2] algebraicSet: listPtsIdl2 has no value
- [3] rationalPoints: listPtsIdl has no value

15.0.428 warnings 20329: PWFFINTB

```
>compiling PWFFINTB.spad to PWFFINTB.nrlib
```

```
Warnings:
```

```
[1] reducedDiscriminant: r1 has no value  
[2] compLocalBasisOverExt: k1 has no value  
[3] listSquaredFactors: ans has no value
```

15.0.429 warnings 20328: SAE

```
>compiling SAE.spad to SAE.nrlib
```

```
Warnings:
```

```
[1] lift: pretendRep -- should replace by @  
[2] coordinates: y has no value  
[3] index: ans has no value  
[4] unknown Functor code (error Modulus cannot be made monic)
```

15.0.430 warnings 20327: SGCF

```
>compiling SGCF.spad to SGCF.nrlib
```

```
Warnings:
```

```
[1] unrankImproperPartitions0: l has no value  
[2] unrankImproperPartitions1: nonZeros has no value  
[3] subSet: l has no value  
[4] nextLatticePermutation: ready has no value  
[5] listYoungTableaus: lattice has no value
```

15.0.431 warnings 20326: SPACE3

```
>compiling SPACE3.spad to SPACE3.nrlib
```

```
Warnings:
```

```
[1] coerce: l111Pt has no value
```

15.0.432 warnings 200325: TBAGG

```
>compiling TBAGG.spad to TBAGG.nrlib
```


Warnings:

[1] map!: signature of lhs not unique: S(Mapping Entry Entry)S chosen

15.0.433 warnings 20324: VIEW3D

>compiling VIEW3D.spad to VIEW3D.nrlib

Warnings:

[1] viewpoint: Theta has no value

15.0.434 warnings 20323: WFFINTBS

>compiling WFFINTBS.spad to WFFINTBS.nrlib

Warnings:

[1] listSquaredFactors: ans has no value

[2] iLocalIntegralBasis: rbdn has no value

[3] integralBasis: runningRbdn has no value

15.0.435 warnings 20322: ALIST

>compiling ALIST.spad to ALIST.nrlib

Warnings:

[1] latex: s has no value

[2] remove!: key has no value

15.0.436 warnings 20321: HASHTBL

>compiling HASHTBL.spad to HASHTBL.nrlib

Warnings:

[1] remove!: pretendEntry -- should replace by @

[2] search: pretendEntry -- should replace by @

15.0.437 warnings 20320: INTPACK

>compiling INTPACK.spad to INTPACK.nrlib

Warnings:

```
[1] integrateConstantList: x has no value
[2] integrateConstantList: y has no value
[3] preAnalysis: nia has no value
[4] measureSpecific: nia has no value
[5] measureSpecific: mdnia has no value
[6] integrateSpecific: nia has no value
[7] integrateSpecific: mdnia has no value
[8] recoverAfterFail: nia has no value
[9] integrateArgs: mdnia has no value
[10] integrateArgs: nia has no value
```

15.0.438 warnings 20319: IPF

>compiling IPF.spad to IPF.nrllib

Warnings:

```
[1] tableForDiscreteLogarithm: pretend(Table (PositiveInteger) (NonNegativeInteger)) -- should replace by
[2] initializeLog: n has no value
[3] coordinates: signature of lhs not unique: (Vector $)$ chosen
[4] charthRoot: signature of lhs not unique: $$ chosen
```

15.0.439 warnings 20318: ACF

>compiling ACF.spad to ACF.nrllib

Warnings:

```
[1] zeroOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) (SparseUnivaria
```

15.0.440 warnings 20317: ACPLLOT

>compiling ACPLLOT.spad to ACPLLOT.nrllib

Warnings:

```
[1] listPtsOnHorizBdry: pointList has no value
[2] listPtsOnVertBdry: pointList has no value
[3] listPtsInRect: pointList has no value
[4] newX: x has no value
[5] newY: x has no value
[6] makeOneVarSketch: sketchRoots has no value
[7] makeOneVarSketch: lf has no value
[8] makeOneVarSketch: rt has no value
[9] makeOneVarSketch: bt has no value
[10] makeOneVarSketch: tp has no value
[11] makeLineSketch: branch has no value
```

```

[12] makeLineSketch: lf has no value
[13] makeLineSketch: rt has no value
[14] makeLineSketch: bt has no value
[15] makeLineSketch: tp has no value
[16] makeRatFcnSketch: s has no value
[17] makeRatFcnSketch: outList has no value
[18] makeRatFcnSketch: lf has no value
[19] makeRatFcnSketch: rt has no value
[20] makeRatFcnSketch: bt has no value
[21] makeRatFcnSketch: tp has no value
[22] makeRatFcnSketch: topList has no value
[23] makeRatFcnSketch: botList has no value
[24] makeGeneralSketch: s has no value
[25] listPtsOnLoop: pointList has no value
[26] computeNextPt: xPointList has no value
[27] computeNextPt: yPointList has no value

```

15.0.441 warnings 20316: ANTISYM

>compiling ANTISYM.spad to ANTISYM.nrllib

Warnings:

```

[1] retractable?: k has no value
[2] retractIfCan: k has no value
[3] *: k has no value
[4] *: c has no value
[5] *: z has no value
[6] coerce: c has no value
[7] coerce: k has no value

```

15.0.442 warnings 20315: ASP12

>compiling ASP12.spad to ASP12.nrllib

Warnings:

```

[1] MAXIT has no value
[2] IFLAG has no value
[3] ELAM has no value
[4] FINFO has no value

```

15.0.443 warnings 20314: ASP27

>compiling ASP27.spad to ASP27.nrllib

Warnings:

```
[1] IFLAG has no value
[2] N has no value
[3] LRWORK has no value
[4] LIWORK has no value
[5] Z has no value
[6] W has no value
[7] RWORK has no value
[8] IWORK has no value
```

15.0.444 warnings 20313: ASP28

```
>compiling ASP28.spad to ASP28.nrllib
```

Warnings:

```
[1] IFLAG has no value
[2] N has no value
[3] LRWORK has no value
[4] LIWORK has no value
[5] Z has no value
[6] W has no value
[7] RWORK has no value
[8] IWORK has no value
```

15.0.445 warnings 20312: ASP30

```
>compiling ASP30.spad to ASP30.nrllib
```

Warnings:

```
[1] MODE has no value
[2] M has no value
[3] N has no value
[4] LRWORK has no value
[5] LIWORK has no value
[6] X has no value
[7] Y has no value
[8] RWORK has no value
[9] IWORK has no value
[10] IFAIL has no value
[11] coerce: A has no value
```

15.0.446 warnings 20311: ASP33

```
>compiling ASP33.spad to ASP33.nrllib
```

Warnings:

```
[1] JINT has no value
[2] X has no value
[3] V has no value
```

15.0.447 warnings 20310: ASP49

>compiling ASP49.spad to ASP49.nrllib

Warnings:

```
[1] MODE has no value
[2] N has no value
[3] X has no value
[4] OBJF has no value
[5] OBJGRD has no value
[6] NSTATE has no value
[7] IUSER has no value
[8] USER has no value
```

15.0.448 warnings 20309: ASP55

>compiling ASP55.spad to ASP55.nrllib

Warnings:

```
[1] MODE has no value
[2] NCNLN has no value
[3] N has no value
[4] NROWJ has no value
[5] NEEDC has no value
[6] X has no value
[7] C has no value
[8] CJAC has no value
[9] NSTATE has no value
[10] IUSER has no value
[11] USER has no value
[12] makeCond: NEEDC has no value
```

15.0.449 warnings 20308: ASP7

>compiling ASP7.spad to ASP7.nrllib

Warnings:

```
[1] X has no value
[2] Y has no value
[3] F has no value
```

```
[4] coerce: F has no value
```

15.0.450 warnings 20307: ASP78

```
>compiling ASP78.spad to ASP78.nrlib
```

```
Warnings:
```

```
[1] X has no value  
[2] G has no value  
[3] coerce: G has no value
```

15.0.451 warnings 20306: ASP8

```
>compiling ASP8.spad to ASP8.nrlib
```

```
Warnings:
```

```
[1] COUNT has no value  
[2] XSOL has no value  
[3] N has no value  
[4] Y has no value  
[5] FORWRD has no value  
[6] RESULT has no value  
[7] M has no value  
[8] coerce: POINTS has no value  
[9] coerce: X02ALF has no value  
[10] coerce: RESULT has no value  
[11] coerce: COUNT has no value  
[12] coerce: XSOL has no value
```

15.0.452 warnings 20305: ASP9

```
>compiling ASP9.spad to ASP9.nrlib
```

```
Warnings:
```

```
[1] X has no value  
[2] Y has no value  
[3] coerce: CHDUM1 has no value  
[4] coerce: CD02EJ has no value  
[5] coerce: AD02CJ has no value  
[6] coerce: GOPT1 has no value  
[7] coerce: GOPT2 has no value
```

15.0.453 warnings 20304: BLUPPACK

```
>compiling BLUPPACK.spad to BLUPPACK.nrllib
```

```
Warnings:
```

```
[1] stepBlowUp: not known that (FiniteAbelianMonoidRing K (DirectProduct (call LENGTH (LIST (QUOTE X) (QUO
[2] stepBlowUp: listRec has no value
[3] blowExp: pretend(Integer) -- should replace by @
```

15.0.454 warnings 20303: BOP

```
>compiling BOP.spad to BOP.nrllib
```

```
Warnings:
```

```
[1] display: x1 has no value
```

15.0.455 warnings 20302: BOP1

```
>compiling BOP1.spad to BOP1.nrllib
```

```
Warnings:
```

```
[1] evaluate: ll has no value
[2] derivative: ll has no value
[3] constOp: ll has no value
[4] constantOperator: ll has no value
```

15.0.456 warnings 20301: COMPCAT

```
>compiling COMPCAT.spad to COMPCAT.nrllib
```

```
Warnings:
```

```
[1] solveLinearPolynomialEquation: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE differentiate
[2] normPolynomial: z has no value
[3] factorPolynomial: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE differentiate
[4] factorPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE differentiate (S S)) (SIGN
[5] factorSquareFreePolynomial: z has no value
[6] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE differentiate (S S)) (SIGN
[7] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE differentiate (S S))
```

15.0.457 warnings 20300: DRAWCFUN

```
>compiling DRAWCFUN.spad to DRAWCFUN.nrlib
```

```
Warnings:
```

```
[1] drawToScaleRanges: x has no value
[2] drawPlot: brans has no value
[3] drawPlot: xValues has no value
[4] drawPlot: yValues has no value
[5] drawPlot: x has no value
[6] draw: x has no value
[7] draw: fcn has no value
[8] makeObject: x has no value
[9] makeObject: fcn has no value
[10] makeObject: pointsColored? has no value
[11] recolor: f1 has no value
[12] recolor: f2 has no value
[13] makeObject: y has no value
[14] makeObject: col2 has no value
[15] makeObject: col3 has no value
```

15.0.458 warnings 20299: D01ANFA

```
>compiling D01ANFA.spad to D01ANFA.nrlib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.459 warnings 20298: D01ASFA

```
>compiling D01ASFA.spad to D01ASFA.nrlib
```

```
Warnings:
```

```
[1] numericalIntegration: x has no value
```

15.0.460 warnings 20297: EP

```
>compiling EP.spad to EP.nrlib
```

```
Warnings:
```

```
[1] not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGORY domain (SIGNATURE
[2] charpol: :(PositiveInteger) -- should replace by pretend
[3] eigenvalues: lrat has no value
[4] eigenvalues: lsym has no value
[5] intAlgEig: not known that (Ring) is of mode (CATEGORY package (SIGNATURE characteristicPolynomial ((Po
[6] eigenvectors: ratSol has no value
[7] eigenvectors: algSol has no value
```


15.0.461 warnings 20296: E04AGNT

```
>compiling E04AGNT.spad to E04AGNT.nrlib
```

```
Warnings:
```

- [1] optAttributes: noa has no value
- [2] optAttributes: lsa has no value
- [3] optAttributes: s has no value

15.0.462 warnings 20295: FEXPR

```
>compiling FEXPR.spad to FEXPR.nrlib
```

```
Warnings:
```

- [1] checkSymbols: IN has no value
- [2] checkForNagOperators: X01AAF has no value
- [3] pi: X01AAF has no value

15.0.463 warnings 20294: FFCAT

```
>compiling FFCAT.spad to FFCAT.nrlib
```

```
Warnings:
```

- [1] rationalPoint?: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE differentiate (
- [2] UP2P: s has no value
- [3] UPUP2P: s has no value
- [4] nonSingularModel: s has no value
- [5] primitivePart: STEP has no value
- [6] primitivePart: i has no value
- [7] integralAtInfinity?: s has no value
- [8] repOrder: nostart has no value
- [9] kmin: nostart has no value
- [10] kmin: k has no value
- [11] integral?: den has no value
- [12] differentiate: x has no value

15.0.464 warnings 20293: FFCGP

```
>compiling FFCGP.spad to FFCGP.nrlib
```

Warnings:

```
[1] pretend(NonNegativeInteger) -- should replace by @
[2] +: pretend(SingleInteger) -- should replace by @
[3] +: pretendRep -- should replace by @
[4] retractIfCan: pretendRep -- should replace by @
[5] inGroundField?: pretendRep -- should replace by @
[6] -: pretendRep -- should replace by @
[7] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
[8] unknown Functor code (error field too large for this representation)
```

15.0.465 warnings 20292: FFNBP

>compiling FFNBP.spad to FFNBP.nrllib

Warnings:

```
[1] degree: signature of lhs not unique: (PositiveInteger)$ chosen
[2] coerce: 1 has no value
[3] initializeLog: n has no value
[4] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
```

15.0.466 warnings 20291: FFP

>compiling FFP.spad to FFP.nrllib

Warnings:

```
[1] degree: signature of lhs not unique: (PositiveInteger)$ chosen
[2] tableForDiscreteLogarithm: pretend(Table (PositiveInteger) (NonNegativeInteger)) -- should replace by
[3] initializeLog: n has no value
[4] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
```

15.0.467 warnings 20290: FLOAT

>compiling FLOAT.spad to FLOAT.nrllib

Warnings:

```
[1] OMwrite: pretend(String) -- should replace by @
[2] cos: s has no value
[3] exp: e1 has no value
[4] exp1: E has no value
[5] normalize: e has no value
[6] power: y has no value
[7] power10: y has no value
```

15.0.468 warnings 20289: FPARFRAC

```
>compiling FPARFRAC.spad to FPARFRAC.nrllib
```

```
Warnings:
```

- [1] UP2SUP: z1 has no value
- [2] fullPartialFraction: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE + (\$ UP \$))
- [3] fullParFrac: ans has no value

15.0.469 warnings 20288: FR

```
>compiling FR.spad to FR.nrllib
```

```
Warnings:
```

- [1] zero?: fctr has no value
- [2] eval: IN has no value
- [3] eval: e has no value
- [4] convert: fctr has no value
- [5] convert: xpnt has no value
- [6] exquo: associate has no value
- [7] exquo: goodQuotient has no value

15.0.470 warnings 20287: FRNAALG

```
>compiling FRNAALG.spad to FRNAALG.nrllib
```

```
Warnings:
```

- [1] leftRankPolynomial: xx has no value
- [2] rightRankPolynomial: xx has no value
- [3] coordinates: signature of lhs not unique: (Matrix R)(Vector S) chosen

15.0.471 warnings 20286: FS

```
>compiling FS.spad to FS.nrllib
```

```
Warnings:
```

- [1] coerce: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S))
- [2] subs: IN has no value
- [3] subs: x has no value
- [4] variables: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S))
- [5] eval: y has no value
- [6] eval: IN has no value
- [7] eval: f has no value

```

[8] smprep: IN has no value
[9] smprep: a has no value
[10] smprep: y has no value
[11] smprep: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S)) (SIGN
[12] diffdiff0: ans has no value
[13] diffEval: k has no value
[14] opderiv: x has no value
[15] opderiv: y has no value
[16] smpderiv: s has no value
[17] coerce: s has no value
[18] coerce: r has no value
[19] smp20: x has no value
[20] smpsubst: x has no value
[21] smpsubst: s has no value
[22] smpsubst: z has no value
[23] smpsubst: y has no value
[24] smpeval: x has no value
[25] smpeval: s has no value
[26] smpeval: z has no value
[27] smpeval: y has no value
[28] smpunq: x has no value
[29] smpunq: y has no value
[30] smpret: x has no value
[31] smpret: y has no value
[32] univariate: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S)) (
[33] convert: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger)
[34] coerce: x has no value
[35] coerce: y has no value

```

15.0.472 warnings 20285: FST

>compiling FST.spad to FST.nrllib

Warnings:

```

[1] coerce: REAL has no value
[2] coerce: INTEGER has no value
[3] coerce: COMPLEX has no value
[4] coerce: CHARACTER has no value
[5] coerce: LOGICAL has no value
[6] coerce: real has no value
[7] coerce: integer has no value
[8] coerce: complex has no value
[9] coerce: character has no value
[10] coerce: logical has no value
[11] coerce: upperDoubleCComplexSymbol has no value

```

15.0.473 warnings 20284: GDMP

```
>compiling GDMP.spad to GDMP.nrlib
```

```
Warnings:
```

```
[1] zero?: :Rep -- should replace by pretend
[2] listCoef: :Rep -- should replace by pretend
[3] numberOfMonomials: :Rep -- should replace by pretend
[4] monomial?: :Rep -- should replace by pretend
[5] maxNorm: m has no value
[6] variables: :(PositiveInteger) -- should replace by pretend
[7] reorder: z2 has no value
[8] reorder: z1 has no value
[9] univariate: deg has no value
[10] evalSortedVarlist: x has no value
[11] eval: y has no value
[12] eval: x has no value
[13] coerce: 1 has no value
```

15.0.474 warnings 20283: HACKPI

```
>compiling HACKPI.spad to HACKPI.nrlib
```

```
Warnings:
```

```
[1] pi: pretend$ -- should replace by @
[2] p2sf: x has no value
[3] p2f: x has no value
```

15.0.475 warnings 20282: IDEAL

```
>compiling IDEAL.spad to IDEAL.nrlib
```

```
Warnings:
```

```
[1] not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has (NonNegativeInteger) (Fi
[2] leadterm: not known that (Ring) is of mode (CATEGORY package (SIGNATURE * ($ $ $)) (SIGNATURE ** ($ $
[3] contractGrob: not known that (PolynomialCategory F newExpon VarSet) is of mode (CATEGORY domain (IF (h
[4] monomDim: b has no value
[5] monomDim: a has no value
[6] monomDim: monvar has no value
[7] **: :(NonNegativeInteger) -- should replace by pretend
[8] relationsIdeal: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has Expon (Fini
[9] relationsIdeal: not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has Expon (F
[10] relationsIdeal: not known that (PolynomialCategory F nExponent VarSet1) is of mode (CATEGORY domain (
[11] relationsIdeal: :(Vector (NonNegativeInteger)) -- should replace by pretend
[12] relationsIdeal: The conditional modes (Polynomial F) and nPoly conflict
```

15.0.476 warnings 20281: INFORM

```
>compiling INFORM.spad to INFORM.nrlib
```

```
Warnings:
```

```
[1] conv: pretend$ -- should replace by @
```

15.0.477 warnings 20280: IR

```
>compiling IR.spad to IR.nrlib
```

```
Warnings:
```

```
[1] nesimp: IN has no value
[2] nesimp: ne has no value
[3] *: x1 has no value
[4] *: x2 has no value
[5] differentiate: x1 has no value
```

15.0.478 warnings 20279: ISUPS

```
>compiling ISUPS.spad to ISUPS.nrlib
```

```
Warnings:
```

```
[1] map: y has no value
[2] map: z has no value
[3] differentiate: n has no value
[4] differentiate: y has no value
[5] differentiate: z has no value
[6] multiplyCoefficients: n has no value
[7] multiplyCoefficients: y has no value
[8] multiplyCoefficients: z has no value
[9] multiplyExponents: y has no value
[10] multiplyExponents: z has no value
[11] iPlus1: x1 has no value
[12] iPlus1: z has no value
[13] iPlus2: z has no value
[14] +: xi has no value
[15] +: yi has no value
[16] -: xi has no value
[17] -: yi has no value
[18] -: x has no value
[19] -: z has no value
[20] *: z has no value
[21] productByTerm: y has no value
[22] productByTerm: z has no value
[23] iTimes: a has no value
[24] iTimes: b has no value
```

```

[25] iDivide:  a has no value
[26] iDivide:  b has no value
[27] iExquo:   y1 has no value
[28] iExquo:   z has no value
[29] taylorQuoByVar: y has no value
[30] taylorQuoByVar: z has no value
[31] compose0:  s has no value
[32] compose0:  m has no value
[33] compose0:  a has no value
[34] compose0:  b has no value
[35] integrate: n has no value
[36] integrate: y has no value
[37] integrate: z has no value
[38] cPower:    s has no value
[39] iExp:      s has no value
[40] iSincos:   s has no value
[41] tan0:      a has no value
[42] tan0:      b has no value
[43] iTan:      s has no value
[44] cSin:      %sin has no value
[45] cCos:      %cos has no value
[46] sinhcosh:  %sin has no value
[47] sinhcosh:  %cos has no value
[48] cSinh:     %sinh has no value
[49] cCosh:     %cosh has no value

```

15.0.479 warnings 20278: LMDICT

```
>compiling LMDICT.spad to LMDICT.nrlib
```

Warnings:

```

[1] substitute:  z1 has no value
[2] select!:    z has no value

```

15.0.480 warnings 20277: LODOOPS

```
>compiling LODOOPS.spad to LODOOPS.nrlib
```

Warnings:

```

[1] nonTrivial?:  x1 has no value
[2] killer: not known that (Ring) is of mode (CATEGORY package (SIGNATURE symmetricProduct (L L L (Mapping

```

15.0.481 warnings 20276: MATRIX

```
>compiling MATRIX.spad to MATRIX.nrlib
```

Warnings:

```
[1] positivePower: pretend(Matrix R) -- should replace by @
[2] determinant: not known that (CommutativeRing) is of mode (CATEGORY R (ATTRIBUTE (commutative *)))
```

15.0.482 warnings 20275: MKFLCFN

>compiling MKFLCFN.spad to MKFLCFN.nrlib

Warnings:

```
[1] mkLisp: pretend(InputForm) -- should replace by @
```

15.0.483 warnings 20274: MSET

>compiling MSET.spad to MSET.nrlib

Warnings:

```
[1] select!: s1 has no value
[2] intersect: n has no value
[3] difference: n has no value
```

15.0.484 warnings 20273: M3D

>compiling M3D.spad to M3D.nrlib

Warnings:

```
[1] matrixConcat3D: retVal has no value
```

15.0.485 warnings 20272: NAGC02

>compiling NAGC02.spad to NAGC02.nrlib

Warnings:

```
[1] c02aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] c02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.486 warnings 20271: NAGC05


```
>compiling NAGC05.spad to NAGC05.nrlib
```

```
Warnings:
```

```
[1] c05adf:  fn has no value
[2] c05adf:  fp has no value
[3] c05adf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] c05nbf:  fn has no value
[5] c05nbf:  fp has no value
[6] c05nbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] c05pbf:  fn has no value
[8] c05pbf:  fp has no value
[9] c05pbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.487 warnings 20270: NAGC06

```
>compiling NAGC06.spad to NAGC06.nrlib
```

```
Warnings:
```

```
[1] c06eaf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] c06ebf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] c06ecf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] c06ekf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] c06fpf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] c06fqf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] c06frf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] c06fuf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] c06gbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] c06gcf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] c06gqf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] c06gsf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.488 warnings 20269: NAGD01

```
>compiling NAGD01.spad to NAGD01.nrlib
```

```
Warnings:
```

```
[1] d01ajf:  fn has no value
[2] d01ajf:  fp has no value
[3] d01ajf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] d01akf:  fn has no value
[5] d01akf:  fp has no value
[6] d01akf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] d01alf:  fn has no value
[8] d01alf:  fp has no value
[9] d01alf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] d01amf:  fn has no value
[11] d01amf:  fp has no value
[12] d01amf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

```

[13] d01anf:  fn has no value
[14] d01anf:  fp has no value
[15] d01anf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] d01apf:  fn has no value
[17] d01apf:  fp has no value
[18] d01apf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] d01aqf:  fn has no value
[20] d01aqf:  fp has no value
[21] d01aqf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] d01asf:  fn has no value
[23] d01asf:  fp has no value
[24] d01asf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[25] d01bbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[26] d01fcf:  fn has no value
[27] d01fcf:  fp has no value
[28] d01fcf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[29] d01gaf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[30] d01gbf:  fn has no value
[31] d01gbf:  fp has no value
[32] d01gbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.489 warnings 20268: NAGD02

>compiling NAGD02.spad to NAGD02.nrllib

Warnings:

```

[1] d02bbf:  fn has no value
[2] d02bbf:  fp has no value
[3] d02bbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] d02bhf:  fn has no value
[5] d02bhf:  fp has no value
[6] d02bhf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] d02cjf:  fn has no value
[8] d02cjf:  fp has no value
[9] d02cjf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] d02ejf:  fn has no value
[11] d02ejf:  fp has no value
[12] d02ejf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] d02gaf:  fn has no value
[14] d02gaf:  fp has no value
[15] d02gaf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] d02gbf:  fn has no value
[17] d02gbf:  fp has no value
[18] d02gbf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] d02kef:  fn has no value
[20] d02kef:  fp has no value
[21] d02kef:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] d02raf:  fn has no value
[23] d02raf:  fp has no value
[24] d02raf:  pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.490 warnings 20267: NAGD03

>compiling NAGD03.spad to NAGD03.nrlib

Warnings:

```
[1] d03edf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] d03eef: fn has no value
[3] d03eef: fp has no value
[4] d03eef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] d03faf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.491 warnings 20266: NAGE01

>compiling NAGE01.spad to NAGE01.nrlib

Warnings:

```
[1] e01baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] e01bef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] e01bff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e01bgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] e01bhf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] e01daf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e01saf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] e01sbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] e01sef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e01sff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.492 warnings 20265: NAGE02

>compiling NAGE02.spad to NAGE02.nrlib

Warnings:

```
[1] e02adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] e02aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] e02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e02ahf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] e02ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] e02akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e02baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] e02bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] e02bcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e02bdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] e02bef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] e02daf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] e02dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] e02ddf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

```

[15] e02def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] e02dff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] e02gaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[18] e02zaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.493 warnings 20264: NAGE04

>compiling NAGE04.spad to NAGE04.nrllib

Warnings:

```

[1] e04dgf: fn has no value
[2] e04dgf: fp has no value
[3] e04dgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e04fdf: fn has no value
[5] e04fdf: fp has no value
[6] e04fdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e04gcf: fn has no value
[8] e04gcf: fp has no value
[9] e04gcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e04jaf: fn has no value
[11] e04jaf: fp has no value
[12] e04jaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] e04mbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] e04naf: fn has no value
[15] e04naf: fp has no value
[16] e04naf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] e04ucf: fn has no value
[18] e04ucf: fp has no value
[19] e04ucf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[20] e04ycf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.494 warnings 20263: NAGF07

>compiling NAGF07.spad to NAGF07.nrllib

Warnings:

```

[1] f07adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f07aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f07fdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f07fef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.495 warnings 20262: NAGS

>compiling NAGS.spad to NAGS.nrllib

Warnings:

```
[1] s01eaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] s13aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] s13acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] s13adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] s14aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] s14abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] s14baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] s15adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] s15aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] s17acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] s17adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] s17aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] s17aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] s17agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[15] s17ahf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] s17ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] s17akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[18] s17dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] s17def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[20] s17dgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[21] s17dhf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] s17dlf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[23] s18acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[24] s18adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[25] s18aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[26] s18aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[27] s18dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[28] s18def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[29] s19aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[30] s19abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[31] s19acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[32] s19adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[33] s20acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[34] s20adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[35] s21baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[36] s21bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[37] s21bcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[38] s21bdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.496 warnings 20261: NAGSP

>compiling NAGSP.spad to NAGSP.nrllib

Warnings:

```
[1] getUniqueId:  uniqueId has no value
```

15.0.497 warnings 20260: NSDPS

```
>compiling NSDPS.spad to NSDPS.nrlib
```

```
Warnings:
```

```
[1] removeZeroes: c has no value
[2] iDiv: c has no value
[3] iDiv: k has no value
[4] sbt: k has no value
[5] sbt: c has no value
[6] shift: k has no value
[7] shift: c has no value
[8] +: k has no value
[9] +: c has no value
[10] multC: k has no value
[11] multC: c has no value
[12] *: k has no value
[13] *: c has no value
```

15.0.498 warnings 20259: NUMFMT

```
>compiling NUMFMT.spad to NUMFMT.nrlib
```

```
Warnings:
```

```
[1] check: c1 has no value
[2] check: c2 has no value
[3] ScanRoman: nprens has no value
```

15.0.499 warnings 20258: ODERAT

```
>compiling ODERAT.spad to ODERAT.nrlib
```

```
Warnings:
```

```
[1] ratDsolve1: not known that (Ring) is of mode (CATEGORY package (SIGNATURE ratDsolve ((Record (: partic
[2] ratDsolve0: b has no value
[3] candidates: l1 has no value
[4] infMuLambda: lamb has no value
[5] infMuLambda: lf has no value
```

15.0.500 warnings 20257: OMERRK

```
>compiling OMERRK.spad to OMERRK.nrlib
```

```
Warnings:
```

```

[1] OMParseError?:  parseError has no value
[2] OMUnknownCD?:   unknownCD has no value
[3] OMUnknownSymbol?: unknownSymbol has no value
[4] OMReadError?:   readError has no value
[5] coerce:  OMParseError has no value
[6] coerce:  OMUnknownCD has no value
[7] coerce:  OMUnknownSymbol has no value
[8] coerce:  OMReadError has no value

```

15.0.501 warnings 20256: OPTPACK

```
>compiling OPTPACK.spad to OPTPACK.nrlib
```

Warnings:

```

[1] constant:  noa has no value
[2] measureSpecific:  noa has no value
[3] measureSpecific:  lsa has no value
[4] optimizeSpecific:  noa has no value
[5] optimizeSpecific:  lsa has no value
[6] goodnessOfFit:  lsa has no value
[7] goodnessOfFit:  method has no value
[8] goodnessOfFit:  nameOfRoutine has no value
[9] goodnessOfFit:  w has no value
[10] goodnessOfFit:  objf has no value

```

15.0.502 warnings 20255: OSI

```
>compiling OSI.spad to OSI.nrlib
```

Warnings:

```
[1] value: :Rep -- should replace by pretend
```

15.0.503 warnings 20254: PACOFF

```
>compiling PACOFF.spad to PACOFF.nrlib
```

Warnings:

```

[1] repPolynomial: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[2] vectorise: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[3] localRandom:  recTower has no value
[4] +:  recEl has no value
[5] *:  recEl has no value
[6] *:  recTower has no value
[7] -: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[8] coerce: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))

```

```

[9] fullOutput: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[10] definingPolynomial: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[11] extDegree: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[12] previousTower: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[13] name: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[14] down: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))

```

15.0.504 warnings 20253: PACRAT

>compiling PACRAT.spad to PACRAT.nrlib

Warnings:

```

[1] down: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[2] lift: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[3] reduce: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[4] vectorise: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[5] +: recEl has no value
[6] *: recEl has no value
[7] *: recTower has no value
[8] inv: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[9] -: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[10] coerce: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[11] fullOutput: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[12] definingPolynomial: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[13] extDegree: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[14] previousTower: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))
[15] name: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $))

```

15.0.505 warnings 20252: PATTERN

>compiling PATTERN.spad to PATTERN.nrlib

Warnings:

```

[1] quoted?: sym has no value
[2] generic?: sym has no value
[3] multiple?: sym has no value
[4] optional?: sym has no value
[5] =: pretend(Boolean) -- should replace by @
[6] isOp: ker has no value
[7] variables: exp has no value
[8] variables: qot has no value
[9] variables: ker has no value
[10] PAT20: ret has no value
[11] PAT20: sym has no value
[12] PAT20: exp has no value
[13] PAT20: qot has no value
[14] PAT20: ker has no value
[15] patcopy: ret has no value

```



```

[16] patcopy:  sym has no value
[17] patcopy:  ker has no value
[18] patcopy:  qot has no value
[19] patcopy:  exp has no value
[20] pateq?:   ret has no value
[21] pateq?:   qot has no value
[22] pateq?:   sym has no value
[23] pateq?:   ker has no value
[24] pateq?:   exp has no value

```

15.0.506 warnings 20251: PLCS

>compiling PLCS.spad to PLCS.nrllib

Warnings:

```

[1] ActualSetOfPlacesName has no value
[2] =: The conditional modes (String) and $ conflict
[3] setFoundPlacesToEmpty: ActualSetOfPlacesName has no value
[4] create: SIMPLE has no value

```

15.0.507 warnings 20250: PMKERNEL

>compiling PMKERNEL.spad to PMKERNEL.nrllib

Warnings:

```

[1] patternMatchArg: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE patternMatch ((P
[2] patternMatchInner: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE patternMatch ((

```

15.0.508 warnings 20249: PRIMELT

>compiling PRIMELT.spad to PRIMELT.nrllib

Warnings:

```

[1] multi:  f1 has no value
[2] incl?:  s1 has no value
[3] triangularLinearIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE primitiveElement
[4] triangularLinearIfCan:  z1 has no value
[5] triangularLinearIfCan:  f1 has no value

```

15.0.509 warnings 20248: QALGSET2

>compiling QALGSET2.spad to QALGSET2.nrllib

Warnings:

```
[1] npoly:  z1 has no value
[2] npoly:  z2 has no value
[3] npoly: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteger)))
[4] oldpoly: z1 has no value
[5] oldpoly: z2 has no value
[6] radicalSimplify: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteger)))
[7] radicalSimplify: gb has no value
```

15.0.510 warnings 20247: RECLOS

>compiling RECLOS.spad to RECLOS.nrlib

Warnings:

```
[1] *:  z has no value
```

15.0.511 warnings 20246: REP1

>compiling REP1.spad to REP1.nrlib

Warnings:

```
[1] antisymmetricTensors: not known that (Ring) is of mode (CATEGORY R (ATTRIBUTE (commutative *)))
```

15.0.512 warnings 20245: RFFACT

>compiling RFFACT.spad to RFFACT.nrlib

Warnings:

```
[1] likuniv:  y has no value
[2] likuniv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP)))
[3] factor:  x has no value
```

15.0.513 warnings 20244: RPOLCAT

>compiling RPOLCAT.spad to RPOLCAT.nrlib

Warnings:

```
[1] mainCoefficients: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S S)) (SIGNATURE coerce (S S)))
[2] convert:  stpol has no value
```

15.0.514 warnings 20243: SWITCH

```
>compiling SWITCH.spad to SWITCH.nrllib
```

```
Warnings:
```

```
[1] NULL has no value
```

15.0.515 warnings 20242: SYMTAB

```
>compiling SYMTAB.spad to SYMTAB.nrllib
```

```
Warnings:
```

```
[1] typeList: fst has no value
[2] typeList2: fst has no value
[3] newTypeLists: fst has no value
[4] oForm2: S has no value
[5] oForm2: P has no value
[6] oForm: bounds has no value
```

15.0.516 warnings 20241: SYSSOLP

```
>compiling SYSSOLP.spad to SYSSOLP.nrllib
```

```
Warnings:
```

```
[1] makeEq: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((List (List (Equation (Fr
[2] triangularSystems: not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGOR
[3] triangularSystems: not known that (PolynomialCategory (Polynomial R) DP OV) is of mode (CATEGORY domai
[4] triangularSystems: not known that (PolynomialCategory (Polynomial R) (DirectProduct (# lv) (NonNegativ
[5] triangularSystems: not known that (PolynomialCategory (Polynomial R) (DirectProduct (call LENGTH lv) (
```

15.0.517 warnings 20240: UTSCAT

```
>compiling UTSCAT.spad to UTSCAT.nrllib
```

```
Warnings:
```

```
[1] coerce: 1 has no value
```

15.0.518 warnings 20239: ACFS

```
>compiling ACFS.spad to ACFS.nrllib
```

Warnings:

- [1] zeroOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol))) (S
- [2] zeroOf: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol))) (S
- [3] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol))) (SIGNATURE

15.0.519 warnings 20238: AF

>compiling AF.spad to AF.nrllib

Warnings:

- [1] rootOf: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePolynomial (Integer) (Ring)))) (F (SparseUnivariatePolynomial (Integer) (Ring))))
- [2] rootOf: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePolynomial (Integer) (Ring)))) (F (SparseUnivariatePolynomial (Integer) (Ring))))
- [3] dvalg: s has no value
- [4] inrootof: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePolynomial (Integer) (Ring)))) (F (SparseUnivariatePolynomial (Integer) (Ring))))
- [5] hackroot: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE iroot (F R (Integer)))) (F R (Integer))
- [6] inroot0: rn has no value
- [7] inroot0: coef has no value
- [8] inroot0: radicand has no value
- [9] inroot0: exponent has no value
- [10] inroot0: rd has no value

15.0.520 warnings 20237: ALGFACT

>compiling ALGFACT.spad to ALGFACT.nrllib

Warnings:

- [1] allk: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (Integer) (Ring)))) (List (Integer) (Ring)))
- [2] liftpoly: x has no value
- [3] downpoly: x has no value
- [4] extend: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (Integer) (Ring)))) (List (Integer) (Ring)))
- [5] fact: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (Integer) (Ring)))) (List (Integer) (Ring)))
- [6] fact: x has no value
- [7] fact: not known that (SIGNATURE coerce (\$ (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring))))
- [8] fact: not known that (SIGNATURE numer ((SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring))))
- [9] fact: not known that (SIGNATURE denom ((SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring)))))) (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumber (Integer) (Ring))))
- [10] fact: y has no value

15.0.521 warnings 20236: ALGFF

>compiling ALGFF.spad to ALGFF.nrllib

Warnings:

- [1] getInfBasis: s has no value

15.0.522 warnings 20235: ALGMANIP

```
>compiling ALGMANIP.spad to ALGMANIP.nrllib
```

```
Warnings:
```

```
[1] ratDenom: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE
[2] algkernels: z1 has no value
[3] rootkernels: z1 has no value
[4] ratPoly: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE
[5] ratPoly: not known that (SIGNATURE coerce ($ (SparseMultivariatePolynomial R (Kernel F)))) is of mode
[6] ratPoly: not known that (SIGNATURE numer ((SparseMultivariatePolynomial R (Kernel F)) $)) is of mode
[7] ratPoly: not known that (SIGNATURE denom ((SparseMultivariatePolynomial R (Kernel F)) $)) is of mode
[8] innerRF: z2 has no value
[9] innerRF: z1 has no value
[10] innerRF: z3 has no value
[11] innerRF: z4 has no value
[12] innerRF: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE ra
[13] innerRF: z5 has no value
[14] innerRF: z6 has no value
```

15.0.523 warnings 20234: ALGMFACT

```
>compiling ALGMFACT.spad to ALGMFACT.nrllib
```

```
Warnings:
```

```
[1] factor: z1 has no value
```

15.0.524 warnings 20233: ALGSC

```
>compiling ALGSC.spad to ALGSC.nrllib
```

```
Warnings:
```

```
[1] elt: :Rep -- should replace by pretend
[2] coerce: le has no value
```

15.0.525 warnings 20232: APPRULE

```
>compiling APPRULE.spad to APPRULE.nrllib
```

```
Warnings:
```

```
[1] splitRules: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (R
[2] rewrite: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (Rewr
[3] isitwithpred: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE applyRules (F (List
```

15.0.526 warnings 20231: ASP19

```
>compiling ASP19.spad to ASP19.nrlib
```

```
Warnings:
```

- [1] M has no value
- [2] N has no value
- [3] LJC has no value
- [4] XC has no value
- [5] FVECC has no value
- [6] FJACC has no value
- [7] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct) (construct (QUOTE X
- [8] coerce: FJACC has no value

15.0.527 warnings 20230: ASP20

```
>compiling ASP20.spad to ASP20.nrlib
```

```
Warnings:
```

- [1] N has no value
- [2] NROWH has no value
- [3] NCOLH has no value
- [4] JTHCOL has no value
- [5] HESS has no value
- [6] X has no value
- [7] HX has no value

15.0.528 warnings 20229: ASP31

```
>compiling ASP31.spad to ASP31.nrlib
```

```
Warnings:
```

- [1] X has no value
- [2] Y has no value
- [3] localAssign: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X)) (construct
- [4] coerce: PW has no value

15.0.529 warnings 20228: ASP35

```
>compiling ASP35.spad to ASP35.nrlib
```

Warnings:

- [1] N has no value
- [2] X has no value
- [3] FVEC has no value
- [4] LDFJAC has no value
- [5] FJAC has no value
- [6] IFLAG has no value
- [7] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct) (construct (QUOTE X

15.0.530 warnings 20227: ASP41

>compiling ASP41.spad to ASP41.nrllib

Warnings:

- [1] N has no value
- [2] X has no value
- [3] EPS has no value
- [4] Y has no value
- [5] F has no value
- [6] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X) (QUOTE EPS
- [7] makeCodeThree: EPS has no value

15.0.531 warnings 20226: ASP42

>compiling ASP42.spad to ASP42.nrllib

Warnings:

- [1] EPS has no value
- [2] N has no value
- [3] YA has no value
- [4] YB has no value
- [5] BC has no value
- [6] AJ has no value
- [7] BJ has no value
- [8] BCEP has no value
- [9] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE EPS)) (constr
- [10] makeCodeThree: EPS has no value

15.0.532 warnings 20225: ASP74

>compiling ASP74.spad to ASP74.nrllib

Warnings:

- [1] X has no value
- [2] Y has no value

```
[3] A has no value
[4] B has no value
[5] C has no value
[6] IBND has no value
```

15.0.533 warnings 20224: ASP77

```
>compiling ASP77.spad to ASP77.nrlib
```

Warnings:

```
[1] X has no value
[2] localAssign: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X)) (construct
[3] coerce: F has no value
```

15.0.534 warnings 20223: ASP80

```
>compiling ASP80.spad to ASP80.nrlib
```

Warnings:

```
[1] XL has no value
[2] XR has no value
[3] ELAM has no value
[4] YL has no value
[5] YR has no value
```

15.0.535 warnings 20222: CINTSLPE

```
>compiling CINTSLPE.spad to CINTSLPE.nrlib
```

Warnings:

```
[1] solveLinearPolynomialEquation: slpePrime has no value
[2] solveLinearPolynomialEquation: oldtable has no value
```

15.0.536 warnings 20221: COMBF

```
>compiling COMBF.spad to COMBF.nrlib
```

Warnings:

```
[1] **: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOpera
[2] facts: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOp
[3] summand: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOp
```



```
[4] smpfact:  x has no value
[5] smpfact:  y has no value
[6] ipow:    n has no value
```

15.0.537 warnings 20220: COMPFAC

```
>compiling COMPFAC.spad to COMPFAC.nrllib
```

```
Warnings:
[1] conv:  pris has no value
[2] conv:  dris has no value
[3] backConv:  fctr has no value
[4] backConv:  xpnt has no value
[5] backConv:  flg has no value
```

15.0.538 warnings 20219: COMPLEX

```
>compiling COMPLEX.spad to COMPLEX.nrllib
```

```
Warnings:
[1] OMwrite: pretend(String) -- should replace by @
```

15.0.539 warnings 20218: CPMATCH

```
>compiling CPMATCH.spad to CPMATCH.nrllib
```

```
Warnings:
[1] patternMatch: not known that (SetCategory) is of mode (CATEGORY $ (SIGNATURE patternMatch ((PatternMat
```

15.0.540 warnings 20217: CRFP

```
>compiling CRFP.spad to CRFP.nrllib
```

```
Warnings:
[1] pleskenSplit:  split has no value
[2] startPolynomial:  centerIsRoot has no value
[3] startPolynomial:  fp has no value
[4] factor:  result has no value
```

15.0.541 warnings 20216: CTRIGMNP

```
>compiling CTRIGMNP.spad to CTRIGMNP.nrllib
```

```
Warnings:
```

```
[1] complexForm: not known that (RadicalCategory) is of mode (CATEGORY domain (IF (has R (IntegralDomain)))
[2] complexForm: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (I
[3] real?: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormalize (F F)) (SI
[4] complexElementary: x has no value
[5] complexElementary: y has no value
[6] complexElementary: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormaliz
[7] complexNormalize: y has no value
```

15.0.542 warnings 20215: D01WGTS

```
>compiling D01WGTS.spad to D01WGTS.nrllib
```

```
Warnings:
```

```
[1] inRest?: x has no value
[2] findCommonFactor: x has no value
[3] exprIsLogarithmicWeight: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprHasWe
[4] functionIsQuotient: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprHasWeightC
```

15.0.543 warnings 20214: D02AGNT

```
>compiling D02AGNT.spad to D02AGNT.nrllib
```

```
Warnings:
```

```
[1] stiffnessAndStabilityFactor: b has no value
[2] stiffnessAndStabilityFactor: e has no value
[3] stiffnessAndStabilityOfODE: Y has no value
```

15.0.544 warnings 20213: DBLRESP

```
>compiling DBLRESP.spad to DBLRESP.nrllib
```

```
Warnings:
```

```
[1] UP22: x has no value
[2] UP23: x has no value
```

15.0.545 warnings 20212: D01AGNT

```
>compiling D01AGNT.spad to D01AGNT.nrlib
```

```
Warnings:
```

- [1] continuousAtPoint?: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has (Fr
- [2] continuousAtPoint?: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (h
- [3] functionIsOscillatory: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rangeIsFini
- [4] singularitiesOf: str has no value

15.0.546 warnings 20211: DFSFUN

```
>compiling DFSFUN.spad to DFSFUN.nrlib
```

```
Warnings:
```

- [1] En: The conditional modes (DoubleFloat) and (Complex (DoubleFloat)) conflict
- [2] fresnelC: The conditional modes (Integer) and (DoubleFloat) conflict
- [3] fresnelS: The conditional modes (Integer) and (DoubleFloat) conflict

15.0.547 warnings 20210: DRAWCURV

```
>compiling DRAWCURV.spad to DRAWCURV.nrlib
```

```
Warnings:
```

- [1] draw: s has no value
- [2] draw: xRangeFloat has no value
- [3] draw: yRangeFloat has no value
- [4] draw: floatRanges has no value

15.0.548 warnings 20209: DTP

```
>compiling DTP.spad to DTP.nrlib
```

```
Warnings:
```

- [1] blowUp: I has no value
- [2] adjunctionDivisorForHamburgeNoether: pretend(Integer) -- should replace by @
- [3] adjunctionDivisorForQuadTrans: pretend(Integer) -- should replace by @

15.0.549 warnings 20208: D01TRNS

```
>compiling D01TRNS.spad to D01TRNS.nrlib
```

```
Warnings:
```

- [1] transformFunction: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (ha

```
[2] transformFunction:  x has no value
```

15.0.550 warnings 20207: EF

```
>compiling EF.spad to EF.nrlib
```

Warnings:

```
[1] pi: Pie has no value
[2] iisqrt1: isqrt1 has no value
[3] iisqrt2: isqrt2 has no value
[4] iisqrt3: isqrt3 has no value
[5] kernel: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exp (F F)) (SIGNATURE log
[6] ilog: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exp (F F)) (SIGNATURE log (F
[7] x has no value
```

15.0.551 warnings 20206: EFSTRUC

```
>compiling EFSTRUC.spad to EFSTRUC.nrlib
```

Warnings:

```
[1] realElem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNAT
[2] rtNormalize: func has no value
[3] toR: s has no value
[4] tanQ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE normal
[5] rootNormalize0: s has no value
[6] rootNormalize0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (
[7] ktoY: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE
[8] smpElem: x has no value
[9] smpElem: y has no value
[10] k2Elem: ez has no value
[11] k2Elem: iez has no value
[12] k2Elem: tz2 has no value
[13] tannosimp: x has no value
[14] tannosimp: den has no value
[15] tannosimp: num has no value
[16] expnosimp: x has no value
[17] expnosimp: den has no value
[18] expnosimp: num has no value
[19] rischNormalize: vec has no value
[20] rootKernelNormalize: vec has no value
[21] validExponential: IN has no value
[22] validExponential: g has no value
```

15.0.552 warnings 20205: ELFUTS

```
>compiling ELFUTS.spad to ELFUTS.nrllib
```

```
Warnings:
```

```
[1] sncndn: x has no value
```

15.0.553 warnings 20204: ESTOOLS

```
>compiling ESTOOLS.spad to ESTOOLS.nrllib
```

```
Warnings:
```

```
[1] isQuotient: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE f2df ((DoubleFloat) (F
[2] numberOfOperations1: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE f2df ((Double
```

15.0.554 warnings 20203: EXPRODE

```
>compiling EXPRODE.spad to EXPRODE.nrllib
```

```
Warnings:
```

```
[1] diffRhs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equat
[2] k2exquo: IN has no value
[3] k2exquo: f has no value
[4] smp2exquo: x has no value
[5] div2exquo: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equ
[6] diffRhsK: not known that (Ring) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equation F
[7] findEq: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equati
[8] seriesSolve: IN has no value
[9] seriesSolve: deq has no value
[10] seriesSolve: y has no value
```

15.0.555 warnings 20202: EXPRTUBE

```
>compiling EXPRTUBE.spad to EXPRTUBE.nrllib
```

```
Warnings:
```

```
[1] constantToUnaryFunction: s has no value
```

15.0.556 warnings 20201: EXPR2

```
>compiling EXPR2.spad to EXPR2.nrlib
```

```
Warnings:
```

- [1] map: x1 has no value
- [2] map: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE map ((Expression S) (Mapping

15.0.557 warnings 20200: FC

```
>compiling FC.spad to FC.nrlib
```

```
Warnings:
```

- [1] getElseIf: conditionalBranch has no value
- [2] getCode: assignmentBranch has no value
- [3] getCode: arrayAssignmentBranch has no value
- [4] getCode: conditionalBranch has no value
- [5] getCode: returnBranch has no value
- [6] getCode: blockBranch has no value
- [7] getCode: commentBranch has no value
- [8] getCode: callBranch has no value
- [9] getCode: forBranch has no value
- [10] getCode: labelBranch has no value
- [11] getCode: loopBranch has no value
- [12] getCode: printBranch has no value
- [13] getCode: commonBranch has no value

15.0.558 warnings 20199: FDIV

```
>compiling FDIV2.spad to FDIV2.nrlib
```

```
Warnings:
```

- [1] map: s has no value

15.0.559 warnings 20198: FSPRMELT

```
>compiling FSPRMELT.spad to FSPRMELT.nrlib
```

```
Warnings:
```

- [1] F2P: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE primitiveElement ((Record (:
- [2] F2P: k1 has no value
- [3] F2P: r1 has no value
- [4] K2P: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE primitiveElement ((Record (:
- [5] primitiveElement: not known that (Ring) is of mode (CATEGORY package (SIGNATURE primitiveElement ((Rec
- [6] primitiveElement: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE primitiveElement
- [7] F2UP: not known that (Ring) is of mode (CATEGORY \$ (SIGNATURE primitiveElement ((Record (: primelt F)
- [8] primitiveElement: z1 has no value

15.0.560 warnings 20197: FSRED

```
>compiling FSRED.spad to FSRED.nrlib
```

```
Warnings:
```

- [1] bringDown: not known that (Ring) is of mode (CATEGORY package (SIGNATURE bringDown ((Fraction (Integer
- [2] bringDown: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE bringDown ((Fraction (I

15.0.561 warnings 20196: FSUPFACT

```
>compiling FSUPFACT.spad to FSUPFACT.nrlib
```

```
Warnings:
```

- [1] UPAN2F: x has no value
- [2] UPQ2AN: x has no value
- [3] anfactor: overq has no value
- [4] anfactor: overan has no value
- [5] UPQ2F: x has no value
- [6] ffactor0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE ffactor ((Factored UP) U
- [7] ffactor0: x has no value
- [8] ffactor0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE ffactor ((Factored UP) UP)) (S
- [9] UPQ2UP: x has no value
- [10] PQ2F: x has no value
- [11] PQ2F: y has no value
- [12] qfactor: overq has no value
- [13] P2QifCan: x has no value
- [14] P2QifCan: y has no value

15.0.562 warnings 20195: FSPECF

```
>compiling FSPECF.spad to FSPECF.nrlib
```

```
Warnings:
```

- [1] iiabs: not known that (Ring) is of mode (CATEGORY R (SIGNATURE abs (R R)))
- [2] not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOperator)
- [3] x has no value

15.0.563 warnings 20194: FS2

```
>compiling FS2.spad to FS2.nrlib
```

Warnings:

- [1] smpmap: z has no value
- [2] smpmap: x has no value
- [3] smpmap: y has no value
- [4] map: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE map (B (Mapping S R) A)))

15.0.564 warnings 20193: FS2UPS

>compiling FS2UPS.spad to FS2UPS.nrlib

Warnings:

- [1] exprToUPS: not known that (Ring) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (: %series
- [2] exprToUPS: y1 has no value
- [3] exprToUPS: y2 has no value
- [4] listToUPS: %series has no value
- [5] powerToUPS: %series has no value
- [6] kernelToUPS: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (:
- [7] nthRootToUPS: %series has no value
- [8] logToUPS: %series has no value
- [9] atancotToUPS: %series has no value
- [10] applyIfCan: %series has no value
- [11] powToUPS: %series has no value
- [12] newElem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (: %se
- [13] smpElem: x1 has no value
- [14] iExprToGenUPS: y1 has no value
- [15] iExprToGenUPS: y2 has no value
- [16] opsInvolvingX: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (:
- [17] powerToGenUPS: %series has no value
- [18] nthRootToGenUPS: %series has no value
- [19] logToGenUPS: %series has no value
- [20] expToGenUPS: %series has no value
- [21] expGenUPS: %series has no value
- [22] atancotToGenUPS: %problem has no value
- [23] atancotToGenUPS: %series has no value
- [24] genUPSApplyIfCan: %series has no value
- [25] applyBddIfCan: %problem has no value
- [26] applyBddIfCan: %series has no value
- [27] powToGenUPS: %series has no value

15.0.565 warnings 20192: GAUSSFAC

>compiling GAUSSFAC.spad to GAUSSFAC.nrlib

Warnings:

- [1] intfactor: unity has no value
- [2] factor: :(NonNegativeInteger) -- should replace by pretend
- [3] factor: result has no value


```
[4] factor:  unity has no value
```

15.0.566 warnings 20191: GCNAALG

```
>compiling GCNAALG.spad to GCNAALG.nrllib
```

```
Warnings:
```

```
[1] leftRankPolynomial: signature of lhs not unique: (SparseUnivariatePolynomial (Fraction (Polynomial R)))
[2] rightRankPolynomial: signature of lhs not unique: (SparseUnivariatePolynomial (Fraction (Polynomial R)))
[3] genericLeftMinimalPolynomial:  x has no value
[4] genericRightMinimalPolynomial: x has no value
[5] genericLeftNorm:  rf has no value
[6] genericRightNorm: rf has no value
```

15.0.567 warnings 20190: GENUFACT

```
>compiling GENUFACT.spad to GENUFACT.nrllib
```

```
Warnings:
```

```
[1] factor: not known that (UnivariatePolynomialCategory (Integer)) is of mode (CATEGORY domain (SIGNATURE
[2] factor: not known that (UnivariatePolynomialCategory (Fraction (Integer))) is of mode (CATEGORY domain
[3] factor: not known that (UnivariatePolynomialCategory (Complex (Integer))) is of mode (CATEGORY domain
[4] factor: not known that (UnivariatePolynomialCategory (Complex (Fraction (Integer)))) is of mode (CATEG
[5] factor: not known that (UnivariatePolynomialCategory (AlgebraicNumber)) is of mode (CATEGORY domain (S
[6] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored (Spa
```

15.0.568 warnings 20189: GENUPS

```
>compiling GENUPS.spad to GENUPS.nrllib
```

```
Warnings:
```

```
[1] taylor:  i has no value
[2] laurent: i has no value
[3] puiseux: i has no value
[4] puiseux: r has no value
[5] series:  r has no value
[6] series:  x has no value
[7] series:  i has no value
```

15.0.569 warnings 20188: IAN

```
>compiling IAN.spad to IAN.nrllib
```

```

Warnings:
[1] makeUnivariate:  x has no value
[2] norm:  x has no value
[3] convert:  y has no value

```

15.0.570 warnings 20187: INEP

```
>compiling INEP.spad to INEP.nrlib
```

```

Warnings:
[1] charpol: :(PositiveInteger) -- should replace by pretend
[2] unknown Functor code (error unsupported matrix type)

```

15.0.571 warnings 20186: INFSP

```
>compiling INFSP.spad to INFSP.nrlib
```

```

Warnings:
[1] evaluate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE innerSolve1 ((List F) (SparseU
[2] innerSolve1: not known that (UnivariatePolynomialCategory (Complex (Integer))) is of mode (CATEGORY do
[3] innerSolve1: pretend(List F) -- should replace by @
[4] innerSolve: pretenddmp -- should replace by @
[5] innerSolve: lq has no value
[6] innerSolve: not known that (PolynomialCategory K (DirectProduct (# lv) (NonNegativeInteger)) OV) is of
[7] innerSolve: not known that (PolynomialCategory K (DirectProduct (call LENGTH lv) (NonNegativeInteger)))
[8] innerSolve: pretend(List dmp) -- should replace by @
[9] innerSolve: listGen has no value
[10] innerSolve: result has no value

```

15.0.572 warnings 20185: INPRODPF

```
>compiling INPRODPF.spad to INPRODPF.nrlib
```

```

Warnings:
[1] applyOverZ:  z1 has no value
[2] generalInfiniteProduct:  z1 has no value

```

15.0.573 warnings 20184: INTAF

```
>compiling INTAF.spad to INTAF.nrlib
```

Warnings:

```
[1] rootintegrate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algint ((IntegrationResult F) F))
[2] rootintegrate: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE algint ((IntegrationResult F) F))
[3] rootintegrate:  x1 has no value
[4] algintegrate:  x1 has no value
[5] UP2UPUP:  x1 has no value
[6] UP2UPUP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algint ((IntegrationResult F) F))
[7] UPUP2F:  x1 has no value
```

15.0.574 warnings 20183: INTALG

>compiling INTALG.spad to INTALG.nrlib

Warnings:

```
[1] algintexp:  x1 has no value
[2] UPQ2F:  x has no value
[3] UP2SUP:  x has no value
[4] SUP2UP:  x has no value
[5] R2UP: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F))
[6] R2UP:  f1 has no value
[7] R2UP: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F))
[8] R2UP:  x1 has no value
[9] R2UP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F))
[10] univ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F))
[11] rlift:  x1 has no value
[12] palgintegrate:  x1 has no value
[13] alglogint:  x1 has no value
```

15.0.575 warnings 20182: INTEF

>compiling INTEF.spad to INTEF.nrlib

Warnings:

```
[1] tanint: not known that (Ring) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (R, R)) (Record (R, R))
[2] tanint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (R, R)) (Record (R, R))
[3] tanint:  x1 has no value
[4] tanint:  x2 has no value
[5] tanint:  x3 has no value
[6] tanint:  x4 has no value
[7] tanint:  x5 has no value
[8] tanint:  x6 has no value
[9] tanint:  x7 has no value
[10] tanint:  x8 has no value
[11] tanint:  x9 has no value
[12] unknownint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (R, R)) (Record (R, R))
[13] droponex: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (R, R)) (Record (R, R))
[14] alglfint: not known that (Ring) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (R, R)) (Record (R, R))
```

```

[15] alglfint:  x1 has no value
[16] alglflimint:  x1 has no value
[17] lfintegrate0:  x1 has no value
[18] tryChangeVar:  x1 has no value
[19] algexpint:  x1 has no value
[20] algexpint:  x2 has no value
[21] algprimint:  x1 has no value
[22] algprimint:  x2 has no value
[23] lfextendedint:  x1 has no value
[24] lflimitedint:  x1 has no value
[25] primextint:  x1 has no value
[26] primextint:  x2 has no value
[27] primextint:  x3 has no value
[28] expextint:  x1 has no value
[29] expextint:  x2 has no value
[30] expextint:  x3 has no value
[31] expextint:  x4 has no value
[32] expextint:  x5 has no value
[33] expextint:  x6 has no value
[34] expextint:  x7 has no value
[35] expextint:  x8 has no value
[36] primint:  x1 has no value
[37] primint:  x2 has no value
[38] primint:  x3 has no value
[39] expint:  x1 has no value
[40] expint:  x2 has no value
[41] expint:  x3 has no value
[42] expint:  x4 has no value
[43] expint:  x5 has no value
[44] expint:  x6 has no value
[45] expint:  x7 has no value
[46] expint:  x8 has no value
[47] primlimint:  x1 has no value
[48] primlimint:  x2 has no value
[49] primlimint:  x3 has no value
[50] explimint:  x1 has no value
[51] explimint:  x2 has no value
[52] explimint:  x3 has no value
[53] explimint:  x4 has no value
[54] explimint:  x5 has no value
[55] explimint:  x6 has no value
[56] explimint:  x7 has no value
[57] explimint:  x8 has no value

```

15.0.576 warnings 20181: INTG0

```
>compiling INTG0.spad to INTG0.nrlib
```

Warnings:

```

[1] kerdiff: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationRes
[2] univ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F

```

```

[3] univ: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult
[4] lift: x1 has no value
[5] palgint0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F
[6] palgint0: f1 has no value
[7] palgint0: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE palgint0 ((Integrati
[8] palgint0: x1 has no value
[9] palgextint0: x1 has no value
[10] palglimint0: x1 has no value
[11] multivariate: x1 has no value
[12] palgextint0: f1 has no value
[13] palglimint0: f1 has no value
[14] palgrDE0: var has no value
[15] palgrDE0: coeff has no value

```

15.0.577 warnings 20180: INTHERAL

>compiling INTHERAL.spad to INTHERAL.nrllib

Warnings:

```

[1] HermiteIntegrate: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE HermiteInteg
[2] localsolve: x has no value
[3] localsolve: coef1 has no value

```

15.0.578 warnings 20179: INTPAF

>compiling INTPAF.spad to INTPAF.nrllib

Warnings:

```

[1] UPUP2F0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResu
[2] chv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[3] RF2UPUP: z1 has no value
[4] RF2UPUP: x1 has no value
[5] linearInXIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationRes
[6] linearInXIfCan: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE palgint ((Inte
[7] prootintegrate: f1 has no value
[8] prootintegrate1: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint ((Integra
[9] prootintegrate1: x1 has no value
[10] candidates: l has no value
[11] prootlimint: x1 has no value
[12] prootextint: x1 has no value
[13] palgintegrate: x1 has no value

```

15.0.579 warnings 20178: INTPM

```
>compiling INTPM.spad to INTPM.nrllib
```

Warnings:

```
[1] x1 has no value
[2] splitConstant: more than 1 modemap for: (One) with dc=F ==>(((F F) ((has R (SemiGroup)) (CONST F ($)))
[3] matcherfei: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE pminegrate ((Union (R
[4] matchdilog: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pminegrate ((Union (R
[5] matchdilog: x1 has no value
[6] matchdilog0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pminegrate ((Union (Record
[7] matchdilog0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pminegrate ((Union (R
[8] matchli: x1 has no value
[9] matchli0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pminegrate ((Union (Record (:
[10] matchsici: ci0? has no value
[11] pminegrate: const has no value
[12] pminegrate: nconst has no value
[13] pmComplexintegrate: const has no value
[14] pmComplexintegrate: nconst has no value
[15] formula1: not known that (OrderedSet) is of mode (CATEGORY $ (SIGNATURE pminegrate ((Union F failed)
[16] pminegrate: x1 has no value
```

15.0.580 warnings 20177: INTTOOLS

```
>compiling INTTOOLS.spad to INTTOOLS.nrllib
```

Warnings:

```
[1] varselect: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE varselect ((List (Kerne
[2] vark: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE varselect ((List (Kernel F))
[3] removeConstantTerm: not known that (OrderedSet) is of mode (CATEGORY $ (SIGNATURE removeConstantTerm (
[4] removeConstantTerm: ans has no value
[5] cont: not known that (Ring) is of mode (CATEGORY $ (SIGNATURE mkPrim (F F (Symbol))))
[6] cont: unit has no value
[7] linearLog?: not known that (Ring) is of mode (CATEGORY $ (SIGNATURE mkPrim (F F (Symbol))))
[8] intPatternMatch: nl has no value
```

15.0.581 warnings 20176: ITRIGMNP

```
>compiling ITRIGMNP.spad to ITRIGMNP.nrllib
```

Warnings:

```
[1] FG2F: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F))) (SIG
[2] F2FG: x has no value
[3] ker2explogs: IN has no value
[4] ker2explogs: v has no value
[5] ker2explogs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F))
[6] ker2explogs: a has no value
[7] ker2trigs: IN has no value
```

```

[8] smp2trigs:  x has no value
[9] explogs2trigs: not known that (Ring) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F))) (
[10] smp2explogs:  x has no value
[11] smp2explogs:  y has no value

```

15.0.582 warnings 20175: KOVACIC

```
>compiling KOVACIC.spad to KOVACIC.nrlib
```

Warnings:

```
[1] kovacic: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE kovacic ((Union (Span
```

15.0.583 warnings 20174: LF

```
>compiling LF.spad to LF.nrlib
```

Warnings:

```

[1] integrand: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (Bas
[2] eqint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOp
[3]  z1 has no value

```

15.0.584 warnings 20173: LODOF

```
>compiling LODOF.spad to LODOF.nrlib
```

Warnings:

```

[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((List (LinearO
[2] rfactor:  z has no value
[3] zro1:  z1 has no value
[4] zro1: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE factor1 ((List (LinearOrdinaryDiffe
[5] factor:  p has no value
[6] factor1:  p has no value

```

15.0.585 warnings 20172: LSQM

```
>compiling LSQM.spad to LSQM.nrlib
```

Warnings:

```
[1] not known that (NonAssociativeAlgebra R) is of mode (CATEGORY domain (SIGNATURE transpose ($ $)) (SIGN
```

15.0.586 warnings 20171: MULTFACT

```
>compiling MULTFACT.spad to MULTFACT.nrllib
```

```
Warnings:
```

```
[1] factor: not known that (OrderedSet) is of mode (CATEGORY OV (SIGNATURE convert ((Symbol) $)))
```

15.0.587 warnings 20170: MYUP

```
>compiling MYUP.spad to MYUP.nrllib
```

```
Warnings:
```

```
[1] coerce: z1 has no value
```

15.0.588 warnings 20169: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrllib
```

```
Warnings:
```

```
[1] iunivariate: z1 has no value
```

15.0.589 warnings 20168: MYEXPR

```
>compiling MYEXPR.spad to MYEXPR.nrllib
```

```
Warnings:
```

```
[1] coerce: z1 has no value
```

```
Warnings:
```

```
[1] iunivariate: z1 has no value
```

15.0.590 warnings 20167: NAGF01

```
>compiling NAGF01.spad to NAGF01.nrllib
```

```
Warnings:
```

```
[1] f01brf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f01bsf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f01maf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f01mcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f01qcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```



```

[6] f01qdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f01qef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f01rcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] f01rdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] f01ref: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.591 warnings 20166: NAGF02

>compiling NAGF02.spad to NAGF02.nrlib

Warnings:

```

[1] f02aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f02abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f02adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f02aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f02aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] f02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f02ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f02akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] f02awf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] f02axf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] f02bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] f02bjf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] f02fjf: fn has no value
[14] f02fjf: fp has no value
[15] f02fjf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] f02wef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] f02xef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

15.0.592 warnings 20165: NAGF04

>compiling NAGF04.spad to NAGF04.nrlib

Warnings:

```

[1] f04adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f04arf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f04asf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f04atf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f04axf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] f04faf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f04jgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f04maf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] f04mbf: fn has no value
[10] f04mbf: fp has no value
[11] f04mbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] f04mcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] f04qaf: fn has no value
[14] f04qaf: fp has no value

```

```
[15] f04qaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

15.0.593 warnings 20164: NLINSOL

```
>compiling NLINSOL.spad to NLINSOL.nrllib
```

Warnings:

```
[1] allRoots: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveInField ((List (List (Equ
```

15.0.594 warnings 20163: NSMP

```
>compiling NSMP.spad to NSMP.nrllib
```

Warnings:

```
[1] localMonicModulo: a1 has no value
[2] monicModulo: mM has no value
[3] exactQuotient: a1 has no value
[4] exactQuotient!: a1 has no value
[5] primitivePart!: a1 has no value
```

15.0.595 warnings 20162: ODERTRIC

```
>compiling ODERTRIC.spad to ODERTRIC.nrllib
```

Warnings:

```
[1] UP2SUP: z has no value
[2] ricDsolve: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE ricDsolve ((List (F
[3] mapeval: z has no value
[4] ratsln: ls has no value
[5] ratsln: lv has no value
[6] ratsol: ans has no value
[7] polyRicDE: deg has no value
[8] polyRicDE: ans has no value
[9] newtonSolution: m has no value
[10] nopoly: z has no value
[11] ricDsolve: z has no value
[12] zro1: z has no value
[13] zro1: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE ricDsolve ((List (Fraction UP)) (L
```

15.0.596 warnings 20161: OMEXPR

```
>compiling OMEXPR.spad to OMEXPR.nrlib
```

```
Warnings:
```

```
[1] outputOMFunction: %defint has no value
[2] outputOMFunction: %defsum has no value
[3] outputOMFunction: %defprod has no value
[4] outputOMFunction: %power has no value
[5] outputOMExpr: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE OMwrite ((String) (E
[6] OMwrite: pretend(String) -- should replace by @
```

15.0.597 warnings 20160: PADE

```
>compiling PADE.spad to PADE.nrlib
```

```
Warnings:
```

```
[1] padeInner: plist has no value
[2] padeInner: alist has no value
```

15.0.598 warnings 20159: PAN2EXPR

```
>compiling PAN2EXPR.spad to PAN2EXPR.nrlib
```

```
Warnings:
```

```
[1] coerce: x has no value
[2] coerce: y has no value
```

15.0.599 warnings 20158: PFO

```
>compiling PFO.spad to PFO.nrlib
```

```
Warnings:
```

```
[1] klist: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegativeI
[2] UPQ2F: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegativeI
[3] UP22UP: p1 has no value
[4] UP32UPUP: p1 has no value
[5] commonDen: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegat
[6] alglis: k1 has no value
[7] krmod: z1 has no value
[8] raise2: z1 has no value
[9] algcurve: z1 has no value
[10] algcurve: q1 has no value
[11] rat: q1 has no value
[12] selectIntegers: not known that (Ring) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegat
[13] toQ1: p1 has no value
[14] toQ2: p1 has no value
```

```
[15] kpmod:  p1 has no value
[16] goodRed:  z1 has no value
```

15.0.600 warnings 20157: PFOQ

```
>compiling PFOQ.spad to PFOQ.nrllib
```

```
Warnings:
[1] rat:  z1 has no value
```

15.0.601 warnings 20156: PICOERCE

```
>compiling PICOERCE.spad to PICOERCE.nrllib
```

```
Warnings:
[1] p2e:  x1 has no value
```

15.0.602 warnings 20155: PMASSFS

```
>compiling PMASSFS.spad to PMASSFS.nrllib
```

```
Warnings:
[1] ass: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE assert (F F (String))) (SIGNA
```

15.0.603 warnings 20154: PMFS

```
>compiling PMFS.spad to PMFS.nrllib
```

```
Warnings:
[1] patternMatch: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE patternMatch ((Patte
[2] patternMatch:  l1 has no value
[3] patternMatch:  var has no value
```

15.0.604 warnings 20153: PMPREDFS

```
>compiling PMPREDFS.spad to PMPREDFS.nrllib
```

```
Warnings:
[1] suchThat: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE suchThat (F F (Mapping (
```

15.0.605 warnings 20152: PSETPK

>compiling PSETPK.spad to PSETPK.nrllib

Warnings:

```
[1] selectPolynomials:  gps has no value
[2] selectPolynomials:  bps has no value
[3] selectOrPolynomials:  gps has no value
[4] selectOrPolynomials:  bps has no value
[5] selectAndPolynomials:  gps has no value
[6] selectAndPolynomials:  bps has no value
[7] certainlySubVariety?:  polnum has no value
[8] autoRemainder:  newlp has no value
[9] rewriteSetByReducingWithParticularGenerators:  rs has no value
[10] squareFreeFactors: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE removeRedun
[11] univariatePolynomialsGcds:  p has no value
[12] univariatePolynomialsGcds:  pInV has no value
[13] univariatePolynomialsGcds:  stop has no value
[14] univariatePolynomialsGcds:  lg has no value
[15] removeRoughlyRedundantFactorsInContents:  newcp has no value
[16] removeRedundantFactorsInContents:  newcp has no value
[17] removeRedundantFactorsInPols:  newcp has no value
[18] removeRedundantFactorsInPols:  newp has no value
[19] unprotectedRemoveRedundantFactors:  d has no value
[20] removeRedundantFactors:  toSee has no value
[21] removeRedundantFactors:  toSave has no value
```

15.0.606 warnings 20151: RADFF

>compiling RADFF.spad to RADFF.nrllib

Warnings:

```
[1] fullVector:  s has no value
[2] charPintbas:  s has no value
```

15.0.607 warnings 20150: RDEEF

>compiling RDEEF.spad to RDEEF.nrllib

Warnings:

```
[1] rischDEalg:  z1 has no value
[2] rischDEalg:  z2 has no value
[3] rischDEalg:  z3 has no value
[4] rischDEalg: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: an
[5] rischDEalg: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: ans F) (
[6] normalise0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: an
```

```

[7] normalise0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: ans F) (
[8] normalise: z1 has no value
[9] normalise: z2 has no value
[10] polyDElog: z1 has no value
[11] polyDElog: limitedlogs has no value
[12] polyDElog: more than 1 modemap for: (Zero) with dc=F ==>(((F F) ((has R (AbelianSemiGroup)) (CONST F
[13] polyDElog: eq has no value
[14] gpoldEexp: z1 has no value
[15] gpoldEexp: z2 has no value
[16] polyDEexp: z1 has no value
[17] polyDEexp: z2 has no value
[18] polyDEexp: eq has no value
[19] logdegrad: z1 has no value
[20] expdegrad: z1 has no value
[21] expdegrad: z2 has no value

```

15.0.608 warnings 20149: RDEEFS

```
>compiling RDEEFS.spad to RDEEFS.nrlib
```

Warnings:

```

[1] basecase: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (List F) fa
[2] basecase: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (List
[3] rischDEsys: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (Li

```

15.0.609 warnings 20148: RSETCAT

```
>compiling RSETCAT.spad to RSETCAT.nrlib
```

Warnings:

```
[1] intersect: toSave has no value
```

15.0.610 warnings 20147: RSETGCD

```
>compiling RSETGCD.spad to RSETGCD.nrlib
```

Warnings:

```

[1] toseInvertible?: x has no value
[2] toseInvertible?: y has no value
[3] toseInvertibleSet: toSave has no value
[4] prepareSubResAlgo: toSave has no value
[5] internalLastSubResultant: toReturn has no value

```

15.0.611 warnings 20146: RULE

```
>compiling RULE.spad to RULE.nrllib
```

```
Warnings:
```

- ```
[1] F2Symbol: z has no value
[2] F2Symbol: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE rule ($ F F)) (SIGNATURE
[3] retractIfCan: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE rule ($ F F)) (SIGNATURE
```

**15.0.612 warnings 20145: SIGNEF**

```
>compiling SIGNEF.spad to SIGNEF.nrllib
```

```
Warnings:
```

- ```
[1] sign: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE sign ((Union (Integer) failed
[2] sign: z has no value
[3] smpsign: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE sign ((Union (Integer) failed
```

15.0.613 warnings 20144: SIMPAN

```
>compiling SIMPAN.spad to SIMPAN.nrllib
```

```
Warnings:
```

- ```
[1] simplify: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Integer) failed
```

**15.0.614 warnings 20143: SOLVESER**

```
>compiling SOLVESER.spad to SOLVESER.nrllib
```

```
Warnings:
```

- ```
[1] unvectorise: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE decomposeFunc ((Fraction (S
[2] unvectorise: not known that (Ring) is of mode (CATEGORY package (SIGNATURE decomposeFunc ((Fraction (S
```

15.0.615 warnings 20142: SOLVETRA

```
>compiling SOLVETRA.spad to SOLVETRA.nrllib
```

```
Warnings:
```

- ```
[1] solveInner: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((List (Equation
```

```

[2] solveInner: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((List (Equation (Expr
[3] tryToTrans: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (In
[4] tryToTrans: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has R (Integral
[5] subsTan: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solve ((List (Equatio
[6] buildnexpr: anscoeff has no value
[7] buildnexpr: ansmant has no value
[8] combineLog: ans has no value
[9] funcinv: not known that (OrderedSet) is of mode (CATEGORY R (ATTRIBUTE complex))
[10] smp2Poly: x has no value
[11] smp2Poly: y has no value

```

### 15.0.616 warnings 20141: SUMFS

```
>compiling SUMFS.spad to SUMFS.nrllib
```

Warnings:

```

[1] sum: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE sum (F F (Symbol))) (SIGNATUR
[2] notRF?: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE sum (F F (Symbol))) (SIGNA

```

### 15.0.617 warnings 20140: TOOLSIGN

```
>compiling TOOLSIGN.spad to TOOLSIGN.nrllib
```

Warnings:

```

[1] nonQsign: pretend(AlgebraicNumber) -- should replace by @
[2] nonQsign: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has (Integer) (In
[3] nonQsign: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Intege

```

### 15.0.618 warnings 20139: TRIGMNIP

```
>compiling TRIGMNIP.spad to TRIGMNIP.nrllib
```

Warnings:

```

[1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain (IF (has (Complex R) (IntegralDomain
[2] K2KG: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Complex R)
[3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormalize (F F)) (SIG
[4] real?: ker has no value
[5] complexKernels: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormalize (
[6] complexKernels: lk has no value
[7] complexKernels: lv has no value
[8] locexplogs: x has no value
[9] complexNormalize: y has no value
[10] complexNormalize: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has (Com
[11] complexNormalize: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (ha
[12] complexNormalize: x has no value

```



```
[13] complexElementary: y has no value
[14] complexElementary: x has no value
```

### 15.0.619 warnings 20138: TRMANIP

```
>compiling TRMANIP.spad to TRMANIP.nrllib
```

Warnings:

```
[1] logArgs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE expand (F F)) (SIGNATURE
[2] logArgs: sum has no value
[3] logArgs: arg has no value
[4] simplifyLog1: exprs has no value
[5] simplifyLog1: terms has no value
[6] simplifyLog1: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE expand (F F)) (SIGNA
[7] expandpow: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE expand (F F)) (SIGNATUR
[8] termexp: z has no value
[9] termexp: exponent has no value
[10] expandPower: z has no value
[11] powersimp: z has no value
[12] cos2sec: z1 has no value
[13] sin2csc: z1 has no value
[14] tan2cot: z1 has no value
[15] cot2tan: z1 has no value
[16] cosh2sech: z1 has no value
[17] sinh2csch: z1 has no value
[18] tanh2coth: z1 has no value
[19] coth2tanh: z1 has no value
[20] removeCosSq: z1 has no value
[21] removeCoshSq: z1 has no value
[22] smpexpand: r1 has no value
[23] smplog: r1 has no value
[24] smp2htrigs: k1 has no value
[25] smp2htrigs: r1 has no value
[26] htrigs: not known that (Ring) is of mode (CATEGORY package (SIGNATURE expand (F F)) (SIGNATURE simpli
[27] exlog: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE expand (F F)) (SIGNATU
[28] logexpand: IN has no value
[29] logexpand: x has no value
[30] kerexpand: IN has no value
[31] kerexpand: x has no value
```

### 15.0.620 warnings 20137: UPXSSING

```
>compiling UPXSSING.spad to UPXSSING.nrllib
```

Warnings:

```
[1] retractIfCan: signature of lhs not unique: (Union (UnivariatePuisseuxSeries FE var cen) failed)$ chosen
[2] sortAndDiscardTerms: zeroTerms has no value
[3] sortAndDiscardTerms: infiniteTerms has no value
```

```

[4] sortAndDiscardTerms: failedTerms has no value
[5] dominantTermOnList: x has no value
[6] dominantTermOnList: y has no value
[7] dominantTermOnList: %list has no value
[8] dominantTermOnList: %order has no value

```

### 15.0.621 warnings 20136: UTSODE

```
>compiling UTSODE.spad to UTSODE.nrllib
```

```

Warnings:
[1] stFunc1: s has no value
[2] stFunc2: s1 has no value
[3] stFunc2: s2 has no value
[4] stFuncN: ls has no value
[5] divloop: s has no value
[6] i0de1: s has no value
[7] i0de2: s has no value
[8] i0de: ls has no value
[9] iMpsode: ls has no value

```

### 15.0.622 warnings 20135: UTSODETL

```
>compiling UTSODETL.spad to UTSODETL.nrllib
```

```

Warnings:
[1] LOD02FUN: l1 has no value

```

### 15.0.623 warnings 20134: UTSSOL

```
>compiling UTSSOL.spad to UTSSOL.nrllib
```

```

Warnings:
[1] seriesSolve: x has no value
[2] seriesSolve: res has no value

```

### 15.0.624 warnings 20133: WUTSET

```
>compiling WUTSET.spad to WUTSET.nrllib
```

```

Warnings:
[1] medialSetWithTrace: rs has no value

```

```

[2] medialSetWithTrace: contradiction has no value
[3] medialSetWithTrace: bs has no value
[4] characteristicSetUsingTrace: contradiction has no value
[5] characteristicSetUsingTrace: rs has no value
[6] characteristicSetUsingTrace: ms has no value
[7] zeroSetSplit: newlts has no value

```

### 15.0.625 warnings 20132: DEFINTEF

>compiling DEFINTEF.spad to DEFINTEF.nrllib

Warnings:

```

[1] checkForPole: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integrate ((Union (:
[2] polyIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE integrate ((Union (: f1 (Orde
[3] polyIfCan: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integrate ((Union (: f1

```

### 15.0.626 warnings 20131: DEFINTRF

>compiling DEFINTRF.spad to DEFINTRF.nrllib

Warnings:

```

[1] nopole: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (Integr
[2] nopole: not known that (AlgebraicallyClosedFunctionSpace R) is of mode (CATEGORY domain (IF (has R (In
[3] integrate: x has no value

```

### 15.0.627 warnings 20130: DFINTTLS

>compiling DFINTTLS.spad to DFINTTLS.nrllib

Warnings:

```

[1] findLimit: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE ignore? ((Boolean) (Str
[2] mkLogPos: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE ignore? ((Boolean) (Stri
[3] checkForZero: s has no value
[4] checkForZero: not known that (Ring) is of mode (CATEGORY package (SIGNATURE ignore? ((Boolean) (String
[5] findRealZero: fin has no value
[6] findRealZero: s has no value
[7] findRealZero: halfinf has no value
[8] var: i has no value

```

### 15.0.628 warnings 20129: EFULS

>compiling EFULS.spad to EFULS.nrllib

Warnings:

```
[1] tanIfCan: not known that (Algebra (Fraction (Integer))) is of mode (CATEGORY Coef (SIGNATURE retractIf
```

### 15.0.629 warnings 20128: ESCONT

```
>compiling ESCONT.spad to ESCONT.nrlib
```

Warnings:

```
[1] zerosOf: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE getlo ((DoubleFloat) (Seg
[2] zerosOf: t1 has no value
[3] zerosOf: t2 has no value
[4] singularitiesOf: t3 has no value
```

### 15.0.630 warnings 20127: EXPR

```
>compiling EXPR.spad to EXPR.nrlib
```

Warnings:

```
[1] not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[2] simplifyPower: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (In
[3] **: pretend(Integer) -- should replace by @
[4] **: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[5] <: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[6] numer: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[7] algkernels: x has no value
[8] toprat: not known that (Field) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[9] toprat: not known that (ExpressionSpace) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (In
[10] toprat: not known that (SIGNATURE numer ((SparseMultivariatePolynomial R (Kernel $)) $)) is of mode (
[11] toprat: not known that (SIGNATURE denom ((SparseMultivariatePolynomial R (Kernel $)) $)) is of mode (
[12] toprat: not known that (SIGNATURE coerce ($ (SparseMultivariatePolynomial R (Kernel $)))) is of mode
[13] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integ
[14] commonk0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Inte
[15] rootOf: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (I
[16] rootOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[17] pi: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integ
[18] pi: not known that (RadicalCategory) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integ
[19] abs: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Inte
[20] **: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integ
[21] erf: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Inte
[22] erf: not known that (RadicalCategory) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Inte
[23] erf: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (SIGNATURE simplifyP
[24] operator: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $
[25] operator: not known that (ExpressionSpace) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $
[26] evl0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)
[27] gcdPolynomial: not known that (GcdDomain) is of mode (CATEGORY domain (SIGNATURE squareFreePolynomial
[28] factorPolynomial: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE squareFreePolyno
[29] factorPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE squareFreePolynomial (
```

```

[30] coerce: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[31] retract: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[32] retractIfCan: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[33] k2expr: x has no value
[34] k2expr: not known that (ExpressionSpace) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[35] smp2expr: x has no value
[36] smp2expr: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[37] smp2expr: not known that (SIGNATURE + ($ $ $)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[38] smp2expr: not known that (SIGNATURE * ($ $ $)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[39] smp2expr: not known that (SIGNATURE ** ($ $ (NonNegativeInteger))) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[40] smp2an: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[41] convert: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[42] eval: not known that (ConvertibleTo (InputForm)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[43] patternMatch: not known that (FunctionSpace R) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[44] patternMatch: not known that (ConvertibleTo (Pattern (Integer))) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[45] patternMatch: not known that (PatternMatchable (Integer)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[46] patternMatch: not known that (RetractableTo (Kernel $)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[47] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[48] patternMatch: not known that (ConvertibleTo (Pattern (Float))) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[49] patternMatch: not known that (PatternMatchable (Float)) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer)))
[50] kereval: x1 has no value
[51] kereval: x2 has no value
[52] subeval: x has no value
[53] isPlus: gen has no value
[54] eval: x2 has no value
[55] eval: x1 has no value
[56] subst: x1 has no value
[57] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))
[58] not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE simplifyPower ($ $ (Integer))))

```

### 15.0.631 warnings 20126: EXPRSOL

>compiling EXPRSOL.spad to EXPRSOL.nrllib

Warnings:

```

[1] replaceDiffs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve (UTSF F
[2] replaceDiffs: %diff has no value
[3] seriesSolve: x has no value

```

### 15.0.632 warnings 20125: EXPR2UPS

>compiling EXPR2UPS.spad to EXPR2UPS.nrllib

Warnings:

```

[1] iTaylor: %problem has no value
[2] iTaylor: %series has no value
[3] taylor: more than 1 modemap for: (Zero) with dc=FE ==>(((FE FE) ((has R (AbelianSemiGroup)) (CONST FE
[4] iLaurent: %problem has no value

```

```

[5] iLaurent: %series has no value
[6] laurent: more than 1 modemap for: (Zero) with dc=FE ==>(((FE FE) ((has R (AbelianSemiGroup)) (CONST F
[7] iPuisseux: %problem has no value
[8] iPuisseux: %series has no value
[9] puisseux: more than 1 modemap for: (Zero) with dc=FE ==>(((FE FE) ((has R (AbelianSemiGroup)) (CONST F
[10] iSeries: %problem has no value
[11] iSeries: %series has no value
[12] series: more than 1 modemap for: (Zero) with dc=FE ==>(((FE FE) ((has R (AbelianSemiGroup)) (CONST F

```

### 15.0.633 warnings 20124: FACTEXT

```
>compiling FACTEXT.spad to FACTEXT.nrllib
```

Warnings:

```

[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored (Spa
[2] norm: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored (SparseUnivariat

```

### 15.0.634 warnings 20123: FDIV

```
>compiling FDIV.spad to FDIV.nrllib
```

Warnings:

```

[1] *: signature of lhs not unique: $(Integer)$ chosen
[2] reduce: s has no value

```

### 15.0.635 warnings 20122: FSCINT

```
>compiling FSCINT.spad to FSCINT.nrllib
```

Warnings:

```

[1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain (IF (has (Complex R) (IntegralDomain
[2] K2KG: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Complex R)
[3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE internalIntegrate ((Integrat
[4] internalIntegrate: x1 has no value
[5] internalIntegrate: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE internalIntegra
[6] internalIntegrate: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has (Com
[7] internalIntegrate: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (ha

```

### 15.0.636 warnings 20121: FSINT

```
>compiling FSINT.spad to FSINT.nrllib
```

Warnings:

- [1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain (IF (has (Complex R) (IntegralDomain
- [2] K2KG: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Complex R)
- [3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integrate ((Union F (List F)
- [4] trans?: x1 has no value
- [5] postSubst: not known that (Ring) is of mode (CATEGORY package (SIGNATURE integrate ((Union F (List F))
- [6] postSubst: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integrate ((Union F (Li
- [7] integrate: x1 has no value
- [8] integrate: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has (Complex R)
- [9] integrate: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Compl

### 15.0.637 warnings 20120: FS2EXPPX

>compiling FS2EXPPX.spad to FS2EXPPX.nrlib

Warnings:

- [1] newElem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToXXP ((Union (: %exp
- [2] smpElem: x1 has no value
- [3] k2Elem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToXXP ((Union (: %expa
- [4] iExprToXXP: %series has no value
- [5] iExprToXXP: y1 has no value
- [6] iExprToXXP: y2 has no value
- [7] listToXXP: %expansion has no value
- [8] powerToXXP: %expansion has no value
- [9] nthRootXXPIfCan: %problem has no value
- [10] nthRootXXPIfCan: %series has no value
- [11] nthRootToXXP: %problem has no value
- [12] nthRootToXXP: %expansion has no value
- [13] genPowerToXXP: %expansion has no value
- [14] genExp: %series has no value
- [15] exponential: %problem has no value
- [16] exponential: %series has no value
- [17] expToXXP: %expansion has no value
- [18] logToXXP: %expansion has no value
- [19] logToXXP: %problem has no value
- [20] logToXXP: %series has no value
- [21] applyIfCan: %expansion has no value
- [22] applyBddIfCan: %problem has no value
- [23] applyBddIfCan: %expansion has no value
- [24] opsInvolvingX: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToXXP ((Union
- [25] atancotToXXP: %problem has no value
- [26] atancotToXXP: %series has no value

### 15.0.638 warnings 20119: GSERIES

>compiling GSERIES.spad to GSERIES.nrlib

Warnings:

```
[1] differentiate: x has no value
[2] integrate: x has no value
```

### 15.0.639 warnings 20118: HELLFDIV

```
>compiling HELLFDIV.spad to HELLFDIV.nrllib
```

```
Warnings:
[1] unknown Functor code (error HyperellipticFiniteDivisor: curve must be hyperelliptic)
```

### 15.0.640 warnings 20117: INTDIVP

```
>compiling INTDIVP.spad to INTDIVP.nrllib
```

```
Warnings:
[1] intersectionDivisor: pretend(Integer) -- should replace by @
```

### 15.0.641 warnings 20116: INVLAPLA

```
>compiling INVLAPLA.spad to INVLAPLA.nrllib
```

```
Warnings:
[1] ilt: not known that (Ring) is of mode (CATEGORY package (SIGNATURE inverseLaplace ((Union F failed) F
[2] ilt: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE inverseLaplace ((Union F fail
[3] iltsqfr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE inverseLaplace ((Unio
[4] iltirred: not known that (Ring) is of mode (CATEGORY package (SIGNATURE inverseLaplace ((Union F faile
```

### 15.0.642 warnings 20115: IR2F

```
>compiling IR2F.spad to IR2F.nrllib
```

```
Warnings:
[1] evenRoots: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE split ((IntegrationResu
[2] ilog: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE split ((IntegrationResult F)
[3] ilog: not known that (Ring) is of mode (CATEGORY package (SIGNATURE split ((IntegrationResult F) (Inte
[4] lg2func: not known that (Ring) is of mode (CATEGORY package (SIGNATURE split ((IntegrationResult F) (I
```

### 15.0.643 warnings 20114: IRRF2F



```
>compiling IRRF2F.spad to IRRF2F.nrllib
```

```
Warnings:
```

- [1] toEF: z1 has no value
- [2] expand: not known that (AlgebraicallyClosedFunctionSpace R) is of mode (CATEGORY domain (IF (has R (Integr
- [3] expand: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (Integr
- [4] integrate: not known that (AlgebraicallyClosedField) is of mode (CATEGORY domain (IF (has R (IntegralD
- [5] integrate: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (Int

## 15.0.644 warnings 20113: LAPLACE

```
>compiling LAPLACE.spad to LAPLACE.nrllib
```

```
Warnings:
```

- [1] algebraic?: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE laplace (F F (Symbol)
- [2] isLinear: not known that (Ring) is of mode (CATEGORY package (SIGNATURE laplace (F F (Symbol) (Symbol)
- [3] isLinear: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE laplace (F F (Symbol) (S
- [4] atn: d has no value
- [5] mkPlus: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE laplace (F F (Symbol) (Sym
- [6] locallaplace: const has no value
- [7] locallaplace: nconst has no value

## 15.0.645 warnings 20112: LIMITPS

```
>compiling LIMITPS.spad to LIMITPS.nrllib
```

```
Warnings:
```

- [1] firstNonLogPtr: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE limit ((Union (Ord
- [2] complLimit: %series has no value
- [3] realLimit: %problem has no value
- [4] realLimit: %series has no value
- [5] realLimit: func has no value
- [6] realLimit: prob has no value
- [7] xplLimit: %expansion has no value
- [8] limitPlus: %problem has no value
- [9] limitPlus: %series has no value
- [10] limitPlus: func has no value
- [11] limitPlus: prob has no value

## 15.0.646 warnings 20111: LODEEF

```
>compiling LODEEF.spad to LODEEF.nrllib
```

```
Warnings:
```

```

[1] algSolve: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: pa
[2] algSolve: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: parti
[3] algSolve: f1 has no value
[4] doVarParams: f1 has no value
[5] xpart: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: pa
[6] kovode: z1 has no value
[7] ulodo: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: particul
[8] solve: f1 has no value

```

### 15.0.647 warnings 20110: NODE1

```
>compiling NODE1.spad to NODE1.nrllib
```

Warnings:

```

[1] solve: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((Union F failed) F F
[2] checkBernoulli: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((Union F failed)

```

### 15.0.648 warnings 20109: ODECONST

```
>compiling ODECONST.spad to ODECONST.nrllib
```

Warnings:

```

[1] constDsolve: f1 has no value
[2] basisSqfr: not known that (Ring) is of mode (CATEGORY package (SIGNATURE constDsolve ((Record (: parti

```

### 15.0.649 warnings 20108: ODEEF

```
>compiling ODEEF.spad to ODEEF.nrllib
```

Warnings:

```

[1] solve: z1 has no value
[2] solve: z2 has no value
[3] solve: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: pa
[4] parseODE: n has no value
[5] parseODE: c has no value
[6] parseODE: k has no value
[7] getcoeff: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (:
[8] getcoeff: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((Union (Record (: parti

```

### 15.0.650 warnings 20107: ODEINT

```
>compiling ODEINT.spad to ODEINT.nrllib
```

Warnings:

- [1] diff: f1 has no value
- [2] mkprod: z1 has no value
- [3] expint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE int (F F (Symbol)))) (SIGNA
- [4] expint: lrec has no value
- [5] expint: exponent has no value
- [6] isQlog: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE int (F F (Symbol)))) (SIGNA

### 15.0.651 warnings 20106: QCMPACK

>compiling QCMPACK.spad to QCMPACK.nrlib

Warnings:

- [1] removeSuperfluousCases: x has no value
- [2] removeSuperfluousCases: y has no value
- [3] removeSuperfluousCases: maxcases has no value
- [4] removeSuperfluousCases: lpwt1 has no value
- [5] removeSuperfluousCases: headmaxcases has no value
- [6] removeSuperfluousCases: toSave has no value
- [7] removeSuperfluousQuasiComponents: maxlts has no value
- [8] removeSuperfluousQuasiComponents: headmaxlts has no value
- [9] removeSuperfluousQuasiComponents: toSave has no value
- [10] branchIfCan: polnum has no value
- [11] prepareDecompose: branches has no value
- [12] prepareDecompose: x has no value
- [13] prepareDecompose: y has no value

### 15.0.652 warnings 20105: REGSET

>compiling REGSET.spad to REGSET.nrlib

Warnings:

- [1] construct: ts has no value
- [2] preprocess: lp1 has no value
- [3] preprocess: lp2 has no value
- [4] preprocess: lts has no value

### 15.0.653 warnings 20104: REP

>compiling REP.spad to REP.nrlib

Warnings:

- [1] evalvect: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE radicalEigenvectors ((Li
- [2] gramSchmidt: :(PositiveInteger) -- should replace by pretend

```
[3] gramschmidt: :RMR -- should replace by pretend
[4] gramschmidt: :(Matrix (Expression (Integer))) -- should replace by pretend
```

### 15.0.654 warnings 20103: RSDCMPK

```
>compiling RSDCMPK.spad to RSDCMPK.nrlib
```

```
Warnings:
[1] algebraicDecompose: llpwt has no value
[2] internalDecompose: llpwt has no value
[3] internalDecompose: lts has no value
[4] decompose: toSave has no value
[5] upDateBranches: branches1 has no value
[6] upDateBranches: branches2 has no value
```

### 15.0.655 warnings 20102: SOLVERAD

```
>compiling SOLVERAD.spad to SOLVERAD.nrlib
```

```
Warnings:
[1] quadratic: not known that (SIGNATURE ** ($ $ (Fraction (Integer)))) is of mode (CATEGORY domain (IF (h
[2] findGenZeros: not known that (Ring) is of mode (CATEGORY package (SIGNATURE radicalSolve ((List (Equat
[3] findGenZeros: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE radicalSolve ((List
[4] findZeros: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE radicalSolve ((List (Eq
[5] radicalRoots: result has no value
[6] solveInner: solutions has no value
```

### 15.0.656 warnings 20101: SULS

```
>compiling SULS.spad to SULS.nrlib
```

```
Warnings:
[1] exp: not known that (UnivariateLaurentSeriesConstructorCategory Coef (SparseUnivariateTaylorSeries Coe
```

### 15.0.657 warnings 20100: UFPS1

```
>compiling UFPS1.spad to UFPS1.nrlib
```

```
Warnings:
[1] hadamard: z1 has no value
[2] hadamard: z2 has no value
```

**15.0.658 warnings 20099: ULSCONS**

```
>compiling ULSCONS.spad to ULSCONS.nrlib
```

```
Warnings:
```

```
[1] multiplyCoefficients: z1 has no value
[2] differentiate: z1 has no value
[3] integrate: z has no value
[4] integrate: z1 has no value
[5] termsToOutputForm: l has no value
```

**15.0.659 warnings 20098: UPXS**

```
>compiling UPXS.spad to UPXS.nrlib
```

```
Warnings:
```

```
[1] termsToOutputForm: l has no value
```

**15.0.660 warnings 20097: UPXSCONS**

```
>compiling UPXSCONS.spad to UPXSCONS.nrlib
```

```
Warnings:
```

```
[1] terms: t1 has no value
[2] series: t1 has no value
[3] +: z1 has no value
[4] +: z2 has no value
[5] -: z1 has no value
[6] -: z2 has no value
[7] *: z1 has no value
[8] *: z2 has no value
[9] /: z1 has no value
[10] /: z2 has no value
[11] differentiate: z1 has no value
[12] integrate: z1 has no value
```

**15.0.661 warnings 20096: UTS**

```
>compiling UTS.spad to UTS.nrlib
```

```
Warnings:
```

```
[1] differentiate: y has no value
[2] integrate: y has no value
```

**15.0.662 warnings 20095: GPAFF**

```
>compiling GPAFF.spad to GPAFF.nrlib
```

```
Warnings:
```

```
[1] lBasis: pretend(Integer) -- should replace by @
[2] genus: theGenus has no value
[3] genusNeg: theGenus has no value
[4] findOrderOfDivisor: pretend(Integer) -- should replace by @
[5] desingTreeWoFullParam: theTree has no value
[6] adjunctionDivisor: theAdjDiv has no value
[7] singularPoints: lesPtsSing has no value
[8] rationalPoints: lesRatPts has no value
[9] ZetaFunction: zf has no value
[10] ZetaFunction: pretend(UnivariateTaylorSeriesCZero (Integer) t) -- should replace by @
[11] numberOfPlacesOfDegreeUsingZeta: pretend(UnivariateTaylorSeriesCZero (Integer) t) -- should replace b
[12] numberOfPlacesOfDegreeUsingZeta: serdel has no value
[13] numberOfPlacesOfDegree: calculatedNP has no value
[14] numberPlacesDegExtDeg: res has no value
```

**15.0.663 warnings 20094: IRURPK**

```
>compiling IRURPK.spad to IRURPK.nrlib
```

```
Warnings:
```

```
[1] makeLinearAndMonic: toSave has no value
[2] rur: toSave has no value
```

**15.0.664 warnings 20093: LEXTRIPK**

```
>compiling LEXTRIPK.spad to LEXTRIPK.nrlib
```

```
Warnings:
```

```
[1] trueVariables: trueIs has no value
[2] lexTriangular: polnum has no value
[3] lexTriangular: toSave has no value
[4] squareFreeLexTriangular: polnum has no value
[5] squareFreeLexTriangular: toSave has no value
```

**15.0.665 warnings 20092: NORMPK**

```
>compiling NORMPK.spad to NORMPK.nrlib
```

```
Warnings:
```

```
[1] normalizedAssociate: mp has no value
[2] normalizedAssociate: tp has no value
```

15.0.666 warnings 20091: PACEXT

```
>compiling PACEXT.spad to PACEXT.nrlib
```

Warnings:

```
[1] retractToGrn: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[2] down: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[3] lift: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[4] reduce: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[5] vectorise: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[6] +: recEl has no value
[7] *: recEl has no value
[8] *: recTower has no value
[9] inv: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[10] -: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[11] coerce: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[12] fullOutput: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[13] definingPolynomial: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[14] extDegree: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[15] previousTower: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
[16] name: pretend(Record (: recEl (SparseUnivariatePolynomial $)) (: recTower (SparseUnivariatePolynomial $)))
```

15.0.667 warnings 20090: RECOP

```
>compiling RECOP.spad to RECOP.nrlib
```

Warnings:

```
[1] operatorName: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE evalRec (F (BasicOperator)))
[2] getShiftRec: z has no value
[3] getShiftRec: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE evalRec (F (BasicOperator)))
[4] getShiftRec: not known that (Ring) is of mode (CATEGORY package (SIGNATURE evalRec (F (BasicOperator)))
[5] shiftInfoRec: maxShift has no value
[6] shiftInfoRec: minShift has no value
[7] shiftInfoRec: nextKernel has no value
[8] evalRec: ord has no value
[9] evalRec: ker has no value
[10] evalRec: z has no value
[11] getOrder: %diff has no value
```

**15.0.668**    warnings 20089: RURPK

```
>compiling RURPK.spad to RURPK.nrlib
```

```
Warnings:
```

- [1] rur: lq has no value
- [2] rur: q has no value
- [3] rur: toSave has no value
- [4] rur: toReturn has no value

### 15.0.669 warnings 20088: SFRGCD

```
>compiling SFRGCD.spad to SFRGCD.nrlib
```

```
Warnings:
```

- [1] stosePrepareSubResAlgo: toSave has no value
- [2] stoseInternalLastSubResultant: toReturn has no value
- [3] stoseInvertible?sqfreg: x has no value
- [4] stoseInvertible?sqfreg: y has no value
- [5] stoseInvertibleSetsqfreg: toSave has no value
- [6] stoseInvertible?reg: x has no value
- [7] stoseInvertible?reg: y has no value
- [8] stoseInvertibleSetreg: toSave has no value

### 15.0.670 warnings 20087: SFQCMPPK

```
>compiling SFQCMPPK.spad to SFQCMPPK.nrlib
```

```
Warnings:
```

- [1] removeSuperfluousCases: x has no value
- [2] removeSuperfluousCases: y has no value
- [3] removeSuperfluousCases: maxcases has no value
- [4] removeSuperfluousCases: lpwt1 has no value
- [5] removeSuperfluousCases: headmaxcases has no value
- [6] removeSuperfluousCases: toSave has no value
- [7] removeSuperfluousQuasiComponents: maxlts has no value
- [8] removeSuperfluousQuasiComponents: headmaxlts has no value
- [9] removeSuperfluousQuasiComponents: toSave has no value
- [10] branchIfCan: polnum has no value
- [11] prepareDecompose: branches has no value
- [12] prepareDecompose: x has no value
- [13] prepareDecompose: y has no value

### 15.0.671 warnings 20086: SRDCMPK

```
>compiling SRDCMPK.spad to SRDCMPK.nrlib
```



Warnings:

- [1] algebraicDecompose: lts has no value
- [2] internalDecompose: llpwt has no value
- [3] internalDecompose: lts has no value
- [4] decompose: toSave has no value
- [5] upDateBranches: branches1 has no value
- [6] upDateBranches: branches2 has no value

### 15.0.672 warnings 20085: SREGSET

>compiling SREGSET.spad to SREGSET.nrllib

Warnings:

- [1] construct: ts has no value
- [2] internalAugment: lts has no value
- [3] preprocess: lp1 has no value
- [4] preprocess: lp2 has no value
- [5] preprocess: lts has no value

### 15.0.673 warnings 20084: ZDSOLVE

>compiling ZDSOLVE.spad to ZDSOLVE.nrllib

Warnings:

- [1] squareFree: toSave has no value
- [2] realSolve: not known that (Ring) is of mode (CATEGORY package (SIGNATURE triangSolve ((List (RegularCh
- [3] realSolve: toSave has no value
- [4] positiveSolve: toSave has no value
- [5] univariateSolve: lq2 has no value

### 15.0.674 warnings 20083: GUESS

>compiling GUESS.spad to GUESS.nrllib

Warnings:

- [1] guessExpRatAux: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE guess ((List (
- [2] guessExpRatAux: not known that (SIGNATURE variable ((Union \$ failed) (Symbol))) is of mode (CATEGORY d
- [3] guessExpRatAux: not known that (PolynomialCategory F (IndexedExponents (OrderedVariableList (construct
- [4] guessExpRatAux: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE guess ((List (Reco
- [5] guessExpRatAux0: zeros has no value
- [6] guessExpRatAux0: newList has no value
- [7] guessExpRatAux0: xValues has no value
- [8] guessBinRatAux0: zeros has no value
- [9] guessBinRatAux0: newList has no value

```

[10] guessBinRatAux0: xValues has no value
[11] diffHP: signature of lhs not unique: (Record (: guessStream (Mapping (Stream (UnivariateFormalPowerSe
[12] shiftHP: signature of lhs not unique: (Record (: guessStream (Mapping (Stream (UnivariateFormalPowerS
[13] guessInterpolate: not known that (FiniteAbelianMonoidRing (Fraction S) (NonNegativeInteger)) is of mo
[14] testInterpolant: nonZeroCoefficient has no value
[15] guessHPaux: guessDegree has no value
[16] guessHPaux: maxEta has no value
[17] guessHPaux: reslist has no value
[18] guessHPaux: eta has no value
[19] guess: res has no value

```

### 15.0.675 warnings 20082: INFCLST

>compiling INFCLSPT.spad to INFCLSPT.nrllib

Warnings:

```

[1] create: P has no value
[2] create: chartA has no value
[3] subMultV: :Rep -- should replace by pretend
[4] setsubmult!: :Rep -- should replace by pretend
[5] pointV: :Rep -- should replace by pretend
[6] symbNameV: :Rep -- should replace by pretend
[7] curveV: :Rep -- should replace by pretend
[8] localPointV: :Rep -- should replace by pretend
[9] multV: :Rep -- should replace by pretend
[10] chartV: :Rep -- should replace by pretend
[11] excpDivV: :Rep -- should replace by pretend
[12] localParamV: :Rep -- should replace by pretend
[13] actualExtensionV: :Rep -- should replace by pretend
[14] setpoint!: :Rep -- should replace by pretend
[15] setcurve!: :Rep -- should replace by pretend
[16] setlocalPoint!: :Rep -- should replace by pretend
[17] setmult!: :Rep -- should replace by pretend
[18] setchart!: :Rep -- should replace by pretend
[19] setlocalParam!: :Rep -- should replace by pretend
[20] setexcpDiv!: :Rep -- should replace by pretend
[21] setsymbName!: :Rep -- should replace by pretend

```

### 15.0.676 warnings 20081: GUESSAN

>compiling GUESSAN.spad to GUESSAN.nrllib

Warnings:

```

[1] not known that (RetractableTo (AlgebraicNumber)) is of mode (CATEGORY domain (IF (has (Integer) (Integ
[2] not known that (CombinatorialOpsCategory) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDoma
[3] not known that (SIGNATURE ** ($ $ $)) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain))

```

**15.0.677 warnings 20080: GUESSINT**

```
>compiling GUESSINT.spad to GUESSINT.nrlib
```

```
Warnings:
```

```
[1] not known that (CombinatorialOpsCategory) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain))) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
[2] not known that (SIGNATURE ** ($ $ $)) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
```

**15.0.678 warnings 20079: GUESSP**

```
>compiling GUESSP.spad to GUESSP.nrlib
```

```
Warnings:
```

```
[1] not known that (CombinatorialOpsCategory) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain))) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
[2] not known that (SIGNATURE ** ($ $ $)) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
```

**15.0.679 warnings 20078: GUESSUP**

```
>compiling GUESSUP.spad to GUESSUP.nrlib
```

```
Warnings:
```

```
[1] not known that (RetractableTo (Fraction (MyUnivariatePolynomial q (Integer)))) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
```

**15.0.680 warnings 20077: GUESSF**

```
>compiling GUESSF.spad to GUESSF.nrlib
```

```
Warnings:
```

```
[1] not known that (CombinatorialOpsCategory) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain))) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
[2] not known that (SIGNATURE ** ($ $ $)) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
```

**15.0.681 warnings 20076: PAFF**

```
>compiling PAFF.spad to PAFF.nrlib
```

```
Warnings:
```

```
[1] homogenize: not known that (FiniteAbelianMonoidRing K (DirectProduct (call LENGTH symb) (NonNegativeInteger))) is of mode (CATEGORY domain (IF (has (Integer) (IntegralDomain)))
```

**15.0.682 warnings 20075: PAFFFF**

```
>compiling PAFFFF.spad to PAFFFF.nrlib
```

```
Warnings:
```

```
[1] homogenize: not known that (FiniteAbelianMonoidRing K (DirectProduct (call LENGTH symb) (NonNegativeIn
```

```
(1) -> copying PAFFFF.nrlib to PAFFFF.o
```

```
cl1 making /research/test/mnt/ubuntu/algebra/PAFF.o from /research/test/int/algebra/cliique2.spad
```

```
cl1 making /research/test/mnt/ubuntu/algebra/PAFFFF.o from /research/test/int/algebra/cliique2.spad
```

```
Warnings:
```

```
[1] homogenize: not known that (FiniteAbelianMonoidRing K (DirectProduct (call LENGTH symb) (NonNegativeIn
```

**15.0.683 warnings 20074: CLAGG**

```
>compiling CLAGG.spad to CLAGG.nrlib
```

```
Warnings:
```

```
[1] remove: y has no value
```

**15.0.684 warnings 20072: ES**

```
>compiling ES.spad to ES.nrlib
```

```
Warnings:
```

```
[1] tower: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE odd? ((Boolean) S)) (SIGNATU
```

```
[2] freeOf?: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE odd? ((Boolean) S)) (SIGNA
```

```
[3] eval: y has no value
```

```
[4] eval: IN has no value
```

```
[5] eval: f has no value
```

```
[6] eval: s has no value
```

```
[7] map: IN has no value
```

```
[8] map: x has no value
```

**15.0.685 warnings 20071: EUCDOM**

```
>compiling EUCDOM.spad to EUCDOM.nrlib
```

```
Warnings:
```

```
[1] principalIdeal: coef1 has no value
```

```
[2] principalIdeal: coef2 has no value
```

**15.0.686    warnings 20070: FFIELDC**

```
>compiling FFIELDC.spad to FFIELDC.nrllib
```

```
Warnings:
```

```
[1] conditionP: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE order ((PositiveInteger) S))
[2] order: signature of lhs not unique: (PositiveInteger)S chosen
[3] order: ord has no value
[4] discreteLog: disc1 has no value
[5] discreteLog: disclog has no value
[6] discreteLog: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE order ((PositiveInteger) S))
[7] gcdPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE order ((PositiveInteger) S))
```

**15.0.687    warnings 20069: GCDDOM**

```
>compiling GCDDOM.spad to GCDDOM.nrllib
```

```
Warnings:
```

```
[1] gcdPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((SparseUniv
```

**15.0.688    warnings 20068: HOAGG**

```
>compiling HOAGG.spad to HOAGG.nrllib
```

```
Warnings:
```

```
[1] eval: x has no value
[2] count: y has no value
[3] member?: x has no value
```

**15.0.689    warnings 20067: ILIST**

```
>compiling ILIST.spad to ILIST.nrllib
```

```
Warnings:
```

```
[1] latex: s has no value
```

**15.0.690    warnings 20066: INS**

```
>compiling INS.spad to INS.nrllib
```

Warnings:

- [1] factor: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE invmod (S S S)) (SIGNATURE invmod (S S S)))
- [2] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE invmod (S S S)) (SIGNATURE invmod (S S S)))
- [3] powmod: y has no value

### 15.0.691 warnings 20065: INT

>compiling INT.spad to INT.nrllib

Warnings:

- [1] OMwrite: pretend(String) -- should replace by @
- [2] hash: signature of lhs not unique: \$\$ chosen
- [3] factorPolynomial: not known that (UnivariatePolynomialCategory (Integer)) is of mode (CATEGORY domain (SIGNATURE invmod (S S S)) (SIGNATURE invmod (S S S)))
- [4] factorPolynomial: x1 has no value
- [5] gcdPolynomial: not known that (UnivariatePolynomialCategory (Integer)) is of mode (CATEGORY domain (SIGNATURE invmod (S S S)) (SIGNATURE invmod (S S S)))

### 15.0.692 warnings 20064: ISTRING

>compiling ISTRING.spad to ISTRING.nrllib

Warnings:

- [1] split: j has no value

### 15.0.693 warnings 20062: LSAGG

>compiling LSAGG.spad to LSAGG.nrllib

Warnings:

- [1] removeDuplicates!: x has no value

### 15.0.694 warnings 20061: POLYCAT

>compiling POLYCAT.spad to POLYCAT.nrllib

Warnings:

- [1] eval: IN has no value
- [2] coefficient: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((SparseUnivariatePolynomialCategory (Integer)) (SparseUnivariatePolynomialCategory (Integer))))
- [3] totalDegree: w has no value
- [4] reducedSystem: IN has no value
- [5] reducedSystem: r has no value

```

[6] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((SparseUniv
[7] solveLinearPolynomialEquation: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE gcdPolynom
[8] factorPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((SparseU
[9] factor: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((SparseU
[10] conditionP: :(Integer) -- should replace by pretend
[11] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE gcdPolynomial ((Spa

```

### 15.0.695 warnings 20060: PSETCAT

```
>compiling PSETCAT.spad to PSETCAT.nrlib
```

Warnings:

```

[1] variables1: z2 has no value
[2] variables1: z1 has no value
[3] variables2: z2 has no value
[4] variables2: z1 has no value
[5] collectUnder: lq has no value
[6] collectUpper: lq has no value
[7] collect: lq has no value
[8] sort: us has no value
[9] sort: vs has no value
[10] sort: ws has no value
[11] localTriangular?: z2 has no value
[12] localTriangular?: z1 has no value
[13] localTriangular?: q has no value
[14] headRemainder: r has no value
[15] rewriteIdealWithHeadRemainder: rs has no value
[16] rewriteIdealWithRemainder: rs has no value

```

### 15.0.696 warnings 20059: QFCAT

```
>compiling QFCAT.spad to QFCAT.nrlib
```

Warnings:

```

[1] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE < ((Boolean) A A)) (SIGNAT
[2] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE < ((Boolean) A A)) (

```

### 15.0.697 warnings 20058: RNS

```
>compiling RNS.spad to RNS.nrlib
```

Warnings:

```

[1] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE round (S S)) (SIGNAT

```

**15.0.698 warnings 20057: SINT**

```
>compiling SINT.spad to SINT.nrlib
```

```
Warnings:
```

```
[1] hash: signature of lhs not unique: $$ chosen
```

**15.0.699 warnings 20056: SYMBOL**

```
>compiling SYMBOL.spad to SYMBOL.nrlib
```

```
Warnings:
```

```
[1] latex: s has no value
```

```
[2] latex: sc has no value
```

**15.0.700 warnings 20055: TSETCAT**

```
>compiling TSETCAT.spad to TSETCAT.nrlib
```

```
Warnings:
```

```
[1] basicSet: p has no value
```

```
[2] basicSet: gps has no value
```

```
[3] basicSet: bps has no value
```

```
[4] initials: lip has no value
```

```
[5] initiallyReduced?: red has no value
```

```
[6] reduce: signature of lhs not unique: PPS(Mapping P P P)(Mapping (Boolean) P P) chosen
```

```
[7] rewriteSetWithReduction: rs has no value
```

```
[8] select: signature of lhs not unique: (Union P failed)SV chosen
```

```
[9] collectQuasiMonic: newlp has no value
```

**15.0.701 warnings 20054: UFD**

```
>compiling UFD.spad to UFD.nrlib
```

```
Warnings:
```

```
[1] squareFreePart: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE squareFreePart
```

**15.0.702 warnings 20053: UPOLYC**

```
>compiling UPOLYC.spad to UPOLYC.nrlib
```



Warnings:

- [1] monomial: x1 has no value
- [2] solveLinearPolynomialEquation: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S S))) (SIGNATURE g)
- [3] factorPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S S))) (SIGNATURE g)
- [4] factor: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE coerce (S S))) (SIGNATURE g)
- [5] elt: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE coerce (S S))) (SIGNATURE g)

### 15.0.703 warnings 20052: FFFG

>compiling FFFG.spad to FFFG.nrlib

Warnings:

- [1] generalCoefficient: res has no value
- [2] generalInterpolation: x has no value
- [3] generalInterpolation: y has no value
- [4] nextVector!: x has no value
- [5] interpolate: s has no value
- [6] interpolate: u has no value
- [7] fffg: M has no value

### 15.0.704 warnings 20051: FFFGF

>compiling FFFGF.spad to FFFGF.nrlib

Warnings:

- [1] generalInterpolation: x has no value
- [2] generalInterpolation: y has no value

### 15.0.705 warnings 20050: FFHOM

>compiling FFHOM.spad to FFHOM.nrlib

Warnings:

- [1] compare: equal has no value
- [2] initialize: mat has no value
- [3] unknown Functor code (error FFHOM: one extension degree must divide the other one)

### 15.0.706 warnings 20049: FFPOLY

>compiling FFPOLY.spad to FFPOLY.nrlib

Warnings:

```

[1] leastAffineMultiple: coeffVector has no value
[2] primitive?: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE primitive? ((Boole
[3] nextSubset: restOfs has no value
[4] nextSubset: noGap has no value
[5] nextSubset: i has no value
[6] nextIrreduciblePoly: fcopy has no value
[7] nextIrreduciblePoly: s has no value
[8] nextPrimitivePoly: fcopy has no value
[9] nextPrimitivePoly: term has no value
[10] nextPrimitivePoly: noGenerator has no value
[11] nextPrimitivePoly: c has no value
[12] nextPrimitivePoly: weight has no value
[13] nextPrimitivePoly: s has no value
[14] nextPrimitivePoly: l has no value
[15] nextNormalPoly: fcopy has no value
[16] nextNormalPoly: l has no value
[17] nextNormalPoly: a has no value
[18] nextNormalPoly: s has no value
[19] nextNormalPrimitivePoly: fcopy has no value
[20] nextNormalPrimitivePoly: term has no value
[21] nextNormalPrimitivePoly: noGenerator has no value
[22] nextNormalPrimitivePoly: c has no value
[23] nextNormalPrimitivePoly: la has no value
[24] nextNormalPrimitivePoly: a has no value
[25] nextNormalPrimitivePoly: middlelookuplist has no value
[26] nextNormalPrimitivePoly: middlepol has no value
[27] nextNormalPrimitivePoly: weight has no value
[28] nextNormalPrimitivePoly: s has no value
[29] nextNormalPrimitivePoly: lc has no value
[30] random: polRepr has no value

```

### 15.0.707 warnings 20048: FFSQFR

```
>compiling FFSQFR.spad to FFSQFR.nrlib
```

Warnings:

```

[1] rawMusser: A has no value
[2] rawMusser: decomposition has no value
[3] oneYunStep: B has no value

```

### 15.0.708 warnings 20047: FFSLPE

```
>compiling FFSLPE.spad to FFSLPE.nrlib
```

Warnings:

```

[1] solveLinearPolynomialEquation: slpePrime has no value
[2] solveLinearPolynomialEquation: oldtable has no value

```

**15.0.709 warnings 20046: FGLMICPK**

```
>compiling FGLMICPK.spad to FGLMICPK.nrlib
```

```
Warnings:
```

```
[1] zeroDim?: not known that (Ring) is of mode (CATEGORY package (SIGNATURE zeroDimensional? ((Boolean) (I
[2] zeroDim?: lv has no value
```

**15.0.710 warnings 20045: FFF**

```
>compiling FFF.spad to FFF.nrlib
```

```
Warnings:
```

```
[1] createLowComplexityTable: k has no value
[2] createLowComplexityTable: t1 has no value
[3] createLowComplexityTable: a has no value
[4] createLowComplexityTable: pretend(NonNegativeInteger) -- should replace by @
[5] createLowComplexityTable: l has no value
[6] createMultiplicationTable: l has no value
```

**15.0.711 warnings 20044: FORMULA**

```
>compiling FORMULA.spad to FORMULA.nrlib
```

```
Warnings:
```

```
[1] display: pretend(Integer) -- should replace by @
[2] coerce: pretend(Integer) -- should replace by @
[3] stringify: pretend(String) -- should replace by @
[4] splitLong1: l has no value
[5] splitLong1: ls has no value
[6] splitLong1: s has no value
[7] formatSpecial: form has no value
[8] formatPlex: s has no value
[9] formatFormula: pretend(Boolean) -- should replace by @
[10] formatFormula: :(Integer) -- should replace by pretend
```

**15.0.712 warnings 20043: FORT**

```
>compiling FORT.spad to FORT.nrlib
```

```
Warnings:
```

```
[1] linkToFortran: fst has no value
```

**15.0.713 warnings 20042: FRAC**

```
>compiling FRAC.spad to FRAC.nrllib
```

```
Warnings:
[1] OMwrite: pretend(String) -- should replace by @
[2] gcdPolynomial: x has no value
[3] factorPolynomial: x has no value
[4] factorPolynomial: den1 has no value
[5] factorSquareFreePolynomial: x has no value
[6] factorSquareFreePolynomial: den1 has no value
```

**15.0.714 warnings 20041: FTEM**

```
>compiling FTEM.spad to FTEM.nrllib
```

```
Warnings:
[1] processTemplate: active has no value
```

**15.0.715 warnings 20040: GENEEZ**

```
>compiling GENEEZ.spad to GENEEZ.nrllib
```

```
Warnings:
[1] reduction: x has no value
[2] liftSol: x has no value
[3] solveid: x has no value
```

**15.0.716 warnings 20039: GENMFACT**

```
>compiling GENMFACT.spad to GENMFACT.nrllib
```

```
Warnings:
[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P) P
```

**15.0.717 warnings 20038: GENPGCD**

```
>compiling GENPGCD.spad to GENPGCD.nrllib
```

```
Warnings:
[1] gcdPolynomial: canonical has no value
```

```

[2] gcdSameVariables: x has no value
[3] gcdSameVariables: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcdPolynomial ((Sparse
[4] gcdSameVariables: y has no value
[5] gcdSameVariables: z has no value
[6] gcdSameVariables: x1 has no value
[7] gcdSameVariables: y1 has no value
[8] gcdSameVariables: up1 has no value
[9] gcdSameVariables: up2 has no value
[10] lift: x has no value
[11] lift: y has no value
[12] lift: x1 has no value
[13] lift: x2 has no value
[14] lift: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcdPolynomial ((SparseUnivariateP
[15] recursivelyGCDCoefficients: x has no value
[16] flatten: x has no value

```

### 15.0.718 warnings 20037: GALFACTU

```
>compiling GALFACTU.spad to GALFACTU.nrllib
```

Warnings:

```
[1] singleFactorBound: not known that (Ring) is of mode (CATEGORY F (SIGNATURE Gamma (F F)))
```

### 15.0.719 warnings 20036: GB

```
>compiling GB.spad to GB.nrllib
```

Warnings:

```
[1] groebner: y has no value
```

### 15.0.720 warnings 20035: GBEUCLID

```
>compiling GBEUCLID.spad to GBEUCLID.nrllib
```

Warnings:

```
[1] strongGbasis: z2 has no value
```

```
[2] strongGbasis: z1 has no value
```

### 15.0.721 warnings 20034: GBF

```
>compiling GBF.spad to GBF.nrllib
```

Warnings:

- [1] createGroebnerBases: nP has no value
- [2] createGroebnerBases: allReducedFactors has no value
- [3] createGroebnerBases: y has no value
- [4] createGroebnerBases: x has no value
- [5] createAllFactors: x has no value
- [6] createAllFactors: y has no value
- [7] factorGroebnerBasis: fctr has no value
- [8] groebnerFactorize: signature of lhs not unique: (List (List Dpol))(List Dpol)(List Dpol) chosen
- [9] groebnerFactorize: x has no value
- [10] groebnerFactorize: y has no value

### 15.0.722 warnings 20033: GBINTERN

>compiling GBINTERN.spad to GBINTERN.nrlib

Warnings:

- [1] gbasis: z2 has no value
- [2] gbasis: z1 has no value
- [3] redPo: m has no value

### 15.0.723 warnings 20032: GHENSEL

>compiling GHENSEL.spad to GHENSEL.nrlib

Warnings:

- [1] reduction: x has no value
- [2] mQuo: x has no value
- [3] genFact: auxfl has no value
- [4] Hensellift: constp has no value
- [5] Hensellift: fln has no value
- [6] completeHensel: factlist has no value
- [7] completeHensel: finallist has no value
- [8] completeHensel: aux has no value
- [9] completeHensel: auxfl has no value

### 15.0.724 warnings 20031: GOSPER

>compiling GOSPER.spad to GOSPER.nrlib

Warnings:

- [1] PQ2R: x has no value
- [2] PQ2R: y has no value
- [3] UP2QIfCan: x has no value
- [4] UP2QIfCan: y has no value

```
[5] GosperF: not known that (Ring) is of mode (CATEGORY package (SIGNATURE GopersMethod ((Union Q failed)
```

### 15.0.725 warnings 20030: GRIMAGE

```
>compiling GRIMAGE.spad to GRIMAGE.nrlib
```

Warnings:

```
[1] makeGraphImage: signature of lhs not unique: $(List (List (Point (DoubleFloat)))) chosen
```

### 15.0.726 warnings 20029: GROEBSOL

```
>compiling GROEBSOL.spad to GROEBSOL.nrlib
```

Warnings:

```
[1] testPower: not known that (Ring) is of mode (CATEGORY package (SIGNATURE groebSolve ((List (List (Dist
[2] testGenPos: newlpol has no value
[3] groebSolve: result has no value
```

### 15.0.727 warnings 20028: HEUGCD

```
>compiling HEUGCD.spad to HEUGCD.nrlib
```

Warnings:

```
[1] lintgcd: z1 has no value
[2] lintgcd: z2 has no value
[3] localgcd: flag has no value
[4] localgcd: result has no value
[5] internal: Cgcd has no value
[6] internal: contgcd has no value
[7] internal: ans has no value
```

### 15.0.728 warnings 20027: HTMLFORM

```
>compiling HTMLFORM.spad to HTMLFORM.nrlib
```

Warnings:

```
[1] exprex: s has no value
[2] outputTree: allString has no value
[3] formatNaryNoGroup: tags has no value
```

**15.0.729 warnings 20026: ICARD**

```
>compiling ICARD.spad to ICARD.nrlib
```

```
Warnings:
 [1] elt: pretend(String) -- should replace by @
```

**15.0.730 warnings 20025: ICDEN**

```
>compiling ICDEN.spad to ICDEN.nrlib
```

```
Warnings:
 [1] clearDenominator: x has no value
 [2] splitDenominator: x has no value
```

**15.0.731 warnings 20024: IDECOMP**

```
>compiling IDECOMP.spad to IDECOMP.nrlib
```

```
Warnings:
 [1] internalForm: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeIn
 [2] internalForm: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (
 [3] externalForm: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (
 [4] externalForm: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeIn
 [5] rearrange: z2 has no value
 [6] rearrange: z1 has no value
 [7] zeroRadComp: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (N
 [8] zeroRadComp: not known that (Ring) is of mode (CATEGORY package (SIGNATURE zeroDimPrime? ((Boolean) (P
 [9] findvar: lmonicvar has no value
 [10] zeroPrimDecomp: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct n
 [11] testPower: :(Integer) -- should replace by pretend
 [12] primaryDecomp: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegative
 [13] contract: IN has no value
 [14] contract: vv has no value
 [15] contract: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteg
```

**15.0.732 warnings 20023: IIARRAY2**

```
>compiling IIARRAY2.spad to IIARRAY2.nrlib
```

```
Warnings:
 [1] latex: s has no value
```



**15.0.733 warnings 20022: IMATLIN**

```
>compiling IMATLIN.spad to IMATLIN.nrlib
```

```
Warnings:
```

```
[1] nullSpace: basis has no value
[2] determinant: ans has no value
[3] generalizedInverse: not known that (MatrixCategory FSUP VFSUP VFSUP) is of mode (CATEGORY domain (SIGN
[4] generalizedInverse: r1 has no value
[5] generalizedInverse: z1 has no value
```

**15.0.734 warnings 20021: IMATQF**

```
>compiling IMATQF.spad to IMATQF.nrlib
```

```
Warnings:
```

```
[1] qfMat: r1 has no value
[2] nullSpace: not known that (FiniteLinearAggregate QF) is of mode (CATEGORY Col2 (ATTRIBUTE shallowlyMut
```

**15.0.735 warnings 20020: INMODGCD**

```
>compiling INMODGCD.spad to INMODGCD.nrlib
```

```
Warnings:
```

```
[1] reduction: r1 has no value
```

**15.0.736 warnings 20019: INNMFAC**

```
>compiling INNMFAC.spad to INNMFAC.nrlib
```

```
Warnings:
```

```
[1] supFactor: factorlist has no value
[2] supFactor: irr has no value
[3] supFactor: pow has no value
[4] varChoose: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored P) P (Mappi
[5] intChoose: unifact has no value
[6] intChoose: int has no value
[7] simplify: pol1 has no value
[8] simplify: factorlist has no value
[9] intfact: unifact has no value
[10] intfact: lpol has no value
[11] intfact: factfin has no value
[12] monicMfpol: z1 has no value
[13] mFactor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P)
```

```

[14] mFactor: flead has no value
[15] mFactor: irr has no value
[16] mFactor: pow has no value
[17] mFactor: x has no value
[18] mFactor: ffactor has no value
[19] mFactor: lvar has no value
[20] mFactor: factorlist has no value

```

### 15.0.737 warnings 20018: INTERGB

```
>compiling INTERGB.spad to INTERGB.nrllib
```

Warnings:

```

[1] coerceRtoDwithPF: not known that (PolynomialCategory (PrimeField q) E OV) is of mode (CATEGORY domain
[2] coerceDtoRwithPF: not known that (PolynomialCategory (PrimeField q) E OV) is of mode (CATEGORY domain
[3] coerceRtoD: not known that (PolynomialCategory K E OV) is of mode (CATEGORY domain (SIGNATURE reorder
[4] coerceDtoR: not known that (PolynomialCategory K E OV) is of mode (CATEGORY domain (SIGNATURE reorder
[5] groebner: not known that (PolynomialCategory (PrimeField q) E OV) is of mode (CATEGORY domain (SIGNATURE
[6] groebner: not known that (PolynomialCategory K E OV) is of mode (CATEGORY domain (SIGNATURE reorder ($)

```

### 15.0.738 warnings 20017: INTRF

```
>compiling INTRF.spad to INTRF.nrllib
```

Warnings:

```

[1] infieldIntegrate: x1 has no value
[2] internalIntegrate: x1 has no value
[3] extendedIntegrate: x1 has no value
[4] limitedIntegrate: x1 has no value

```

### 15.0.739 warnings 20016: INTSLPE

```
>compiling INTSLPE.spad to INTSLPE.nrllib
```

Warnings:

```

[1] solveLinearPolynomialEquation: slpePrime has no value
[2] solveLinearPolynomialEquation: oldtable has no value

```

### 15.0.740 warnings 20015: INTTR

```
>compiling INTTR.spad to INTTR.nrllib
```

Warnings:

```
[1] UP2UP2: x has no value
[2] UP2UPR: x has no value
[3] UP22UPR: x has no value
[4] monomialIntegrate: x1 has no value
[5] expintegratepoly: coef0 has no value
[6] prmlimintfrac: x1 has no value
[7] explimintfrac: x1 has no value
[8] explimintfrac: logand has no value
[9] explimintfrac: coeff has no value
[10] tanintegrate: x has no value
```

### 15.0.741 warnings 20014: ISUMP

>compiling ISUMP.spad to ISUMP.nrllib

Warnings:

```
[1] pmul: x has no value
[2] sum: not known that (Ring) is of mode (CATEGORY package (SIGNATURE sum ((Record (: num P) (: den (Inte
```

### 15.0.742 warnings 20013: LAUPOL

>compiling LAUPOL.spad to LAUPOL.nrllib

Warnings:

```
[1] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE separate ((Record (: polyPart $) (: fracP
```

### 15.0.743 warnings 20012: LEADCDET

>compiling LEADCDET.spad to LEADCDET.nrllib

Warnings:

```
[1] distFact: c has no value
```

### 15.0.744 warnings 20011: LGROBP

>compiling LGROBP.spad to LGROBP.nrllib

Warnings:

```
[1] totollex: result has no value
[2] minPol: :(NonNegativeInteger) -- should replace by pretend
[3] intcompBasis: part has no value
```

```

[4] linGenPos: :(PositiveInteger) -- should replace by pretend
[5] linGenPos: result has no value
[6] groebgen: :(NonNegativeInteger) -- should replace by pretend
[7] groebgen: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linGenPos ((Record (: gblist (

```

### 15.0.745 warnings 20010: LIMITRF

```
>compiling LIMITRF.spad to LIMITRF.nrlib
```

```

Warnings:
[1] limit: y has no value
[2] complexLimit: y has no value

```

### 15.0.746 warnings 20009: LINDEP

```
>compiling LINDEP.spad to LINDEP.nrlib
```

```

Warnings:
[1] linearlyDependent?: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linearlyDependent? (
[2] solveLinear: z has no value
[3] solveLinear: z1 has no value

```

### 15.0.747 warnings 20008: LISYSER

```
>compiling LISYSER.spad to LISYSER.nrlib
```

```

Warnings:
[1] finiteSeries2LinSys: pretend(NonNegativeInteger) -- should replace by @
[2] finiteSeries2LinSysWOVectorise: pretend(NonNegativeInteger) -- should replace by @

```

### 15.0.748 warnings 20007: LPEFRAC

```
>compiling LPEFRAC.spad to LPEFRAC.nrlib
```

```

Warnings:
[1] solveLinearPolynomialEquationByFractions: x has no value
[2] solveLinearPolynomialEquationByFractions: not known that (Ring) is of mode (CATEGORY package (SIGNATURE

```

### 15.0.749 warnings 20006: LSPP

```
>compiling LSPP.spad to LSPP.nrlib
```

```
Warnings:
```

```
[1] poly2vect: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linSolve ((Record (: particul
```

## 15.0.750 warnings 20005: MATLIN

```
>compiling MATLIN.spad to MATLIN.nrlib
```

```
Warnings:
```

```
[1] minorDet: ans has no value
[2] elRow2!: r1 has no value
[3] elColumn2!: r1 has no value
[4] nullSpace: r2 has no value
[5] nullSpace: r1 has no value
[6] rowEchelon: xnj has no value
```

## 15.0.751 warnings 20004: MCDEN

```
>compiling MCDEN.spad to MCDEN.nrlib
```

```
Warnings:
```

```
[1] clearDenominator: x has no value
[2] splitDenominator: x has no value
```

## 15.0.752 warnings 20003: MDDFACT

```
>compiling MDDFACT.spad to MDDFACT.nrlib
```

```
Warnings:
```

```
[1] reduction: i1 has no value
[2] ddfact: ans has no value
[3] ddfact: :(Integer) -- should replace by @
[4] sepFact1: ans has no value
[5] sepFact1: stack has no value
[6] probSplit: :(NonNegativeInteger) -- should replace by pretend
```

## 15.0.753 warnings 20002: MFINFACT

```
>compiling MFINFACT.spad to MFINFACT.nrlib
```

```
Warnings:
```

```

[1] pretendOV -- should replace by @
[2] supFactor: p1 has no value
[3] supFactor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P
[4] supFactor: p has no value
[5] factor: p1 has no value
[6] mFactor: irr has no value
[7] mFactor: pow has no value
[8] mFactor: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored PG) PG)) (SIG
[9] mFactor: ffactor has no value
[10] mFactor: factorlist has no value
[11] pushdcoef: f1 has no value
[12] intfact: unifact has no value
[13] intfact: lpol has no value
[14] intfact: factfin has no value
[15] intChoose: newm has no value
[16] intChoose: unifact has no value
[17] intChoose: int has no value
[18] simplify: pol1 has no value
[19] simplify: factorlist has no value

```

### 15.0.754 warnings 20000: MLIFT

>compiling MLIFT.spad to MLIFT.nrlib

Warnings:

```

[1] Use: import (GenExEuclid R (SparseUnivariatePolynomial R))
[2] Use: import (NPCoef (SparseUnivariatePolynomial R) E OV R P)
[3] Use: import (IntegerCombinatoricFunctions (Integer))
[4] corrPoly: p1 has no value
[5] corrPoly: p has no value
[6] lifting1: p1 has no value
[7] lifting: nplist has no value
[8] normalDerivM: not known that (Ring) is of mode (CATEGORY package (SIGNATURE corrPoly ((Union (List (Sp

```

### 15.0.755 errors 10000: FT

>compiling FT.spad to FT.nrlib

Semantic Errors:

```

[1] void is not a known type

```

### 15.0.756 errors 10001: ASP34

>compiling ASP34.spad to ASP34.nrlib

Semantic Errors:

[1] coerce: code is BOTH a variable and a literal

### 15.0.757 errors 10002: MOEBIUS

>compiling MOEBIUS.spad to MOEBIUS.nrlib

Semantic Errors:

[1] a is BOTH a variable and a literal  
 [2] b is BOTH a variable and a literal  
 [3] c is BOTH a variable and a literal  
 [4] d is BOTH a variable and a literal  
 [5] eval: a is BOTH a variable and a literal  
 [6] eval: b is BOTH a variable and a literal  
 [7] eval: c is BOTH a variable and a literal  
 [8] eval: d is BOTH a variable and a literal  
 [9] proportional?: a is BOTH a variable and a literal  
 [10] proportional?: b is BOTH a variable and a literal  
 [11] proportional?: c is BOTH a variable and a literal  
 [12] proportional?: d is BOTH a variable and a literal

### 15.0.758 errors 10003: POLYVEC

>compiling POLYVEC.spad to POLYVEC.nrlib

Semantic Errors:

[1] vectorcombination: i has two modes:

### 15.0.759 errors 10004: EQ

>compiling EQ.spad to EQ.nrlib

Semantic Errors:

[1] factorAndSplit: rcf has two modes:

### 15.0.760 errors 10005: MULTSQFR

>compiling MULTSQFR.spad to MULTSQFR.nrlib

Semantic Errors:

[1] squareFree: ff has two modes:

**15.0.761 errors 10006: ASP30**

```
>compiling ASP30.spad to ASP30.nrlib
```

```
Semantic Errors:
```

```
[1] coerce: code is BOTH a variable and a literal
```

**15.0.762 errors 10007: ASP8**

```
>compiling ASP8.spad to ASP8.nrlib
```

```
Semantic Errors:
```

```
[1] coerce: code is BOTH a variable and a literal
```

**15.0.763 errors 10008: ASP9**

```
>compiling ASP9.spad to ASP9.nrlib
```

```
Semantic Errors:
```

```
[1] coerce: code is BOTH a variable and a literal
```

**15.0.764 errors 10009: ISUPS**

```
>compiling ISUPS.spad to ISUPS.nrlib
```

```
Semantic Errors:
```

```
[1] compose0: k is BOTH a variable and a literal
```

**15.0.765 errors 10010: SYMS**

```
>compiling SYMS.spad to SYMS.nrlib
```

```
Semantic Errors:
```

```
[1] Domain is not a known type
```

```
[2] void is not a known type
```

**15.0.766 errors 10011: ASP31**



```
>compiling ASP31.spad to ASP31.nrlib
```

```
Semantic Errors:
```

```
[1] coerce: code is BOTH a variable and a literal
```

### 15.0.767 errors 10012: ASP77

```
>compiling ASP77.spad to ASP77.nrlib
```

```
Semantic Errors:
```

```
[1] coerce: code is BOTH a variable and a literal
```

### 15.0.768 errors 10013: FC

```
>compiling FC.spad to FC.nrlib
```

```
Semantic Errors:
```

```
[1] common: name is BOTH a variable and a literal
```

```
[2] common: contents is BOTH a variable and a literal
```

```
[3] forLoop: body is BOTH a variable and a literal
```

### 15.0.769 errors 10014: ODERTRIC

```
>compiling ODERTRIC.spad to ODERTRIC.nrlib
```

```
Semantic Errors:
```

```
[1] RatODETools is not a known type
```

### 15.0.770 errors 10015: NORMPK

```
>compiling NORMPK.spad to NORMPK.nrlib
```

```
Semantic Errors:
```

```
[1] recip: hesrg has two modes:
```

### 15.0.771 bug 7233: fill! operation from U8Vector does not show up

```
)d op fill!
```

There are 2 exposed functions called fill! :

```
[1] (D,D1) -> D from D
 if D has ARR2CAT(D1,D2,D3) and D1 has TYPE and D2 has FLAGG
 (D1) and D3 has FLAGG(D1)
[2] (D,D1) -> D from D
 if D has shallowlyMutable and D has IXAGG(D2,D1) and D2 has
 SETCAT and D1 has TYPE
```

Examples of fill! from TwoDimensionalArrayCategory

```
arr : ARRAY2 INT := new(5,4,0)
fill!(arr,10)
```

Examples of fill! from IndexedAggregate

### 15.0.772 bug 7232: Cannot convert from type Symbol to PI for value #3

```
)clear all
foo(E:PI,totient:INT,N:INT):LIST(INT) ==
 modN:=IntegerMod(N)
 modtotient:=IntegerMod(totient)
 D:=[x for x in 1..totient | (x*E)::modtotient = 1].1
 secret:=(42^E)::modN
 clear:=(secret^D)::modN
 [secret,D,E,N]

P:=11
Q:=17
N:=P*Q
totient:=(P-1)*(Q-1)
t1:=[x for x in 1..totient | gcd(totient,x) = 1]
[foo(t1.y,totient,N) for y in 1..#t1]
-- fails with
-- Cannot convert from type Symbol to PositiveInteger for value #3
```

### 15.0.773 bug 7231: D2 is not of type SEQUENCE

```
see dop.input.pamphlet S 69
)d op coerce
```

**15.0.774 bug 7230: richhyper1000-1098 S 272 failed**

Bisect to see when this started

**15.0.775 bug 7229: )show FortranCode has NIL for the containing file**

similarly

FortranProgram, FortranType, ROIRC

)show InfClsPt simply fails

)show MyExpression simply fails

)show MyUnivariatePolynomial simply fails

)show PackageForAlgebraicFunctionField fails with:

listSort: second argument must be a list

)show BSD lists the source file as Makefile.pamphlet

**15.0.776 bug 7228: graphics crash running space3**

The src/input/space3.input causes an early exit

**15.0.777 bug 7227: Unexpected end of #;input stream**

see exampleagcode.output, test 3. Now gives the result

Unexpected end of

#<input stream "/research/test/mnt/ubuntu/algebra/interp.daase">

This is caused by the removal of PAFFFF from the current system.

**15.0.778 bug 7226: )d op coerce regression caused by waldek format update.**

correct in git 95402C

see src/input/dop test 69

appears to be in ALGSC

```
[4] Vector D2 -> AlgebraGivenByStructuralConstants(D2,D3,D4,D5)
 from AlgebraGivenByStructuralConstants(D2,D3,D4,D5)
```

**15.0.779 bug 7225: Lasagna Larga Doppia Riccia does not plot 0.0**

See bookvol8.1, section Lasagna Larga Doppia Riccia

given:

```
X(i,j) == _
 if ((8 <= i) and (i <= 42)) _
 then 5.0/6.0+(5.0*i-40.0)/34.0 _
 else if (i <= 8) _
 then 5.0*i/48.0 _
 else 5.0/6.0*(7+(i-42.0)/8)
Y(i,j) == j/15.0
Z(i,j) == _
 if ((8 <= i) and (i <= 42)) _
 then 0.0 _
 else if (i <= 8) _
 then (8.0-i)/32.0*cos((j+3)*%pi/6) _
 else 0.25*(i-42)/8.0*cos((j+9)*%pi/6)
v3d:=draw(surface(X(i,j),Y(i,j),Z(i,j)),i=0..50,j=0..150,_
 style=="smooth",title=="Lasagna Larga Doppia Riccia")
colorDef(v3d,yellow(),yellow())
axes(v3d,"off")
zoom(v3d,3.0,3.0,3.0)
```

The middle part of the image should generate 0.0 for the Z value but the drawn image does not show a flat plane. Calling Z(30.0,30.0) shows that the values of 0.0 is generated.

**15.0.780 bug 7224: Axiom2D PS save function clips right side of image**

```
draw(sin(4*t/7),t=0..14*%pi,coordinates==elliptic(1$DFLOAT))
```

```
menu -> ps
use gimp to look at ps
```

**15.0.781 bug 7223: Bind stack overflow**

```
-- (defun |*2;dot;5;frame1394| is being compiled
-- The variable |*2;dot;5;frame1394;MV is undefined
-- The compiler will assume this variable is a global
-- Internal error
-- The function coerce with signature OrderedCompletion Integer ->
```

```

-- Expression OrderedCompletion Integer is missing from domain
-- Expression(OrderedCompletion(Integer))
--
-- Internal Error
-- The function coerce with signature hashCode is missing from domain
-- Expression(OrderedCompletion (Integer))
dot(f,g) == integrate(f*g*x^2,x=-1..1)
proj(f,g) == dot(f,g)*f/dot(f,f)
p0:=1
p1:=x-proj(p0,x)
p2:=x^2-proj(p0,x^2)-proj(p1,x^2)
-- this give bind stack overflow
p(0) == 1
p(n | n > 0) == x^n-sum(proj(p(k),x^n),k=0..n-1)
p(1)

(7) ->)clear all
(1) -> dot(f,g) == integrate(f*g*x^2,x=-1..1)
 Type: Void
(2) -> proj(f,g) == dot(f,g)*f/dot(f,f)
 Type: Void
(3) -> p0:=1
(3) 1
 Type: PositiveInteger
(4) -> p1:=x-proj(p0,x)
Compiling function dot with type (PositiveInteger,Variable x) ->
 Union(f1: OrderedCompletion Expression Integer,f2: List
 OrderedCompletion Expression Integer,fail: failed,pole:
 potentialPole)
There are 34 exposed and 23 unexposed library operations named *
 having 2 argument(s) but none was determined to be applicable.
 Use HyperDoc Browse, or issue
)display op *
 to learn more about the available operations. Perhaps
 package-calling the operation or using coercions on the arguments
 will allow you to apply the operation.
Cannot find a definition or applicable library operation named *
 with argument type(s)
Union(f1: OrderedCompletion Expression Integer,f2: List OrderedCompletion Expression Integer,fail: failed,pole:
 PositiveInteger

 Perhaps you should use "@" to indicate the required return type,
 or "$" to specify which version of the function you need.
AXIOM will attempt to step through and interpret the code.
Compiling function dot with type (PositiveInteger,PositiveInteger)
 -> Union(f1: OrderedCompletion Expression Integer,f2: List
 OrderedCompletion Expression Integer,fail: failed,pole:
 potentialPole)

(4) x
 Type: Expression Integer
(5) -> p2:=x^2-proj(p0,x^2)-proj(p1,x^2)
Compiling function dot with type (PositiveInteger,Polynomial Integer)

```

```

) -> Union(f1: OrderedCompletion Expression Integer,f2: List
OrderedCompletion Expression Integer,fail: failed,pole:
potentialPole)
Compiling function dot with type (Expression Integer,Polynomial
Integer) -> Union(f1: OrderedCompletion Expression Integer,f2:
List OrderedCompletion Expression Integer,fail: failed,pole:
potentialPole)
Internal Error
The function coerce with signature hashCode is missing from domain
Expression(OrderedCompletion (Integer))

(5) -> p(0) == 1
Type: Void

(6) -> p(n | n > 0) == x^n-sum(proj(p(k),x^n),k=0..n-1)
Type: Void

(7) -> p(1)
Cannot compile map: proj
We will attempt to interpret the code.
Cannot compile map: p
We will attempt to interpret the code.

>> System error:
Bind stack overflow.

(7) ->

```

### 15.0.782 bug 7222: errors while compiling bookvol7

```

make[3]: Entering directory '/research/test/int/hyper'
1 making /research/test/mnt/ubuntu/lib/spadbuf from /research/test/books/bookvol7.pamphlet
spadbuf.c: In function interpI0:
spadbuf.c:89: warning: ignoring return value of write, declared with attribute warn_unused_result
2 making /research/test/mnt/ubuntu/lib/ex2ht from /research/test/books/bookvol7.pamphlet
3 making /research/test/mnt/ubuntu/bin/htadd from /research/test/books/bookvol7.pamphlet
htadd.c: In function buildHtFilename:
htadd.c:1314: warning: ignoring return value of getcwd, declared with attribute warn_unused_result
4 making /research/test/mnt/ubuntu/bin/hthits from /research/test/books/bookvol7.pamphlet
hthits.c: In function handleFile:
hthits.c:65: warning: ignoring return value of fgets, declared with attribute warn_unused_result
hthits.c: In function handlePage:
hthits.c:166: warning: ignoring return value of fread, declared with attribute warn_unused_result
5 making /research/test/mnt/ubuntu/bin/htsearch from /research/test/books/bookvol7.pamphlet
6 making /research/test/mnt/ubuntu/lib/presea from /research/test/books/bookvol7.pamphlet
7 /research/test/mnt/ubuntu/bin/hypertext from /research/test/books/bookvol7.pamphlet
hypertext.c: In function buildHtFilename:
hypertext.c:2029: warning: ignoring return value of getcwd, declared with attribute warn_unused_result
hypertext.c: In function handleKey:
hypertext.c:8748: warning: ignoring return value of system, declared with attribute warn_unused_result
hypertext.c: In function issueUnixcommand:

```

```
hypertex.c:13808: warning: ignoring return value of system, declared with attribute warn_unused_result
10 making /research/test/mnt/ubuntu/doc/axbook/xhtml from /research/test/books/axbook.tgz
8 making /research/test/mnt/ubuntu/doc/bigbayou.png from /research/test/books/bigbayou.png
9 making /research/test/mnt/ubuntu/doc/doctitle.png from /research/test/books/d
```

### 15.0.783 bug 7221: The variable IDENTITY is undefined.

```
; (DEFUN |Pattern;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.
```

```

Pattern is now explicitly exposed in frame initial
Pattern will be automatically loaded when needed from
/research/test/int/algebra/PATTERN.nrlib/code
```

### 15.0.784 bug 7220: Manicotti only draws 1/2 of image

See bookvol8.1.pamphlet vs Pasta by Design book

Not clear if the problem is the equations or the graphics

### 15.0.785 bug 7219: Funghini draws only lines

See bookvol8.1.pamphlet vs Pasta by Design book

Not clear if the problem is the equations or the graphics

### 15.0.786 bug 7218: makeViewport3D closed unexpectedly

given:

```
A(i) == sin(i*pi/2000)^0.5
X1(i,j) == _
 if (i <= 2000) _
 then 2.1*cos((2*A(i)+1)*pi)+0.65*cos((2*A(i)+0.5)*pi)+_
 2.5*sin((A(i)+1.83)*pi)^500 _
 else -2.1
Y1(i,j) == _
 if (i <= 2000) _
 then 2.5*sin((2*A(i)+1)*pi)+0.1*sin(A(i)*2*pi)+_
 3*sin((A(i)+1.83)*pi)^500 _
```

```

 else 0.0
Z(i,j) == j/4.0
vsp:=createThreeSpace()
makeObject(surface(X1(i,j),Y1(i,j),Z(i,j)),i=0..3000,j=0..4,space==vsp)
vp:=makeViewport3D(vsp,style=="smooth",title=="Racchette")
axes(vp,"off")

```

```

>> Error detected within library code:
This viewport has already been closed

```

See section{Racchette} in bookvol8.1.pamphlet

Note that if the whole example is run the viewport is still open.  
Only when the subset involves just (X1,Y1,Z) does it fail.

Note the same error occurs in Rotelle.

```

X1(i,j) == _
 if (i <= 666) _
 then 2*cos(3*i*pi/1000)+0.03*cos(93*i*pi/1000) _
 else 2.03
Y1(i,j) == _
 if (i <= 666) _
 then 2.05*sin(3*i*pi/1000)+0.03*sin(93*i*pi/1000) _
 else 0.0
Z(i,j) == j/5.0
vsp:=createThreeSpace()
makeObject(surface(X1(i,j),Y1(i,j),Z(i,j)),i=0..2000,j=0..5,space==vsp)
vp:=makeViewport3D(vsp,style=="smooth",title=="Rotelle")
axes(vp,"off")

```

```

>> Error detected within library code:
This viewport has already been closed

```

```

draw(surface(X1(i,j),Y1(i,j),Z(i,j)),i=0..2000,j=0..5)

```

```

succeeds with a wildly strange float
"float(149787561878521559122,-66,2)/float(1,0,2)

```

so I suspect the equations are wrong in some way. --tpd

### 15.0.787 bug 7216: Sorry - cannot handle that integrand yet

```

t0207:= -a^3*(a+b*x)*Ei(log(c*(a+b*x)^n)/n)/((c*(a+b*x)^n)^(1/n))/b^4/n+3*a^2*(a+b*x)^2*Ei(2*log(c*(a+b*x)^n)/n)

```

(32)

$$\begin{array}{ccccccccc}
 & & & & & & 1 & & 2 \\
 & & & & & & - & & - \\
 4 & 4 & & 3 & 3 & & 2 & 2 & 2 & & 3 & & 4 & & n & n & & n & n
 \end{array}$$



```

(b x + 4a b x + 6a b x + 4a b x + a)(c (b x + a)) (c (b x + a))
*
 3
 -
 n n 4log(c (b x + a))
(c (b x + a)) Ei(-----)
 n
+
 1 2
 - -
 3 3 2 2 2 3 4 n n n n
(- 3a b x - 9a b x - 9a b x - 3a)(c (b x + a)) (c (b x + a))
*
 4
 -
 n n 3log(c (b x + a))
(c (b x + a)) Ei(-----)
 n
+
 1 3 4
 - - -
 2 2 2 3 4 n n n n n n
(3a b x + 6a b x + 3a)(c (b x + a)) (c (b x + a)) (c (b x + a))
*
 n
 2log(c (b x + a))
Ei(-----)
 n
+
 2 3 4
 - - -
 3 4 n n n n n n
(- a b x - a)(c (b x + a)) (c (b x + a)) (c (b x + a))
*
 n
 log(c (b x + a))
Ei(-----)
 n
/
 1 2 3 4
 - - - -
 4 n n n n n n n n
b n (c (b x + a)) (c (b x + a)) (c (b x + a)) (c (b x + a))
Type: Expression Integer
a0207:= integrate(t0207,x)

```

```

>> Error detected within library code:
Sorry - cannot handle that integrand yet

```

```

Continuing to read the file...

```

## 15.0.788 bug 7215: integration bug?

t0317:= (-1+tanh(x)^2)^(3/2)

(85) 
$$\frac{(\tanh(x)^2 - 1)\sqrt{\tanh(x)^2 - 1}}{2}$$
  
 Type: Expression Integer  
 r0317:= -1/2\*cosh(x)\*(-sech(x)^2)^(1/2)\*(atan(sinh(x))+sech(x)\*tanh(x))

(86) 
$$\frac{(-\cosh(x)\operatorname{atan}(\sinh(x)) - \cosh(x)\operatorname{sech}(x)\tanh(x))\sqrt{-\operatorname{sech}(x)^2}}{2}$$
  
 Type: Expression Integer  
 a0317:= integrate(t0317,x)

(87) 0  
 Type: Union(Expression Integer,...)

## 15.0.789 bug 7214: integration bug?

(1) -> t0062:= x\*(sin(x)^2)^(1/2)

(1) 
$$x\sqrt{\sin(x)^2}$$

(2) -> r0062:= -csc(x)\*(x\*cos(x)-sin(x))\*(sin(x)^2)^(1/2)

(2) 
$$(\csc(x)\sin(x) - x\cos(x)\csc(x))\sqrt{\sin(x)^2}$$

(3) -> a0062:= integrate(t0062,x)

(3) 
$$\sin(x) - x\cos(x)$$

Axiom's answer seems simpler

(4) -> t1:=D(a0062,x)

(4) 
$$x\sin(x)$$

But it is not equivalent to the integrand

(5) -> t2:=t0062-t1

$$(5) \quad x \sqrt{\sin(x)}^2 - x \sin(x)$$

And it does not differ by a constant

(6) -> t3:=D(t2,x)

$$(6) \quad \frac{(-\sin(x) - x \cos(x)) \sqrt{\sin(x)}^2 + \sin(x)^2 + x \cos(x) \sin(x)}{\sqrt{\sin(x)}^2}$$

Of course, Rich's answer does not differentiate to the closed form

(7) -> t4:=D(r0062,x)

$$(7) \quad \frac{(-\cot(x) + x) \csc(x) \sin(x)^3 + (x \cos(x) \cot(x) + \cos(x)) \csc(x) \sin(x)^2 - x \cos(x) \csc(x) \sin(x)^2}{\sqrt{\sin(x)}^2}$$

And it does not differ by a constant

(8) -> t5:=t4-t1

$$(8) \quad \frac{-x \sin(x) \sqrt{\sin(x)}^2 + (-\cot(x) + x) \csc(x) \sin(x)^3 + (x \cos(x) \cot(x) + \cos(x)) \csc(x) \sin(x)^2 - x \cos(x) \csc(x) \sin(x)^2}{\sqrt{\sin(x)}^2}$$

Type: Expression(Integer)

## 15.0.790 bug 7213: different result appear

```
-- >> Error detected within library code:
-- Imaginary part is nonzero. Cannot retract.
--
--S 488 of 520 sometimes Imaginary part is nonzero. Cannot retract.
a0093:= integrate(t0093,x)
--R
--R
--R +-----+
--R | 2
--R |%R b - a
--R sin(%R) |-----
--R x | 2
--R ++ \ | %R
--R (360) | ----- d%R
--R ++ +-----+
--R | 2
--R \ | - %R b + a
--R
--R Type: Union(Expression Integer,...)
```

## 15.0.791 bug 7212: differing integration? due to random algorithm?

```
t0404:= (-1+x)^(1/2)/x^(1/2)
integrate(t0404,x)
```

```
(23)
 +-----+ +-+
 (- 2\|x - 1 \|x - 2x + 1)log(\|x + \|x - 1) + (2x - 1)\|x - 1 \|x
 +
 2
 2x - 2x
 /
 +-----+ +-+
 2\|x - 1 \|x + 2x - 1
 Type: Union(Expression Integer,...)
--R
--R
--R +-----+ +-+
--R - log(- 2\|x - 1 \|x - 2x + 1) + 2\|x - 1 \|x
--R (23) -----
--R 2
--R
--R Type: Union(Expression Integer,...)
```

another example:

```
tt:=sqrt(x)/sqrt(x+1)
integrate(tt,x)
```

$$(22) \quad \frac{-\log(-2\sqrt{x}\sqrt{x+1} - 2x - 1) + 2\sqrt{x}\sqrt{x+1}}{2}$$

Type: Union(Expression Integer,...)

but sometimes we get:

$$(18) \quad \frac{(-2\sqrt{x}\sqrt{x+1} - 2x - 1)\log(\sqrt{x+1} + \sqrt{x}) + (2x+1)\sqrt{x}\sqrt{x+1} + 2x^2 + 2x}{2\sqrt{x}\sqrt{x+1} + 2x + 1}$$

Type: Union(Expression Integer,...)

## 15.0.792 todo 329: axiom reference info update

get all <http://axiom-portal.newsynthesis.org/refs/articles>

## 15.0.793 bug 7210: but in partial fraction

Axiom gets a different answer than Fracas.

Is the following close to what you have in mind? (two problems: you need to know the extension in advance, and I don't see a way to factor over extensions of degree higher than one right now. Possibly Waldek knows.)

```
(1) -> SAEs5 := SAE(FRAC INT,UP(s5,FRAC INT),s5^2-5)
```

```
(1)
SimpleAlgebraicExtension(Fraction(Integer),UnivariatePolynomial(s5,Fraction(Integer)),s5^2+-5)
```

Type: Type

```
(2) -> p:UP(x,SAEs5) :=(x^5-1)*(x^2-1)*(x-1)
```

```
(2) x^8 - x^7 - x^6 + x^5 - x^3 + x^2 + x - 1
```

Type:

```
UnivariatePolynomial(x,SimpleAlgebraicExtension(Fraction(Integer),UnivariatePolynomial(s5,Fraction(Integer))),
```



```
-- reducible order 3 operator (1-1-1)
testFactor [(t^9 + t^3)*d + (-sqrt 91+7)*t^8+(-sqrt 91 + 1)*t^2,
 d + ((sqrt 91 + 6)*t^6 + sqrt 91)/(t^7+t),
 d + (5*t^6 - 1)/(t^7 + t)]
```

Waldek comments:

The real problem seems to be that

```
op2 := (t^9+t^3)*d^2 + (13*t^8+t^2)*d - 55*t^7 - 91*t
factor(op2)
```

is extremely slow. I am looking at this -- one problem is that we spend a lot of time computing gcd-s of polynomials with algebraic coefficients

**15.0.795 bug 7207:**  $\text{integrate}(1/(2-3*x)^{1/2}/(2+3*x)^{1/2}, x)$

should be  $1/3*\text{asin}(3/2*x)$   
but causes an infinite loop in integration

**15.0.796 bug 7206:** from <http://bugs.debian.org/349877>

```
X-Debbugs-CC: Jiri Palecek <jpalecek@web.de>
Package: axiom
Version: 20050901-4
Severity: normal
```

When I enter in axiom

```
> p:(NonNegativeInteger)->Polynomial AlgebraicNumber
> p i:=if i=0 then 1 else x^i-reduce(+,[integrate(x^i*p k,x=0..1)*p k for
> k in 0..i-1])
```

and then

```
> p 1
```

I get this error:

```
Internal Error
Interpreter code generation failed for expression
(IF (= |#1| 0) 1
 (- (^ |x| |#1|)
 (|reduce| +
 (|construct|
 (COLLECT (STEP |k| 0 1 (- |#1| 1))
```

```

(* (|integrate|
 (* (^ |x| |#1|) (|p| |k|))
 (= |x| (SEGMENT 0 1)))
 (|p| |k|))))))

-- System Information:
Debian Release: testing/unstable
 APT prefers testing
 APT policy: (500, 'testing'), (500, 'stable')
Architecture: i386 (i686)
Shell: /bin/sh linked to /bin/dash
Kernel: Linux 2.6.15
Locale: LANG=C, LC_CTYPE=C (charmap=ISO-8859-2) (ignored: LC_ALL set to
cs_CZ)

Versions of packages axiom depends on:
ii axiom-databases 20050901-4 A general purpose computer
algebra
ii libc6 2.3.5-8 GNU C Library: Shared
libraries an
ii libgmp3c2 4.1.4-10 Multiprecision arithmetic
library
ii libncurses5 5.5-1 Shared libraries for terminal
hand
ii libreadline5 5.1-5 GNU readline and history
libraries

Versions of packages axiom recommends:
ii axiom-doc 20050901-4 A general purpose computer
algebra
ii axiom-graphics 20050901-4 A general purpose computer
algebra
ii axiom-hypertext 20050901-4 A general purpose computer
algebra
pn axiom-source <none> (no description available)

-- no debconf information
--
Using Opera's revolutionary e-mail client: http://www.opera.com/mail/

```

### 15.0.797 bug 7205: interval is not recognized:

```
)d op interval
```

There are 3 exposed functions called interval :

```
[1] Fraction Integer -> D from D
 if D has INTCAT D2 and D2 has Join(FloatingPointSystem,
```



```

 TranscendentalFunctionCategory)
[2] D1 -> D from D
 if D has INTCAT D1 and D1 has Join(FloatingPointSystem,
 TranscendentalFunctionCategory)
[3] (D1,D1) -> D from D
 if D has INTCAT D1 and D1 has Join(FloatingPointSystem,
 TranscendentalFunctionCategory)

```

Examples of interval from IntervalCategory

```
(31) -> fi:=1/4::FRAC(INT)
```

```

 1
(31) -
 4

```

Type: Fraction Integer

```
(32) -> interval(fi)$INTERVAL(FRAC(INT))
```

There are 2 exposed and 0 unexposed library operations named interval having 1 argument(s) but none was determined to be applicable. Use HyperDoc Browse, or issue  
                                   )display op interval  
 to learn more about the available operations. Perhaps package-calling the operation or using coercions on the arguments will allow you to apply the operation.

Cannot find a definition or applicable library operation named interval with argument type(s)  
                                   Fraction Integer

Perhaps you should use "@" to indicate the required return type, or "\$" to specify which version of the function you need.

### 15.0.798 bug 7204: bug in this rule form?

```

-- bug in this rule form? int(x+ :y,z) == int(x,z)+int(y,z)
-- and also this one? int(x+y,z) == int(x,z)+int(y,z)
intRules:=rule
 int(x+y,z) == int(x,z)+int(y,z)
 int(k*x | freeOf?(k,z),z) == k*int(x,z)
 int(y | integer? y, z) == y*z
 int(x^(?p | D(p,x)=0),x) == x^(p+1)/(p+1)
intRules int(a^2*b+a^b+3*a-5,a)
intRules int(a^(a+1),a)

```

### 15.0.799 bug 7203: in GRAS the line

```
vType:SINT := xor(op2type,uType) -- remaining ^factors
```

fails to compile. It expects `op2type` to be boolean even though `op2type` and `uType` are `SINT` and the target `vType` is `SINT`. The line

```
XOR(x:SINT,y:SINT):SINT == LOGXOR(x,y)$Lisp
```

was temporarily added to work around the bug.

### 15.0.800 bug 7201: `sin(x)` drawing error

drawing `tubepLOTS` does not always work as expected

```
s:=create3Space()$(ThreeSpace DFLOAT)
draw(curve(x,sin(x),0),x=0..4,style="shade",tubeRadius=0.3,tubePoints=20,
 space==s)
draw(curve(x,sin(x),1),x=-4..4,style="shade",tubeRadius=0.3,tubePoints=20,
 space==s)
```

### 15.0.801 bug 7200: Improper syntax after browse

in hyperdoc click on browse  
 enter draw  
 click operations  
 select descriptions  
 enter any command in main window: e.g. `1+1`  
 and you get

```
line 1: 1+1
Error A: Improper syntax
Error A: Improper syntax
Error A: syntax error at top level
...
```

### 15.0.802 bug 7199: `real/imag` giving wrong answers

```
a:=(-1*i)^(1/2)
b:=(i)^(3/2)
real(a)
imag(a)
real(b)
imag(b)
```

### 15.0.803 bug 7198: missing coerce function in OrderedCompletion Integer

```
-- (defun |*2;dot;5;frame1394| is being compiled
-- The variable |*2;dot;5;frame1394;MV is undefined
-- The compiler will assume this variable is a global
-- Internal error
-- The function coerce with signature OrderedCompletion Integer ->
-- Expression OrderedCompletion Integer is missing from domain
-- Expression(OrderedCompletion(Integer))
--
-- Internal Error
-- The function coerce with signature hashcode is missing from domain
-- Expression(OrderedCompletion (Integer))
dot(f,g) == integrate(f*g*x^2,x=-1..1)
proj(f,g) == dot(f,g)*f/dot(f,f)
p0:=1
p1:=x-proj(p0,x)
p2:=x^2-proj(p0,x^2)-proj(p1,x^2)
-- this give bind stack overflow
p(0) == 1
p(n | n > 0) == x^n-sum(proj(p(k),x^n),k=0..n-1)
p(1)
```

### 15.0.804 todo 326: Guess.tex needs to be used to document the guess package

todo 326: Guess.tex needs to be used to document the guess package

### 15.0.805 todo 326: in LODOOPS the fricas version

todo 326: in LODOOPS the fricas version of the killer function differs  
and the nonTrivial function is missing

### 15.0.806 todo 325: permute list of anything

```
n:=[1,2,3,4]
permutations n
p:=[x.[i] for i in 1..4]
permutations p
```

**15.0.807 bug 7197: hyperdoc/graphics failure**

Basic Commands -> Draw -> exit

**15.0.808 bug 7196: factor is partial**

```
n:= 1303 * 16927 * 157543
factor(n)
```

occasionally only partially factors, returning

```
1303 * 2666730361
```

**15.0.809 todo 324: integrate: implementation incomplete (constant residues)**

```
integrate(
 (x^2+2*x+1*(3*x+1)*sqrt(x+log(x)))/
 (x*sqrt(x+log(x))*(x+sqrt(x+log(x)))),x)
```

the antiderivative is

```
2*(sqrt(x+log(x))+log(x+sqrt(x+log(x))))
```

or, a shorter example is:

```
integrate(sqrt(x+log(x)),x)
```

**15.0.810 bug 7195: draw bug**

i tried to draw a surface, typing 'z' instead of 'y':

```
draw(surface(x,x*x,y),x=0..5,z=0..3)
```

axiom responds with

Loading .... opensus/algebra/PALETTE.o for domain Palette

Unrecoverable error: Segmentation violation.

```
)set function compile off
```

```
draw(surface(x,x*x,y),x=0..5,z=0..3)
```

generates

```
>> System error:
```

The variable |y| is unbound.

**15.0.811 bug 7194: .fn files are not used during first compile phase**

should be loaded from previous build cache into compile image?

**15.0.812 bug 7193: src/algebra/\*.pamphlet files are not copied.**

bug 7193: src/algebra/\*.pamphlet files are not copied.

**15.0.813 7190: integrate(sqrt(1+sec(x)),x) returns 0**

7190: integrate(sqrt(1+sec(x)),x) returns 0

MMA returns a huge expression

Bug poster claims the Maple and cac1101.com return closed forms

**15.0.814 bug 7189: browsing 'eigenMatrix' works only with 'Operations'**

bug 7189: browsing 'eigenMatrix' works only with 'Operations'

Michael Becker <Michael.Becker@coconet.de>

**15.0.815 bug 7188: hyperdoc browsing with wildcards does not work**

bug 7188: hyperdoc browsing with wildcards does not work

Michael Becker <Michael.Becker@coconet.de>

**15.0.816 bug 7187: hyperdoc cat\* bug**

Michael Becker <Michael.Becker@coconet.de>

Entering 'cat\*' in the input area of 'Glossary' gives:

'no glossary items match d\*'

**15.0.817 bug 7186: ACPLLOT missing functions**

```

sketch:=makeSketch(x+y,x,y,-1/2..1/2,-1/2..1/2)$ACPLLOT
xRange(sketch)
 Internal Error
 The function xRange with signature hashcode is missing from domain
 PlaneAlgebraicCurvePlot
yRange(sketch)
 Internal Error
 The function yRange with signature hashcode is missing from domain
 PlaneAlgebraicCurvePlot

```

**15.0.818 bug 7181: SQMATRIX(2,INT) has coerce Integer -> %**

```

bug 7181: SQMATRIX(2,INT) has coerce Integer -> %

 is not a valid type

even if:

)expose SQMATRIX

```

**15.0.819 bug 7169: Matrix printing/parsing bug (notice the - in E21)**

```

E21:=matrix([[1,0,0],[-2,1,-],[0,0,1]])

 + 1 0 0+
 | |
(6) |- 2 1 -|
 | |
 + 0 0 1+
 Type: Matrix Polynomial Integer
(7) -> E32:=matrix([[1,0,0],[0,1,0],[0,-5,1]])

 +1 0 0+
 | |
(7) |0 1 0|
 | |
 +0 - 5 1+
 Type: Matrix Integer
(8) -> E32*E21

 + 1 0 0 +

```

$$(8) \begin{array}{ccccccc} & | & & & & & | \\ & - & 2 & & 1 & & - \\ & | & & & & & | \\ +10 & & - & 5 & & - & 5 \\ & & & & + & 1 & + \end{array}$$

Type: Matrix Polynomial Integer

(9) ->

### 15.0.820 todo 322: use charts.jpg to guide axiom graphing

todo 322: use charts.jpg to guide axiom graphing

### 15.0.821 todo 321: try to use raphael to scale graphs

todo 321: try to use raphael to scale graphs

### 15.0.822 todo 320: pick up FLINT package

todo 320: pick up FLINT package

### 15.0.823 bug 7169: algebra bug

)co RESLATC

RESLATC;coerce;ES;2 is replaced by errorBug:  
Should not be able to obtain value of type Exit

### 15.0.824 bug 7167: KeyedAccessFile fails because

- (a) readable? in defstream is checking the directory name, not the file
- (b) BINARY\_OPEN\_INPUT does not exist

### 15.0.825 bug 7166: library doesn't seem to work

```
stuff := library "/tmp/Neat.stuff"
stuff.int := 32**2
stuff."poly" := x**2 + 1
stuff.str := "Hello"
```

```

keys stuff
stuff.poly
stuff("poly")
)system rm -rf /tmp/Neat.stuff

```

### 15.0.826 bug 7165: this rule does not match

```

--S
sininv:=rule(sin(%i*x) == %i*sinh(x))
--R
--R (1) sin(%i x) == %i sinh(x)
--R Type: RewriteRule(Integer,Complex Integer,Expression Complex Integer)
--E

--S
t1:=sin(x*i) - %i*sinh(x)
--R
--R (2) - %i sinh(x) + sin(%i x)
--R Type: Expression Complex Integer
--E

--S
t2:=sininv t1
--R
--R (3) - %i sinh(x) + sin(%i x)
--R Type: Expression Complex Integer
--E

(1) -> cosinv:=rule(cos(x*i) == cosh(x))
(2) -> t1:=cos(x*i) - cosh(x)
(3) -> t2:=cosinv t1

(1) -> taninv:=rule(tan(x*i) == %i*tanh(x))
(2) -> t1:=tan(x*i) - %i*tanh(x)
(3) -> t2:=taninv t1

(1) -> cscinv:=rule(csc(x*i) == -%i*csch(x))
(2) -> t1:=csc(x*i) - -%i*csch(x)
(3) -> t2:=cscinv t1

(1) -> secinv:=rule(sec(x*i) == sech(x))
(2) -> t1:=sec(x*i) - sech(x)
(3) -> t2:=secinv t1

(1) -> cotinv:=rule(cot(x*i) == -%i*coth(x))
(2) -> t1:=cot(x*i) - -%i*coth(x)
(3) -> t2:=cotinv t1

(1) -> sinhinv:=rule(sinh(x*i) == %i*sin(x))
(2) -> t1:=sinh(x*i) - %i*sin(x)
(3) -> t2:=sinhinv t1

```



```

(1) -> coshinv:=rule(cosh(x*%i) == cos(x))
(2) -> t1:=cosh(x*%i) - cos(x)
(3) -> t2:=coshinv t1

(1) -> tanhinv:=rule(tanh(x*%i) == %i*tan(x))
(2) -> t1:=tanh(x*%i) - %i*tan(x)
(3) -> t2:=tanhinv t1

(1) -> cschinv:=rule(x*%i == -%i*csc(x))
(2) -> t1:=x*%i - -%i*csc(x)
(3) -> t2:=cschinv t1

(1) -> sechinv:=rule(sech(x*i) == sec(x))
(2) -> t1:=sech(x*i) - sec(x)
(3) -> t2:=sechinv t1

(1) -> cothinv:=rule(coth(x*%i) == -%i*cot(x))
(2) -> t1:=coth(x*%i) - -%i*cot(x)
(3) -> t2:=cothinv t1

(1) -> coshperiod:=rule(cosh(x+2*k*%pi*%i) == cosh(x))
(2) -> t1:=cosh(x+2*k*%pi*%i) - cosh(x)
(3) -> t2:=coshperiod t1

(1) -> tanhperiod:=rule(tanh(x+k*%pi*%i) == tanh(x))
(2) -> t1:=tanh(x+k*%pi*%i) - tanh(x)
(3) -> t2:=tanhperiod t1

(1) -> sechperiod:=rule(sech(x+2*k*%pi*%i) == sech(x))
(2) -> t1:=sech(x+2*k*%pi*%i) - sech(x)
(3) -> t2:=sechperiod t1

(1) -> sinsinh:=rule(sin(%i*x)^(-1) == %i*sinh(x)^(-1))
(2) -> t1:=sin(%i*x)^(-1) - %i*sinh(x)^(-1)
(3) -> t2:=sinsinh t1

(1) -> sinhsin:=rule(sinh(%i*x)^(-1) == %i*sin(x)^(-1))
(2) -> t1:=sinh(%i*x)^(-1) - %i*sin(x)^(-1)
(3) -> t2:=sinhsin t1

(1) -> coscosh:=rule(cos(x)^(-1) == %i*cosh(x)^(-1))
(2) -> t1:=cos(x)^(-1) - %i*cosh(x)^(-1)
(3) -> t2:=coscosh t1

(1) -> coscosh2:=rule(cos(x)^(-1) == -%i*cosh(x)^(-1))
(2) -> t1:=cos(x)^(-1) - -%i*cosh(x)^(-1)
(3) -> t2:=coscosh2 t1

(1) -> coshcos:=rule(cosh(x)^(-1) == %i*cos(x)^(-1))
(2) -> t1:=cosh(x)^(-1) - %i*cos(x)^(-1)
(3) -> t2:=coshcos t1

(1) -> coshcos2:=rule(cosh(x)^(-1) == -%i*cos(x)^(-1))

```

```

(2) -> t1:=cosh(x)^(-1) - %i*cos(x)^(-1)
(3) -> t2:=coshcos2 t1

(1) -> tantanh:=rule(tan(%i*x)^(-1) == %i*tanh(x)^(-1))
(2) -> t1:=tan(%i*x)^(-1) - %i*tanh(x)^(-1)
(3) -> t2:=tantanh t1

(1) -> tanhtan:=rule(tanh(%i*x)^(-1) == %i*tan(x)^(-1))
(2) -> t1:=tanh(%i*x)^(-1) - %i*tan(x)^(-1)
(3) -> t2:=tanhtan t1

```

### 15.0.827 bug 7164: this rule does not match

```

--S
cschinv:=rule(csch(x)^(-1) == sinh(1/x)^(-1))
--R
--R
--R 1 1
--R (1) ----- == -----
--R csch(x) 1
--R sinh(-)
--R x
--R
--R Type: RewriteRule(Integer,Integer,Expression Integer)
--E

--S
t1:=csch(x)^(-1) - sinh(1/x)^(-1)
--R
--R
--R 1
--R sinh(-) - csch(x)
--R x
--R (2) -----
--R 1
--R csch(x)sinh(-)
--R x
--R
--R Type: Expression Integer
--E

--S
t2:=cschinv t1
--R
--R
--R 1
--R sinh(-) - csch(x)
--R x
--R (3) -----
--R 1
--R csch(x)sinh(-)
--R x
--R
--R Type: Expression Integer
--E

```

### 15.0.828 bug 7163: tanhneg rule fails

The first 5 succeed, but the 6th (tanhneg t3) loops forever

```
(1) -> tanhadd:=rule(tanh(x+y) == (tanh(x)+tanh(y))/(1+tanh(x)*tanh(y)))
(2) -> t1:=tanh(x+y) - (tanh(x)+tanh(y))/(1+tanh(x)*tanh(y))
(3) -> t2:=tanhadd t1
(4) -> tanhneg:=rule(tanh(x-y) == (tanh(x)-tanh(y))/(1-tanh(x)*tanh(y)))
(5) -> t3:=tanh(x-y) - (tanh(x)-tanh(y))/(1-tanh(x)*tanh(y))
(6) -> t4:=tanhneg t3

(1) -> cothadd:=rule(coth(x+y) == (coth(x)*coth(y)+1)/(coth(y)+coth(x)))
(2) -> t1:=coth(x+y) - (coth(x)*coth(y)+1)/(coth(y)+coth(x))
(3) -> t2:=cothadd t1
(4) -> cothneg:=rule(coth(x-y) == (coth(x)*coth(y)-1)/(coth(y)-coth(x)))
(5) -> t3:=coth(x-y) - (coth(x)*coth(y)-1)/(coth(y)-coth(x))
(6) -> t4:=cothneg t3
```

### 15.0.829 bug 7162: (p,q):UP(x,INT) fails only in fixed.input.pamphlet

```
p:UnivariatePolynomial(x,Integer); q:UnivariatePolynomial(x,Integer)
Type: Void
```

Daly Bug

Category, domain or package constructor : is not available.

The expression

```
(p,q):UP(x,INT)
```

generates the error

Daly Bug

Category, domain or package constructor : is not available.

works fine at the top of the fixed.input file but not further down.

Which means that some property is not being cleared properly.

The symbol ‘‘p’’ does get properly declared despite the error message.

### 15.0.830 bug 7160: numeric(erf(0.1))

the erf function is defined as:

```
erf(x) == 1/sqrt(2*%pi)*integrate(exp(-1/2*t^2),t=0..x)
```

ref: CRC Standard Mathematical Tables and Formulae p547

### 15.0.831 bug 7159: rootsOf( $2z^4+z^3-z-2$ ) is wrong

```

(1) [%z0,%z1,%z1,- %z1]
 Type: List AlgebraicNumber

(2) -> (z^2-1)*(2*z^2+z+2)

 4 3
(2) 2z + z - z - 2
 Type: Polynomial Integer

(3) -> rootsOf(z^2-1)

(3) [%z3,- %z3]
 Type: List AlgebraicNumber

(4) -> rootsOf(2*z^2+z+2)

 - 2%z5 - 1
(4) [%z5,-----]
 2
 Type: List AlgebraicNumber

so no two roots are equal

(5) -> f(z)==(z^2-1)*(2*z^2+z+2)
 Type: Void

(6) -> m1:=%(3).1

(6) %z3
 Type: AlgebraicNumber

(7) -> m2:=%(3).2

(7) - %z3
 Type: AlgebraicNumber

(8) -> m3:=%(4).1

(8) %z5
 Type: AlgebraicNumber

(9) -> m4:=%(4).2

 - 2%z5 - 1
(9) -----
 2
 Type: AlgebraicNumber

(10) -> f(m1)
Compiling function f with type AlgebraicNumber -> AlgebraicNumber

(10) 0
 Type: AlgebraicNumber

(11) -> f(m2)
```

```

(11) 0
 Type: AlgebraicNumber
(12) -> f(m3)
(12) 0
 Type: AlgebraicNumber
(13) -> f(m4)
(13) 0
 Type: AlgebraicNumber
(14) -> n1:=%(1).1
(14) %z0
 Type: AlgebraicNumber
(15) -> n2:=%(1).2
(15) %z1
 Type: AlgebraicNumber
(16) -> n3:=%(1).3
(16) %z1
 Type: AlgebraicNumber
(17) -> n4:=$$(1).4
Category, domain or package constructor 1 is not available.
(17) -> n4:=%(1).4
(17) - %z1
 Type: AlgebraicNumber
(18) -> f(n1)
(18) 0
 Type: AlgebraicNumber
(19) -> f(n2)
(19) 0
 Type: AlgebraicNumber
(20) -> f(n3)
(20) 0
 Type: AlgebraicNumber
(21) -> f(n4)
(21) (2%z0 + 1)%z12 + (2%z02 + %z0 + 2)%z1 + 2%z03 + %z02 - 1
 Type: AlgebraicNumber

```

so %(1).4 is not a root?

```

rootsOf(2*z^4 + z^3 - z - 2) wrong
rootsOf(2*z^4 + z^3 - z - 2, z) correct
rootsOf(z^4 + z^3 + z - 1) wrong
rootsOf(z^4 + z^3 + z - 1, z) correct

```

Sat 22 May 2004 01:48:36 PM GMT, comment #1:

Maybe I should have added why  $\text{rootsOf}(2*z^4 + z^3 - z - 2)$  is wrong:  
 $2z^4+z^3-z-2=(z^2-1)(2*z^2+z+2)$ ,  
 thus no two roots are equal, contrary to axioms result.

Martin  
 Martin Rubey <kratt6>

Wed 10 Mar 2004 09:06:43 AM GMT, original submission:

a fresh Axiom says

```
(1) -> rootsOf(2*z^4 + z^3 - z - 2,z)

- 2%z2 - 2%z1 - 2%z0 - 1
(1) [%z0,%z1,%z2,-----]
2
Type: List Expression Integer

(2) -> rootsOf(2*z^4 + z^3 - z - 2)

(2) [%z4,%z5,%z5,- %z5]
Type: List AlgebraicNumber
```

which is wrong.

Same thing for  $\text{zerosOf}$ , same thing for  $z^4+z^3+z-1$

### 15.0.832 bug 7158: patch 3127 is wrong fix

currently Axiom gives:

```
product(summation(i*j,i=a..b),j=c..d)
```

```
(1) d b
 +---+ ---+
 | | > i j
 | | ---+
 j= c i= a
```

Type: Expression Integer

but NAG version gives

```
 b d - c + 1
 ---+ 2
 > i
 ---+
```

i=a

### 15.0.833 bug 7157: 0::CARD<sup>0</sup>::CARD should be 1?

(1) -> 0::CARD

(1) 0

Type: CardinalNumber

(2) -> 0::CARD<sup>0</sup>::CARD

>> Error detected within library code:  
0\*\*0 not defined for cardinal numbers.

(2) -> complex(0,0)<sup>complex(0,0.0)</sup>

>> Error detected within library code:  
log 0 generated

(2) -> complex(0,0)<sup>complex(2,2.0)</sup>

>> Error detected within library code:  
log 0 generated

(2) ->

### 15.0.834 bug 7156: nonsense result

(1) -> matrix([[0,0],[0,0]])<sup>0.1</sup>

(1) 0.0

Type: Float

(2) -> matrix([[0,0],[0,0]])<sup>x</sup>

(2) <sup>x</sup>  
0

Type: Expression Integer

(3) -> matrix([[0,0],[0,1]])<sup>0.1</sup>

There are 4 exposed and 0 unexposed library operations named ^  
having 2 argument(s) but none was determined to be applicable.  
Use HyperDoc Browse, or issue

                                  )display op ^  
to learn more about the available operations. Perhaps  
package-calling the operation or using coercions on the arguments  
will allow you to apply the operation.

Cannot find a definition or applicable library operation named ^  
with argument type(s)

Matrix Integer  
Float

Perhaps you should use "@" to indicate the required return type,  
or "\$" to specify which version of the function you need.

(3) -> matrix([[0,0],[0,1]])^x

There are 4 exposed and 0 unexposed library operations named ^  
having 2 argument(s) but none was determined to be applicable.  
Use HyperDoc Browse, or issue

)display op ^

to learn more about the available operations. Perhaps  
package-calling the operation or using coercions on the arguments  
will allow you to apply the operation.

Cannot find a definition or applicable library operation named ^  
with argument type(s)

Matrix Integer  
Variable x

Perhaps you should use "@" to indicate the required return type,  
or "\$" to specify which version of the function you need.

### 15.0.835 bug 7155: fatal error

(1) -> a:=series sin(x)

Loading /research2/test/mnt/fedora5/algebra/EXPR2UPS.o for package  
ExpressionToUnivariatePowerSeries

$$(1) \quad x - \frac{1}{6}x^3 + \frac{1}{120}x^5 - \frac{1}{5040}x^7 + \frac{1}{362880}x^9 - \frac{1}{39916800}x^{11} + 0(x^{12})$$

Type: UnivariatePuisseuxSeries(Expression Integer,x,0)

(2) -> a\*1.0

Loading /research2/test/mnt/fedora5/algebra/EXPR2.o for package  
ExpressionFunctions2

>> System error:

Caught fatal error [memory may be damaged]

### 15.0.836 bug 7154: strange handling of args outside -%pi/2 ; x ; \$pi/2

(1) -> atan(tan(3))

(1) 3

Type: Expression Integer

(2) -> atan(tan(3.0))



```

(2) - 0.1415926535 8979323846
 Type: Float
(3) -> atan(tan(1))
(3) 1
 Type: Expression Integer
(4) -> atan(tan(1.0))
(4) 1.0
 Type: Float

```

### 15.0.837 bug 7153: division by zero due to definition problem

```

asin(complex(1.0,0.0))
>> Error detected within library code:
 catdef: division by zero

```

```

trigcat.spad.pamphlet =>
asin x == atan(x/sqrt(1-x**2))

```

```

asin(1.0) => %pi/2.0
but not for Complex(Float)

```

### 15.0.838 bug 7152: integration bug

```

integrate((1/x)::UTS(FRAC POLY INT, x, 0),x)
integrate((1/y)::UTS(FRAC POLY INT, x, 0),z)

```

The first bug is an indication that  $1/x$  should not be of type `UTS(x,FRAC POLY INT)`, `UP(x, FRAC POLY INT)` and so on. The second is an indication that QFCAT should have a function variables: `% -> List Symbol`.

Sat 02 Oct 2004 12:09:22 PM GMT, comment #2:

I disagree with the previous comment;  $x$  should be captured and not allowed in the `FRAC POLY INT`. (I agree that the second example in the original report is not a bug.)

But surely we can all agree that

```

integrate((1/x)::ULS(FRAC POLY INT,x, 0),x)

```

is a bug? The problem is the same: the  $1/x$  is being treated in the coefficient domain. Note that

```

integrate(1/(x::ULS(FRAC POLYINT, x, 0)),x)

```

produces a correct result.

Dylan (dpt@math.harvard.edu)

Sat 02 Oct 2004 08:33:01 AM GMT, comment #1:

Neither of these is a bug. In the first one, Axiom coerced  $1/x$  into FRAC POLY INT correctly: the only / operation available in UTS is one induced from the coefficient domain, which requires the denominator to be in the coefficient domain, and the division is done termwise to the coefficients of the series. So  $1/x$  ends up in FRAC POLY INT. Note that to obtain a Taylor series at  $x = 0$  is mathematically wrong, since  $1/x$  is not defined at  $x=0$ . Also the way to obtain a Taylor series is `taylor(func, x=a)`. If you do `integrate(taylor(1/x,x=1),x)`, that would cause no problems. Note that the domain of this command is `UTS(EXPR INT, x,1)`, so such towers are valid and necessary in Axiom. Note also there are only two exported[coerce] in UTS and they do NOT apply to  $1/x$ . The  $x$  in UTS is like the  $x$  in UP and is different from the  $x$  in FRAC POLY INT. The representation is Stream Coef (no variable specified because it is univariate).

For the same reason, in the second command,  $1/y$  is correctly coerced into FRAC POLY INT. However, in `UTS(,x,)`, the only integrations allowed are with respect to  $x$ . If you want to do integration in FRAC POLY INT, then you should do so without coercing  $1/y$  into UTS.

So your examples do not illustrate the problem about mixed up variables. In fact, it supports use of towers like `UTS(EXPR INT, x,a)`.

William (wyscc@cunyvm.cuny.edu)

Sat 11 Sep 2004 12:34:23 PM GMT, original submission:

```
integrate((1/x)::UTS(FRAC POLY INT, x, 0),x)
```

```
1
(11) - x
x
Type: UnivariateTaylorSeries(Fraction Polynomial Integer,x,0)
```

```
integrate((1/y)::UTS(FRAC POLY INT, x, 0),z)
```

```
Cannot find a definition or applicable library operation named
integrate with argument type(s)
UnivariateTaylorSeries(Fraction Polynomial Integer,x,0)
Variable z
```

### 15.0.839 bug 7151: bind stack overflow

```
(1) -> ?::Symbol
```

```
(1) ?
```

```

(2) -> ?::Symbol::SAOS
Type: Symbol

>> System error:
Bind stack overflow.

(2) -> x::Symbol::SAOS

(2) "?"
Type: SingletonAsOrderedSet

```

### 15.0.840 bug 7150: exquo cannot detect zero equivalence?

```
gcd((A-2^a)::UP(A,EXPR INT),(A^2-2^(2*a))::UP(A,EXPR INT))
```

Cause:

In EXPR INT,  $2^a$  and  $2^{(2*a)}$  are treated as two variables without relations in EXPR INT. Therefore exquo in `gcdPrimitive(p1:SUPP,p2:SUPP)$PGCD` fails.

(+) Discussion

Thu 30 Sep 2004 09:31:59 AM GMT, comment #3:

>> Sorry, this is not correct. It is in FIELD (for EXPR INT)

Excuse me, I was too quick again. Here is the (hopefully correct) analysis:

```
exquo(simplify((A-2^a)*(A+2^a))::UP(A,EXPR INT),(A-2^a)::UP(A,EXPR INT))
```

calls `exquo$SUP(EXPR INT)`. This implements exact division of polynomials  $p_1$  by  $p_2$  as usual. After each subtraction - done via `fmechg$SUP` - the result is again stored in  $p_1$ . `exquo` terminates when  $p_1$  is the empty list - note that SUPs are stored as lists of pairs (degree, coefficient) - or the degree of  $p_2$  is larger than  $p_1$ . In the latter case, `exquo` fails.

Thus, in our case, at one point  $p_1$  is  $4^a - 2^{(2*a)}$ , which is zero mathematically, but axiom does not know it. In particular,  $p_1$  is not the empty list, but rather a constant polynomial...

It would be interesting to see how MuPAD or Aldor handle this.  
Martin Rubey <kratt6>

Wed 29 Sep 2004 04:20:16 PM GMT, comment #2:

>> The instance of `exquo` involved is the one in SMP.

Sorry, this is not correct. It is in FIELD (for EXPR INT)  
Martin Rubey <kratt6>

Wed 29 Sep 2004 04:02:03 PM GMT, comment #1:

I should have added:

```
(1) -> exquo(normalize(simplify(((A-2^a)*(A+2^a)))::EXPR INT),normalize((A-2^a)::EXPR INT))
```

```
a log(4) 2
```

```
%e - A
```

```
(1) -----
```

```
a log(2)
```

```
%e - A
```

```
Type: Union(Expression Integer,...)
```

```
(2) -> exquo(simplify((A-2^a)*(A+2^a))::UP(A,EXPR INT),(A-2^a)::UP(A,EXPR INT))
```

```
(2) "failed"
```

```
Type: Union("failed",...)
```

I'm afraid that this cannot be fixed easily, since there is no general mechanism to determine whether an expression is zero or not, which is needed in exquo. The instance of exquo involved is the one in SMP.

Martin Rubey <kratt6>

Wed 29 Sep 2004 03:36:55 PM GMT, original submission:

```
gcd((x-2^a)::UP(x, EXPR INT), simplify((x-2^a)*(x+2^a))::UP(x, EXPR INT))
```

gives 1, while the correct answer should be  $x-2^a$ , as given by

```
gcd((x-2^a)::UP(x, EXPR INT),((x-2^a)*(x+2^a))::UP(x, EXPR INT))
```

A workaround is presented on

[http://page.axiom-developer.org/zope/mathaction/EXPR\\_GCD](http://page.axiom-developer.org/zope/mathaction/EXPR_GCD)

## 15.0.841 bug 7149: bad choice of signature by interpreter

```
y x == (1+x)^x/x
```

Type: Void

```
interpolate(x,[1,2,3],[1/z(i) for i in 1..3])$PINTERP(x,FRAC POLY INT)
```

```
Compiling function y with type PositiveInteger -> Polynomial Integer
```

```
Conversion failed in the compiled user function y .
```

```
Loading /research2/test/mnt/fedora5/algebra/UNISEG.o for domain
```

```
UniversalSegment
```

```
Cannot convert from type Float to Polynomial Integer for value
```

```
4.5
```

```
y(2)
```

```

Conversion failed in the compiled user function y .

Cannot convert from type Float to Polynomial Integer for value
4.5

HOWEVER:

z(x) == (1+x)^x/x
 Type: Void
z(2)
Compiling function z with type PositiveInteger -> Fraction Integer

 9
(3) -
 2
 Type: Fraction Integer
interpolate(x,[1,2,3],[1/z(i) for i in 1..3])$PINTERP(x,FRAC POLY INT)

 59 2 497 169
(4) ---- x - ---- x + ---
 1152 1152 192
 Type: UnivariatePolynomial(x,Fraction Polynomial Integer)

)clear all

y(x:PositiveInteger):Fraction(Integer) == (1+x)^x/x
Function declaration y : PositiveInteger -> Fraction Integer has
been added to workspace.
 Type: Void
interpolate(x,[1,2,3],[1/y(i) for i in 1..3])$PINTERP(x,FRAC POLY INT)
Compiling function y with type PositiveInteger -> Fraction Integer

 59 2 497 169
(2) ---- x - ---- x + ---
 1152 1152 192
 Type: UnivariatePolynomial(x,Fraction Polynomial Integer)

```

### 15.0.842 bug 7147: integrate(1/(1+x<sup>4</sup>),x=%minusInfinity..%plusInfinity)

```

bug 7147: integrate(1/(1+x^4),x=%minusInfinity..%plusInfinity)
NOTE: fixed in Fricas prior to fork

```

```

returns 0
should return %pi*sqrt(2)/2

```

```

integrate(1/(4+x^4),x=%minusInfinity..%plusInfinity)
returns %pi/4
should return %pi/4

```

```

integrate(1/(1+x^6),x=%minusInfinity..%plusInfinity)
returns 0
should return 2*pi/3

integrate(1/(1+x^2),x=%minusInfinity..%plusInfinity)
returns %pi
should return %pi

```

### 15.0.843 bug 7145: fxiedPointExquo bug

```

see:
http://groups.google.com/group/fricas-commit/browse_thread/thread/1befef363e8c02be?hl=en#

exprode.spad.pamphlet
 opex := operator("exquo"::Symbol)$OP
 opex := operator("fixedPointExquo"::Symbol)$OP

a:=operator 'a
sol:=seriesSolve((2*x-2)*D(a(x),x)+4*a(x),a,x=0,[1])

[coefficient(sol,i) for i in 0..7] = [1,2,3,4,5,6,7,8]?

```

### 15.0.844 todo 319: construct coerce graph

```

todo 319: construct coerce graph

```

### 15.0.845 bug 7144: bug in eval

```

http://groups.google.com/group/fricas-devel/browse_thread/thread/964c156e5925db15

y:=operator 'y
(1) y
deq:=differentiate(y x, x) + y x
,
(2) y (x) + y(x)
res:=first(solve(deq, y, x).basis)
- x
(3) %e
eval(deq, y, x-->res)
- x
(4) %e

instead:

```

```

y:=operator 'y
(1) y
deq:=differentiate(y x, x) + y x
,
(2) y (x) + y(x)
res:=first(solve(deq, y, x).basis)
- x
(3) %e
function(res,f::Symbol,variables(res))
(4) f
f(1)
1
(5) --
%e
eval(deq,y,f)
(6) 0

```

### 15.0.846 bug 7143: asq cannot find AHYP

bug 7143: asq cannot find AHYP

### 15.0.847 todo 318: do a plucker/grassman example

todo 318: do a plucker/grassman example

Hi,

The Grassmannian  $G(d,n)$  is the set of all  $d$ -dimensional subspaces of  $k^n$ . Such a subspace can be represented as a  $d \times n$  matrix whose  $d$  rows are a basis for the subspace. The  $d \times d$  minors of this matrix are the Plucker coordinates for the subspace, which gives an embedding of the Grassmannian into projective space.

(For example, a 2-dimensional subspace of  $k^4$  can be represented as a  $2 \times 4$  matrix, and the minors are the determinants of the  $2 \times 2$  matrices we get by taking pairs of columns 12, 13, 14, 23, 24, 34. The values of these minors can be used to form a point  $[p_{12}:p_{13}:p_{14}:p_{23}:p_{24}:p_{34}]$  in projective 5-space, where  $p_{ij}$  is the  $ij$ th Plucker coordinate.)

It is claimed that the Grassmannian is a variety - in other words, the zero set of a set of polynomials. How do I go about listing these polynomials (ie generators for the ideal), in terms of the Plucker coordinates? (In other words, what relations must hold between the minors of a matrix, given that the rows are linearly independent?)

(I'm aware that there's a way to think about this in terms of the exterior algebra, but I'm hoping that there's a more straightforward

way to see it.)

Thanks, David

Daniel Lichtblau

Newsgroups: sci.math.symbolic

From: Daniel Lichtblau <d...@wolfram.com>

Date: Wed, 10 Sep 2008 15:05:51 -0700 (PDT)

Local: Wed, Sep 10 2008 6:05 pm

Subject: Re: Defining relations for Grassmannian in Plucker coordinates?

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On Sep 10, 3:56 pm, DavidA <polyom...@f2s.com> wrote:

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> Hi,

> The Grassmannian  $G(d,n)$  is the set of all  $d$ -dimensional subspaces of  
 >  $k^n$ . Such a subspace can be represented as a  $d \times n$  matrix whose  $d$  rows  
 > are a basis for the subspace. The  $d \times d$  minors of this matrix are the  
 > Plucker coordinates for the subspace, which gives an embedding of the  
 > the Grassmannian into projective space.

> (For example, a 2-dimensional subspace of  $k^4$  can be represented as a  
 >  $2 \times 4$  matrix, and the minors are the determinants of the  $2 \times 2$  matrices we  
 > get by taking pairs of columns 12, 13, 14, 23, 24, 34. The values of  
 > these minors can be used for form a point  $[p_{12}:p_{13}:p_{14}:p_{23}:p_{24}:p_{34}]$  in  
 > projective 5-space, where  $p_{ij}$  is the  $ij$ th Plucker coordinate.)

> It is claimed that the Grassmannian is a variety - in other words, the  
 > zero set of a set of polynomials. How do I go about listing these  
 > polynomials (ie generators for the ideal), in terms of the Plucker  
 > coordinates? (In other words, what relations must hold between the  
 > minors of a matrix, given that the rows are linearly independent?)

> (I'm aware that there's a way to think about this in terms of the  
 > exterior algebra, but I'm hoping that there's a more straightforward  
 > way to see it.)

> Thanks, David

I don't know if this helps, but such a generating set can be computed  
 explicitly for fixed  $(d,n)$ . One uses an elimination order on  
 polynomials of the form  $\{y_1-p_1, y_2-p_2, \dots\}$  and the result comprises  
 polynomial relations between the  $y_j$ .

Here is code for this in Mathematica. It is simple enough that it  
 should not be too hard to translate to other languages if so desired  
 (I mean by you; I do not intend to do that).

```
relationsGrassman[dims_List] := Module[
 {x, xmat, y, yvars, pcoords},
 xmat = Array[x,dims];
```



```

pcoords = First[Minors[xmat,dims[[1]]]];
yvars = Array[y,Length[pcoords]];
GroebnerBasis[yvars-pcoords, yvars,
 Flatten[xmat], MonomialOrder->EliminationOrder]
]

In[5]:= relationsGrassman[{2,4}]
Out[5]= {y$19[3] y$19[4] - y$19[2] y$19[5] + y$19[1] y$19[6]}

In[6]:= relationsGrassman[{2,5}]
Out[6]= {y$20[7] y$20[8] - y$20[6] y$20[9] + y$20[5] y$20[10],
 y$20[4] y$20[8] - y$20[3] y$20[9] + y$20[2] y$20[10],
 y$20[4] y$20[6] - y$20[3] y$20[7] + y$20[1] y$20[10],
 y$20[4] y$20[5] - y$20[2] y$20[7] + y$20[1] y$20[9],
 y$20[3] y$20[5] - y$20[2] y$20[6] + y$20[1] y$20[8]}

```

I note that use of Minors probably changes ordering of the  $p_{jk}$  minors from what you have in mind, so the order of the  $y$  variables would need to be altered accordingly.

Daniel Lichtblau  
Wolfram Research

David L. Johnson

More options Sep 10, 10:37 pm  
Newsgroups: sci.math.symbolic  
From: "David L. Johnson" <david.john...@lehigh.edu>  
Date: Wed, 10 Sep 2008 22:37:18 -0400  
Local: Wed, Sep 10 2008 10:37 pm  
Subject: Re: Defining relations for Grassmannian in Plucker coordinates?

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DavidA wrote:

> Hi,

> The Grassmannian  $G(d,n)$  is the set of all  $d$ -dimensional subspaces of  $k^n$ . Such a subspace can be represented as a  $d \times n$  matrix whose  $d$  rows are a basis for the subspace. The  $d \times d$  minors of this matrix are the Plucker coordinates for the subspace, which gives an embedding of the Grassmannian into projective space.

> (For example, a 2-dimensional subspace of  $k^4$  can be represented as a  $2 \times 4$  matrix, and the minors are the determinants of the  $2 \times 2$  matrices we get by taking pairs of columns 12, 13, 14, 23, 24, 34. The values of these minors can be used for form a point  $[p_{12}:p_{13}:p_{14}:p_{23}:p_{24}:p_{34}]$  in projective 5-space, where  $p_{ij}$  is the  $ij$ th Plucker coordinate.)

> It is claimed that the Grassmannian is a variety - in other words, the zero set of a set of polynomials. How do I go about listing these polynomials (ie generators for the ideal), in terms of the Plucker

> coordinates? (In other words, what relations must hold between the  
 > minors of a matrix, given that the rows are linearly independent?)

> (I'm aware that there's a way to think about this in terms of the  
 > exterior algebra, but I'm hoping that there's a more straightforward  
 > way to see it.)

Well, that is what I was going to mention. It is also the source of the Pluecker coordinates. A  $k$ -plane in  $\mathbb{R}^n$  is a unit, decomposable  $k$ -vector in  $\Lambda_k(\mathbb{R}^n)$ . For  $G(2,n)$ , the relationship is simpler than for larger subspace dimensions, because a bivector  $\xi$  in  $\Lambda_2(\mathbb{R}^n)$  is decomposable if and only if  $\xi \wedge \xi = 0$ . You can then write that out explicitly as equations in the coordinates in  $\Lambda_2(\mathbb{R}^n)$ , and they will be quadratics. For  $k > 2$ , certainly  $\xi \wedge \xi = 0$ , but that is not sufficient for  $\xi$  to be decomposable. Instead, the kernel of the map  $\mathbb{R}^n \rightarrow \Lambda_{k+1}(\mathbb{R}^n)$  given by  $v \mapsto \xi \wedge v$  has to be  $k$ -dimensional, but that still is polynomial in the coordinates.

From that description, though, it is not clear that  $G(2,n)$  is smooth, and of the right dimension, since it is not a complete intersection, but of course it is.

--

David L. Johnson

When you are up to your ass in alligators, it's hard to remember that your initial objective was to drain the swamp.

-- LBJ

DavidA

More options Sep 11, 8:55 am

Newsgroups: sci.math.symbolic

From: DavidA <polyom...@f2s.com>

Date: Thu, 11 Sep 2008 05:55:51 -0700 (PDT)

Local: Thurs, Sep 11 2008 8:55 am

Subject: Re: Defining relations for Grassmannian in Plucker coordinates?

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Ah yes, thanks, that should have been obvious.

However, that still leaves a couple of questions:

- Clearly the Grassmannian is contained in the zero-set of those relations, but how do we know that they coincide? That is, how do we know that there aren't other zeroes of those relations, which are not the image of a  $d \times n$  matrix under the Pluecker embedding.

- Is there any way we could have written down the relations a priori, without Groebner basis computations (and without exterior algebra)?

David L. Johnson

More options Sep 11, 10:45 am

Newsgroups: sci.math.symbolic

From: "David L. Johnson" <david.john...@lehigh.edu>

Date: Thu, 11 Sep 2008 10:45:21 -0400

Local: Thurs, Sep 11 2008 10:45 am

Subject: Re: Defining relations for Grassmannian in Plucker coordinates?

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DavidA wrote:

> Ah yes, thanks, that should have been obvious.

> However, that still leaves a couple of questions:

> - Clearly the Grassmannian is contained in the zero-set of those  
> relations, but how do we know that they coincide? That is, how do we  
> know that there aren't other zeroes of those relations, which are not  
> the image of a  $d \times n$  matrix under the Pluecker embedding.

Because of the nature of the Pluecker embedding. These coordinates are only the exterior algebra with respect to an explicit basis. In particular, as Lichtblau wrote, in the case of 2-planes, the condition  $\xi \wedge \xi = 0$  is exactly equivalent to  $\xi$  being decomposable,  $\xi = v \wedge w$ . In higher dimensions the conditions are more complicated, but nevertheless completely describe the Grassmannian.

> - Is there any way we could have written down the relations a priori,  
> without Groebner basis computations (and without exterior algebra)?

I can't imagine it, but I also can't imagine why you would want it. Exterior algebra is the natural setting for this question. For the price of making sense of the mechanics, it clarifies exactly these relationships and makes clear what the relations are.

--

David L. Johnson

Some people used to claim that, if enough monkeys sat in front of enough typewriters and typed long enough, eventually one of them would reproduce the collected works of Shakespeare. The internet has proven this not to be the case.

DavidA

More options Sep 11, 4:14 pm

Newsgroups: sci.math.symbolic

From: DavidA <polyom...@f2s.com>

Date: Thu, 11 Sep 2008 13:14:36 -0700 (PDT)

Local: Thurs, Sep 11 2008 4:14 pm

Subject: Re: Defining relations for Grassmannian in Plucker coordinates?

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Perhaps the problem is that I don't understand the connection between

the exterior algebra description of the Grassmannian and the Plucker coordinates (matrix minors) description. Please can someone spell it out.

Maarten Bergvelt

More options Sep 11, 4:35 pm  
 Newsgroups: sci.math.symbolic  
 From: Maarten Bergvelt <be...@math.uiuc.edu>  
 Date: Thu, 11 Sep 2008 20:35:47 +0000 (UTC)  
 Local: Thurs, Sep 11 2008 4:35 pm  
 Subject: Re: Defining relations for Grassmannian in Plucker coordinates?  
 Reply | Reply to author | Forward | Print | Individual message | Show original | Report this message | Find messages by DavidA  
 On 2008-09-11, DavidA <polyom...@f2s.com> wrote:

> Perhaps the problem is that I don't understand the connection between  
 > the exterior algebra description of the Grassmannian and the Plucker  
 > coordinates (matrix minors) description. Please can someone spell it  
 > out.

The matrix minors are the coefficients of the exterior products of the basis elements.

So let  $v, w$  be vectors in  $C^4$ , and consider the wedge product  $v \wedge w$ . It can be expanded in terms of the standard basis  $e_i \wedge e_j$ , for  $i < j$  of the second exterior power of  $C^4$ , where  $e_i$  are the standard basis vectors of  $C^4$ . Just write it out and you will see the 2x2 minors appear. In some detail:  
 $v = v_1 e_1 + v_2 e_2 + v_3 e_3 + v_4 e_4$ ,  $w = w_1 e_1 + w_2 e_2 + w_3 e_3 + w_4 e_4$ ,  
 so  
 $v \wedge w = (v_1 w_2 - v_2 w_1) e_1 \wedge e_2 + \dots$

The pattern still holds for  $k$  vectors in  $C^n$ .

Hope that helps.

--

Maarten Bergvelt

## 15.0.848 todo 317: update INFORM notes

```
PRETTYPRINT((matrix [[1,2],[3,4]]):INFORM)$Lisp
```

## 15.0.849 todo 316: CircularList domain

make a new CircularList domain that handles length (#) properly.  
 Move the destructive operations out of list and into here.

### 15.0.850 bug 7140: this returns the wrong answers

```

p:=(x:EXPR(INT)):EXPR(INT)+->3*x
q:=(x:EXPR(INT)):EXPR(INT)+->2*x+3
(p+q)(4) => 23 (correct)
(p+q)(x) => 5x + 3 (correct)
(p-q)(4) => 1 (correct)
(p-q)(x) => x-3 (correct)
(p*q)(4) => 33 (wrong)
(p*q)(x) => 6x+9 (wrong)

\subsection{package FUNMAPS FunctionMaps}
<<package FUNMAPS FunctionMaps>>=
)abbrev package FUNMAPS FunctionMaps
++ Description: Functional composition
++ Given functions f and g, returns the function composition (f op g)
FunctionMaps(A:SetCategory, B:IntegralDomain): cat == def where
 EXP ==> Expression(Integer)
 cat == with
 "+": (A->B, A->B) -> (A->B)
 ++ \spad(+) does functional addition
 "-": (A->B, A->B) -> (A->B)
 ++ \spad(-) does functional addition
 "*": (A->B, A->B) -> (A->B)
 ++ \spad(*) does functional addition
 def == add
 funcAdd: (A->B, A->B, A) -> B
 funcSub: (A->B, A->B, A) -> B
 funcMul: (A->B, A->B, A) -> B

 funcAdd(g,h,x) == ((g x) + (h x))$B
 funcSub(g,h,x) == ((g x) - (h x))$B
 funcMul(g,h,x) == ((g x) * (h x))$B

 (a:(A -> B))+(b:(A -> B)) == funcAdd(a,b,#1)
 (a:(A -> B))-(b:(A -> B)) == funcSub(a,b,#1)
 (a:(A -> B))*(b:(A -> B)) == funcMul(a,b,#1)

```

### 15.0.851 bug 7139: this crashes Axiom when compiled

```

\subsection{package FUNMAPS FunctionMaps}
<<package FUNMAPS FunctionMaps>>=
)abbrev package FUNMAPS FunctionMaps
++ Description: Functional composition
++ Given functions f and g, returns the function composition (f op g)
FunctionMaps(A:SetCategory, B:IntegralDomain): cat == def where
 EXP ==> Expression(Integer)
 cat == with
 "+": (A->B, A->B) -> (A->B)
 ++ \spad(+) does functional addition

```

```

++
++E f:=(x:INT):INT --> 3*x
++E g:=(x:INT):INT --> 2*x+3
++E (f+g)(4)
"--: (A->B, A->B) -> (A->B)
++ \spad(+) does functional addition
++
++E f:=(x:INT):INT --> 3*x
++E g:=(x:INT):INT --> 2*x+3
++E (f-g)(4)
"*": (A->B, A->B) -> (A->B)
++ \spad(+) does functional addition
++
++E f:=(x:INT):INT --> 3*x
++E g:=(x:INT):INT --> 2*x+3
++E (f*g)(4)
"/": (A->EXP, A->EXP) -> (A->EXP)
++ \spad(+) does functional addition
++
++E p:=(x:EXPR(INT)):EXPR(INT)-->3*x
++E q:=(x:EXPR(INT)):EXPR(INT)-->2*x+3
++E (p/q)(4)
++E (p/q)(x)
def == add
fab ==> (A -> B)
faei ==> (A -> Expression(Integer))
EXP ==> Expression(Integer)

funcAdd: (A->B, A->B, A) -> B
funcSub: (A->B, A->B, A) -> B
funcMul: (A->B, A->B, A) -> B
funcDiv: (A -> EXP, A -> EXP, A) -> EXP
funcAdd(g,h,x) == ((g x) + (h x))$B
funcSub(g,h,x) == ((g x) - (h x))$B
funcMul(g,h,x) == ((g x) * (h x))$B
funcDiv(g,h,x) == ((g x) / (h x))$EXP

(a:fab)+(b:fab) == funcAdd(a,b,#1)
(a:fab)-(b:fab) == funcSub(a,b,#1)
(a:fab)*(b:fab) == funcMul(a,b,#1)
(a:faei)/(b:faei) == funcDiv(a,b,#1)

```

### 15.0.852 bug 7138: unravel in CartesianTensor does not work

```

n:SquareMatrix(2,Integer):=matrix [[2,3],[0,1]]
tn:CartesianTensor(1,2,Integer):=n
unravel ravel tn

```

### 15.0.853 bug 7137: {}\$(List INT)

The function SEQ is not implemented in List Integer .

### 15.0.854 meh 4: as of aug 2008, changecount/name/percent in changelog

|     |      |                        |       |
|-----|------|------------------------|-------|
| tpd | 4485 | Tim Daly               | 82.55 |
| gdr | 452  | Gabriel Dos Reis       | 8.31  |
| wxh | 216  | Waldek Hebisch         | 3.97  |
| mxm | 46   | Mark Murray            | 0.84  |
| wsp | 28   | Bill Page              | 0.51  |
| mxr | 24   | Martin Rubey           | 0.44  |
| acr | 21   | Arthur C. Ralfs        | 0.38  |
| gxv | 19   | Gregory Vanuxem        | 0.34  |
| sxw | 19   | Stephen Wilson         | 0.34  |
| rhx | 13   | Ralf Hemmecke          | 0.23  |
| pab | 11   | Peter Broadbery        | 0.20  |
| cxc | 8    | Christophe Conil       | 0.01  |
| cxm | 8    | Camm Maguire           | 0.01  |
| dxm | 8    | David Mentre           | 0.01  |
| mxt | 6    | Mike Thomas            | 0.01  |
| fxl | 5    | Frederic Lehouey       | 0.00  |
| rxr | 5    | Renaud Rioboo          |       |
| cys | 4    | Chris Yapp             |       |
| jap | 3    | Jose Alfredo Portes    |       |
| jxw | 3    | Juergen Weiss          |       |
| mmm | 3    | Marc Moreno Maza       |       |
| wys | 3    | William Sit            |       |
| axh | 2    | Antoine Hersen         |       |
| bmt | 2    | Barry Trager           |       |
| bsm | 2    | Bob McElrath           |       |
| bxt | 2    | Baldir Thomas          |       |
| hoz | 2    | Humberto Ortiz-Zuazaga |       |
| exs | 2    | Eugene Surowitz        |       |
| dxh | 2    | Dan Hatton             |       |
| mvz | 2    | Matijs van Zuijlen     |       |
| rxh | 2    | Richard Harke          |       |
| tst | 2    | Themos Tsikas          |       |
| axr | 1    | Anatoly Raportirenko   |       |
| dpt | 1    | Dylan Thurston         |       |
| fxm | 1    | Francois Maltey        |       |
| kxo | 1    | Kostas Oikonomou       |       |

**15.0.855 bug 7136: uncommenting `--output("")` changes behavior**

bug 7136: uncommenting `--output("")` changes behavior (greg vanuxem)

Further investigation shows that it is a bug in PARSE-Conditional

This appears to be a problem only when you have a nested one-armed if-statement (gaby)

```
)abb package F00 Foo
Foo(R,VCR): Exports == Implementation where
 R : FloatingPointSystem
 VCR : VectorCategory R
Exports == with
 bar: (Boolean,VCR) -> Integer
 ++ bar(b,v)
 bad: (Boolean,VCR) -> Integer
 ++ bad(b,v)
Implementation == add
 import OutputPackage
 bar(b,v)==
 if b then
 --output("")
 for i in minIndex v..maxIndex v repeat
 if v.i <= 0 then return -1
 else
 for i in minIndex.v..maxIndex.v repeat
 v.i:=1
 output(v::OutputForm)
 0

 bad(b,v)==
 if b then
 output("")
 for i in minIndex v..maxIndex v repeat
 if v.i <= 0 then return -1
 else
 for i in minIndex.v..maxIndex.v repeat
 v.i:=1
 output(v::OutputForm)
 0

v:=new(5,0)$Vector(SF)
bar(false,v)
[0.,0.,0.,0.,0.]

(7) 0

Type: NonNegativeInteger

v:=new(5,0)$Vector(SF)
bad(false,v)
[1.,1.,1.,1.,1.]

(3) 0
```



## 15.0.856 meh 3: from Bill Page

I just wanted to mention something here that I just learned about how the Axiom interpreter handles option arguments. When discovering how the 'draw' operations in Axiom processes optional arguments, e.g.

```
draw(sin(x), x=1..10, title=="sin function")
```

I realized the interpreter does something rather clever but probably quite unexpected. The problem is that (unlike Aldor) SPAD does not provide built-in support for calling functions with optional arguments. Instead what it does is collect all the arguments containing == into a List \*and\* then it applies the name to the left of == as a function to the value on the right. So much to my surprise:

```
(1) -> (x+>x)(sin==x,cos==y)
```

```
(1) [sin(x),cos(y)]
```

Type: List Expression Integer

is equivalent to:

```
(2) -> (x+>x)([sin(x),cos(y)])
```

```
(2) [sin(x),cos(y)]
```

Type: List Expression Integer

The list of optional arguments is always passed as the last argument to the function. This is completely general so one can write for example:

```
(3) -> ((x,y)+>[x,y])(sin==x,n,cos==y)
```

```
(3) [n,[sin(x),cos(y)]]
```

Type: List Any

What do you think? Do you like that, or is this something that should be implemented in a deeper way?

### 15.0.857    todo 316: EGADS Evolutionary Gaussian Automatic Decomposition

look at implementing such an algorithm for axiom

### 15.0.858    todo 315: missing input files

/research/research/Axiom.NAG/development/int/doc/htex/input

LAZM3PK.input  
bios.input  
copyright.input  
cover.input  
foreword.input  
intro.input  
redo.input  
sum.input  
tecintro.input  
ug00.input  
ug01.input  
ug02.input  
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ug20.input  
ug21.input

/research/research/Axiom.NAG/development/int/input

.input.record  
ANNA-ES.input  
CPHelp.input  
HTXAdvPage1.input  
HTXAdvPage2.input  
HTXAdvPage3.input  
HTXAdvPage4.input  
HTXAdvPage5.input

HTXAdvPage6.input  
HTXAdvTopPage.input  
HTXFormatPage1.input  
HTXFormatPage2.input  
HTXFormatPage3.input  
HTXFormatPage4.input  
HTXFormatPage5.input  
HTXFormatPage6.input  
HTXFormatPage7.input  
HTXFormatPage8.input  
HTXFormatTopPage.input  
HTXIntroPage1.input  
HTXIntroPage2.input  
HTXIntroPage3.input  
HTXIntroTopPage.input  
HTXLinkPage1.input  
HTXLinkPage2.input  
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HTXLinkPage6.input  
HTXLinkTopPage.input  
HTXTopPage.input  
HTXTryPage.input  
HTXplay.input  
LAZM3PK.input  
Link.input  
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aspex.input  
basic.input  
bmcatt.input  
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exmatrix.input  
expose.input  
gloss.input  
hilbert.input  
hilbert0.input  
hyperdoc.input  
images6a.input  
man0.input  
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nagaux.input  
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patch.input  
r2.0\_bugs.input  
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record.input  
romnum.input  
rootpage.input  
srchkey.input  
topics.input  
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ug01.input  
ug02.input  
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/research/research/Axiom.NAG/development/int/newpaste/

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HTXLinkTopPage.input  
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/research/research/Axiom.NAG/development/int/paste/

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 tinput.awk.old

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/research/research/gold/src/input

 images6a.input.pamphlet

/research/research/integration/src/input

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97.input
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99.input
Xinf.input
Xinfinite.input
demo.input
f.input
foo.input
foo1.input
redo.input

/research/research/integration/src/provisos/foo.input

/research/research/journal/bailey/cl-f2cl-1.0+cvcs.2002.11.11/packages/minpack/lmdif-input.dat

/research/newdatabase/src/input

 images6a.input.pamphlet

/research/newdatabase

 intparfrac.input.pamphlet
 improper.input.pamphlet
 typeconv.input.pamphlet
 doit.input

/research/axiom/src/input

 xpr.input.pamphlet
 images6a.input.pamphlet

/research/may07/wh-sandbox/src/input

 images6a.input.pamphlet

/research/pending

 improper.input.pamphlet
 intparfrac.input.pamphlet
 ioutput.input.pamphlet
 typeconv.input.pamphlet
 doit.input
 bonda.input
 bug361.input
```

```

expint.input
r.input

/research/pending/ODE/input

f.input
keep/f.input
keep/kamke10.input
keep/kamke2a.input
keep/kamke2.input
keep/kamke3.input
keep/kamke4.input
keep/kamke5.input
keep/kamke6.input
keep/kamke7.input
keep/kamke8.input
keep/kamke9.input
keep/k.input
keep/kamke3a.input
k.input
ODES.input
ODESzero.input
#ODES.input#
krantz.input
decomp.input
bronson.input

/research/pending/p.input

hyper/input.pamphlet
hyper/parse_input.pamphlet
storevar.input.txt
storevar1.input.txt
des.input
debug.input
strang.input
magma/magmafirst.input
guessrec.input
redblack.input
vb/vb1-20.input
vb/vb1001-1020.input
vb/vb101-120.input
vb/vb1021-1040.input
vb/vb1041-1060.input
vb/vb1061-1080.input
vb/vb1081-1100.input
vb/vb1101-1120.input
vb/vb1121-1140.input
vb/vb1141-1160.input
vb/vb1161-1180.input
vb/vb1181-1200.input
vb/vb1201-1220.input
vb/vb121-140.input
vb/vb1221-1240.input

```

vb/vb1241-1260.input  
vb/vb1261-1280.input  
vb/vb1281-1300.input  
vb/vb1301-1320.input  
vb/vb1321-1340.input  
vb/vb1341-1360.input  
vb/vb1361-1380.input  
vb/vb1381-1400.input  
vb/vb1401-1420.input  
vb/vb141-160.input  
vb/vb1421-1440.input  
vb/vb1441-1460.input  
vb/vb1461-1480.input  
vb/vb1481-1500.input  
vb/vb1501-1520.input  
vb/vb1521-1540.input  
vb/vb1541-1560.input  
vb/vb1561-1580.input  
vb/vb1581-1600.input  
vb/vb1601-1620.input  
vb/vb161-180.input  
vb/vb1621-1640.input  
vb/vb1641-1660.input  
vb/vb1661-1680.input  
vb/vb1681-1700.input  
vb/vb1701-1720.input  
vb/vb1721-1740.input  
vb/vb1741-1760.input  
vb/vb1761-1780.input  
vb/vb1781-1800.input  
vb/vb1801-1820.input  
vb/vb181-200.input  
vb/vb1821-1840.input  
vb/vb1841-1860.input  
vb/vb1861-1880.input  
vb/vb1881-1900.input  
vb/vb1901-1920.input  
vb/vb1921-1940.input  
vb/vb1941-1960.input  
vb/vb1961-1980.input  
vb/vb1981-2000.input  
vb/vb2001-2020.input  
vb/vb201-220.input  
vb/vb2021-2040.input  
vb/vb2041-2060.input  
vb/vb2061-2080.input  
vb/vb2081-2100.input  
vb/vb21-40.input  
vb/vb2101-2120.input  
vb/vb2121-2140.input  
vb/vb2141-2160.input  
vb/vb2161-2180.input  
vb/vb2181-2200.input  
vb/vb2201-2220.input

vb/vb221-240.input  
vb/vb2221-2240.input  
vb/vb2241-2260.input  
vb/vb2261-2280.input  
vb/vb2281-2300.input  
vb/vb2301-2320.input  
vb/vb2321-2340.input  
vb/vb2341-2360.input  
vb/vb2361-2380.input  
vb/vb2381-2400.input  
vb/vb2401-2420.input  
vb/vb241-260.input  
vb/vb2421-2440.input  
vb/vb2441-2460.input  
vb/vb2461-2480.input  
vb/vb2481-2500.input  
vb/vb2501-2520.input  
vb/vb2521-2540.input  
vb/vb2541-2560.input  
vb/vb2561-2580.input  
vb/vb2581-2600.input  
vb/vb2601-2620.input  
vb/vb261-280.input  
vb/vb2621-2640.input  
vb/vb2641-2660.input  
vb/vb2641-2760.input  
vb/vb2661-vb2680.input  
vb/vb2661a-2680a.input  
vb/vb2681-2700.input  
vb/vb2701-2720.input  
vb/vb2721-2740.input  
vb/vb2761-2780.input  
vb/vb2781-2800.input  
vb/vb2801-2820.input  
vb/vb281-300.input  
vb/vb2821-2840.input  
vb/vb2841-2860.input  
vb/vb2861-2880.input  
vb/vb2881-2900.input  
vb/vb2901-2920.input  
vb/vb2921-2940.input  
vb/vb2941-2960.input  
vb/vb2961-2980.input  
vb/vb2981-3000.input  
vb/vb3001-3020.input  
vb/vb301-320.input  
vb/vb3021-3040.input  
vb/vb3041-3060.input  
vb/vb3061-3080.input  
vb/vb3081-3100.input  
vb/vb3101-3120.input  
vb/vb3121-3140.input  
vb/vb3141-3160.input  
vb/vb3161-3180.input

vb/vb3181-3200.input  
vb/vb3201-3220.input  
vb/vb321-340.input  
vb/vb3221-3240.input  
vb/vb3241-3260.input  
vb/vb3261-3280.input  
vb/vb3281-3300.input  
vb/vb3301-3320.input  
vb/vb3321-3340.input  
vb/vb3341-3360.input  
vb/vb3361-3380.input  
vb/vb3381-3400.input  
vb/vb3401-3420.input  
vb/vb341-360.input  
vb/vb3421-3440.input  
vb/vb3441-3460.input  
vb/vb3461-3480.input  
vb/vb3481-3500.input  
vb/vb3501-3520.input  
vb/vb3521-3540.input  
vb/vb3541-3560.input  
vb/vb3561-3580.input  
vb/vb3581-3600.input  
vb/vb3601-3620.input  
vb/vb361-380.input  
vb/vb3621-3640.input  
vb/vb3641-3660.input  
vb/vb3661-3680.input  
vb/vb3681-3700.input  
vb/vb3701-3720.input  
vb/vb3721-3740.input  
vb/vb3741-3760.input  
vb/vb3761-3780.input  
vb/vb3781-3800.input  
vb/vb3801-3820.input  
vb/vb381-400.input  
vb/vb3821-3840.input  
vb/vb3841-3860.input  
vb/vb3861-3880.input  
vb/vb3881-3900.input  
vb/vb3901-3920.input  
vb/vb3921-3940.input  
vb/vb3941-3960.input  
vb/vb3961-3980.input  
vb/vb3981-4000.input  
vb/vb4001-4020.input  
vb/vb401-420.input  
vb/vb4021-4040.input  
vb/vb4041-4060.input  
vb/vb4061-4080.input  
vb/vb4081-4100.input  
vb/vb41-60.input  
vb/vb4101-4120.input  
vb/vb4121-4140.input



vb/vb4141-4160.input  
vb/vb4161-4180.input  
vb/vb4181-4200.input  
vb/vb4201-4220.input  
vb/vb4221-4240.input  
vb/vb4241-4260.input  
vb/vb4261-4280.input  
vb/vb4281-4300.input  
vb/vb4301-4320.input  
vb/vb4321-4340.input  
vb/vb4341-4360.input  
vb/vb4361-4380.input  
vb/vb4381-4400.input  
vb/vb4401-4420.input  
vb/vb4421-4440.input  
vb/vb4441-4460.input  
vb/vb4461-4480.input  
vb/vb4481-4500.input  
vb/vb4501-4520.input  
vb/vb4521-4540.input  
vb/vb4541-4560.input  
vb/vb4561-4580.input  
vb/vb4581-4600.input  
vb/vb4601-4620.input  
vb/vb4621-4640.input  
vb/vb4641-4660.input  
vb/vb4661-4680.input  
vb/vb4681-4700.input  
vb/vb4701-4720.input  
vb/vb4721-4740.input  
vb/vb4741-4760.input  
vb/vb4761-4772.input  
vb/vb481-500.input  
vb/vb501-520.input  
vb/vb521-540.input  
vb/vb541-560.input  
vb/vb561-580.input  
vb/vb581-600.input  
vb/vb601-620.input  
vb/vb61-80.input  
vb/vb621-640.input  
vb/vb641-660.input  
vb/vb661-680.input  
vb/vb681-700.input  
vb/vb701-720.input  
vb/vb721-740.input  
vb/vb741-760.input  
vb/vb761-780.input  
vb/vb781-800.input  
vb/vb801-820.input  
vb/vb81-100.input

```

vb/vb821-840.input
vb/vb841-860.input
vb/vb861-880.input
vb/vb881-900.input
vb/vb901-920.input
vb/vb921-940.input
vb/vb941-960.input
vb/vb961-980.input
vb/vb980-1000.input
factor/twister.input
groebner.input
testgrob.input
factor.input
gcd.input
twister.input
outofmemory.input
redo.input
kkttest.input
cannotsolve.input
normalizeBug.input
sinaxminusaxBUG.input
cannotsolve.input~
integrationBUG.input
integrateBUG.input
mail.input
mail.input~
mathmlbug.input.pamphlet

/research/int/input

ACPLOT.input
REALSOLV.input
TESTFR.input
VIEW2D.input
images6a.input

```

### 15.0.859 todo 314: Tiny programs for computing constants

<http://numbers.computation.free.fr/Constants/TinyPrograms/tinycodes.html>

### 15.0.860 bug 7135: hyperdoc bug

```

topics -> calculus -> integrate -> first integral
(close the integration popup window kills axiom) with:
(1) -> (HyperDoc) Unknown command from SessionServer -1

```

**15.0.861   meh 2: Fonts available at [www.dafont.com](http://www.dafont.com)**

```
meh 2: Fonts available at www.dafont.com
```

**15.0.862   bug 7134: lodo.spad LinearOrdinaryDifferentialOperator1**

```
% NOTE: the book has a different answer
f := rightLcm(a,b)
```

```
% NOTE: the book has a different answer
rightRemainder(f, b)
```

```
% NOTE: the book has a different answer
leftRemainder(f, b)
```

**15.0.863   bug 7133: files.spad Library**

```
)spool Library.output
```

```
Starts dribbling to Library.output (2007/8/31, 12:8:10).
```

```
)set message test on
```

```
)set message auto off
```

```
)clear all
```

```
 All user variables and function definitions have been cleared.
stuff := library "Neat.stuff"
```

```
Daly Bug
```

```
>> Error detected within library code:
```

```
File is not readable
```

```
"Neat.stuff"
```

**15.0.864   bug 7132: numtheor.spad IntegerNumberTheoryFunctions**

```
check the text against the book
```

**15.0.865   bug 7131: – files.spad.pamphlet KeyedAccessFile**

```
ey: KeyedAccessFile(Integer) := open("editor.year", "output")
```

```
(1) "editor.year"
 Type: KeyedAccessFile Integer
ey."Char" := 1986
```

```
(2) 1986
 Type: PositiveInteger
ey."Caviness" := 1985
```

```
(3) 1985
 Type: PositiveInteger
ey."Fitch" := 1984
```

```
(4) 1984
 Type: PositiveInteger
ey."Char"
```

```
Daly Bug
>> Error detected within library code:
File is not readable
"editor.year"
```

### 15.0.866 bug 7130: – table.spad.pamphlet GeneralSparseTable.input

```
)spool GeneralSparseTable.output
)set message test on
)set message auto off
)clear all
patrons: GeneralSparseTable(String, Integer, KeyedAccessFile(Integer), 0) := table() ;
patrons: GeneralSparseTable(String, Integer, KeyedAccessFile(Integer), 0) := table() ;
```

```
Daly Bug
>> Error detected within library code:
File is not readable
"kaf1405.sdata"
```

```
(1) ->
patrons."Smith" := 10500
patrons."Jones" := 22000
patrons."Jones"
patrons."Stingy"
reduce(+, entries patrons)
```

```
)system rm -r kaf*.sdata
)spool
)lisp (bye)
```

### 15.0.867 bug 7129: these take a long time

```
ode97 := x*D(y(x),x) + a*y(x)**2 - y(x) + b*x**2
ode104 := x*D(y(x),x) + a*x*y(x)**2 + 2*y(x) + b*x
ode105 := x*D(y(x),x) + a*x*y(x)**2 + b*y(x) + c*x + d
```

### 15.0.868 todo 313: put PolynomialCategory, etc into front matter diagram

```
todo 313: put PolynomialCategory, etc into front matter diagram
```

### 15.0.869 todo 312: maple routines

```
sharelib.zip
maplenuts.zip
```

### 15.0.870 bug 7128: This kills Axiom

```
draw(1/a*log(a*x+b),x=-1..1)

; (DEFUN %A ...) is being compiled.
;; The variable |a| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |b| is undefined.
;; The compiler will assume this variable is a global.
 Compiling function %B with type DoubleFloat -> DoubleFloat
```

### 15.0.871 meh 1: script for exploring domain relationships

```
getDomains(cat: Symbol): Set Symbol ==
 set map(d +-> symbol first destruct first destruct d,
 destruct domainsOf(cat, nil)$Lisp)
```

## 15.0.872 bug 7127: Schaums 14:472 fails to integrate properly

(1) -> t1:=x\*asin(x/a)

$$(1) \quad x \operatorname{asin}\left(\frac{x}{a}\right)$$

Type: Expression Integer

(2) -> t2:=integrate(t1,x)

$$(2) \quad \frac{(-2x^2 + a^2) \operatorname{atan}\left(\frac{2x\sqrt{-x^2 + a^2}}{2x^2 - a^2}\right) + 2x\sqrt{-x^2 + a^2}}{8}$$

Type: Union(Expression Integer,...)

(3) -> t3:=D(t2,x)

$$(3) \quad -\frac{x \operatorname{atan}\left(\frac{2x\sqrt{-x^2 + a^2}}{2x^2 - a^2}\right)}{2}$$

Type: Expression Integer

(4) -> t4:=(x^2/2-a^2/4)\*asin(x/a)+(x\*sqrt(a^2-x^2))/4

$$(4) \quad \frac{x\sqrt{-x^2 + a^2} + (2x^2 - a^2) \operatorname{asin}\left(\frac{x}{a}\right)}{4}$$

Type: Expression Integer

(5) -> t5:=D(t4,x)

$$(5) \quad \frac{(4ax \operatorname{asin}\left(\frac{x}{a}\right)\sqrt{-x^2 + a^2} - 2ax^2 + a^3) \sqrt{-x^2 + a^2} + (2x^2 - a^2)\sqrt{-x^2 + a^2}}{4a\sqrt{-x^2 + a^2}}$$

$$\frac{\sqrt{a}}{2}$$

```

Type: Expression Integer
(6) -> f:=makeFloatFunction(t1,x,a)
Compiling function %BF with type (DoubleFloat,DoubleFloat) ->
DoubleFloat

(6) theMap(MKBCFUNC;binaryFunction;SM;2!0,120)
Type: ((DoubleFloat,DoubleFloat) -> DoubleFloat)

(7) -> axiom:=makeFloatFunction(t3,x,a)
Compiling function %BJ with type (DoubleFloat,DoubleFloat) ->
DoubleFloat

(7) theMap(MKBCFUNC;binaryFunction;SM;2!0,996)
Type: ((DoubleFloat,DoubleFloat) -> DoubleFloat)

(8) -> schaums:=makeFloatFunction(t5,x,a)
Compiling function %BK with type (DoubleFloat,DoubleFloat) ->
DoubleFloat

(8) theMap(MKBCFUNC;binaryFunction;SM;2!0,62)
Type: ((DoubleFloat,DoubleFloat) -> DoubleFloat)

(9) -> [[f(i::Float,i::Float+1.0::Float)::Float,axiom(i::Float,i::Float+1.0::Float)::Float,schaums(i::Float,i::Float+1.0::Float)::Float],
[0.5235987755 9829892668,0.5235987755 9829892668,0.5235987755 9829881566],
[1.4594553124 539326738,1.4594553124 539326738,1.4594553124 539324518],
[2.5441862369 444430136,- 2.1682027434 402466604,2.5441862369 444430136],
[3.7091808720 064496363,- 2.5740044351 731374839,3.7091808720 064500804]]
Type: List List Float

(10) ->

```

### 15.0.873 bug 7126: sinaxminusaxBUG.input shows a bug

why does  $\sin(a x - ax)$  not become  $\sin(0)$  then 0?

### 15.0.874 bug 7125: normalizeBug.input shows a bug

bug 7125: normalizeBug.input shows a bug

### 15.0.875 bug 7124: why is the superscript not in smallest terms?

```

--S 100
aa:=integrate(1/(x^2*(x^2-a^2)^(3/2)),x)
--R

```

```

--R
--R
--R 1
--R (1) -----
--R +-----+
--R 3 2 | 2 2 4 2 2
--R (2x - a x)\|x - a - 2x + 2a x
--R
--R Type: Union(Expression Integer,...)
--E

--S 101
bb:=-sqrt(x^2-a^2)/(a^4*x)-x/(a^4*sqrt(x^2-a^2))
--R
--R
--R 2 2
--R - 2x + a
--R (2) -----
--R +-----+
--R 4 | 2 2
--R a x\|x - a
--R
--R Type: Expression Integer
--E

--S 102 14:228 Schaums and Axiom differ by a constant
cc:=aa-bb
--R
--R
--R 2
--R (3) - --
--R 4
--R a
--R
--R Type: Expression Integer
--E

```

### 15.0.876 todo 311: integerMathLibrary FFLAS\_technical\_report.ps.gz

todo 311: integerMathLibrary FFLAS\_technical\_report.ps.gz

### 15.0.877 todo 310: /research/femlisp (finite element meshes)

todo 310: /research/femlisp (finite element meshes)

### 15.0.878 bug 7123: cannot simplify forms $(ax+b)(ax+b)^{\hat{n}}$ into $(ax+b)^{\hat{(n+1)}}$

bug 7123: cannot simplify forms like  $(ax+b)(ax+b)^n$  into  $(ax+b)^{(n+1)}$



### 15.0.879 wish 1010: look at ocalc.tex for big-O notation by Knuth

wish 1010: look at ocalc.tex for big-O notation by Knuth

### 15.0.880 todo 309: huh?

```
in2360a:=integrate(1/(1-%i*z^2)^(1/2)-csch(z-1), z= -1..1,"noPole")
```

```
(175) [+ infinity, + infinity]
 Type: Union(f2: List OrderedCompletion Expression Complex Integer,...)
```

Note: verified against NAG

### 15.0.881 todo 309: these won't integrate

```
in13:=integrate(cos(z)^2*sin(z)^n, z)
in160:=integrate((-z^2-z)^sin(z), z)
in163:=integrate(log(z)*abs(exp(z)/z), z)
in166:=integrate((1+z)^z, z)
```

### 15.0.882 bug 7122: "failed"

```
in106a:=integrate(((%i+z)^%i)^%i, z= 0..1,"noPole")
in1029a:=integrate((%i*z/(%i*z+1))^(1/2), z= 0..%plusInfinity,"noPole")
in1107a:=integrate(-log(z)/(-1+z^(1/2))^3, z= 0..1/2*%i,"noPole")
in1108a:=integrate(log(z)/(-1+z^(1/2))^3, z= 0..1/2*%i,"noPole")
in159a:=integrate(log(z)/z^2, z= -%i..-1,"noPole")
in1859a:=integrate(1/(z^2-1)*(1+1/z^3)^(1/2), z= 0..1,"noPole")
in1867a:=integrate(1/(z^2-1)*(1-(%i*z)^(1/2))^(1/2), z= 0..1,"noPole")
in1869a:=integrate(1/(z^2-1)*(1-1/(%i*z)^(1/2))^(1/2), z= 0..1,"noPole")
in2109a:=integrate((1+%i*z)^(1/2)+cot(z-1), z= 0..1,"noPole")
in2179a:=integrate((z^3-%i*(1-z^4)^(1/2))^4, z= -1..1,"noPole")
in2247a:=integrate(1/(z^2-%i*z+2)^(1/2)+csc(z), z= 0..1,"noPole")
in2340a:=integrate(exp(%i*(%i*z)^(1/2))+cot(z-1), z= -1..1,"noPole")
in2527a:=integrate(1/(1+%i*z^(1/3))+cosh(z), z= %minusInfinity..0,"noPole")
in2567a:=integrate(1/(%i*z)^(1/3)*log(abs(z-1)), z= 0..1/2*%pi,"noPole")
in2597a:=integrate((1+%i/z)^(1/2)-log(1-1/z^2), z= 0..%plusInfinity,"noPole")
in2963a:=integrate(cosh(-1+(1-z)^(1/2))+(z^2+%i*z-3)^(1/2), z= -1..1,"noPole")
```

**15.0.883 bug 7121: Imaginary part is nonzero. Cannot retract.**

```
in2691a:=integrate(1/(z^2+%i*z-1)^(1/2)+(1-%i*z)^(1/2), z= -1..1,"noPole")
```

**15.0.884 bug 7120: Zero divisor**

```
in2307a:=integrate(tan(z)-1/(z^2+%i*z-3)^(1/2), z= -1..1,"noPole")
```

**15.0.885 bug 7119: Cannot take first of an empty list**

```
in1278a:=integrate((1+1/(%i*z)^(1/2))^(1/2), z= 0..%plusInfinity,"noPole")
in1433a:=integrate(-1/((%i*z)^(1/2)-1)*(-2+(%i*z)^(1/2)), z= 0..%plusInfinity,"noPole")
in1435a:=integrate(-1/(1+(%i*z)^(1/2))*(%i*z)^(1/2), z= 0..%plusInfinity,"noPole")
in1436a:=integrate(-((%i*z)^(1/2)-1)/(-2+(%i*z)^(1/2)), z= 0..%plusInfinity,"noPole")
in1463a:=integrate(1-(%i*z)^(1/2)/(1-%i*z), z= 0..%plusInfinity,"noPole")
in1563a:=integrate(log(1-z^3)*(%i*z)^(1/2), z= 0..1,"noPole")
in1638a:=integrate(-z/(z-1)/(1-%i*z)^(1/2), z= 0..1,"noPole")
in1724a:=integrate(-z^2/(z^2-1)*(1-(%i*z)^(1/2))^(1/2), z= 0..1,"noPole")
in183:=integrate(1/z, z= %i..2*i)
in2108a:=integrate((1-%i/(1+%i/z)^2)^(1/2), z= -1..1,"noPole")
in2124a:=integrate(-1/z-1/(%i/(z+%i))^(1/2), z= -1..0,"noPole")
in2815a:=integrate((%i*z)^(1/2)-(1+1/(%i*z)^(1/2))^(1/2), z= -1..1,"noPole")
in2924a:=integrate(1/(%i*z)^(1/2)+(1+1/(%i*z)^(1/2))^(1/2), z= -1..1,"noPole")
in3001a:=integrate(((%i*z)^(1/2)-1)/(-2+(%i*z)^(1/2)), z= 0..%plusInfinity,"noPole")
```

**15.0.886 wish 1009: integrate computational geometry algorithms (CGAL)**

```
bounding volumes
polyhedral surfaces
boolean operators
triangulations
voronoi diagrams
mesh generation
subdivision
simplification
parametrization
streamlines
ridge detection
neighbor search
kinetic data structures
lower envelope
arrangement
```

intersection detection  
 minkowski sum  
 PCA  
 polytope distance  
 QP solver

geometric objects in 2d, 3d, nd: point, segment, ray, line, circle,  
 sphere, iso-rectangle, predicates (orientation, in\_circle),  
 constructions (intersection, circumcenter)

delaunay triangles and regular, fully dynamic,

## 15.0.887 todo 308: combinat

todo 308: combinat

## 15.0.888 todo 307: elliptic

todo 307: elliptic

figure this stuff out

## 15.0.889 todo 306: fastmatrix.spad

todo 306: fastmatrix.spad

follow Waldek's lead on this

## 15.0.890 bug 7118: Factored AlgebraicNumber

sqrt(2^32)

(1) 65536

Type: AlgebraicNumber

(2) -> %^2

(2) 4294967296

Type: AlgebraicNumber

(3) -> factor %

(3) 4294967296

Type: Factored AlgebraicNumber

(4) -> factor 4294967296

```

 32
(4) 2
 Type: Factored Integer
(5) ->

```

### 15.0.891 todo 305: in bookvol11, in graphviewport.xhtml

make graphics automatically pop up when the image is clicked

### 15.0.892 todo 304: make graphics be saved as .bmp during build

todo 304: make graphics be saved as .bmp during build

### 15.0.893 todo 303: remove .Z format

todo 303: remove .Z format

### 15.0.894 bug 7116: hyperdoc title does not show

bug 7116: topics -> graphics -> 3D graphics -> building object -> cube  
 makeViewport3D(spaceC,title=="Cube") never appears

### 15.0.895 wish 1008: ArbitraryConstant domain

```

C+3 => C
or potentially
C+3+5 => C[3+5]

```

### 15.0.896 bug 7114: "possible missing then" bug

```

insert(h:NODE,key:KEY,value:VALUE):NODE
 if h = null then return node(key,value,red)
 if isRed(h.left) and isRed(h.left.left) then h:=splitFourNode(h)

```

```

if h.key = key
then h.value:=value
else if h.key < key then h.left := insert(h.left,key,value)
 else h.right:= insert(h.right,key,value)
if isRed(h.right) then h:=leanLeft(h)
h

insert(h:NODE,key:KEY,value:VALUE):NODE
if h = null then return node(key,value,red)
if isRed(h.left) and isRed(h.left.left) then h:=splitFourNode(h)
if h.key = key then h.value:=value
 else if h.key < key then h.left := insert(h.left,key,value)
 else h.right:= insert(h.right,key,value)
if isRed(h.right) then h:=leanLeft(h)
h

```

### 15.0.897 wish 1007: probe-file vs truename

maybe use (defun my-probe-file (path) (ignore-errors (truename path)))

camm writes, the way to test if a directory exists without error...

```

(defun pathname-pop-slash (pn)
 (let ((pn (pathname pn)))
 (if (or (pathname-name pn) (pathname-type pn)) pn
 (merge-pathnames
 (make-pathname :directory (butlast (pathname-directory pn)))
 (merge-pathnames (pathname (car (last (pathname-directory pn)))) pn)))))

(defun directory-exists-p (pn)
 (let ((pn (pathname-pop-slash pn)))
 (and (not (probe-file pn)) (member pn (directory pn) :test 'equal) t)))

```

or, in GCL

```

(defun directory-exists-p (pn)
 (unless (fboundp 'si::stat) (error "no stat"))
 (eq :directory (car (si::stat (namestring pn)))))

```

### 15.0.898 bug 7112: t3:=coerce([i for i in 1..10])\$Tuple(Integer)

```
t3:=coerce([i for i in 1..10])$Tuple(Integer)
```

```
(1) (1,2,3,4,5,6,7,8,9,10)
```

Type: OutputForm

should be Type: Tuple(Integer)

**15.0.899 bug 7111: NIL is not of type CONS.**

```
fun:=(a:IntegralDomain):IntegralDomain +-> a**2
```

```
>> System error:
NIL is not of type CONS.
```

**15.0.900 todo 302: getdatabase information unit tests**

```
todo 302: getdatabase information unit tests
```

**15.0.901 bug 7110: ramifiedAtInfinity? not implemented**

```
bug 7110: RadicalFunctionField(Integer) ramifiedAtInfinity? not implemented
```

```
ramifiedAtInfinity()$R
The function ramifiedAtInfinity is not implemented in
RadicalFunctionField(Integer,UnivariatePolynomial(x,Integer),
UnivariatePolynomial(y,Fraction UnivariatePolynomial(x,Integer)),
x*x,1) .
```

**15.0.902 bug 7109: singularAtInfinity? not implemented**

```
bug 7109: RadicalFunctionField(Integer) singularAtInfinity? not implemented
```

```
singularAtInfinity()$R
Internal Error
The function singularAtInfinity? with signature hashcode is missing
from domain RadicalFunctionField(Integer)
(UnivariatePolynomial x (Integer))
(UnivariatePolynomial y (Fraction (UnivariatePolynomial x (Integer))))
(((2 . 1)) (0 . 1))1
```

**15.0.903 bug 7108: axiom crashes if draw does not include all variables**

```
(1) -> draw(5*y^2+(-4*x+4)*y+8*x^2+2*x-1,x=-5..5)
; (DEFUN %A ...) is being compiled.
```

```
;; The variable |y| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.904 bug 7107: function xRange with hashCode is missing from ACPlot

```
m:=makeSketch(x+y,x,y,-1/2..1/2,-1/2..1/2)$ACPlot
xRange m
 Internal Error
 The function xRange with signature hashCode is missing from domain
 PlaneAlgebraicCurvePlot
```

### 15.0.905 wish 1006: API domain for lisp functions

```
wish 1006: API domain for lisp functions
```

### 15.0.906 wish 1005: algebra graph

```
wish 1005: algebra graph
```

### 15.0.907 wish 1004: create )example for all functions in all domains

```
wish 1004: create)example for all functions in all domains
```

```
construct set of all domains
```

### 15.0.908 bug 7105: [print [i,i\*exp(-i)\*Ei(i/10.0)] for i in 20..70]

```
bug 7105: [print [i,i*exp(-i)*Ei(i/10.0)] for i in 20..70]
 Internal Error
 The function coerce with signature hashCode is missing from domain
 Expression(OnePointCompletion (DoubleFloat))
```

### 15.0.909 bug 7104: integrate(%e<sup>a\*x</sup>/x<sup>2</sup>,x)

```
bug 7104: integrate(%e^(a*x)/x^2,x)
```

$$(5) \quad \int \frac{x^{\frac{a}{2}} e^{\frac{a}{2} x}}{x^2} dx$$

Type: Union(Expression Integer,...)

should be

$$-\frac{e^{ax}}{x} + a \operatorname{Ei}(ax)$$

but `integrate(%e^(a*x)/x,x)`

$$(4) \quad \operatorname{Ei}(a x)$$

### 15.0.910 wish 1003: `)help limit, integrate, etc`

wish 1003: `)help limit, integrate, etc`

### 15.0.911 bug 7103/47: `complexForm(log(-%i))`

bug 7103/47: `complexForm(log(-%i))`

$$(4) \quad -\frac{\pi}{2} i$$

Type: Complex Expression Integer

should be

$$(4) \quad -\frac{\pi}{2} i$$

### 15.0.912 todo 301: `etags`

`etags 'find . -name "*.pamphlet"'`



**15.0.913 bug 7098: numeric(Si(0.01))**

```
>> Error detected within library code:
Can only compute the numerical value of a constant, real-valued Expression
```

**15.0.914 bug 7097: numeric(Ci(0.01))**

```
>> Error detected within library code:
Can only compute the numerical value of a constant, real-valued Expression
```

**15.0.915 wish 1000: WHERE form**

```
a:= b+c
where
 b = 3x
 c = 4y
```

**15.0.916 bug 7095: occasional failure of is.input**

```
)clear all

--S 1 of 4
f n ==
 not empty?(u := Is(n, 2*m%)) => integer eval(m%, u)
 3 * n + 1

Type: Void
--R
--R
--R Type: Void
--E 1

)set stream showall on

--S 2 of 4
g(n:INT):STREAM(INT) == generate(f, n)

Function declaration g : Integer -> Stream Integer has been added to
workspace.

Type: Void
--R
--R Function declaration g : Integer -> Stream Integer has been added to
--R workspace.
```

```
--R Type: Void
--E 2

--S 3 of 4
s := g 27
```

There are 3 exposed and 0 unexposed library operations named  
 generate having 2 argument(s) but none was determined to be  
 applicable. Use HyperDoc Browse, or issue  
     )display op generate  
 to learn more about the available operations. Perhaps  
 package-calling the operation or using coercions on the arguments  
 will allow you to apply the operation.  
 Cannot find a definition or applicable library operation named  
 generate with argument type(s)  
     Variable f  
     Integer

Perhaps you should use "@" to indicate the required return type,  
 or "\$" to specify which version of the function you need.  
 AXIOM will attempt to step through and interpret the code.  
 Compiling function g with type Integer -> Stream Integer  
 There are 3 exposed and 0 unexposed library operations named  
 generate having 2 argument(s) but none was determined to be  
 applicable. Use HyperDoc Browse, or issue  
     )display op generate  
 to learn more about the available operations. Perhaps  
 package-calling the operation or using coercions on the arguments  
 will allow you to apply the operation.

Daly Bug

Cannot find a definition or applicable library operation named  
 generate with argument type(s)  
     Variable f  
     Integer

Perhaps you should use "@" to indicate the required return type,  
 or "\$" to specify which version of the function you need.

```
--R
--R Compiling function f with type Integer -> Integer
--R Compiling function g with type Integer -> Stream Integer
--R
--R (3) [27,82,41,124,62,31,94,47,142,71,...]
--R Type: Stream Integer
--E 3
```

### 15.0.917 todo 300: pending/besselk.input.pamphlet

todo 300: pending/besselk.input.pamphlet

**15.0.918 bug 7092: .axiom.input screws up builds**

```
bug 7092: .axiom.input screws up builds
```

**15.0.919 bug 7091: bootstrap bugs**

```
Only in .: boo1.input
Only in .: boo2.input
Only in .: boo3.input
Only in .: boo4.input
Only in .: boo5.input
Only in .: boo6.input
Only in .: boo-cat.input
Only in .: boo-dom1.input
Only in .: boo-dom2.input
Only in .: boo-nilcat.spad
Only in .: boo-nildom.spad
Only in .: boo-pack1.input
Only in .: boo-pack2.input
Only in .: bootstrap.spad
Only in .: boot-sum.in
```

**15.0.920 bug 7088/347: bug in map\$Set**

```
-- bug in map$Set (issue 347)
A:Set Integer:=set [-2,-1,0]
B:Set Integer:=set [0,1,4]
C:=map(x +-> x^2,A)
test(C=B)
```

**15.0.921 bug 7087/312: Bug in sqrt() for UnivariateTaylorSeries (issue 312)**

```
-- Bug in sqrt() for UnivariateTaylorSeries (issue 312)
UTSx := UTS(FRAC INT,x,0)
monx2 := monomial(1,2)$UTSx
sqrt(monx2)
```

**15.0.922 bug 7086/340: 'divisors\$IntegerNumberTheoryFunctions' incorrect**

```
-- issue 340 'divisors$IntegerNumberTheoryFunctions' incorrect for units,
-- i.e., 1, -1
divisors 1
divisors (-1)
```

### 15.0.923 bug 7085/15: integration

```
integrate(1/(1+z^4), z=0..1)::Complex Float
```

### 15.0.924 bug 7084/293: integration

```
integrate (1/(1+x^4), x = %minusInfinity..%plusInfinity)
```

### 15.0.925 bug 7083/314: integration

```
integrate(2*atan(x)/(1+x^2), x)
```

### 15.0.926 bug 7081/184: argument

```
argument (-%i)
```

### 15.0.927 bug 7078/114: function fail

```
dom:=(INT->INT)
g(f:dom):dom== x+>(f(x))^2
p(x:INT):INT == x-1
q:= g p
```

### 15.0.928 bug 7077/156: maketaylor

```
)clear all
)set function compile off
u := operator 'u;
multidiff(expr, variable, count) == if count > 0 then D(multidiff(expr, variable, count-1), variable) else expr
maketaylor(expr) == series(n +> multidiff(expr, x, n), x=0)
maketaylor(u(x))
)set function compile on
```

**15.0.929 bug 7076/176: D(factor)**

```
p := -x*y^2+x*y+x^3-x^2
D(factor(p),x)
```

**15.0.930 bug 7075/182: round**

```
round(3.77623)
round(-3.77623)
```

**15.0.931 bug 7074/186: compose**

```
)clear all
E := Expression Integer
F := E -> E
compose(f:F, g:F):F == (e:E):E +-> f(g(e))
p(e:E):E == 2*e+1
q(e:E):E == 3*e+1
compose(p,q)
```

**15.0.932 bug 7071/211: D(product)**

```
)clear all
D(product((1-q^(n-i))/(1-q^(m-i)),i=0..m-1),q)
f:=operator 'f;
D(product(f(i,q),i=0..m),q)
```

**15.0.933 bug 7070/278: simplifyLog**

```
simplifyLog(2*sqrt(2)*log(2))
```

**15.0.934 bug 7069/83: DMP**

```
1::DMP([x],FRAC INT)::POLY FRAC INT
1::DMP([x],INT)::POLY INT
```

```

vv := 1::DMP([x],FRAC INT)
uu := vv ::POLY FRAC INT
1 * uu

```

### 15.0.935 bug 7068/371: trace fails

```

iprint("Release the hounds!")$IPRNTPK
for i in 1..10 repeat (iprint$IPRNTPK)(i::String)

-- tracing sanity check
)trace Integer)math
-1
)trace Integer)off

```

### 15.0.936 bug 7067/102: solve(sinh(z)=cosh(z),z)

```

solve(sinh(z)=cosh(z), z)

```

### 15.0.937 bug 7066/187: missing exports

```

(INT, INT)
Tuple Any

-- missing exports
MyFD := DirectProduct(3, PrimeField(100000000000000006579))
myv := [3, 2, 1]::MyFD
ii := lookup(myv)
index(ii)$MyFD
ii := lookup([1, 1, 1]::MyFD)
index(ii)$MyFD
ii := lookup([1, 1, 0]::MyFD)
index(ii)$MyFD
ii := lookup([1, 2, 3]::MyFD)
index(ii)$MyFD
hash([3, 2, 1]::MyFD)

MyFD:= Product(PrimeField(100000000000000006579), PrimeField(257))
myv := makeprod(1, 1)$MyFD
ii := lookup(myv)
index(ii)$MyFD
ii := lookup(makeprod(2, 1)$MyFD)
index(ii)$MyFD
ii := lookup(makeprod(1, 2)$MyFD)
index(ii)$MyFD
ii := lookup(makeprod(2, 128)$MyFD)

```

```
index(ii)$MyFD
hash(myv)
```

### 15.0.938 bug 7064/258: every?

```
R==>RectangularMatrix(2,4, PF 2)
every?(zero?, [lookup(index(i)$R)$R - i for i in 1..2^8])
```

### 15.0.939 bug 7063/198: zero?

```
zero?(complexIntegrate(%i/2*e^(-%i*x^2),x)-_
 (sqrt %pi * sqrt(%i * log e)*erf(x*sqrt(%i*log e)))/(4*log e))

zero?(complexIntegrate(-%i/2*e^(%i*x^2),x)-_
 (sqrt %pi * sqrt(-%i * log e)*erf(x*sqrt(-%i*log e)))/(4*log e))

zero?(complexIntegrate(log(x)/(x-1),x)+dilog x)

zero?(complexIntegrate(2*log(x)/(x-1),x)+2*dilog x)
```

### 15.0.940 bug 7062/408: abs

```
abs(Gamma(1/5::EXPR INT)::EXPR DFLOAT - 4.59084) < 0.00001
abs(digamma(1/5::EXPR INT)::EXPR DFLOAT+5.28904) < 0.000001
abs(besselJ(1,1::EXPR INT)::EXPR DFLOAT - 0.440051) < 0.000001
-- fails, because airyAi yields complex results even for real arguments
abs(airyAi(1/5::EXPR INT)::EXPR DFLOAT - 0.303703) < 0.00001
```

### 15.0.941 bug 7061: integrate sqrt

```
integrate(sqrt(z+sqrt(1+z))/(1+z)^2,z=0..%plusInfinity,"noPole")

 3
 - 5atan(-) + 4
 4
(12) -----
 4
 Type: Union(f1: OrderedCompletion Expression Integer,...)

(3) 0.1956236140 0839451649
```

Type: Expression Float

but MMA6/Maple11/Derive gives

$$1+5*\operatorname{atan}(1/2)/2 = 2.1591190$$

### 15.0.942 bug 7060: integration bug (different answer in fricas)

bug 7060: integration bug (different answer in fricas)

```
-> ex1:=integrate(sqrt(1+sqrt(1+z))/(1+z^2),z);
```

Type: Union(Expression Integer,...)

```
-> ex2:=eval(ex1,z=0);
```

Type: Expression Integer

```
-> numeric ex2
```

```
1.0243175471 308082709
```

Type: Float

fricas returns:

```
-2.5898455408 37987845
```

curiously

```
ex3:=limit(ex1,z=%plusInfinity)
```

```
(11) 0
```

Type: Union(OrderedCompletion Expression Integer,...)

but fricas doesn't return???

### 15.0.943 bug 7059: integration bug (different answer in fricas)

```
integrate(sqrt(1+sqrt(1+z))/(1+z^2),z=0..%plusInfinity,"noPole")::EXPR Float
```

gives the wrong answer:

```
(3) - 1.0243175471 308082709
```

Type: Expression Float



the correct answer:

(5\*atan(3)-5\*atan(1/3)+4)/4

$$(4) \quad \frac{5\operatorname{atan}(3) - 5\operatorname{atan}\left(\frac{1}{3}\right) + 4}{4}$$

Type: Expression Integer

(5) -> numeric %

(5) 2.1591190225 020152905

Type: Float

(6) ->

## 15.0.944 bug 7058: calling AXIOMsys segfaults

bug 7058: calling AXIOMsys from anywhere on the path without giving full path name sometimes causes a segfault

which AXIOMsys

/research2/test/mnt/fedora5/bin/AXIOMsys

[root@localhost test]# AXIOMsys

AXIOM Computer Algebra System

Version: Axiom (Sept 2007)

Timestamp: Tuesday October 16, 2007 at 09:21:36

-----  
Issue )copyright to view copyright notices.

Issue )summary for a summary of useful system commands.

Issue )quit to leave AXIOM and return to shell.  
-----

Re-reading compress.daase Re-reading interp.daase

Re-reading operation.daase

Re-reading category.daase

Re-reading browse.daase

(1) -> )lisp (bye)

[root@localhost test]# echo \$AXIOM

/research2/test/mnt/fedora5

[root@localhost test]# AXIOMsys

Segmentation fault

[root@localhost test]# which AXIOMsys

/research2/test/mnt/fedora5/bin/AXIOMsys

[root@localhost test]# AXIOMsys

Segmentation fault

[root@localhost test]# 'which AXIOMsys'

AXIOM Computer Algebra System



```

mmap2(0x62c000, 1254780, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x62c000
mmap2(0x758000, 16384, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x12b) = 0x758000
mmap2(0x75c000, 9596, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x75c000
close(3) = 0
open("/lib/libdl.so.2", O_RDONLY) = 3
read(3, "\177ELF\1\1\1\0\0\0\0\0\0\0\0\3\0\3\0\1\0\0\0@214x\000"... , 512) = 512
fstat64(3, {st_mode=S_IFREG|0755, st_size=16352, ...}) = 0
mmap2(0x788000, 12412, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x788000
mmap2(0x78a000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1) = 0x78a000
close(3) = 0
mmap2(NULL, 4096, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0xb7f60000
set_thread_area({entry_number:-1 -> 6, base_addr:0xb7f606b0, limit:1048575, seg_32bit:1, contents:0, read_exec_c
mprotect(0x78a000, 4096, PROT_READ) = 0
mprotect(0x758000, 12288, PROT_READ) = 0
mprotect(0x784000, 4096, PROT_READ) = 0
mprotect(0x628000, 4096, PROT_READ) = 0
munmap(0xb7f62000, 67432) = 0
personality(0xffffffff /* PER_??? */) = 0
personality(0x40000 /* PER_??? */) = 0
execve("AXIOMsys", ["AXIOMsys"], [/ * 39 vars */]) = -1 ENOENT (No such file or directory)
getpid() = 25855
stat64("/proc/25855/exe", {st_mode=S_IFREG|0755, st_size=16188532, ...}) = 0
lstat64("/proc", {st_mode=S_IFDIR|0555, st_size=0, ...}) = 0
lstat64("/proc/25855", {st_mode=S_IFDIR|0555, st_size=0, ...}) = 0
lstat64("/proc/25855/exe", {st_mode=S_IFLNK|0777, st_size=0, ...}) = 0
readlink("/proc/25855/exe", "/research2/test/mnt/fedora5/bin/AXIOMsys", 4096) = 40
lstat64("/research2", {st_mode=S_IFDIR|0777, st_size=4096, ...}) = 0
lstat64("/research2/test", {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0
lstat64("/research2/test/mnt", {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0
lstat64("/research2/test/mnt/fedora5", {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0
lstat64("/research2/test/mnt/fedora5/bin", {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0
lstat64("/research2/test/mnt/fedora5/bin/AXIOMsys", {st_mode=S_IFREG|0755, st_size=16188532, ...}) = 0
rt_sigaction(SIGSEGV, {0x807ae70, [SEGV], SA_RESTART}, {SIG_DFL}, 8) = 0
getrlimit(RLIMIT_STACK, {rlim_cur=10240*1024, rlim_max=RLIM_INFINITY}) = 0
setrlimit(RLIMIT_STACK, {rlim_cur=8192*1024, rlim_max=RLIM_INFINITY}) = 0
getrlimit(RLIMIT_DATA, {rlim_cur=RLIM_INFINITY, rlim_max=RLIM_INFINITY}) = 0
mprotect(0x8403000, 10555392, PROT_READ|PROT_WRITE|PROT_EXEC) = 0
rt_sigaction(SIGSEGV, {0x807ae70, [SEGV], SA_RESTART}, {0x807ae70, [SEGV], SA_RESTART}, 8) = 0
getrlimit(RLIMIT_DATA, {rlim_cur=RLIM_INFINITY, rlim_max=RLIM_INFINITY}) = 0
brk(0) = 0x96a1000
brk(0xc765000) = 0xc765000
rt_sigaction(SIGFPE, {0x80b3740, [FPE], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
rt_sigaction(SIGPIPE, {0x80b37f0, [PIPE], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
rt_sigaction(SIGINT, {0x80b3410, [INT], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
rt_sigaction(SIGUSR1, {0x80b3410, [USR1], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
rt_sigaction(SIGIO, {0x80b3410, [IO], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
rt_sigaction(SIGALRM, {0x80b3410, [ALRM], SA_RESTART|SA_SIGINFO}, NULL, 8) = 0
ioctl(0, SNDCTL_TMR_TIMEBASE or TCGETS, {B38400 opost isig icanon -echo ...}) = 0
--- SIGSEGV (Segmentation fault) @ 0 (0) ---
rt_sigaction(SIGSEGV, {0x807ae70, [SEGV], SA_RESTART}, {0x807ae70, [SEGV], SA_RESTART}, 8) = 0
--- SIGSEGV (Segmentation fault) @ 0 (0) ---
+++ killed by SIGSEGV +++
Process 25855 detached

```



```
)set stream showall on
```

```
--S 2 of 4
```

```
g(n:INT):STREAM(INT) == generate(f, n)
```

```
Function declaration g : Integer -> Stream Integer has been added to
workspace.
```

```
Type: Void
```

```
--R
```

```
--R Function declaration g : Integer -> Stream Integer has been added to
--R workspace.
```

```
--R
```

```
Type: Void
```

```
--E 2
```

```
--S 3 of 4
```

```
s := g 27
```

```
There are 3 exposed and 0 unexposed library operations named
generate having 2 argument(s) but none was determined to be
applicable. Use HyperDoc Browse, or issue
)display op generate
to learn more about the available operations. Perhaps
package-calling the operation or using coercions on the arguments
will allow you to apply the operation.
Cannot find a definition or applicable library operation named
generate with argument type(s)
```

```
Variable f
Integer
```

```
Perhaps you should use "@" to indicate the required return type,
or "$" to specify which version of the function you need.
AXIOM will attempt to step through and interpret the code.
Compiling function g with type Integer -> Stream Integer
There are 3 exposed and 0 unexposed library operations named
generate having 2 argument(s) but none was determined to be
applicable. Use HyperDoc Browse, or issue
)display op generate
to learn more about the available operations. Perhaps
package-calling the operation or using coercions on the arguments
will allow you to apply the operation.
```

```
Daly Bug
```

```
Cannot find a definition or applicable library operation named
generate with argument type(s)
```

```
Variable f
Integer
```

```
Perhaps you should use "@" to indicate the required return type,
or "$" to specify which version of the function you need.
```

```
--R
```

```
--R Compiling function f with type Integer -> Integer
```

```
--R Compiling function g with type Integer -> Stream Integer
```

```
--R
--R (3) [27,82,41,124,62,31,94,47,142,71,...]
--R Type: Stream Integer
--E 3
```

```
--S 4 of 4
extend(s, 150)
```

There are 11 exposed and 0 unexposed library operations named `extend` having 2 argument(s) but none was determined to be applicable. Use HyperDoc Browse, or issue

```
)display op extend
```

to learn more about the available operations. Perhaps package-calling the operation or using coercions on the arguments will allow you to apply the operation.

Daly Bug

Cannot find a definition or applicable library operation named `extend` with argument type(s)

```
Variable s
PositiveInteger
```

Perhaps you should use "@" to indicate the required return type, or "\$" to specify which version of the function you need.

```
--R
--R
--R (4)
--R [27, 82, 41, 124, 62, 31, 94, 47, 142, 71, 214, 107, 322, 161, 484, 242,
--R 121, 364, 182, 91, 274, 137, 412, 206, 103, 310, 155, 466, 233, 700, 350,
--R 175, 526, 263, 790, 395, 1186, 593, 1780, 890, 445, 1336, 668, 334, 167,
--R 502, 251, 754, 377, 1132, 566, 283, 850, 425, 1276, 638, 319, 958, 479,
--R 1438, 719, 2158, 1079, 3238, 1619, 4858, 2429, 7288, 3644, 1822, 911, 2734,
--R 1367, 4102, 2051, 6154, 3077, 9232, 4616, 2308, 1154, 577, 1732, 866, 433,
--R 1300, 650, 325, 976, 488, 244, 122, 61, 184, 92, 46, 23, 70, 35, 106, 53,
--R 160, 80, 40, 20, 10, 5, 16, 8, 4, 2, 7, 22, 11, 34, 17, 52, 26, 13, 40, 20,
--R 10, 5, 16, 8, 4, 2, 7, 22, 11, 34, 17, 52, 26, 13, 40, 20, 10, 5, 16, 8, 4,
--R 2, 7, 22, 11, 34, 17, 52, 26, ...]
--R Type: Stream Integer
--E 4
```

### 15.0.949 bug 7050: DFLOAT ignores outputFixed

```
outputFixed()
(11) -> 0.0004
```

```
(11) 0.0004
```

Type: Float

```
(12) -> 0.0004::DFLOAT
```

```
(12) 4.0000000000000002E-4
```

Type: DoubleFloat

(13) -&gt;

**15.0.950 bug 7049: Ei isn't computing correctly**

```
integrate(e^u/u,u=%minusInfinity..-1,"noPole")
```

(19) potentialPole

Type: Union(pole: potentialPole,...)

(20) -&gt; integrate(e^u/u,u=%minusInfinity..-1,"noPole")

```
Loading /usr/local/axiom/mnt/fedora5/algebra/RDETR.o for package
TranscendentalRischDE
```

(20) "failed"

Type: Union(fail: failed,...)

(21) -&gt; integrate(e^u/u,u)

(21) Ei(u log(e))

Type: Union(Expression Integer,...)

(22) -&gt; Ei(13)

(22) Ei(13)

Type: Expression Integer

(23) -&gt;

**15.0.951 bug 7048: cannot simplify expression using  $e^{\hat{x} \log e}$** 

```
integrate(e^x,x)
```

```
 x log(e)
 %e
(18) -----
 log(e)
```

Type: Union(Expression Integer,...)

**15.0.952 bug 7047: Gamma returns a random garbage value**

Gamma 1000/1000

(7) i.nfE+0

Type: DoubleFloat

**15.0.953 bug 7046: radix has wrong ragits**

```

;;; radix(5/24,39) ==> 0 . 8 4 34
;;;
;;;
;;; radix(5/24,40) ==> 0 . 8 D
;;;
;;;
;;; radix(5/24,43) ==> 0 . 8 41
;;;
;;;
;;; radix(35,36) ==> Z
;;;
;;; radix(36,37) ==> Error ... index out of range
;;;
;;; radix(10,16) ==> A
;;;

```

**15.0.954 idea: )example command taken from regression test chunks**

- 1) identify (using --S comment tags) the functions being demonstrated
- 2) move the regression chunks near the example function in the algebra
- 3) dynamically pull the chunks from the sources
- 4) remove the regression test comment prefix

**15.0.955 bug 7044: why?**

generic 16 making /research2/test/int/input/iprntpk.input from /research2/test/src/input/iprntpk.input.pamphlet

**15.0.956 bug 7043: FAILED 1 of 139 stanzas file kamke3**

```

MISMATCH
expected:" (9216a - 7168a)b - 2048a + 2048a"
got:" (18432a - 57344a)b - 2048a + 8192a"
MISMATCH
expected:" 8 6 9 7"
got:" 8 6 9 7"
MISMATCH
expected:" (- 20736a + 34048a - 6400a)b + (4608a - 22016a + 9728a)b"
got:" (- 41472a + 272384a - 204800a)b + (4608a - 88064a + 155648a)b"
MISMATCH
expected:" 8 6 4 3 9 7 5 2"
got:" 8 6 4 3 9 7 5 2"
MISMATCH
expected:" (- 3072a + 45312a - 35840a + 2048a)b"

```



```

got:" (- 3072a + 181248a - 573440a + 131072a)b"
MISMATCH
expected:" 9 7 5 3 4"
got:" 9 7 5 3 4"
MISMATCH
expected:" (13824a - 61824a + 25984a - 256a)b"
got:" (27648a - 494592a + 831488a - 32768a)b"
MISMATCH
expected:" 8 6 4 2 5"
got:" 8 6 4 2 5"
MISMATCH
expected:" (512a - 28416a + 56736a - 12800a)b"
got:" (512a - 113664a + 907776a - 819200a)b"
MISMATCH
expected:" 9 7 5 3 6"
got:" 9 7 5 3 6"
MISMATCH
expected:" (- 2304a + 34944a - 35664a + 4096a)b"
got:" (- 4608a + 279552a - 1141248a + 524288a)b"
MISMATCH
expected:" 8 6 4 2 7"
got:" 8 6 4 2 7"
MISMATCH
expected:" (4608a - 28224a + 15168a - 768a)b"
got:" (18432a - 451584a + 970752a - 196608a)b"
MISMATCH
expected:" 7 5 3 8"
got:" 7 5 3 8"
MISMATCH
expected:" (- 5376a + 15456a - 4176a + 64)b"
got:" (- 43008a + 494592a - 534528a + 32768)b"
MISMATCH
expected:" 6 4 2 9"
got:" 6 4 2 9"
MISMATCH
expected:" (- 2016a + 1368a - 48)b + (4032a - 5712a + 672a)b"
got:" (- 64512a + 175104a - 24576)b + (64512a - 365568a + 172032a)b"
MISMATCH
expected:" 4 2 11 5 3 10"
got:" 4 2 11 5 3 10"
MISMATCH
expected:" - b + 18a b + (- 144a + 12)b + (672a - 192a)b"
got:" - 512b + 4608a b + (- 18432a + 6144)b + (43008a - 49152a)b"
MISMATCH
expected:" 15 14 2 13 3 12"
got:" 15 14 2 13 3 12"
MISMATCH
expected:" (82944a - 50176a - 10240a)b - 18432a + 14336a + 4096a"
got:" (165888a - 401408a - 327680a)b - 18432a + 57344a + 65536a"
MISMATCH
expected:" 9 7 5 10 8 6"
got:" 9 7 5 10 8 6"
MISMATCH
expected:" (24576a - 196608a + 82432a + 9216a)b"

```

```

got:" (24576a - 786432a + 1318912a + 589824a)b"
MISMATCH
expected:" 10 8 6 4 2"
got:" 10 8 6 4 2"
MISMATCH
expected:" (- 110592a + 301056a - 80640a - 3584a)b"
got:" (- 221184a + 2408448a - 2580480a - 458752a)b"
MISMATCH
expected:" 9 7 5 3 3"
got:" 9 7 5 3 3"
MISMATCH
expected:" (- 6144a + 230400a - 309888a + 49664a + 512a)b"
got:" (- 6144a + 921600a - 4958208a + 3178496a + 131072a)b"
MISMATCH
expected:" 10 8 6 4 2 4"
got:" 10 8 6 4 2 4"
MISMATCH
expected:" (27648a - 290304a + 215616a - 18944a)b"
got:" (55296a - 2322432a + 6899712a - 2424832a)b"
MISMATCH
expected:" 9 7 5 3 5"
got:" 9 7 5 3 5"
MISMATCH
expected:" (- 55296a + 241920a - 100032a + 4096a)b"
got:" (- 221184a + 3870720a - 6402048a + 1048576a)b"
MISMATCH
expected:" 8 6 4 2 6"
got:" 8 6 4 2 6"
MISMATCH
expected:" (64512a - 137088a + 29664a - 384a)b"
got:" (516096a - 4386816a + 3796992a - 196608a)b"
MISMATCH
expected:" 7 5 3 7"
got:" 7 5 3 7"
MISMATCH
expected:" (24192a - 12960a + 384a)b + (- 48384a + 52416a - 5088a)b"
got:" (- 774144a + 3354624a - 1302528a)b"
MISMATCH
expected:" 5 3 9 6 4 2 8"
got:" 6 4 2 8"
MISMATCH
expected:" 12a b - 216a b + (1728a - 120a)b + (- 8064a + 1872a)b"
got:" (- 516096a + 479232a)b + (774144a - 1658880a + 196608a)b"
MISMATCH
expected:" 13 2 12 3 11 4 2 10"
got:" 4 2 10 5 3 9"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" c"
got:" 6144a b - 55296a b + (221184a - 61440a)b"
MISMATCH
expected:" 2"

```

```

got: " 13 2 12 3 11"
MISMATCH
expected: " *"
got: " + "
MISMATCH
expected: " - 14336a + 2048a"
got: " c"
MISMATCH
expected: " 7 5"
got: " 2"
MISMATCH
expected: " + "
got: " *"
MISMATCH
expected: " (221184a - 215040a + 35840a - 3072a)b - 49152a + 61440a"
got: " 245760a - 229376a + 131072a"
MISMATCH
expected: " 10 8 6 4 11 9"
got: " 9 7 5"
MISMATCH
expected: " (24576a - 479232a + 336384a - 37376a + 1536a)b"
got: " (442368a - 1720320a + 1146880a - 393216a)b - 49152a"
MISMATCH
expected: " 11 9 7 5 3 2"
got: " 10 8 6 4 11"
MISMATCH
expected: " (- 110592a + 645120a - 303360a + 20224a - 256a)b"
got: " (24576a - 1916928a + 5382144a - 2392064a + 393216a)b"
MISMATCH
expected: " 10 8 6 4 2 3"
got: " 11 9 7 5 3 2"
MISMATCH
expected: " (221184a - 580608a + 168960a - 5632a)b"
got: " (- 221184a + 5160960a - 9707520a + 2588672a - 131072a)b"
MISMATCH
expected: " 9 7 5 3 4"
got: " 10 8 6 4 2 3"
MISMATCH
expected: " (- 258048a + 354816a - 57600a + 640a)b"
got: " (884736a - 9289728a + 10813440a - 1441792a)b"
MISMATCH
expected: " 8 6 4 2 5"
got: " 9 7 5 3 4"
MISMATCH
expected: " (193536a - 145152a + 11040a)b"
got: " (- 2064384a + 11354112a - 7372800a + 327680a)b"
MISMATCH
expected: " 7 5 3 6"
got: " 8 6 4 2 5"
MISMATCH
expected: " (32256a - 5760a)b + (- 96768a + 38016a - 912a)b"
got: " (3096576a - 9289728a + 2826240a)b"
MISMATCH
expected: " 5 3 8 6 4 2 7"

```



```

got: " 10 8 6 4 2"
MISMATCH
expected: " (129024a - 32256a + 576a)b"
got: " (2752512a - 6881280a + 2949120a - 131072a)b"
MISMATCH
expected: " 7 5 3 5"
got: " 9 7 5 3 3"
MISMATCH
expected: " 64a b - 1152a b + (9216a - 384a)b + (- 43008a + 5376a)b"
got: " (- 4128768a + 6881280a - 1474560a)b"
MISMATCH
expected: " 3 9 4 8 5 3 7 6 4 6"
got: " 8 6 4 4"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " ?"
got: " (4128768a - 4128768a + 294912a)b"
MISMATCH
expected: " *"
got: " 7 5 3 5"
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
got: " + "
MISMATCH
expected: " 11 3 10 2 2 9 4 8 6"
got: " (- 2752512a + 1376256a)b"
MISMATCH
expected: " /"
got: " 6 4 6"
MISMATCH
expected: " (- 12288a + 3072a)b + 3072a - 1024a"
got: " + "
MISMATCH
expected: " 7 5 8 6"
got: " 32768a b - 294912a b + (1179648a - 196608a)b"
MISMATCH
expected: " + "
got: " 3 9 4 8 5 3 7"
MISMATCH
expected: " (46080a - 37632a + 1536a)b + (- 11520a + 26880a - 3328a)b"
got: " + "
MISMATCH
expected: " 7 5 3 3 8 6 4 2"
got: " ?"
MISMATCH
expected: " + "
got: " *"
MISMATCH
expected: " (10752a - 90240a + 34944a - 256a)b"
got: " 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected: " 8 6 4 2 4"

```

```

got:" 11 3 10 2 2 9 4 8 6"
MISMATCH
expected:" + "
got:" /"
MISMATCH
expected:" (- 43008a + 109440a - 21504a)b"
got:" 3072a - 4096a"
MISMATCH
expected:" 7 5 3 5"
got:" 8 6"
MISMATCH
expected:" (- 2304a + 77952a - 87120a + 8448a)b"
got:" (- 11520a + 107520a - 53248a)b + (- 24576a + 24576a)b"
MISMATCH
expected:" 8 6 4 2 6"
got:" 8 6 4 2 7 5"
MISMATCH
expected:" (9216a - 83328a + 45600a - 1920a)b"
got:" (92160a - 301056a + 49152a)b"
MISMATCH
expected:" 7 5 3 7"
got:" 7 5 3 3"
MISMATCH
expected:" (- 16128a + 57120a - 15120a + 192)b"
got:" (10752a - 360960a + 559104a - 16384a)b"
MISMATCH
expected:" 6 4 2 8"
got:" 8 6 4 2 4"
MISMATCH
expected:" (- 10080a + 7224a - 240)b + (16128a - 25536a + 2880a)b"
got:" (- 86016a + 875520a - 688128a)b"
MISMATCH
expected:" 4 2 10 5 3 9"
got:" 7 5 3 5"
MISMATCH
expected:" - 9b + 144a b + (- 1008a + 84)b + (4032a - 1176a)b"
got:" (- 2304a + 311808a - 1393920a + 540672a)b"
MISMATCH
expected:" 14 13 2 12 3 11"
got:" 8 6 4 2 6"
MISMATCH
expected:" c"
got:" (18432a - 666624a + 1459200a - 245760a)b"
MISMATCH
expected:" *"
got:" 7 5 3 7"
MISMATCH
expected:" (- 184320a + 64512a + 4096a)b + 46080a - 21504a - 2048a"
got:" + "
MISMATCH
expected:" 8 6 4 9 7 5"
got:" (- 64512a + 913920a - 967680a + 49152)b"
MISMATCH
expected:" + "

```

```

got:"
MISMATCH
expected:" 6 4 2 8"
got:" (- 86016a + 399360a - 91392a - 2560a)b"
+ "
MISMATCH
expected:" 9 7 5 3 2"
got:" (129024a - 817152a + 368640a)b"
MISMATCH
expected:" + "
got:" 5 3 9"
MISMATCH
expected:" (344064a - 552960a + 75264a + 512a)b"
got:" + "
MISMATCH
expected:" 8 6 4 2 3"
got:" (129024a - 150528a)b + (- 161280a + 462336a - 61440)b"
MISMATCH
expected:" + "
got:" 3 11 4 2 10"
MISMATCH
expected:" (27648a - 634368a + 498240a - 36864a)b"
got:" + "
MISMATCH
expected:" 9 7 5 3 4"
got:" - 2304b + 18432a b + (- 64512a + 21504)b"
MISMATCH
expected:" + "
got:" 14 13 2 12"
MISMATCH
expected:" (- 110592a + 698880a - 289920a + 9984a)b"
got:" + "
MISMATCH
expected:" 8 6 4 2 5"
got:" c"
MISMATCH
expected:" + "
got:" *"
MISMATCH
expected:" (193536a - 497280a + 105120a - 1152a)b"
got:" (- 368640a + 516096a + 131072a)b + 46080a - 86016a - 32768a"
MISMATCH
expected:" 7 5 3 6"
got:" 8 6 4 9 7 5"
MISMATCH
expected:" (- 193536a + 231168a - 21600a)b"
got:" (- 86016a + 1597440a - 1462272a - 163840a)b"
MISMATCH
expected:" 6 4 2 7"
got:" 9 7 5 3 2"
MISMATCH
expected:" (- 48384a + 11424a)b + (120960a - 67872a + 1920a)b"
got:" (688128a - 4423680a + 2408448a + 65536a)b"
MISMATCH
expected:" 4 2 9 5 3 8"

```

```

 got: "
MISMATCH
expected: " 8 6 4 2 3"
 got: " 108a b - 1728a b + (12096a - 840a)b"
 got: " (27648a - 2537472a + 7971840a - 2359296a)b"
MISMATCH
expected: " 12 2 11 3 10"
 got: " 9 7 5 3 4"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " c"
 got: " (- 221184a + 5591040a - 9277440a + 1277952a)b"
MISMATCH
expected: " 2"
 got: " 8 6 4 2 5"
MISMATCH
expected: " *"
 got: " + "
MISMATCH
expected: " - 153600a + 21504a - 1024a"
 got: " (774144a - 7956480a + 6727680a - 294912a)b"
MISMATCH
expected: " 8 6 4"
 got: " 7 5 3 6"
MISMATCH
expected: " (- 688128a + 460800a - 43008a + 1024a)b + 172032a"
 got: " (- 1548288a + 7397376a - 2764800a)b"
MISMATCH
expected: " 9 7 5 3 10"
 got: " 6 4 2 7"
MISMATCH
expected: " (- 110592a + 1333248a - 610560a + 34560a - 256a)b"
 got: " (1935360a - 4343808a + 491520a)b"
MISMATCH
expected: " 10 8 6 4 2 2"
 got: " 5 3 8"
MISMATCH
expected: " (442368a - 1591296a + 453120a - 13056a)b"
 got: " (- 1548288a + 1462272a)b"
MISMATCH
expected: " 9 7 5 3 3"
 got: " 4 2 9"
MISMATCH
expected: " (- 774144a + 1236480a - 195840a + 1920a)b"
 got: " 27648a b - 221184a b + (774144a - 215040a)b"
MISMATCH
expected: " 8 6 4 2 4"
 got: " 12 2 11 3 10"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " (774144a - 623616a + 46080a)b"

```



```

got: " c"
MISMATCH
expected: " 7 5 3 5"
got: " 2"
MISMATCH
expected: " + "
got: " *"
MISMATCH
expected: " (193536a - 34944a)b + (- 483840a + 196224a - 4560a)b"
got: " - 614400a + 344064a - 65536a"
MISMATCH
expected: " 5 3 7 6 4 2 6"
got: " 8 6 4"
MISMATCH
expected: " - 432a b + 6912a b + (- 48384a + 2688a)b"
got: " (- 1376256a + 3686400a - 1376256a + 131072a)b + 172032a"
MISMATCH
expected: " 2 10 3 9 4 2 8"
got: " 9 7 5 3 10"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " c"
got: " (- 110592a + 5332992a - 9768960a + 2211840a - 65536a)b"
MISMATCH
expected: " 3"
got: " 10 8 6 4 2 2"
MISMATCH
expected: " *"
got: " + "
MISMATCH
expected: " - 172032a + 46080a - 3072a"
got: " (884736a - 12730368a + 14499840a - 1671168a)b"
MISMATCH
expected: " 9 7 5"
got: " 9 7 5 3 3"
MISMATCH
expected: " (- 589824a + 516096a - 92160a + 3072a)b + 147456a"
got: " (- 3096576a + 19783680a - 12533760a + 491520a)b"
MISMATCH
expected: " 10 8 6 4 11"
got: " 8 6 4 2 4"
MISMATCH
expected: " (1032192a - 645120a + 69120a - 768a)b"
got: " (6193152a - 19955712a + 5898240a)b"
MISMATCH
expected: " 9 7 5 3 2"
got: " 7 5 3 5"
MISMATCH
expected: " (- 1032192a + 430080a - 23040a)b"
got: " (- 7741440a + 12558336a - 1167360a)b"
MISMATCH
expected: " 8 6 4 3"

```

```

got: "
MISMATCH
expected: " 6 4 2 6"
got: " (- 258048a + 32256a)b + (645120a - 161280a + 2880a)b"
MISMATCH
expected: " 6 4 5 7 5 3 4"
got: " 5 3 7"
MISMATCH
expected: " 576a b - 9216a b + (64512a - 2688a)b"
got: " - 110592a b + 884736a b + (- 3096576a + 688128a)b"
MISMATCH
expected: " 3 8 4 7 5 3 6"
got: " 2 10 3 9 4 2 8"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " ?"
got: " c"
MISMATCH
expected: " 2"
got: " 3"
MISMATCH
expected: " *"
got: " *"
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
got: " - 688128a + 737280a - 196608a"
MISMATCH
expected: " 10 3 9 2 2 8 4 7 6"
got: " 9 7 5"
MISMATCH
expected: " /"
got: " + "
MISMATCH
expected: " (- 40320a + 13440a)b + (11520a - 10752a)b + 5376a b - 1536a"
got: " (- 1179648a + 4128768a - 2949120a + 393216a)b + 147456a"
MISMATCH
expected: " 6 4 3 7 5 2 6 7"
got: " 10 8 6 4 11"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " (56448a - 74400a + 5376a)b + (- 16128a + 70080a - 10752a)b"
got: " (4128768a - 10321920a + 4423680a - 196608a)b"
MISMATCH
expected: " 6 4 2 5 7 5 3 4"
got: " 9 7 5 3 2"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " (4608a - 88704a + 49920a - 1536a)b"

```

```

got:" (- 8257536a + 13762560a - 2949120a)b"
MISMATCH
expected:" 7 5 3 6"
got:" 8 6 4 3"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" (- 16128a + 80640a - 20640a + 192)b"
got:" (10321920a - 10321920a + 737280a)b"
MISMATCH
expected:" 6 4 2 7"
got:" 7 5 3 4"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" (- 20160a + 15624a - 480)b + (24192a - 45360a + 4800a)b"
got:" (- 8257536a + 4128768a)b"
MISMATCH
expected:" 4 2 9 5 3 8"
got:" 6 4 5"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" - 36b + 504a b + (- 3024a + 252)b + (10080a - 3024a)b"
got:" 147456a b - 1179648a b + (4128768a - 688128a)b"
MISMATCH
expected:" 13 12 2 11 3 10"
got:" 3 8 4 7 5 3 6"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" c"
got:" ?"
MISMATCH
expected:" *"
got:" 2"
MISMATCH
expected:" - 46080a + 10752a"
got:" *"
MISMATCH
expected:" 8 6"
got:" 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected:" + "
got:" 10 3 9 2 2 8 4 7 6"
MISMATCH
expected:" (129024a - 318720a + 32256a)b + (161280a - 26880a)b"
got:" /"
MISMATCH
expected:" 8 6 4 2 7 5"

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```

got:" (11520a - 43008a)b + 10752a b - 1536a"
MISMATCH
expected:" + "
got:" 7 5 2 6 7"
MISMATCH
expected:" (- 451584a + 393600a - 21504a)b"
got:" + "
MISMATCH
expected:" 7 5 3 3"
got:" (- 16128a + 280320a - 172032a)b + (- 80640a + 107520a)b"
MISMATCH
expected:" + "
got:" 7 5 3 4 6 4 3"
MISMATCH
expected:" (- 55296a + 725760a - 301440a + 7680a)b"
got:" + "
MISMATCH
expected:" 8 6 4 2 4"
got:" (112896a - 595200a + 172032a)b"
MISMATCH
expected:" + "
got:" 6 4 2 5"
MISMATCH
expected:" (193536a - 685440a + 139200a - 1152a)b"
got:" + "
MISMATCH
expected:" 7 5 3 5"
got:" (4608a - 354816a + 798720a - 98304a)b"
MISMATCH
expected:" + "
got:" 7 5 3 6"
MISMATCH
expected:" (- 290304a + 403200a - 35520a)b"
got:" + "
MISMATCH
expected:" 6 4 2 6"
got:" (- 32256a + 645120a - 660480a + 24576)b"
MISMATCH
expected:" + "
got:" 6 4 2 7"
MISMATCH
expected:" (- 120960a + 29232a)b + (241920a - 145152a + 3840a)b"
got:" + "
MISMATCH
expected:" 4 2 8 5 3 7"
got:" (96768a - 725760a + 307200a)b"
MISMATCH
expected:" + "
got:" 5 3 8"
MISMATCH
expected:" 432a b - 6048a b + (36288a - 2520a)b"
got:" + "
MISMATCH
expected:" 11 2 10 3 9"

```

```

got: " (161280a - 193536a)b + (- 161280a + 499968a - 61440)b"
MISMATCH
expected: "
got: " 3 10 4 2 9"
MISMATCH
expected: " c"
got: " + "
MISMATCH
expected: " 2"
got: " - 4608b + 32256a b + (- 96768a + 32256)b"
MISMATCH
expected: " *"
got: " 13 12 2 11"
MISMATCH
expected: " (903168a - 384000a + 16128a)b - 258048a + 153600a - 10752a"
got: " + "
MISMATCH
expected: " 8 6 4 9 7 5"
got: " c"
MISMATCH
expected: " + "
got: " *"
MISMATCH
expected: " (221184a - 1548288a + 418560a - 9216a)b"
got: " - 46080a + 43008a"
MISMATCH
expected: " 9 7 5 3 2"
got: " 8 6"
MISMATCH
expected: " (- 774144a + 1612800a - 243840a + 1920a)b"
got: " (129024a - 1274880a + 516096a)b + (322560a - 215040a)b"
MISMATCH
expected: " 8 6 4 2 3"
got: " 8 6 4 2 7 5"
MISMATCH
expected: " (1161216a - 1048320a + 73920a)b"
got: " (- 903168a + 3148800a - 688128a)b"
MISMATCH
expected: " 7 5 3 4"
got: " 7 5 3 3"
MISMATCH
expected: " (483840a - 88704a)b + (- 967680a + 411264a - 9120a)b"
got: " (- 55296a + 2903040a - 4823040a + 491520a)b"
MISMATCH
expected: " 5 3 6 6 4 2 5"
got: " 8 6 4 2 4"
MISMATCH
expected: " - 1728a b + 24192a b + (- 145152a + 8064a)b"
got: " (387072a - 5483520a + 4454400a - 147456a)b"
MISMATCH
expected: " 2 9 3 8 4 2 7"
got: " 7 5 3 5"
MISMATCH
expected: " + "

```

```

got:" + "
MISMATCH
expected:" c"
got:" (- 1161216a + 6451200a - 2273280a)b"
MISMATCH
expected:" 3"
got:" 6 4 2 6"
MISMATCH
expected:" *"
got:" + "
MISMATCH
expected:" 258048a - 46080a + 1536a"
got:" (1935360a - 4644864a + 491520a)b"
MISMATCH
expected:" 8 6 4"
got:" 5 3 7"
MISMATCH
expected:" (1032192a - 645120a + 69120a - 768a)b - 294912a"
got:" (- 1935360a + 1870848a)b"
MISMATCH
expected:" 9 7 5 3 10"
got:" 4 2 8"
MISMATCH
expected:" (- 1548288a + 645120a - 34560a)b"
got:" 55296a b - 387072a b + (1161216a - 322560a)b"
MISMATCH
expected:" 8 6 4 2"
got:" 11 2 10 3 9"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" (- 645120a + 80640a)b + (1290240a - 322560a + 5760a)b"
got:" c"
MISMATCH
expected:" 6 4 4 7 5 3 3"
got:" 2"
MISMATCH
expected:" + "
got:" *"
MISMATCH
expected:" 2304a b - 32256a b + (193536a - 8064a)b"
got:" - 172032a"
MISMATCH
expected:" 3 7 4 6 5 3 5"
got:" 5"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" ?"
got:" (1806336a - 3072000a + 516096a)b - 258048a + 614400a"
MISMATCH
expected:" 3"

```

```

 got: " 8 6 4 9 7"
MISMATCH
expected: " * "
 got: " + "
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
 got: " (221184a - 6193152a + 6696960a - 589824a)b"
MISMATCH
expected: " 9 3 8 2 2 7 4 6 6"
 got: " 9 7 5 3 2"
MISMATCH
expected: " /"
 got: " + "
MISMATCH
expected: " (17280a - 1536a)b + (- 5760a + 1408a)b - 768a b + 256a"
 got: " (- 1548288a + 12902400a - 7802880a + 245760a)b"
MISMATCH
expected: " 5 3 3 6 4 2 5 6"
 got: " 8 6 4 2 3"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " (- 40320a + 24000a - 384a)b + (13440a - 26400a + 1024a)b"
 got: " (4644864a - 16773120a + 4730880a)b"
MISMATCH
expected: " 5 3 5 6 4 2 4"
 got: " 7 5 3 4"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " (- 5376a + 53760a - 12960a + 64)b"
 got: " (- 7741440a + 13160448a - 1167360a)b"
MISMATCH
expected: " 6 4 2 6"
 got: " 6 4 2 5"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " (- 20160a + 17640a - 480)b + (16128a - 40320a + 3840a)b"
 got: " (7741440a - 5677056a)b"
MISMATCH
expected: " 4 2 8 5 3 7"
 got: " 5 3 6"
MISMATCH
expected: " + "
 got: " + "
MISMATCH
expected: " - 84b + 1008a b + (- 5040a + 420)b + (13440a - 4200a)b"
 got: " - 221184a b + 1548288a b + (- 4644864a + 1032192a)b"
MISMATCH
expected: " 12 11 2 10 3 9"

```

```

 got: " 2 9 3 8 4 2 7"
MISMATCH
expected: " * "
 got: " 3"
MISMATCH
expected: " 23040a - 1792a"
 got: " * "
MISMATCH
expected: " 7 5"
 got: " 1032192a - 737280a + 98304a"
MISMATCH
expected: " + "
 got: " 8 6 4"
MISMATCH
expected: " (- 107520a + 124800a - 3584a)b + (- 69120a + 3584a)b"
 got: " + "
MISMATCH
expected: " 7 5 3 2 6 4"
 got: " (2064384a - 5160960a + 2211840a - 98304a)b - 294912a"
MISMATCH
expected: " + "
 got: " 9 7 5 3 10"
MISMATCH
expected: " (322560a - 134400a + 1792a)b"
 got: " + "
MISMATCH
expected: " 6 4 2 3"
 got: " (- 6193152a + 10321920a - 2211840a)b"
MISMATCH
expected: " + "
 got: " 8 6 4 2"
MISMATCH
expected: " (64512a - 443520a + 83520a - 384a)b"
 got: " + "
MISMATCH
expected: " 7 5 3 4"
 got: " (10321920a - 10321920a + 737280a)b"
MISMATCH
expected: " + "
 got: " 7 5 3 3"
MISMATCH
expected: " (- 193536a + 349440a - 27840a)b"
 got: " + "
MISMATCH
expected: " 6 4 2 5"
 got: " (- 10321920a + 5160960a)b"
MISMATCH
expected: " + "
 got: " 6 4 4"
MISMATCH
expected: " (- 161280a + 40320a)b + (241920a - 161280a + 3840a)b"
 got: " + "
MISMATCH
expected: " 4 2 7 5 3 6"

```



```

got:" 294912a b - 2064384a b + (6193152a - 1032192a)b"
MISMATCH
expected:" + "
got:" 3 7 4 6 5 3 5"
MISMATCH
expected:" 1008a b - 12096a b + (60480a - 4200a)b"
got:" + "
MISMATCH
expected:" 10 2 9 3 8"
got:" ?"
MISMATCH
expected:" + "
got:" 3"
MISMATCH
expected:" c"
got:" *"
MISMATCH
expected:" 2"
got:" 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected:" *"
got:" 9 3 8 2 2 7 4 6 6"
MISMATCH
expected:" (- 645120a + 153600a - 1792a)b + 215040a - 76800a + 1792a"
got:" /"
MISMATCH
expected:" 7 5 3 8 6 4"
got:" (- 5760a + 5632a)b - 1536a b + 256a"
MISMATCH
expected:" + "
got:" 6 4 2 5 6"
MISMATCH
expected:" (- 258048a + 967680a - 132480a + 640a)b"
got:" + "
MISMATCH
expected:" 8 6 4 2 2"
got:" (13440a - 105600a + 16384a)b + (34560a - 12288a)b"
MISMATCH
expected:" + "
got:" 6 4 2 4 5 3 3"
MISMATCH
expected:" (774144a - 860160a + 55680a)b"
got:" + "
MISMATCH
expected:" 7 5 3 3"
got:" (- 80640a + 192000a - 12288a)b"
MISMATCH
expected:" + "
got:" 5 3 5"
MISMATCH
expected:" (645120a - 120960a)b + (- 967680a + 443520a - 9120a)b"
got:" + "
MISMATCH
expected:" 5 3 5 6 4 2 4"

```

```

got:" (- 5376a + 215040a - 207360a + 4096)b"
MISMATCH
expected:" + "
got:" 6 4 2 6"
MISMATCH
expected:" - 4032a b + 48384a b + (- 241920a + 13440a)b"
got:" + "
MISMATCH
expected:" 2 8 3 7 4 2 6"
got:" (32256a - 322560a + 122880a)b"
MISMATCH
expected:" + "
got:" 5 3 7"
MISMATCH
expected:" c"
got:" + "
MISMATCH
expected:" 3"
got:" (107520a - 134400a)b + (- 80640a + 282240a - 30720)b"
MISMATCH
expected:" *"
got:" 3 9 4 2 8"
MISMATCH
expected:" 23040a - 256a"
got:" + "
MISMATCH
expected:" 5 3"
got:" - 5376b + 32256a b + (- 80640a + 26880)b"
MISMATCH
expected:" + "
got:" 12 11 2 10"
MISMATCH
expected:" (- 1032192a + 430080a - 23040a)b + 344064a - 215040a"
got:" + "
MISMATCH
expected:" 8 6 4 9 7"
got:" c"
MISMATCH
expected:" + "
got:" *"
MISMATCH
expected:" (- 860160a + 107520a)b + (1290240a - 322560a + 5760a)b"
got:" 23040a - 7168a"
MISMATCH
expected:" 6 4 3 7 5 3 2"
got:" 7 5"
MISMATCH
expected:" 5376a b - 64512a b + (322560a - 13440a)b"
got:" (- 107520a + 499200a - 57344a)b + (- 138240a + 28672a)b"
MISMATCH
expected:" 3 6 4 5 5 3 4"
got:" 7 5 3 2 6 4"
MISMATCH
expected:" + "

```

```

got: " + "
MISMATCH
expected: " ?"
got: " (645120a - 1075200a + 57344a)b"
MISMATCH
expected: " 4"
got: " 6 4 2 3"
MISMATCH
expected: " *"
got: " + "
MISMATCH
expected: " 16a c - 8a b c + a b"
got: " (64512a - 1774080a + 1336320a - 24576a)b"
MISMATCH
expected: " 7 2 6 2 5 4"
got: " 7 5 3 4"
MISMATCH
expected: " /"
got: " + "
MISMATCH
expected: " (- 16800a + 3600a)b + (6720a - 4800a)b + 3600a b - 1440a"
got: " (- 387072a + 2795520a - 890880a)b"
MISMATCH
expected: " 4 2 3 5 3 2 4 5"
got: " 6 4 2 5"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " (10080a - 10920a + 240)b + (- 4032a + 18480a - 1440a)b"
got: " (967680a - 2580480a + 245760a)b"
MISMATCH
expected: " 4 2 5 5 3 4"
got: " 5 3 6"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " 126b - 1260a b + (5040a - 420)b + (- 10080a + 3360a)b"
got: " (- 1290240a + 1290240a)b"
MISMATCH
expected: " 9 8 2 7 3 6"
got: " 4 2 7"
MISMATCH
expected: " + "
got: " + "
MISMATCH
expected: " c"
got: " 64512a b - 387072a b + (967680a - 268800a)b"
MISMATCH
expected: " *"
got: " 10 2 9 3 8"
MISMATCH
expected: " 4800a"

```

```

got: " + "
MISMATCH
expected: " 4"
got: " c"
MISMATCH
expected: " + "
got: " 2"
MISMATCH
expected: " (32256a - 80640a + 4320a)b + (67200a - 7200a)b - 26880a"
got: " *"
MISMATCH
expected: " 6 4 2 2 5 3 6"
got: " 28672a"
MISMATCH
expected: " + "
got: " 4"
MISMATCH
expected: " (80640a - 18480a)b + (- 80640a + 53760a - 960a)b"
got: " + "
MISMATCH
expected: " 4 2 4 5 3 3"
got: " (- 1290240a + 1228800a - 57344a)b + 215040a - 307200a"
MISMATCH
expected: " + "
got: " 7 5 3 8 6"
MISMATCH
expected: " - 1008a b + 10080a b + (- 40320a + 2520a)b"
got: " + "
MISMATCH
expected: " 7 2 6 3 5"
got: " (- 258048a + 3870720a - 2119680a + 40960a)b"
MISMATCH
expected: " + "
got: " 8 6 4 2 2"
MISMATCH
expected: " c"
got: " + "
MISMATCH
expected: " 2"
got: " (1548288a - 6881280a + 1781760a)b"
MISMATCH
expected: " *"
got: " 7 5 3 3"
MISMATCH
expected: " - 64512a + 26880a - 1440a"
got: " + "
MISMATCH
expected: " 7 5 3"
got: " (- 3870720a + 7096320a - 583680a)b"
MISMATCH
expected: " + "
got: " 6 4 2 4"
MISMATCH
expected: " (- 161280a + 20160a)b + (161280a - 40320a + 720a)b"

```

```

got: " + "
MISMATCH
expected: " 5 3 2 6 4 2"
got: " (5160960a - 3870720a)b"
MISMATCH
expected: " + "
got: " 5 3 5"
MISMATCH
expected: " 2016a b - 20160a b + (80640a - 3360a)b"
got: " + "
MISMATCH
expected: " 2 5 3 4 4 2 3"
got: " - 258048a b + 1548288a b + (- 3870720a + 860160a)b"
MISMATCH
expected: " + "
got: " 2 8 3 7 4 2 6"
MISMATCH
expected: " ?"
got: " + "
MISMATCH
expected: " 5"
got: " c"
MISMATCH
expected: " *"
got: " 3"
MISMATCH
expected: " 16a c - 8a b c + a b"
got: " *"
MISMATCH
expected: " 6 2 5 2 4 4"
got: " 368640a - 16384a"
MISMATCH
expected: " /"
got: " 5 3"
MISMATCH
expected: " - 288a b + 144a"
got: " + "
MISMATCH
expected: " 3 4"
got: " (- 2064384a + 3440640a - 737280a)b + 344064a - 860160a"
MISMATCH
expected: " + "
got: " 8 6 4 9 7"
MISMATCH
expected: " (2016a - 3528a + 48)b + (4032a - 192a)b + (- 2016a + 336a)b"
got: " + "
MISMATCH
expected: " 4 2 4 3 3 4 2 2"
got: " (5160960a - 5160960a + 368640a)b"
MISMATCH
expected: " + "
got: " 7 5 3 2"
MISMATCH
expected: " 126b - 1008a b + (3024a - 252)b + (- 4032a + 1512a)b"

```

```

got: " + "
MISMATCH
expected: " 8 7 2 6 3 5"
got: " (- 6881280a + 3440640a)b"
MISMATCH
expected: " + "
got: " 6 4 3"
MISMATCH
expected: " c"
got: " + "
MISMATCH
expected: " *"
got: " 344064a b - 2064384a b + (5160960a - 860160a)b"
MISMATCH
expected: " (- 16128a + 480a)b + 8064a - 480a"
got: " 3 6 4 5 5 3 4"
MISMATCH
expected: " 4 2 5 3"
got: " + "
MISMATCH
expected: " + "
got: " ?"
MISMATCH
expected: " (32256a - 8064a)b + (- 16128a + 16128a - 192a)b"
got: " 4"
MISMATCH
expected: " 4 2 3 5 3 2"
got: " *"
MISMATCH
expected: " + "
got: " 16a c - 8a b c + a b"
MISMATCH
expected: " - 1008a b + 8064a b + (- 24192a + 1512a)b"
got: " 7 2 6 2 5 4"
MISMATCH
expected: " 6 2 5 3 4"
got: " /"
MISMATCH
expected: " + "
got: " (- 33600a + 28800a)b + (6720a - 19200a)b + 7200a b - 1440a"
MISMATCH
expected: " c"
got: " 4 2 3 5 3 2 4 5"
MISMATCH
expected: " 2"
got: " + "
MISMATCH
expected: " *"
got: " (20160a - 87360a + 7680)b + (- 4032a + 73920a - 23040a)b"
MISMATCH
expected: " (- 64512a + 8064a)b + 32256a - 8064a + 144a"
got: " 4 2 5 5 3 4"
MISMATCH
expected: " 5 3 6 4 2"

```

```

got: " + "
MISMATCH
expected: " + "
got: " 4032b - 20160a b + (40320a - 13440)b + (- 40320a + 53760a)b"
MISMATCH
expected: " 2016a b - 16128a b + (48384a - 2016a)b"
got: " 9 8 2 7 3 6"
MISMATCH
expected: " 2 4 3 3 4 2 2"
got: " + "
MISMATCH
expected: " + "
got: " c"
MISMATCH
expected: " ?"
got: " *"
MISMATCH
expected: " 6"
got: " - 26880a + 19200a"
MISMATCH
expected: " *"
got: " 6 4"
MISMATCH
expected: " 4a c - a b"
got: " + "
MISMATCH
expected: " 4 3 2"
got: " (32256a - 322560a + 69120a)b + (134400a - 57600a)b"
MISMATCH
expected: " /"
got: " 6 4 2 2 5 3"
MISMATCH
expected: " 504a b + (- 1008a + 84)b + (672a - 336a)b + 504a b - 336a"
got: " + "
MISMATCH
expected: " 4 2 3 3 2 2 3"
got: " (322560a - 295680a)b + (- 161280a + 430080a - 30720a)b"
MISMATCH
expected: " + "
got: " 4 2 4 5 3 3"
MISMATCH
expected: " (336a b - 2016a b + (4032a - 168a)b - 2688a + 336a)c - 84b"
got: " + "
MISMATCH
expected: " 3 2 2 3 4 2 5"
got: " - 32256a b + 161280a b + (- 322560a + 80640a)b"
MISMATCH
expected: " + "
got: " 7 2 6 3 5"
MISMATCH
expected: " ?"
got: " + "
MISMATCH
expected: " 7"

```

```

 got: " c"
MISMATCH
expected: " *"
 got: " 2"
MISMATCH
expected: " 4a c - a b"
 got: " *"
MISMATCH
expected: " 3 2 2"
 got: " - 64512a + 107520a - 23040a"
MISMATCH
expected: " /"
 got: " 7 5 3"
MISMATCH
expected: " (- 144a + 12)b - 24a b + 24a"
 got: " + "
MISMATCH
expected: " 2 2 2"
 got: " (- 645120a + 322560a)b + (322560a - 322560a + 23040a)b"
MISMATCH
expected: " + "
 got: " 5 3 2 6 4 2"
MISMATCH
expected: " (144a b - 576a b + 576a - 24a)c - 36b + 144a b"
 got: " + "
MISMATCH
expected: " 2 2 3 4 3"
 got: " 64512a b - 322560a b + (645120a - 107520a)b"
MISMATCH
expected: " + "
 got: " 2 5 3 4 4 2 3"
MISMATCH
expected: " a"
 got: " + "
MISMATCH
expected: " ? + ----- ?"
 got: " ?"
MISMATCH
expected: " 9 9b - 18a 8"
 got: " 5"
MISMATCH
expected: " WARNING (genufact): No known algorithm to factor"
 got: " *"
MISMATCH
expected: " , trying square-free."
 got: " 16a c - 8a b c + a b"
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
 got: " 6 2 5 2 4 4"
MISMATCH
expected: " 12 3 11 2 2 10 4 9 6"
 got: " /"
MISMATCH
expected: " /"

```



```

got:" (- 2016a + 1344a)b - 576a b + 144a"
MISMATCH
expected:" - 64b"
got:" 4 2 2 3 4"
MISMATCH
expected:" 9"
got:" + "
MISMATCH
expected:" + "
got:" (2016a - 14112a + 768)b + (8064a - 1536a)b"
MISMATCH
expected:" (- 12a b + 120a b - 384a b + 384a b)c + b - 12b + 48b"
got:" 4 2 4 3 3"
MISMATCH
expected:" 13 11 9 7 15 13 11"
got:" + "
MISMATCH
expected:" + "
got:" 2016b - 8064a b + (12096a - 4032)b + (- 8064a + 12096a)b"
MISMATCH
expected:" (48a b - 384a b + 912a b - 640a b + 256a b)c"
got:" 8 7 2 6 3 5"
MISMATCH
expected:" 2 11 2 9 2 7 2 5 2 3 2"
got:" + "
MISMATCH
expected:" + "
got:" c"
MISMATCH
expected:" (- 64a b + 384a b - 576a b + 256a b)c"
got:" *"
MISMATCH
expected:" 3 9 3 7 3 5 3 3 3"
got:" (- 32256a + 3840a)b + 8064a - 1920a"
MISMATCH
expected:" + "
got:" 4 2 5 3"
MISMATCH
expected:" ?"
got:" + "
MISMATCH
expected:" *"
got:" (64512a - 64512a)b + (- 16128a + 64512a - 3072a)b"
MISMATCH
expected:" 64a c - 48a b c + 12a b c - a b"
got:" 4 2 3 5 3 2"
MISMATCH
expected:" 11 3 10 2 2 9 4 8 6"
got:" + "
MISMATCH
expected:" /"
got:" - 16128a b + 64512a b + (- 96768a + 24192a)b"
MISMATCH
expected:" - 240b + 192b"

```

```

 got: "
MISMATCH
expected: " 6 2 5 3 4"
 got: "
MISMATCH
expected: " 10 8"
 got: " + "
MISMATCH
expected: " + "
 got: " c"
MISMATCH
expected: " (108a b - 840a b + 1920a b - 1152a b)c - 9b + 84b"
 got: " 2"
MISMATCH
expected: " 12 10 8 6 14 12"
 got: " *"
MISMATCH
expected: " + "
 got: " (- 129024a + 64512a)b + 32256a - 32256a + 2304a"
MISMATCH
expected: " (- 432a b + 2688a b - 4560a b + 1920a b - 256a b)c"
 got: " 5 3 6 4 2"
MISMATCH
expected: " 2 10 2 8 2 6 2 4 2 2 2"
 got: " + "
MISMATCH
expected: " + "
 got: " 32256a b - 129024a b + (193536a - 32256a)b"
MISMATCH
expected: " (576a b - 2688a b + 2880a b - 768a b)c"
 got: " 2 4 3 3 4 2 2"
MISMATCH
expected: " 3 8 3 6 3 4 3 2 3"
 got: " + "
MISMATCH
expected: " + "
 got: " ?"
MISMATCH
expected: " ?"
 got: " 6"
MISMATCH
expected: " 2"
 got: " *"
MISMATCH
expected: " *"
 got: " 4a c - a b"
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
 got: " 4 3 2"
MISMATCH
expected: " 10 3 9 2 2 8 4 7 6"
 got: " /"
MISMATCH
expected: " /"
 got: " 1008a b - 336a"
MISMATCH
expected: " 480b - 192b"

```

```

 got: " 2 3"
MISMATCH
expected: " 9 7"
 got: " + "
MISMATCH
expected: " + "
 got: " - 672b + 2016a b + (- 2016a + 672)b + (672a - 1344a)b"
MISMATCH
expected: " (- 432a b + 2520a b - 3840a b + 1152a b)c + 36b - 252b"
 got: " 5 4 2 3 3 2"
MISMATCH
expected: " 11 9 7 5 13 11"
 got: " + "
MISMATCH
expected: " + "
 got: " (2688a b - 8064a b + (8064a - 1344a)b - 2688a + 1344a)c"
MISMATCH
expected: " (1728a b - 8064a b + 9120a b - 1920a b)c"
 got: " 3 2 2 3 4 2"
MISMATCH
expected: " 2 9 2 7 2 5 2 3 2"
 got: " + "
MISMATCH
expected: " + "
 got: " ?"
MISMATCH
expected: " (- 2304a b + 8064a b - 5760a b + 768a b)c"
 got: " 7"
MISMATCH
expected: " 3 7 3 5 3 3 3 3"
 got: " *"
MISMATCH
expected: " + "
 got: " 4a c - a b"
MISMATCH
expected: " ?"
 got: " 3 2 2"
MISMATCH
expected: " 3"
 got: " /"
MISMATCH
expected: " *"
 got: " (- 144a + 48)b - 48a b + 24a"
MISMATCH
expected: " 64a c - 48a b c + 12a b c - a b"
 got: " 2 2 2"
MISMATCH
expected: " 9 3 8 2 2 7 4 6 6"
 got: " + "
MISMATCH
expected: " /"
 got: " (576a b - 1152a b + 576a - 96a)c - 144b + 288a b"
MISMATCH
expected: " - 480b + 64b"

```

```

got:" 2 2 3 4 3"
MISMATCH
expected:" 8 6"
got:" + "
MISMATCH
expected:" + "
got:" a"
MISMATCH
expected:" (1008a b - 4200a b + 3840a b - 384a b)c - 84b + 420b"
got:" ? + ----- ?"
MISMATCH
expected:" 10 8 6 4 12 10"
got:" 9 18b - 18a 8"
MISMATCH
expected:" + "
got:" WARNING (genufact): No known algorithm to factor"
MISMATCH
expected:" (- 4032a b + 13440a b - 9120a b + 640a b)c"
got:" , trying square-free."
MISMATCH
expected:" 2 8 2 6 2 4 2 2 2"
got:" 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected:" + "
got:" 12 3 11 2 2 10 4 9 6"
MISMATCH
expected:" (5376a b - 13440a b + 5760a b - 256a)c"
got:" /"
MISMATCH
expected:" 3 6 3 4 3 2 3 3"
got:" - 64b"
MISMATCH
expected:" + "
got:" 9"
MISMATCH
expected:" ?"
got:" + "
MISMATCH
expected:" 4"
got:" (- 12a b + 120a b - 384a b + 384a b)c + b - 12b + 48b"
MISMATCH
expected:" *"
got:" 13 11 9 7 15 13 11"
MISMATCH
expected:" 16a c - 8a b c + a b"
got:" + "
MISMATCH
expected:" 7 2 6 2 5 4"
got:" (48a b - 384a b + 912a b - 640a b + 256a b)c"
MISMATCH
expected:" /"
got:" 2 11 2 9 2 7 2 5 2 3 2"
MISMATCH
expected:" (1008a b - 2520a b + 960a b)c - 126b + 420b - 240b"

```

```

got:" + "
MISMATCH
expected:" 7 5 3 9 7 5"
got:" (- 64a b + 384a b - 576a b + 256a b)c"
MISMATCH
expected:" + "
got:" 3 9 3 7 3 5 3 3 3"
MISMATCH
expected:" (- 2016a b + 3360a b - 720a b)c"
got:" + "
MISMATCH
expected:" 2 5 2 3 2 2"
got:" ?"
MISMATCH
expected:" + "
got:" *"
MISMATCH
expected:" ?"
got:" 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected:" 5"
got:" 11 3 10 2 2 9 4 8 6"
MISMATCH
expected:" *"
got:" /"
MISMATCH
expected:" 16a c - 8a b c + a b"
got:" - 240b + 192b"
MISMATCH
expected:" 6 2 5 2 4 4"
got:" 10 8"
MISMATCH
expected:" /"
got:" + "
MISMATCH
expected:" (- 1008a b + 1512a b - 192a b)c + 126b - 252b + 48b"
got:" (108a b - 840a b + 1920a b - 1152a b)c - 9b + 84b"
MISMATCH
expected:" 6 4 2 8 6 4"
got:" 12 10 8 6 14 12"
MISMATCH
expected:" (2016a b - 2016a b + 144a)c"
got:" (- 432a b + 2688a b - 4560a b + 1920a b - 256a b)c"
MISMATCH
expected:" 2 4 2 2 2 2"
got:" 2 10 2 8 2 6 2 4 2 2 2"
MISMATCH
expected:" + "
got:" + "
MISMATCH
expected:" 4a c - a b"
got:" (576a b - 2688a b + 2880a b - 768a b)c"
MISMATCH
expected:" 4 3 2"

```

```

got:" 3 8 3 6 3 4 3 2 3"
MISMATCH
expected:" ----- ?"
got:" + "
MISMATCH
expected:" (- 336a b + 168a b)c + 84b - 84b 6"
got:" ?"
MISMATCH
expected:" 3 5 3"
got:" 2"
MISMATCH
expected:" + "
got:" *"
MISMATCH
expected:" 4a c - a b"
got:" 64a c - 48a b c + 12a b c - a b"
MISMATCH
expected:" a 3 2 2"
got:" 10 3 9 2 2 8 4 7 6"
MISMATCH
expected:" ? - -- ? + ----- ?"
got:" /"
MISMATCH
expected:" 9 9b 8 (144a b - 24a)c - 36b + 12b 7"
got:" 480b - 192b"
MISMATCH
expected:" 2 4 2"
got:" 9 7"
MISMATCH
expected:" WARNING (genufact): No known algorithm to factor"
got:" + "
MISMATCH
expected:" 4a c - a b 4a c - a b"
got:" (- 432a b + 2520a b - 3840a b + 1152a b)c + 36b - 252b"
MISMATCH
expected:" 3 2 2 5 4 2"
got:" 11 9 7 5 13 11"
MISMATCH
expected:" ? + ----- ? + -----, trying square-free."
got:" + "
MISMATCH
expected:" 4 - 4a c + 2b - 4a b + 4a 2 - b + 4a b - 4a"
got:" (1728a b - 8064a b + 9120a b - 1920a b)c"
MISMATCH
expected:" 2 2 2 2"
got:" 2 9 2 7 2 5 2 3 2"
MISMATCH
expected:" WARNING (genufact): No known algorithm to factor"
got:" + "
MISMATCH
expected:" 4a c - a b 4a c - a b"
got:" (- 2304a b + 8064a b - 5760a b + 768a b)c"
MISMATCH
expected:" 3 2 2 5 4 2"

```

```

 got:" 3 7 3 5 3 3 3 3"
MISMATCH
expected:" ? + ----- ? - -----, trying square-free."
 got:" + "
MISMATCH
expected:" 4 - 4a c + 2b 2 b"
 got:" ?"
MISMATCH
expected:" 2 2"
 got:" 3"
MISMATCH
expected:" WARNING (genufact): No known algorithm to factor"
 got:" *"
MISMATCH
expected:" "
 got:" 64a c - 48a b c + 12a b c - a b"
FAILED kamke3 85 of 139

```

### 15.0.957 bug 7040: warning: missing sentinel in function call

```

edible.c: In function main:
edible.c:226: warning: missing sentinel in function call

```

### 15.0.958 bug 7039: suggest explicit braces to avoid ambiguous

```

/research2/test/int/hyper/spadint.c: In function print_source_to_string1:
/research2/test/int/hyper/spadint.c:990: warning: suggest explicit braces to avoid ambiguous else

```

### 15.0.959 bug 7038: suggest explicit braces to avoid ambiguous

```

/research2/test/int/hyper/spadint.c: In function print_to_string1:
/research2/test/int/hyper/spadint.c:503: warning: suggest explicit braces to avoid ambiguous else
/research2/test/int/hyper/spadint.c:511: warning: suggest explicit braces to avoid ambiguous else

```

### 15.0.960 bug 7037: passing arg 2 makes pointer from integer

```

/research2/test/int/hyper/parse-types.c: In function parse_condnode:
/research2/test/int/hyper/parse-types.c:159: warning: passing argument 2 of httperror makes pointer from integer

```

### 15.0.961 bug 7036: dereferencing type-punned pointer will break rules

```
/research2/test/int/hyper/event.c: In function handle_event:
/research2/test/int/hyper/event.c:244: warning: dereferencing type-punned pointer will break strict-aliasing rule
```

### 15.0.962 bug 7035: defined but not used

```
/research2/test/int/sman/sman.c:752: warning: clean_up_terminal defined but not used
```

### 15.0.963 bug 7034: session.c defined but not used

```
/research2/test/int/sman/session.c:58: warning: pr defined but not used
```

### 15.0.964 section

```
bug 7033:
/research2/test/obj/fedora5/graph/gdraws/gfun.o: In function 'PSInit':gfun.c:(.text+0x237f): warning: the use of
/research2/test/obj/fedora5/graph/gdraws/gfun.o: In function 'PSGlobalInit':gfun.c:(.text+0xd21): warning: the use of
```

### 15.0.965 section

```
bug 7032:
/research2/test/src/graph/view3d/static.h:42: warning: labels defined but not used
```

### 15.0.966 section

```
bug 7031:
/research2/test/int/graph/view3d/surface3d.c: In function drawRenderedPolygon:
/research2/test/int/graph/view3d/surface3d.c:392: warning: col_rgb.r may be used uninitialized in this function
/research2/test/int/graph/view3d/surface3d.c:392: warning: col_rgb.g may be used uninitialized in this function
/research2/test/int/graph/view3d/surface3d.c:392: warning: col_rgb.b may be used uninitialized in this function
```



## 15.0.967 section

bug 7030:

```
/research2/test/int/graph/view3d/stuff3d.c: In function norm_dist:
/research2/test/int/graph/view3d/stuff3d.c:126: warning: pert.z is used uninitialized in this function
```

## 15.0.968 section

bug 7029:

```
/research2/test/int/graph/view3d/process3d.c: In function processEvents:
/research2/test/int/graph/view3d/process3d.c:855: warning: linearMouseXY.x may be used uninitialized in this function
/research2/test/int/graph/view3d/process3d.c:855: warning: linearMouseXY.y may be used uninitialized in this function
/research2/test/int/graph/view3d/process3d.c:855: warning: mouseXY.x may be used uninitialized in this function
/research2/test/int/graph/view3d/process3d.c:855: warning: mouseXY.y may be used uninitialized in this function
```

## 15.0.969 section

bug 7028:

```
/research2/test/int/graph/view3d/control3d.c: In function getControlXY:
/research2/test/int/graph/view3d/control3d.c:798: warning: cXY.putX may be used uninitialized in this function
/research2/test/int/graph/view3d/control3d.c:798: warning: cXY.putY may be used uninitialized in this function
```

## 15.0.970 section

bug 7027:

```
/research2/test/obj/fedora5/graph/gdraws/gfun.o: In function 'PSInit':gfun.c:(.text+0x237f): warning: the use of
/research2/test/obj/fedora5/graph/gdraws/gfun.o: In function 'PSGlobalInit':gfun.c:(.text+0xd21): warning: the use of
```

## 15.0.971 section

bug 7026:

```
/research2/test/int/graph/view2d/process2d.c: In function processEvents:
/research2/test/int/graph/view2d/process2d.c:491: warning: mouseXY.x may be used uninitialized in this function
/research2/test/int/graph/view2d/process2d.c:491: warning: mouseXY.y may be used uninitialized in this function
```

**15.0.972 section**

bug 7025:

```
/research2/test/int/graph/view2d/control2d.c: In function getControlXY:
/research2/test/int/graph/view2d/control2d.c:367: warning: cXY.putX may be used uninitialized in this function
/research2/test/int/graph/view2d/control2d.c:367: warning: cXY.putY may be used uninitialized in this function
```

**15.0.973 section**

bug 7024: edible.c:226: warning: missing sentinel in function call

**15.0.974 section**

bug 7022: NewDistributedMultivariatePolynomial does not exist  
 Hyperdoc bug Topics>Polynomials>Specific Types>Polynomial  
 likely this is XDistributedPolynomial... change all refs in help

**15.0.975 section**

bug 7021: vertical bar is not implemented properly.

```
m1:=matrix [[1,2,1],[2,1,-2],[1,-2,4]]
eigenvalues(m1)
should be
```

$$\begin{bmatrix} 5, \%DA & | & \%DA^2 & - \%DA & - 5 \end{bmatrix}$$

but instead prints as:

$$\begin{bmatrix} 5, \%DA & ? & \%DA^2 & - \%DA & - 5 \\ ? \end{bmatrix}$$
**15.0.976 section**

bug 7018: mathml does not render "failed" properly

```
limit(x*log(x),x=0)
```

```
[leftHandLimit=~failed~,rightHandLimit=0]
```

### 15.0.977 section

```
bug 7017: time screws the regression tests
add)set mes time off
to all regression tests
```

### 15.0.978 section

```
bug 7013: DirectProduct harms matrix multiply by constant
(9) -> k
```

```
 + 2 - 1 0 +
 | |
(9) |- 1 2 - 1|
 | |
 + 0 - 1 2 +
```

Type: SquareMatrix(3,Fraction Integer)

```
(10) -> k*4
```

```
(10) [4,0,4]
```

Type: DirectProduct(3,Fraction Integer)

### 15.0.979 section

```
bug 7012 (SF/1795259): Error printing lists
fixed in OpenAxiom by changing:
```

```
 aggcat.spad
 array1.spad
 list.spad
 tree.spad
```

```
)abbrev domain F00 foo
```

```
foo(): with
 makeFoo: () -> %
 coerce: % -> OutputForm
== add
 makeFoo() == "a foo" pretend %
```

```

coerce x == (x pretend String)::OutputForm

)co foo.spad

(7) -> makeFoo()
 Type: List foo

(7) "a foo"
 Type: foo

(8) -> [makeFoo()]

LISP output:
(a foo)
 Type: List foo

The reason is that the List functor is defined
to have a coercion to OutputForm only if its argument
is of type SetCategory. This is clearly wrong. There is
no reason to associate prettyprinting with SetCategory
membership.

changing the signature line to read:
 foo(): SetCategory with
causes

(10) -> [makeFoo()]
 Type: List foo

(10) ["a foo"]
 Type: List foo

```

### 15.0.980 section

```

bug7009 (SF/1790563): fatal error (fixed in openaxiom rev 135)
(1) -> Insn == Enumeration(New, Move, Line, Close)
 Type: Void

(2) -> Insn
 Compiling body of rule Insn to compute value of type Domain

>> System error:
Caught fatal error [memory may be damaged]

in i-output.boot function outputDomainConstructor change
 if VECTORP form then form := devaluate form
 if VECTORP CAR form then form := devaluate form

```

### 15.0.981 section

```

bug7008: never completes
y:=operator 'y
ode360 := D(y(x),x)*cos(a*y(x))-b*(1-c*cos(a*y(x)))*_
 sqrt(cos(a*y(x))**2-(1-c*cos(a*y(x))))
solve(ode360,y,x)

```

```

IDEA: write a new axiom output for
 X+Y+Z
 where X=
 where Y=
 where Z=
and it linebreaks properly

```

## 15.0.982 section

```

bug7007: never completes
y:=operator 'y
ode184 := (a*x**2+b*x+c)**2*(D(y(x),x)+y(x)**2) + A
ode184a:=solve(ode184,y,x)

```

## 15.0.983 section

```

bug7006: never completes
y:=operator 'y
ode182 := x*(x**3-1)*D(y(x),x) - 2*x*y(x)**2 + y(x) + x**2
ode182a:=solve(ode182,y,x)

```

## 15.0.984 section

```

bug7005: infinite loop trying to factor
y:=operator 'y
ode162 := (x-a)*(x-b)*D(y(x),x) + y(x)**2 + k*(y(x)+x-a)*(y(x)+x-b)
ode162a:=solve(ode162,y,x)

```

```

WARNING (genufact): No known algorithm to factor
 3 2 2 2
 ? - 3? + (- k + 3)? + k - 1, trying square-free.

```

## 15.0.985 section

```

bug7004: plugging the particular solution into the ODE using eval fails
 to take the derivative. And eval will not let you use y'(x)
y:=operator 'y
ode2 := D(y(x),x) + a*y(x) - c*exp(b*x)
ode2a:=solve(ode2,y,x)
mm:=ode2a.particular
eval(ode2,y(x)=mm) <= should be zero
D(mm,x)-c*exp(b*x)+a*mm

```

## 15.0.986 section

```

bug7003:
ode73 := D(y(x),x) - ((a3*x**3+a2*x**2+a1*x+a0)/_
 (a3*y(x)**3+a2*y(x)**2+a1*y(x)+a0))**(2/3)

```

$$(4) \quad y'(x) - \frac{a_3 x^3 + a_2 x^2 + a_1 x + a_0}{\sqrt[3]{a_3 y(x)^3 + a_2 y(x)^2 + a_1 y(x) + a_0}} = 0$$

```

solve(ode73,y,x)
Type: Expression Integer

>> Error detected within library code:
Table construction failed in MLIFT

```

## 15.0.987 section

```

bug7002: infinite loop
ode59 := D(y(x),x) - a*sqrt(y(x)**2+1) - b
solve(ode59,y,x)

```

## 15.0.988 section

```

bug7001:

```

```

B0 n == matrix [[(if i=j+1 and odd? j then -1 else _
 if i=j-1 and odd? i then 1 else 0) _
 for j in 1..n] for i in 1..n]

PfChar(lambda, A) ==
 n := nrows A
 (n = 2) => lambda^2 + A.(1,2)
 M := subMatrix(A, 3, n, 3, n)
 r := subMatrix(A, 1, 1, 3, n)
 s := subMatrix(A, 3, n, 2, 2)

 p := PfChar(lambda, M)
 d := degree(p, lambda)

 B := B0(n-2)
 C := r*B
 g := [(C*s).(1,1), A.(1,2), 1]
 if d >= 4 then
 B := M*B
 for i in 4..d by 2 repeat
 C := C*B
 g := cons((C*s).(1,1), g)
 g := reverse! g

 res := 0
 for i in 0..d by 2 for j in 2..d+2 repeat
 c := coefficient(p, lambda, i)
 for e in first(g, j) for k in 2..-d by -2 repeat
 res := res + c * e * lambda^(k+i)

 res

pfaffian A == eval(PfChar(1, A), 1=0)

makepfaff(seq,n) ==
 m:= matrix [[(if i<j then (seq.(j-i)) _
 else if i>j then -(seq.(i-j))
 else 0) for j in 1..n] for i in 1..n]

seq:=[2 for i in 1..]
mp:=[makepfaff(seq,k) for k in 2..10 by 2]
[pfaffian mp.i for i in 1..5]

```

## 15.0.989 section

question: can we represent portions of n-dimensional space in provisos?

**15.0.990 section**

```
bug7000:
m0:=[[0,0],[0,0]]
m1:Matrix(Integer):=[[0,3],[-3,0]]
m2:Matrix(Integer):=[[0,5],[-5,0]]
m3:Matrix(Integer):=[[0,7],[-7,0]]
mn:Matrix(Integer):=[[m1,m0,m0],[m0,m2,m0],[m0,m0,m3]]
```

**15.0.991 section**

```
bug102:
solve(sinh(z)=cosh(z),z)

>> Error detected within library code:
No identity element for reduce of empty list using operation
append
```

**15.0.992 section**

```
bug104:
solve(cos(z)/sin(z)=0,z)

(2) []
Type: List Equation Expression Integer
should be %pi/2

(3) -> solve(cot(z)=0,z)

(3) [z= ---]
 %pi
 2
Type: List Equation Expression Integer
```

**15.0.993 section**

```
why do these differ?
diff -Naur ./viewdef.spad.pamphlet /research/may07/build-improvements/src/algebra/viewdef.spad.pamphlet
diff -Naur ./view3d.spad.pamphlet /research/may07/build-improvements/src/algebra/view3d.spad.pamphlet
```



```
diff -Naur ./view2d.spad.pamphlet /research/may07/build-improvements/src/algebra/view2d.spad.pamphlet
```

## 15.0.994 section

```
--- src/algebra/intrf.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/intrf.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -478,7 +478,7 @@
 else notelm := notelm + monomial(missing, n)
 p := reductum p
 zero? notelm => [answr, coef0]
- [answr, notelm + monomial(coef0, 0)]
+ [answr, notelm]
```

-- f is either 0 or of the form  $p(t)/(1 + t^{**2})^{**n}$   
-- returns either

## 15.0.995 section

```
--- src/algebra/intfact.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/intfact.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -401,51 +401,27 @@
 r:I := 1
 q:I := 1
 G:I := 1
- l:I
- k:I
 until G > 1 repeat
 x := y
- ys := y
 for i in 1..convert(r)@Integer repeat
 y := (y*y+5::I) rem n
 q := (q*abs(x-y)) rem n
- k := 0::I
- G := gcd(q,n)
+ k:I := 0
 until (k>=r) or (G>1) repeat
 ys := y
 for i in 1..convert(min(m,r-k))@Integer repeat
 y := (y*y+5::I) rem n
- q := (q*abs(x-y)) rem n
+ q := q*abs(x-y) rem n
 G := gcd(q,n)
 k := k+m
- k := k + r
```

```

 r := 2*r
 if G=n then
- l := k - m
- G := 1::I
 until G>1 repeat
 ys := (ys*ys+5::I) rem n
 G := gcd(abs(x-ys),n)
- l := l + 1
- if G = n then
- y := x0
- x := x0
- for i in 1..convert(l)@Integer repeat
- y := (y*y+5::I) rem n
- G := gcd(abs(x-y), n)
- until G>1 repeat
- y := (y*y+5::I) rem n
- x := (x*x+5::I) rem n
- G := gcd(abs(x-y), n)
 G=n => "failed"
 G

- PollardSmallFactor20(n:I):Union(I,"failed") ==
- for i in 1..20 repeat
- r := PollardSmallFactor n
- r case I => return r
- r
-
 BasicSieve(r, lim) ==
 l:List(I) :=
 [1::I,2::I,2::I,4::I,2::I,4::I,2::I,4::I,6::I,2::I,6::I]
@@ -494,7 +470,7 @@
 (y:=perfectSqrt (x**2-n)) case I =>
 insert_!(x+y,a,c)
 insert_!(x-y,a,c)
- (d := PollardSmallFactor20 n) case I =>
+ (d := PollardSmallFactor n) case I =>
 for m in 0.. while zero?(n rem d) repeat n := n quo d
 insert_!(d, a, m * c)
 if n > 1 then insert_!(n, a, c)

```

## 15.0.996 section

```

--- src/algebra/gaussian.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/gaussian.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -367,18 +367,10 @@
 argument x == atan2loc(imag x, real x)

 else
- if R has RadicalCategory then
- argument x ==

```

```

- n1 := sqrt(norm(x))
- x1 := real(x) + n1
- (2::R)*atan(imag(x) * recip(x1)::R)
-
- else
- -- Emulate sqrt using exp and log
- argument x ==
- n1 := exp(half*log(norm(x)))
- x1 := real(x) + n1
- (2::R)*atan(imag(x) * recip(x1)::R)
+ -- Not ordered so dictate two quadrants
+ argument x ==
+ zero? real x => pi()$R * half
+ atan(imag(x) * recip(real x)::R)

pi() == pi()$R :: %

```

## 15.0.997 section

```

--- src/algebra/free.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/free.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -531,21 +531,21 @@
 inmax l ==
 mx := first l
 for t in rest l repeat
- if mx.gen < t.gen then mx := t
+ if t.gen > mx.gen then mx := t
 mx

- -- lexicographic order
- a < b ==
- zero? a =>
- zero? b => false
- 0 < (inmax terms b).exp
+ (inmax terms b).exp > 0
+ ta := inmax terms a
+ zero? b => ta.exp < 0
+ ta := inmax terms a
+ tb := inmax terms b
- ta.gen < tb.gen => 0 < tb.exp
- tb.gen < ta.gen => ta.exp < 0
+ ta.gen < tb.gen => true
+ ta.gen > tb.gen => false
+ ta.exp < tb.exp => true
- tb.exp < ta.exp => false
+ ta.exp > tb.exp => false
+ lc := ta.exp * ta.gen
+ (a - lc) < (b - lc)

```

## 15.0.998 section

```

--- src/algebra/files.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/files.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -389,8 +389,10 @@

 defstream(fn: Name, mode: IOMode): FileState ==
 mode = "input" =>
+ not readable? fn => error ["File is not readable", fn]
 RDEFINSTREAM(fn::String)$Lisp
 mode = "output" =>
+ not writable? fn => error ["File is not writable", fn]
 RDEFOUTSTREAM(fn::String)$Lisp
 error ["IO mode must be input or output", mode]

@@ -407,7 +409,9 @@
 mode = "either" =>
 exists? fname =>
 open(fname, "input")
- reopen_!(open(fname, "output"), "input")
+ writable? fname =>
+ reopen_!(open(fname, "output"), "input")
+ error "File does not exist and cannot be created"
 [fname, defstream(fname, mode), mode]
 reopen_!(f, mode) ==
 close_! f
@@ -502,10 +506,6 @@
 ++ \spad{lib.k := v} saves the value \spad{v} in the library
 ++ \spad{lib}. It can later be extracted using the key \spad{k}.

- close_!: % -> %
- ++ close!(f) returns the library f closed to input and output.
-
-
 == KeyedAccessFile(Any) add
 Rep := KeyedAccessFile(Any)
 library f == open f

```

## 15.0.999 section

```

--- src/algebra/efstruc.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/efstruc.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -2,7 +2,7 @@
\usepackage{axiom}
\begin{document}
\title{\$SPAD/src/algebra efstruc.spad}
-\author{Manuel Bronstein, Waldek Hebisch}
+\author{Manuel Bronstein}

```

```

\maketitle
\begin{abstract}
\end{abstract}
@@ -101,9 +101,9 @@
<<package EFSTRUC ElementaryFunctionStructurePackage>>=
)abbrev package EFSTRUC ElementaryFunctionStructurePackage
++ Risch structure theorem
-++ Author: Manuel Bronstein, Waldek Hebisch
+++ Author: Manuel Bronstein
++ Date Created: 1987
-++ Date Last Updated: 9 October 2006
+++ Date Last Updated: 16 August 1995
++ Description:
++ ElementaryFunctionStructurePackage provides functions to test the
++ algebraic independence of various elementary functions, using the
@@ -346,102 +346,9 @@
 return false
 true

```

## 15.0.1000 section

- 1) the patch correct problem in goodCoef, there are other bugs in integrator, I will work on them separately.
- 2) AFAICS goodCoef is an optimization, it should be safe to return "failed" always (but since we take different path in the other part we hit different bugs). I tried to preserve optimization done by goodCoef whenever it is safe.
- 3) I would like to use higher level constructs, but I kept hitting into problems with SPAD compiler, so finally I used a rather low level way
- 4) without the patch the AXIOM recurses infinitely handling the few integrals below (first I previously gave in the bug report). With the patch the first two are correctly handled, the other two quickly hit into unimplemented part of Risch algorithm:

## 15.0.1001 section

```

integrate(
simplify(
 D((log((x)+1)+a)
 / (2*(((x*(exp(exp(x)/2)))-(a*(x+exp(-x/2))))*(2/x))-3)),
 x),
x)

```

## 15.0.1002 section

```

integrate(
 simplify(
 D((((
 (sqrt((sqrt((x)/(x)))/(a)))
 / (sqrt(x)))
 * (((x)-(1))*(1))-(1)))
 * (a))
 * ((log((x)
 * ((a)/(log(sqrt((x)/((x)*(x)*(x)))))))
 + ((x)/(sqrt(2)))*(exp(exp(x))))
 + ((x)-(exp(2))))
 + ((1)*(2)), x)),
 x)

```

This fails with ‘Function not supported by Risch d.e.’

## 15.0.1003 section

```

integrate(
 simplify(
 D((((((a)/(sqrt((sqrt(x))-(x))))+(x))*(x))+(1))
 * (((((1)-(log(x)))+(1))*(exp(exp(2))))*(2))
 * ((1)*((log((a)*(1)))*(a)))
 * (exp(((exp(x))*(x))
 - (exp(x))))))
 * (a), x)),
 x)

```

This fails with ‘intef: failed1 - cannot handle that integrand’

## 15.0.1004 section

```

integrate(
 simplify(
 D(((((((x)+(log(x)))*((x)/(x))/(sqrt(x))))
 / ((a)*(x)))
 - (sqrt(sqrt((exp(x))/(x)-(sqrt(x)))-(log(x))))
 - (x))
 - (((exp((sqrt(log(1)))*(x)*((x)/(log(x))))))
 / (exp((1)+(2)-((x)-(x))))))
 * (((((x)/(1))-(log(x)))*(1))+((2)+(a))/(exp(sqrt(x))))))
 / (2), x)),
 x)

```

If k1 is part of k2 we should not express k1 in terms of k2

(otherwise we would get infinite recursion).  
 Below we impose a stronger condition: we require  
 height(k1) to be maximal

```
<<package EFSTRUC ElementaryFunctionStructurePackage>>=
goodCoef(v, l, s) ==
 h:NonNegativeInteger := 0
 j:Integer := 0
 ll : List K := [];
 for k in l repeat
 if (is?(k, "log"::SY) or is?(k, "exp"::SY)
 or is?(k, "tan"::SY) or is?(k, "atan"::SY)) then
 ll := [k, :ll]
 h := h + 1
 not (h = (maxIndex(v) - minIndex(v) + 1)) => "failed"
 h := 0
 ll := reverse(ll)
 for i in minIndex v .. maxIndex v for k in ll repeat
 h1 := height(k)
 if (h1 > h) then
 j := i
 h := h1
 for i in minIndex v .. maxIndex v for k in ll repeat
 is?(k, s) and (i >= j) and
 for i in minIndex v .. maxIndex v for k in l repeat
 is?(k, s) and
 ((r:=recip(qelt(v,i))) case Q) and
 (retractIfCan(r::Q)@Union(Z, "failed") case Z)
 and gdCoef?(qelt(v, i), v) => return([i, k])
```

## 15.0.1005 section

```
--- src/algebra/draw.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/draw.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -318,10 +318,9 @@
 myTrap1: (SF-> SF, SF) -> SF
 myTrap1(ff:SF-> SF, f:SF):SF ==
 s := trapNumericErrors(ff(f))$Lisp :: Union(SF, "failed")
- s case "failed" => 0
+ s case "failed" => _$NaNvalue$Lisp
 r:=s::SF
- r >max()$SF => max()$SF
- r < min()$SF => min()$SF
+ r >max()$SF or r < min()$SF => _$NaNvalue$Lisp
 r

 makePt2: (SF,SF) -> Point SF
@@ -494,10 +493,9 @@
 myTrap2: ((SF, SF) -> SF, SF, SF) -> SF
```

```

myTrap2(ff:(SF, SF) -> SF, u:SF, v:SF):SF ==
 s := trapNumericErrors(ff(u, v))$Lisp :: Union(SF, "failed")
- s case "failed" => 0
+ s case "failed" => _$NaNvalue$Lisp
 r:SF := s::SF
- r >max()$SF => max()$SF
- r < min()$SF => min()$SF
+ r >max()$SF or r < min()$SF => _$NaNvalue$Lisp
 r

recolor(ptFunc,colFunc) ==

```

## 15.0.1006 section

```

--- src/algebra/plot3d.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/plot3d.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -192,11 +192,11 @@

 select(l,f,g) ==
 m := f first l
- -- if (EQL(m, _$NaNvalue$Lisp)$Lisp) then m := 0
+ if (EQL(m, _$NaNvalue$Lisp)$Lisp) then m := 0
- -- for p in rest l repeat m := g(m,fp)
+ for p in rest l repeat
+ for p in rest l repeat
+ fp : F := f p
- -- if (EQL(fp, _$NaNvalue$Lisp)$Lisp) then fp := 0
+ if (EQL(fp, _$NaNvalue$Lisp)$Lisp) then fp := 0
+ m := g(m,fp)
 m

@@ -447,7 +447,7 @@
myTrap(ff:F-> F, f:F):F ==
 s := trapNumericErrors(ff(f))$Lisp :: Union(F, "failed")
 if (s) case "failed" then
- r:F := 0
+ r:F := _$NaNvalue$Lisp
 else
 r:F := s
 r

```

## 15.0.1007 section

```

--- src/algebra/numtheor.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/numtheor.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -432,50 +432,18 @@

```



```

 for entry in factors factor n repeat
 r := ((entry.factor - 1) / $RN entry.factor) * r
 numer(n * r)
-@

-<<package INTHEORY IntegerNumberTheoryFunctions>>=
 divisors n ==
- oldList : List Integer := [1]
+ oldList : List Integer := concat(1,nil())
 for f in factors factor n repeat
- newList : List Integer := oldList
- for k in 1..f.exponent repeat
+ newList : List Integer := nil()
+ for k in 0..f.exponent repeat
 pow := f.factor ** k
 for m in oldList repeat
- newList := concat(pow * m, newList)
+ newList := concat(pow * m,newList)
 oldList := newList
+ sort(#1 < #2,newList)

- sort(#1 < #2, oldList)
-@
-
-[[divisors]] generates the list of positive divisors of an integer. We proceed
-in an inductive manner: [[oldList]] contains the list of all possible divisors
-containing only the first few factors of [[n]]. We then prepend all possible
-divisors containing the new factor [[f]] by multiplying the [[oldList]] with
-all possible positive powers of [[f]].
-
-Up to [[patch--50]] the last line read
%%
\subsection{section}

- sort(#1 < #2, newList)
-

-which fails when [[n]] equals 1 or -1, since in this case -[[factors factor n]] returns the
empty list, and thus the loop in which -[[newlist]] is initialised is never entered. (issue 340) -
-Furthermore, we took the opportunity to make the function slightly more -efficient. Up to
[[patch-50]], we had

```

### 15.0.1008 section

```

...
 newList : List Integer := []
 for k in 0..f.exponent repeat
 ...

```

Thus, the [[oldList]] was copied element by element every time a new factor was added. Since we \emph{prepend} the new elements of [[newList]], the two list

can safely share memory.

```
<<package INTHEORY IntegerNumberTheoryFunctions>>=
 numberOfDivisors n ==
 n = 0 => 0
 */[1+entry.exponent for entry in factors factor n]
```

## 15.0.1009 section

```
--- src/algebra/newdata.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/newdata.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -10,21 +10,6 @@
 \tableofcontents
 \eject
 \subsection{package IPRNTPK InternalPrintPackage}
 -Putting (or omitting) the final call to {\bf FORCE-OUTPUT} in {\bf iprint}
 -is controversial:
 %%%
 \subsection{section}
 \begin{verbatim}
```

Waldek: iprint is used to print (regular) triangular sets.

Unconditional flush defeats buffering optimizations, so IMHO it should be done only for some streams (for example streams connected to terminals).

Flushing output should be done when the output is complete, while iprint clearly is used to compose bigger units from small parts.

Tim: unless the princ contains a newline there is no guarantee that the output will appear. if the output is intended to be a prompt, for instance, which does not contain a newline then the flush is needed to force the output to appear.

Deleting the call to flush breaks the existing semantics of the package.

```
<<package IPRNTPK InternalPrintPackage>>=
)abbrev package IPRNTPK InternalPrintPackage
++ Author: Themos Tsikas
@@ -49,7 +34,7 @@
 Implementation == add
 iprint(s:String) ==
 PRINC(coerce(s)@Symbol)$Lisp
- FORCE_-OUTPUT$Lisp
+ FLUSH()$Lisp
```

## 15.0.1010 section

```

--- src/algebra/manip.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/manip.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -623,13 +623,10 @@
 -- like to combine it with a log term.
 terms :List F := [simplifyLog(term) for term in termList::List(F)]
 exprs :List F := []
- nterms :List F := []
- for term in terms repeat
- if retractIfCan(term)@Union(FPR,"failed") case FPR then
- exprs := cons(term, exprs)
- else
- nterms := cons(term, nterms)
- terms := nterms
+ for i in 1..#terms repeat
+ if retractIfCan(terms.i)@Union(FPR,"failed") case FPR then
+ exprs := cons(terms.i,exprs)
+ terms := delete!(terms,i)
 if not empty? exprs then
 foundLog := false
 i : NonNegativeInteger := 0

```

## 15.0.1011 section

```

--- src/algebra/plot.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/plot.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -477,10 +477,9 @@
 myTrap: (F-> F, F) -> F
 myTrap(ff:F-> F, f:F):F ==
 s := trapNumericErrors(ff(f))$Lisp :: Union(F, "failed")
- s case "failed" => 0
+ s case "failed" => _$NaNvalue$Lisp
 r:F:=s::F
- r > max()$F => max()$F
- r < min()$F => min()$F
+ r > max()$F or r < min()$F => _$NaNvalue$Lisp
 r

 plot(f:F -> F,xRange:R) ==

```

## 15.0.1012 section

Files src/algebra/sttaylor.spad.pamphlet and /research/may07/build-improvements/src/algebra/sttaylor.spad.pamphlet

```

--- src/algebra/sttaylor.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/sttaylor.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -434,8 +434,6 @@

```

```

(ord := (order exquo denom(rn))) case "failed" =>
 error "***: rational power does not exist"
co := frst x
- if ord > 0 and rn < 0 then
- error "***: negative power does not exist"
(invCo := recip co) case "failed" =>
 error "** rational power of coefficient undefined"
-- This error message is misleading, isn't it? see sups.spad/cRationalPower
@@ -450,7 +448,6 @@

 RATPOWERS => co**rn * YS(powerrn(rn,(invCo :: A) * x,#1))
 error "** rational power of coefficient undefined"
- monom(1,(ord :: I) * numer(rn)) * power

if A has Field then
 mapdiv(x,y) == delay

\subsection{domain DFLOAT DoubleFloat}
Greg Vanuxem has added some functionality to allow the user to modify
the printed format of floating point numbers. The format of the numbers
@@ -422,7 +846,7 @@
 ++ (that is, \spad{|(r-f)/f| < b**(-n)}).

== add
- format: String := "~A"
+ format: String := "~G"
MER ==> Record(MANTISSA:Integer,EXPONENT:Integer)

manexp: % -> MER
@@ -481,17 +905,16 @@
 base() = 2 => precision()
 base() = 16 => 4*precision()
 wholePart(precision()*log2(base():%))::PositiveInteger
- max() == MOST_-POSITIVE_-DOUBLE_-FLOAT$Lisp
- min() == MOST_-NEGATIVE_-DOUBLE_-FLOAT$Lisp
+ max() == MOST_-POSITIVE_-LONG_-FLOAT$Lisp
+ min() == MOST_-NEGATIVE_-LONG_-FLOAT$Lisp
order(a) == precision() + exponent a - 1
- 0 == FLOAT(0$Lisp,MOST_-POSITIVE_-DOUBLE_-FLOAT$Lisp)$Lisp
- 1 == FLOAT(1$Lisp,MOST_-POSITIVE_-DOUBLE_-FLOAT$Lisp)$Lisp
+ 0 == FLOAT(0$Lisp,MOST_-POSITIVE_-LONG_-FLOAT$Lisp)$Lisp
+ 1 == FLOAT(1$Lisp,MOST_-POSITIVE_-LONG_-FLOAT$Lisp)$Lisp
-- rational approximation to e accurate to 23 digits
- exp1() == FLOAT(534625820200,MOST_-POSITIVE_-DOUBLE_-FLOAT$Lisp)$Lisp / FLOAT(196677847971,MOST_-POSITIVE_-DOUBLE_-FLOAT$Lisp)$Lisp
+ exp1() == FLOAT(534625820200,MOST_-POSITIVE_-LONG_-FLOAT$Lisp)$Lisp / FLOAT(196677847971,MOST_-POSITIVE_-LONG_-FLOAT$Lisp)$Lisp
pi() == PI$Lisp
coerce(x:%):OutputForm ==
- x >= 0 => message(FORMAT(NIL$Lisp,format,x)$Lisp pretend String)
- (message(FORMAT(NIL$Lisp,format,-x)$Lisp pretend String))
+ outputForm(FORMAT(NIL$Lisp,format,x)$Lisp pretend DoubleFloat)
convert(x:%):InputForm == convert(x pretend DoubleFloat)$InputForm
x < y == (x<y)$Lisp
- x == (-x)$Lisp
@@ -507,7 +930,7 @@

```

```

log10 x == checkComplex log(x)$Lisp
x:% ** i:Integer == EXPT(x,i)$Lisp
x:% ** y:% == checkComplex EXPT(x,y)$Lisp
- coerce(i:Integer):% == FLOAT(i,MOST_POSITIVE_DOUBLE_FLOAT$Lisp)$Lisp
+ coerce(i:Integer):% == FLOAT(i,MOST_POSITIVE_LONG_FLOAT$Lisp)$Lisp
exp x == EXP(x)$Lisp
log x == checkComplex LN(x)$Lisp
log2 x == checkComplex LOG2(x)$Lisp
@@ -650,7 +1073,286 @@
 x ** (n:% / d:%)

```

## 15.0.1013 section

```

--- src/algebra/sets.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/sets.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -22,14 +22,14 @@
++ Keywords:
++ References:
++ Description:
++ A set over a domain S models the usual mathematical notion of a finite set
++ of elements from S.
++ A set over a domain D models the usual mathematical notion of a finite set
++ of elements from D.
++ Sets are unordered collections of distinct elements
++ (that is, order and duplication does not matter).
++ The notation \spad{set [a,b,c]} can be used to create
++ a set and the usual operations such as union and intersection are available
++ to form new sets.
-- If S has OrderdSet, \Language{} maintains the entries in
+++ In our implementation, \Language{} maintains the entries in
++ sorted order. Specifically, the parts function returns the entries
++ as a list in ascending order and
++ the extract operation returns the maximum entry.
@@ -59,6 +59,10 @@

map(f, s) == map_!(f,copy s)

+ map_!(f,s) ==
+ map_!(f,s)$Rep
+ removeDuplicates_! s
+
reduce(f, s) == reduce(f, s)$Rep

reduce(f, s, x) == reduce(f, s, x)$Rep
@@ -75,11 +79,6 @@
 max s == inspect s
 min s == (empty? s => error "Empty set"; s(minIndex s))

- map_!(f,s) ==
- map_!(f,s)$Rep

```

```

- sort_!(s)$Rep
- removeDuplicates_! s
-
- construct l ==
- zero?(n := #l) => empty()
- a := new(n, first l)
@@ -188,10 +187,6 @@
- k := inc k
- s
-
- map_!(f,s) ==
- map_!(f,s)$Rep
- removeDuplicates_! s
-

```

### 15.0.1014 section

```

--- src/algebra/polycat.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/polycat.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -162,7 +162,7 @@
- x/r == map(#1/r,x)
- if R has IntegralDomain then
- x exquo r ==
- zero? r => error "Division by 0"
+ -- probably not a very good definition in most special cases
+ zero? x => 0
+ ans:% :=0
+ t:=leadingCoefficient x exquo r
@@ -568,10 +568,8 @@
- unit(s := squareFree p) * */[f.factor for f in factors s]
- content(p,v) == content univariate(p,v)
- primitivePart p ==
- zero? p => p
- unitNormal((p exquo content p) ::%).canonical
- primitivePart(p,v) ==
- zero? p => p
- unitNormal((p exquo content(p,v)) ::%).canonical
- if R has OrderedSet then
- p:% < q:% ==
@@ -608,7 +606,2117 @@
- p)$PolynomialCategoryLifting(E,VarSet,R,%,InputForm)

```

### 15.0.1015 section

```

--- src/algebra/combfunc.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400

```

```

+++ /research/may07/build-improvements/src/algebra/combfunc.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -1,5 +1,5 @@
\documentclass{article}
-\usepackage{axiom, amsmath, amfonts}
+\usepackage{axiom}
\begin{document}
\title{\$SPAD/src/algebra combfunc.spad}
\author{Manuel Bronstein, Martin Rubey}
@@ -88,53 +88,6 @@
 binomial : (F, F) -> F
 ++ binomial(n, r) returns the number of subsets of r objects
 ++ taken among n objects, i.e. $n!/(r! * (n-r)!)$;
-@
-
-We currently simplify binomial coefficients only for non-negative integral
-second argument, using the formula
-$$$ \binom{n}{k} = \frac{1}{k!} \prod_{i=0..k-1} (n-i), $$$
-except if the second argument is symbolic: in this case $[\text{binomial}(n,n)]$ is
-simplified to one.
-
-Note that there are at least two different ways to define binomial coefficients
-for negative integral second argument. One way, particular suitable for
-combinatorics, is to set the binomial coefficient equal to zero for negative
-second argument. This is, partially, also the approach taken in
- $[\text{combinat.spad}]$, where we find
-
%%
\subsection{section}
\begin{verbatim}

 binomial(n, m) ==
 n < 0 or m < 0 or m > n => 0
 m = 0 => 1

Of course, here $[n]$ and $[m]$ are integers. This definition agrees with the
recurrence

$$$ \binom{n}{k} + \binom{n}{k+1} = \binom{n+1}{k+1}. $$$

Alternatively, one can use the formula
$$$ \binom{n}{k} = \frac{\Gamma(n+1)}{\Gamma(k+1)\Gamma(n-k+1)}, $$$
and leave the case where $k \in \mathbb{Z}$, $n \in \mathbb{Z}$ and $k \leq n < 0$
undefined, since the limit does not exist in this case:

Since we then have that $n-k+1 \geq 1$, $\Gamma(n-k+1)$ is finite. So it is
sufficient to consider $\frac{\Gamma(n+1)}{\Gamma(k+1)}$. On the one hand, we
have
$$$ \lim_{n \rightarrow \infty} \lim_{k \rightarrow \infty} \frac{\Gamma(n+1)}{\Gamma(k+1)} = 0, $$$
since for any non-integral n , $\Gamma(n+1)$ is finite. On the other
hand,
$$$ \lim_{k \rightarrow \infty} \lim_{n \rightarrow \infty} \frac{\Gamma(n+1)}{\Gamma(k+1)} $$$
does not exist, since for non-integral k , $\Gamma(k+1)$ is finite while
 $\Gamma(n+1)$ is unbounded.

```

However, since for  $k \in \mathbb{Z}$ ,  $n \in \mathbb{Z}$  and  $0 < k < n$  both definitions agree, one could also combine them. This is what, for example, Mathematica does. It seems that MuPAD sets  $[\text{binomial}(n,n)=1]$  for all arguments  $[n]$ , and returns  $[\text{binomial}(-2, n)]$  unevaluated. Provisos may help here.

```
<<package COMBF CombinatorialFunction>>=
 permutation: (F, F) -> F
 ++ permutation(n, r) returns the number of permutations of
 ++ n objects taken r at a time, i.e. $n!/(n-r)!$;
@@ -569,33 +522,17 @@

 if R has RetractableTo(Z) and F has Algebra(Fraction(Z)) then
 iibinom l ==
- (s:=retractIfCan(second l)@Union(R,"failed")) case R and
- (t:=retractIfCan(s)@Union(Z,"failed")) case Z and t>0 =>
- ans:=1::F
- for i in 0..t-1 repeat
- ans:=ans*(first l - i::R::F)
- (1/factorial t) * ans
- (s:=retractIfCan(first l-second l)@Union(R,"failed")) case R and
- (t:=retractIfCan(s)@Union(Z,"failed")) case Z and t>0 =>
- ans:=1::F
- for i in 1..t repeat
- ans:=ans*(second l+i::R::F)
- (1/factorial t) * ans
+ (t:=retractIfCan(s)@Union(Z,"failed")) case Z and s>0=>
+ ans:=1::F
+ for i in 1..t repeat
+ ans:=ans*(second l+i::R::F)
+ (1/factorial t) * ans
+ (r1 := retractIfCan(first l)@Union(R,"failed")) case "failed" or
+ (r2 := retractIfCan(second l)@Union(R,"failed")) case "failed"
+ => iibinom l
 binomial(r1::R, r2::R)::F

-@
-
-[[iibinom]] checks those cases in which the binomial coefficient may be
-evaluated explicitly. Note that up to [[patch--51]], the case where the second
-argument is a positive integer was not checked.(Issue~\#336) Currently, the
-naive iterative algorithm is used to calculate the coefficient, there is room
-for improvement here.
-
-<<package COMBF CombinatorialFunction>>=
-
 else
 iibinom l ==
 (r1 := retractIfCan(first l)@Union(R,"failed")) case "failed" or
```



### 15.0.1016 section

```

maybe this fixes bug 100?
--- ./defintrf.spad.pamphlet 2007-04-27 21:29:46.000000000 -0400
+++ /research/may07/build-improvements/src/algebra/defintrf.spad.pamphlet 2007-04-27 21:34:07.000000000 -0400
@@ -182,10 +182,7 @@
 ["min"/[t.left for t in l], i.halfinf.endpoint]
 l := [u::REC for t in l | (u := refine(p, t, bounds)) case REC]
 incl? => l
- -- greg, FIXME dirty workaround
- -- select_!(keeprec?(i.halfinf.endpoint, #1), l)
- ep := i.halfinf.endpoint
- select_!(keeprec?(ep, #1), l)
+ select_!(keeprec?(i.halfinf.endpoint, #1), l)
 error "findRealZero: should not happen"

 checkBudan(p, a, b, incl?) ==

```

### 15.0.1017 section

Find who fixes bug 100 in wh-sandbox

### 15.0.1018 section

Remove any bootstrap code that is not actually needed

### 15.0.1019 section

fix src/algebra/exprode.spad.pamphlet

```

diffRhsK(k, g) ==
 h := univariate(g, k)
 (degree(number h) <= 1) and ground? denom h =>
 zero? coefficient(number h, 1) =>
 error "EXPRODE:diffRhsK:Division by zero"
 - coefficient(number h, 0) / coefficient(number h, 1)
 error "Improper differential equation"

```

**15.0.1020 section**

rewrite trig functions using a simplest notion supplied by user "fructer"

**15.0.1021 section**

fix file write bug regression result 0 of 0

**15.0.1022 section**

change )help to

- (0) handle abbrev and synonym
- (1) show all topics
- (2) use min prefix
- (3) be case sensitive Eg library vs Library
- (4) )help name )function to show the docs on a function
- (5) )view file should fire up a dvi reader on the appropriate dvi file
- (6) create help files on the fly from axiom commands so help expands as the user works
- (8) )drag should auto-create help for newly drag-and-dropped files
- (9) )document should update help
- (10) )weave should update help
- (11) )lib should update help
- (12) )co should update help

**15.0.1023 section**

make sure that savesystem works

**15.0.1024 section**

develop a "where" syntax, eg. a\_b where a=2 and b=3

### 15.0.1025 section

get configure from oaxiom, run on mac and windows

### 15.0.1026 section

```
document ThreeDimensionalViewport, e.g. to generate pixmaps:
port:=draw(5*besselJ(0,sqrt(x^2+y^2)),x=-20..20,y=-20..20)
drawStyle(port,"shade")
outlineRender(port,"on")
write(port,"temp",["pixmap"])
write(port,"temp1",["postscript"])
```

### 15.0.1027 section

document how to document algebra with input files

### 15.0.1028 section

apply fracas patch 32

### 15.0.1029 section

```
(\end occurred inside a group at level 1)

simple group (level 1) entered at line 17255 ({)
bottom level
(see the transcript file for additional information)
Output written on book.dvi (1134 pages, 2650492 bytes).
```

### 15.0.1030 section

```
)spool intlf.output
this file should be in REGRESS, not OUTS
```

### 15.0.1031 section

```
special note:
 compiling exported coerce : String -> $
 FNAME;coerce;$;4 is replaced by PARSE-NAMESTRING
```

### 15.0.1032 section

```
remove member function from boot:
 Files /research/may07/wh-sandbox/src/boot/typrops.boot.pamphlet and silver/src/boot/typrops.boot.pamphlet differ
```

### 15.0.1033 section

```
package handling:
 Files /research/may07/wh-sandbox/src/boot/ptyout.boot.pamphlet and silver/src/boot/ptyout.boot.pamphlet differ
 Files /research/may07/wh-sandbox/src/boot/typars.boot.pamphlet and silver/src/boot/typars.boot.pamphlet differ
```

### 15.0.1034 section

```
no idea:
 Files /research/may07/wh-sandbox/src/boot/tytree1.boot.pamphlet and silver/src/boot/tytree1.boot.pamphlet differ
 Files /research/may07/wh-sandbox/src/boot/btscan2.boot.pamphlet and silver/src/boot/btscan2.boot.pamphlet differ
 Files /research/may07/wh-sandbox/src/boot/btpile2.boot.pamphlet and silver/src/boot/btpile2.boot.pamphlet differ
```

### 15.0.1035 section

```
call graph documentation
 Files /research/may07/wh-sandbox/src/boot/btincl2.boot.pamphlet and silver/src/boot/btincl2.boot.pamphlet differ
```

**15.0.1036 section**

fix htsearch

Files /research/may07/wh-sandbox/src/hyper/pages/man0.ht and silver/src/hyper/pages/man0.ht differ

**15.0.1037 section**

no idea

Files /research/may07/wh-sandbox/src/hyper/pages/MSET.ht and silver/src/hyper/pages/MSET.ht differ

**15.0.1038 section**

dead file?

Only in silver/src/interp: nag-e02b.boot.pamphlet

Only in silver/src/interp: postprop.lisp.pamphlet

**15.0.1039 section**

missing \$ERASE function?

**15.0.1040 section**

call to (OBEY "ERASE ... is nonsense

**15.0.1041 section**

document PLEQN

**15.0.1042 section**

gclweb latex rewrite  
needs chunk environment  
needs standalone pass

### 15.0.1043 section

find/fix factor bug  
factor 3474749660383 = 1303 \* 2666730361 = 1303 \* 16927 \* 157543

### 15.0.1044 section

rewrite graphics  
into single file  
into lisp

### 15.0.1045 section

rewrite hyperdoc  
into single file  
into lisp

### 15.0.1046 section

split out X11 functionality

### 15.0.1047 section

clean up latex files

### 15.0.1048 section

```
check libs
src/algebra/Makefile libcheck
```

## 15.0.1049 section

```
interp.exposed seems to have disappeared.
src/interp/exposed.lsp is involved.
)lisp (libcheck "absolute path to algebra")
the interp.exposed file is missing from int/algebra
also fix bookvol4 documentation for this
```

## 15.0.1050 section

```
gclweb weave
\spadcommand{a+b=c} -> (spadcommand ("a+b=c"))
```

## 15.0.1051 section

```
run ./configure everywhere, make new Makefile stanzas
```

## 15.0.1052 section

```
radix(36,37) fails
```

## 15.0.1053 section

Jon Claerbout (Stanford University) as quoted in  
 Buckheit, Jonathan B., Donoho, David L. "WaveLab and Reproducible Research"  
<http://www.stat.stanford.edu/~donoho/Reports/1995/wavelab.pdf>  
 "An article about computational science in a scientific publication is not the scholarship itself, it is merely advertising of the scholarship. The actual scholarship is the complete software development environment and the complete set of instructions which generated the figures."

**15.0.1054 section**

```

initializing nrlib RPOLCAT- for RecursivePolynomialCategory&
Warning: RPOLCAT-;exactQuo has a duplicate definition in this file
Warning: RPOLCAT-;ZToR has a duplicate definition in this file
Warning: RPOLCAT-;PZToPR has a duplicate definition in this file

```

**15.0.1055 section**

```

Compiling POLYCAT-.lsp.
Warning: PSETCAT-;exactQuo has a duplicate definition in this file

```

**15.0.1056 section**

```

add Stephen's patch:
width-fix.patch

```

**15.0.1057 section**

```

Merge Martin's Algebra:
find Martins algebra examples on the wiki

SUPEXPR FAMR2 NEWTON UPFS GOPT GUESSF1 UTSSOL FFFG UFPS1 GOPTO EXPRSOL
FFFGF RECOP GUESS GUESSINT GUESSP GUESSF

fffg ssolve recop mantepse

arxiv.org/MartinAlgebra.pdf

```

**15.0.1058 section**

```

asq and databases:

```



modify asq to add -csvdump switch which outputs the databases as  
comma separated values

## 15.0.1059 section

in src/interp/bootlex.lisp the |\$PrettyPrint| variable seems to allow  
defuns to be prettyprinted.

```
(defun print-defun (name body)
 (let* ((sp (assoc 'vmlisp::compiler-output-stream vmlisp::optionlist))
 (st (if sp (cdr sp) *standard-output*)))
 (if (and (is-console st) (symbolp name) (fboundp name)
 (not (compiled-function-p (symbol-function name)))))
 (compile name))
 (when (or |$PrettyPrint| (not (is-console st)))
 (print-full body st) (force-output st)))))
```

## 15.0.1060 section

```
unused functions in metalex?
-; (trace skip-blanks)
-; (trace get-special-token)
-; (trace token-lookahead-type)
-; (trace make-adjustable-string)
-; (trace print-package)
-; (trace get-number-token)
-
-(trace next-META-line)
-(trace kill-comments)
-(trace kill-trailing-blanks)
-(trace get-META-token)
-(trace get-identifier-token)
-(trace get-string-token)
-(trace get-bstring-token)
-(trace make-defun)
-(trace print-fluids)
-(trace set-prefix)
-(trace print-rule)
-(trace meta-meta-error-handler)
```

## 15.0.1061 section

4 arguments instead of 3 in build algebra

### 15.0.1062 section

```
duplicate definition in file
PSETCAT-;exactQuo
REGSET;decompose
PFO;cmult
RPOLCAT-;exactQuo
RPOLCAT-;ZToR
RPOLCAT-;PZToPR
```

### 15.0.1063 section

```
unify
make tangle accept both syntaxes
```

### 15.0.1064 section

```
sbcl
port
```

### 15.0.1065 section

```
STRING
.. String of cat
(|StringCategory|) has no hash : % -> Integer
finalizing nrlib STRING
Processing String for Browser database:
--->/research2/test0819/mnt/fedora5/../../src/algebra/STRING.spad-->String(): Missing Description
```

### 15.0.1066 section

Compiling npextras.lisp.

```
; (DEFUN COMPILER::CMPNOTE ...) is being compiled.
;; Warning: The variable X is not used.
; (IN-PACKAGE 'BOOTTRAN ...) is being compiled.
;; Warning: The package operation (IN-PACKAGE 'BOOTTRAN :USE
 '("LISP" "SYSTEM")) was in a bad place.
```

### 15.0.1067 section

```
Compiling /research2/test0819/obj/fedora5/interp/parsing.lsp.
; (DEFUN ESCAPE-KEYWORDS ...) is being compiled.
;; The variable KEYWORDS is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN /EMBED-Q ...) is being compiled.
;; The variable /EMBEDNAMES is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN IOCLEAR ...) is being compiled.
;; Warning: The variable IN is not used.
;; Warning: The variable OUT is not used.
```

### 15.0.1068 section

```
Compiling /research2/test0819/obj/fedora5/interp/clam.lsp.
; (DEFUN |consForHashLookup| ...) is being compiled.
;; The variable |$hashNode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkCircularCountAlist| ...) is being compiled.
;; The variable |$reportFavoritesIfNumber| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |remHashEntriesWith0Count,fn| ...) is being compiled.
;; The variable |$hashTable| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |remHashEntriesWith0Count| ...) is being compiled.
;; The variable |remHashEntriesWith0Count,fn| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |initCache| ...) is being compiled.
;; The variable |$failed| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |addToSlam| ...) is being compiled.
;; The variable |$mutableDomain| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |recordInstantiation1| ...) is being compiled.
;; The variable |$insideCoerceInteractive| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$instantCoerceCount| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$insideCanCoerceFrom| is undefined.
```

```
;; The compiler will assume this variable is a global.
;; The variable |$instantCanCoerceCount| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$insideEvalMmCondIfTrue| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$instantMmCondCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |listTruncate| ...) is being compiled.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1069 section

```
Compiling /research2/test0819/obj/fedora5/interp/slam.lsp.
; (DEFUN |reportFunctionCompilation| ...) is being compiled.
;; The variable |$compiledOpNameList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorNames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compilingInputFile| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorCode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivector| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compileRecurrence| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkCircularAlist| ...) is being compiled.
;; The variable |$failed| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compileRecurrenceRelation| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |junk| is not used.
; (DEFUN |clearAllSlams,fn| ...) is being compiled.
;; The variable |$functorDependencyAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFMACRO |clearSlam| ...) is being compiled.
;; Warning: The variable #:G2668 is not used.
```

### 15.0.1070 section

```
Compiling /research2/test0819/obj/fedora5/interp/g-boot.lsp.
; (DEFUN |bootAbsorbSEQsAndPROGNs,flatten| ...) is being compiled.
;; The variable |$labelsForGO| is undefined.
;; The compiler will assume this variable is a global.
```

```
; (DEFUN |defLetForm| ...) is being compiled.
;; The variable $LET is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defLET1| ...) is being compiled.
;; The variable |$letGenVarCounter| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defLET2| ...) is being compiled.
;; The variable |$inDefIS| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defIS1| ...) is being compiled.
;; The variable |$inDefLET| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$isGenVarCounter| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1071 section

```
Compiling /research2/test0819/obj/fedora5/interp/c-util.lsp.
; (DEFUN |continue| ...) is being compiled.
;; The variable |$x| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$m| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$f| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |level| ...) is being compiled.
;; The variable |$level| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |displayComp| ...) is being compiled.
;; The variable |$bright| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$dim| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$s| is undefined.
;; The compiler will assume this variable is a global.
;; The variable $X is undefined.
;; The compiler will assume this variable is a global.
;; The variable $M is undefined.
;; The compiler will assume this variable is a global.
;; The variable $F is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |intersectionContour,modeCompare| ...) is being compiled.
;; The variable |$var| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isAlmostSimple,setAssignment| ...) is being compiled.
;; The variable |$assignmentList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |stackSemanticError| ...) is being compiled.
```

```
;; The variable |$initCapsuleErrorCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |stackMessage| ...) is being compiled.
;; The variable |$compErrorMessageStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |?modemaps| ...) is being compiled.
;; The variable |$CapsuleModemapFrame| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |traverse, traverseInner| ...) is being compiled.
;; The variable |$seen| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$notseen| is undefined.
;; The compiler will assume this variable is a global.
;; The variable SET-PA-SPEC is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1072 section

```
Compiling /research2/test0819/obj/fedora5/interp/g-util.lisp.
; (DEFUN |reshape| ...) is being compiled.
;; Warning: The variable |b| is not used.
; (DEFUN |update| ...) is being compiled.
;; The variable /VERSION is undefined.
;; The compiler will assume this variable is a global.
;; The variable /WSNAME is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |spadThrow| ...) is being compiled.
;; The variable |$interpOnly| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |semchkProplist| ...) is being compiled.
;; Warning: The variable |val| is not used.
; (DEFUN |leftTrim| ...) is being compiled.
;; The variable |$blank| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1073 section

```
Compiling /research2/test0819/int/interp/vmlisp.lisp.
; (DEFUN UNEMBED ...) is being compiled.
;; Warning: The variable #:G163615 is not used.
;; Warning: The variable #:G163896 is not used.
; (IN-PACKAGE 'BOOT) is being compiled.
;; Warning: The package operation (IN-PACKAGE 'BOOT) was in a bad place.
```

## 15.0.1074 section

```

Compiling /research2/test0819/int/interp/buildom.clisp.
; (DEFUN |MappingEqual| ...) is being compiled.
;; Warning: The variable |dom| is not used.
; (DEFUN |MappingPrint| ...) is being compiled.
;; Warning: The variable |dom| is not used.
; (DEFUN |coerceMap2E| ...) is being compiled.
;; The variable |$testingSystem| is undefined.
;; The compiler will assume this variable is a global.
; (DEFMACRO |Enumeration| ...) is being compiled.
;; Warning: The variable #:G154733 is not used.
; (DEFUN |EnumEqual| ...) is being compiled.
;; Warning: The variable |dom| is not used.
; (DEFMACRO |RecordCategory| ...) is being compiled.
;; Warning: The variable #:G154763 is not used.
; (DEFMACRO |EnumerationCategory| ...) is being compiled.
;; Warning: The variable #:G154770 is not used.
; (DEFMACRO |UnionCategory| ...) is being compiled.
;; Warning: The variable #:G154777 is not used.
; (DEFUN |mkMappingFunList| ...) is being compiled.
;; Warning: The variable |mapForm| is not used.

```

## 15.0.1075 section

```

Compiling /research2/test0819/int/interp/cattable.clisp.
; (DEFUN |showCategoryTable| ...) is being compiled.
;; The variable *HASCATEGORY-HASH* is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |displayCategoryTable| ...) is being compiled.
;; The variable |$ct| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |genCategoryTable| ...) is being compiled.
;; The variable *ANCESTORS-HASH* is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$nonLisplibDomains| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$noCategoryDomains| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |simpHasPred,simp| ...) is being compiled.
;; The variable |$hasArgs| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |simpHasAttribute| ...) is being compiled.
;; The variable |$domain| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$predvec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |moreGeneralCategoryPredicate| ...) is being compiled.

```

```

;; Warning: The variable |id| is not used.
; (DEFUN |catPairUnion| ...) is being compiled.
;; Warning: The variable |op| is not used.
;; Warning: The variable |cat| is not used.
; (DEFUN |categoryParts,exportsOf| ...) is being compiled.
;; The variable |$constlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |categoryParts,build| ...) is being compiled.
;; The variable |$oplist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$attrlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |categoryParts| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compressSexpr| ...) is being compiled.
;; The variable |$found| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |updateCategoryTable| ...) is being compiled.
;; The variable |$newcompMode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTflag| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |updateCategoryTableForDomain| ...) is being compiled.
;; The variable |$doNotCompressHashTableIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |clearCategoryTable1| ...) is being compiled.
;; The variable |$cname| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |val| is not used.

```

### 15.0.1076 section

```

Compiling /research2/test0819/int/interp/clammed.clisp.
; (DEFUN |canCoerceFrom| ...) is being compiled.
;; The variable |canCoerceFrom;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |canCoerce| ...) is being compiled.
;; The variable |canCoerce;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |coerceConvertMmSelection| ...) is being compiled.
;; The variable |coerceConvertMmSelection;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hasFileProperty| ...) is being compiled.
;; The variable |hasFileProperty;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isValidType| ...) is being compiled.
;; The variable |isValidType;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isValidType;| ...) is being compiled.

```



```
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |selectMms1| ...) is being compiled.
;; The variable |selectMms1;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |resolveTT| ...) is being compiled.
;; The variable |resolveTT;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isLegitimateModel| ...) is being compiled.
;; The variable |isLegitimateModel;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |underDomainOf| ...) is being compiled.
;; The variable |underDomainOf;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1077 section

```
Compiling /research2/test0819/int/interp/compress.clisp.
; (DEFUN |minimalise,HashCheck| ...) is being compiled.
;; The variable |$hash| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1078 section

```
Compiling /research2/test0819/int/interp/format.clisp.
; (DEFUN |formatOperation| ...) is being compiled.
;; The variable |Undef| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$commentedOps| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |constructorName| ...) is being compiled.
;; The variable |$abbreviateTypes| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |formWrapId| ...) is being compiled.
;; The variable |$formatSigAsTeX| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |formArguments2String,fn| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |formDecl2String| ...) is being compiled.
;; The variable |$permitWhere| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |formJoin1| ...) is being compiled.
;; The variable |$abbreviateJoin| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$declVar| is undefined.
```

```
;; The compiler will assume this variable is a global.
; (DEFUN |tuple2String| ...) is being compiled.
;; Warning: The variable |x| is not used.
```

### 15.0.1079 section

```
Compiling /research2/test0819/int/interp/g-boot.clisp.
; (DEFUN |bootAbsorbSEQsAndPROGNS,flatten| ...) is being compiled.
;; The variable |$labelsForGO| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defLetForm| ...) is being compiled.
;; The variable $LET is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defLET1| ...) is being compiled.
;; The variable |$letGenVarCounter| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defLET2| ...) is being compiled.
;; The variable |$inDefIS| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defIS1| ...) is being compiled.
;; The variable |$inDefLET| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$isGenVarCounter| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1080 section

```
Compiling /research2/test0819/int/interp/g-cndata.clisp.
; (DEFUN |mkLowerCaseConTable| ...) is being compiled.
;; The variable |$lowerCaseConTb| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |attribute?| ...) is being compiled.
;; The variable *ATTRIBUTES* is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |installConstructor| ...) is being compiled.
;; Warning: The variable |type| is not used.
; (DEFUN |constructorAbbreviationErrorCheck| ...) is being compiled.
;; Warning: The variable |errmess| is not used.
; (DEFUN |abbreviationError| ...) is being compiled.
;; Warning: The variable |abb| is not used.
; (DEFUN |condAbbrev| ...) is being compiled.
;; Warning: The variable |arg| is not used.
```

## 15.0.1081 section

```

Compiling /research2/test0819/int/interp/g-error.clisp.
; (DEFUN |argumentDataError| ...) is being compiled.
;; The variable |$AlgebraError| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |errorSupervisor1| ...) is being compiled.
;; The variable |$SystemError| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$UserError| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |returnToTopLevel| ...) is being compiled.
;; The variable CHR is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |returnToReader| ...) is being compiled.
;; The variable |$ReadingFile| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |sayErrorly1| ...) is being compiled.
;; The variable |$testingSystem| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$testingErrorPrefix| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |throwMessage| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$printStatsToFile| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1082 section

```

Compiling /research2/test0819/int/interp/g-timer.clisp.
; (DEFUN |peekTimedName| ...) is being compiled.
;; The variable |$timedNameStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeLongTimeString| ...) is being compiled.
;; The variable |$printTimeIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeLongSpaceString| ...) is being compiled.
;; The variable |$printStorageIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |computeElapsedTime| ...) is being compiled.
;; The variable |$oldElapsedGCTime| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$oldElapsedTime| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |computeElapsedSpace| ...) is being compiled.
;; The variable |$oldElapsedSpace| is undefined.
;; The compiler will assume this variable is a global.

```

```
; (DEFUN |timedOptimization| ...) is being compiled.
;; The variable |$reportOptimization| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1083 section

```
Compiling /research2/test0819/int/interp/g-util.clisp.
; (DEFUN |reshape| ...) is being compiled.
;; Warning: The variable |b| is not used.
; (DEFUN |update| ...) is being compiled.
;; The variable /VERSION is undefined.
;; The compiler will assume this variable is a global.
;; The variable /WSNAME is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |spadThrow| ...) is being compiled.
;; The variable |$interpOnly| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |semchkProplist| ...) is being compiled.
;; Warning: The variable |val| is not used.
; (DEFUN |leftTrim| ...) is being compiled.
;; The variable |$blank| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isDomain| ...) is being compiled.
;; The variable |$domainTypeTokens| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1084 section

```
Compiling /research2/test0819/int/interp/i-analy.clisp.
; (DEFUN |getBasicMode| ...) is being compiled.
;; The variable |$useIntegerSubdomain| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getBasicMode0| ...) is being compiled.
;; The variable |$DoubleFloat| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getMinimalVariableTower| ...) is being compiled.
;; The variable |$univariateDomains| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$multivariateDomains| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |polyVarlist| ...) is being compiled.
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |pushDownTargetInfo| ...) is being compiled.
```

```
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Any| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$immediateDataSymbol| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |bottomUp| ...) is being compiled.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |bottomUpDefaultCompile| ...) is being compiled.
;; Warning: The variable |isSub| is not used.
; (DEFUN |interpRewriteRule| ...) is being compiled.
;; Warning: The variable |expr| is not used.
; (DEFUN |bottomUpForm| ...) is being compiled.
;; The variable |$inRetract| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |bottomUpFormTuple| ...) is being compiled.
;; Warning: The variable |t| is not used.
;; Warning: The variable |argModeSetList| is not used.
; (DEFUN |printableArgModeSetList| ...) is being compiled.
;; The variable |$origArgModeSetList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |bottomUpForm0| ...) is being compiled.
;; The variable |$HTCompanionWindowID| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1085 section

```
Compiling /research2/test0819/int/interp/i-code.clisp.
; (DEFUN |intCodeGenCOERCE| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |wrapMapBodyWithCatch| ...) is being compiled.
;; The variable |$mapThrowCount| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1086 section

```
Compiling /research2/test0819/int/interp/i-coerce.clisp.
; (DEFUN |retract1| ...) is being compiled.
;; The variable |$SingleInteger| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |retract2Specialization| ...) is being compiled.
;; The variable |$Any| is undefined.
```

```

;; The compiler will assume this variable is a global.
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |coerceRetract| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$coerceFailure| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |canCoerceTopMatching| ...) is being compiled.
;; The variable |$univariateDomains| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$multivariateDomains| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |canCoerceLocal| ...) is being compiled.
;; The variable |$CoerceTable| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |canCoerceCommute| ...) is being compiled.
;; The variable |$CommuteTable| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |canConvertByFunction| ...) is being compiled.
;; The variable |$useConvertForCoercions| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |coerceInteractive| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |coerceInt1| ...) is being compiled.
;; The variable |$AnonymousFunction| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getSubDomainPredicate| ...) is being compiled.
;; The variable |$superHash| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1087 section

```

Compiling /research2/test0819/int/interp/i-coerfn.clisp.
; (DEFUN |Expr2Complex| ...) is being compiled.
;; The variable |$DoubleFloat| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN I2EI ...) is being compiled.
;; Warning: The variable |source| is not used.
;; Warning: The variable |target| is not used.
; (DEFUN I2OI ...) is being compiled.
;; Warning: The variable |source| is not used.
;; Warning: The variable |target| is not used.
; (DEFUN I2PI ...) is being compiled.
;; Warning: The variable |source| is not used.
;; Warning: The variable |target| is not used.
; (DEFUN I2NNI ...) is being compiled.
;; Warning: The variable |source| is not used.
;; Warning: The variable |target| is not used.

```

```

; (DEFUN OV2SE ...) is being compiled.
;; Warning: The variable |target| is not used.
; (DEFUN |OV2Sy| ...) is being compiled.
;; Warning: The variable |target| is not used.
; (DEFUN |Rn2F| ...) is being compiled.
;; Warning: The variable |source| is not used.
;; Warning: The variable |target| is not used.
; (DEFUN |Qf2domain| ...) is being compiled.
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Sy2OV| ...) is being compiled.
;; Warning: The variable |source| is not used.
; (DEFUN |Sy2Var| ...) is being compiled.
;; Warning: The variable |source| is not used.
; (DEFUN |commuteComplex| ...) is being compiled.
;; Warning: The variable |source| is not used.
; (DEFUN |commuteQuaternion| ...) is being compiled.
;; Warning: The variable |source| is not used.
; (DEFUN |commuteFraction| ...) is being compiled.
;; Warning: The variable |source| is not used.
; (DEFUN |commuteSparseUnivariatePolynomial| ...) is being compiled.
;; Warning: The variable |source| is not used.

```

## 15.0.1088 section

```

Compiling /research2/test0819/int/interp/i-eval.clisp.
; (DEFUN |evaluateType1| ...) is being compiled.
;; Warning: The variable |x| is not used.
;; Warning: The variable |m| is not used.
; (DEFUN |throwEvalTypeMsg| ...) is being compiled.
;; The variable |$noEvalTypeMsg| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |evalForm| ...) is being compiled.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTmonitorIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getMappingArgValue| ...) is being compiled.
;; Warning: The variable |t| is not used.
; (DEFUN |getArgValueComp| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |failCheck| ...) is being compiled.
;; The variable |$coerceFailure| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1089 section

```

Compiling /research2/test0819/int/interp/i-funsel.clisp.
; (DEFUN |selectMms| ...) is being compiled.
;; The variable |$AnonymousFunction| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defaultTarget| ...) is being compiled.
;; The variable |$DoubleFloat| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Any| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |defaultTargetFE| ...) is being compiled.
;; The variable |$FunctionalExpression| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getLocalMms| ...) is being compiled.
;; The variable |$UseIntegerSubdomain| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Coerce| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mmCost0| ...) is being compiled.
;; Warning: The variable |name| is not used.
; (DEFUN |getFunctionFromDomain| ...) is being compiled.
;; The variable |$nonLisplibDomains| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |allOrMatchingMms| ...) is being compiled.
;; Warning: The variable |tar| is not used.
; (DEFUN |findFunctionInDomain1| ...) is being compiled.
;; The variable |$SubDom| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |matchMmSig| ...) is being compiled.
;; The variable |$RTC| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |selectMmsGen,exact?| ...) is being compiled.
;; Warning: The variable |tar| is not used.
; (DEFUN |selectMmsGen,matchMms| ...) is being compiled.
;; The variable |$Subst| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |matchTypes| ...) is being compiled.
;; The variable |$SymbolType| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |t1| is not used.
; (DEFUN |evalMmFreeFunction| ...) is being compiled.
;; Warning: The variable |op| is not used.
;; Warning: The variable |mmC| is not used.
; (DEFUN |evalMmCat| ...) is being compiled.
;; Warning: The variable |sig| is not used.
; (DEFUN |evalMmCat1| ...) is being compiled.
;; The variable |$hope| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hasCateSpecialNew| ...) is being compiled.

```



```
;; The variable |$ComplexInteger| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hasCaty| ...) is being compiled.
;; The variable |$domPvar| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1090 section

```
Compiling /research2/test0819/int/interp/i-intern.clisp.
; (DEFUN |mkAtreeWithSrcPos| ...) is being compiled.
;; The variable |$useParserSrcPos| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |transferSrcPosInfo| ...) is being compiled.
;; The variable |$transferParserSrcPos| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkAtree1| ...) is being compiled.
;; The variable |$immediateDataSymbol| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |transferPropsToNode,transfer| ...) is being compiled.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |atree2Tree1| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |get1| ...) is being compiled.
;; The variable |$CapsuleModemapFrame| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |get2| ...) is being compiled.
;; Warning: The variable |e| is not used.
; (DEFUN |objEnv| ...) is being compiled.
;; Warning: The variable |obj| is not used.
```

## 15.0.1091 section

```
Compiling /research2/test0819/int/interp/i-map.clisp.
; (DEFUN |makeInternalMapName| ...) is being compiled.
;; The variable |$interpreterFrameRing| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$specialMapNameSuffix| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |addDefMap| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |addMap| ...) is being compiled.
```

```

;; Warning: The variable |x| is not used.
; (DEFUN |sayDroppingFunctions| ...) is being compiled.
;; The variable |$displayDroppedMap| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkFormalArg| ...) is being compiled.
;; The variable |$sl| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |clearDependencies| ...) is being compiled.
;; Warning: The variable |clearLocalModemapsIfTrue| is not used.
; (DEFUN |displayRule| ...) is being compiled.
;; Warning: The variable |op| is not used.
; (DEFUN |outputFormat| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |analyzeMap| ...) is being compiled.
;; The variable |$analyzingMapList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |analyzeMap0| ...) is being compiled.
;; The variable |$mapList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compFailure| ...) is being compiled.
;; The variable |$useCoerceOrCroak| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$reportInterpOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |interpMap| ...) is being compiled.
;; The variable |$timedNameStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |analyzeDeclaredMap| ...) is being compiled.
;; The variable |$mapTarget| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |genMapCode| ...) is being compiled.
;; The variable |$whereCacheList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compileCoerceMap| ...) is being compiled.
;; The variable |$minivectorNames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compilingInputFile| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorCode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivector| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |analyzeNonRecursiveMap| ...) is being compiled.
;; The variable |$mapThrowCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkLocalVar| ...) is being compiled.
;; Warning: The variable |op| is not used.
; (DEFUN |isFreeVar| ...) is being compiled.
;; The variable |$freeVars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkFreeVar| ...) is being compiled.

```

```
;; Warning: The variable |op| is not used.
```

## 15.0.1092 section

```
Compiling /research2/test0819/int/interp/i-output.clisp.
; (DEFUN |specialChar| ...) is being compiled.
;; The variable |$specialCharacterAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$specialCharacters| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |appChar| ...) is being compiled.
;; The variable |$highlightDelta| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |outputTran| ...) is being compiled.
;; The variable |$DoubleFloat| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$fractionDisplayType| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |outputMapTran| ...) is being compiled.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkSuperSub| ...) is being compiled.
;; The variable |$linearFormatScripts| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |appSum| ...) is being compiled.
;; Warning: The variable |arg| is not used.
; (DEFUN |isRationalNumber| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |widthSC| ...) is being compiled.
;; Warning: The variable |u| is not used.
; (DEFUN |maprin| ...) is being compiled.
;; The variable |$demoFlag| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |maprinChk| ...) is being compiled.
;; The variable |$MatrixList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$collectOutput| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PushMatrix| ...) is being compiled.
;; The variable |$MatrixCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |overbarApp| ...) is being compiled.
;; The variable UNDERBAR is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |concatTrouble,fixUp| ...) is being compiled.
;; The variable |$addBlankIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |formulaFormat| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
```

```

; (DEFUN |texFormat| ...) is being compiled.
;; The variable |$texOutputStream| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mathmlFormat| ...) is being compiled.
;; The variable |$mathmlOutputStream| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |output| ...) is being compiled.
;; The variable |$mathmlFormat| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |outputNumber| ...) is being compiled.
;; The variable |$outputLines| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |charyTop| ...) is being compiled.
;; The variable |$testOutputLineFlag| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$testOutputLineList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |charySemiColon| ...) is being compiled.
;; Warning: The variable |v| is not used.
; (DEFUN |charyMinus| ...) is being compiled.
;; Warning: The variable |u| is not used.
; (DEFUN |charyBinary| ...) is being compiled.
;; Warning: The variable |u| is not used.
; (DEFUN |charyEquatnum| ...) is being compiled.
;; Warning: The variable |v| is not used.
; (DEFUN |eq0| ...) is being compiled.
;; Warning: The variable |u| is not used.
; (DEFUN |nothingWidth| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |nothingSuper| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |nothingSub| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |nothingApp| ...) is being compiled.
;; Warning: The variable |u| is not used.
;; Warning: The variable |x| is not used.
;; Warning: The variable |y| is not used.
; (DEFUN |remWidth| ...) is being compiled.
;; The variable |remWidth| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |transcomparg| ...) is being compiled.
;; The variable STANDARGLIST is undefined.
;; The compiler will assume this variable is a global.
;; The variable FRLIS* is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |maPrin| ...) is being compiled.
;; The variable |$runTestFlag| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mkTestFlag| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mkTestOutputStack| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1093 section

```

Compiling /research2/test0819/int/interp/i-resolv.clisp.
; (DEFUN |resolveTypeListAny| ...) is being compiled.
;; The variable |$Any| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |acceptableTypesToResolve1| ...) is being compiled.
;; The variable |$DoubleFloat| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$QuotientField| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |resolveTTRed1| ...) is being compiled.
;; The variable |$Res| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getConditionalCategoryOfType1| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |resolveTM1| ...) is being compiled.
;; The variable |$Subst| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Coerce| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |resolveTMTaggedUnion| ...) is being compiled.
;; Warning: The variable |t| is not used.
; (DEFUN |resolveTMSpecial| ...) is being compiled.
;; The variable |$AnonymousFunction| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |resolveTMEq2| ...) is being compiled.
;; Warning: The variable |cm| is not used.
; (DEFUN |resolveTMRed| ...) is being compiled.
;; The variable |$ResMode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |constructM| ...) is being compiled.
;; The variable |$FunctionalExpression| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1094 section

```

Compiling /research2/test0819/int/interp/i-spec1.clisp.
; (DEFUN |evalUntargetedADEF| ...) is being compiled.
;; The variable |$AnonymousFunction| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |types| is not used.
; (DEFUN |evalTargetedADEF| ...) is being compiled.
;; The variable |$AnonymousMapCounter| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkInterpTargetedADEF| ...) is being compiled.
;; The variable |$mapName| is undefined.

```

```

;; The compiler will assume this variable is a global.
; (DEFUN |compileADEFBody| ...) is being compiled.
;; The variable |$compiledOpNameList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorNames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compilingInputFile| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorCode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivector| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$freeVariables| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$boundVariables| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upAlgExtension| ...) is being compiled.
;; The variable |$printTypeIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upTARGET| ...) is being compiled.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upCOLLECT| ...) is being compiled.
;; The variable |$compilingLoop| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upCOLLECT1| ...) is being compiled.
;; The variable |$interpOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |falseFun| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |interpIter| ...) is being compiled.
;; The variable |$indexVars| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$indexTypes| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |interpCOLLECTbodyIter| ...) is being compiled.
;; The variable |$collectTypeList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |collectOneStream| ...) is being compiled.
;; Warning: The variable |t| is not used.
; (DEFUN |collectSeveralStreams| ...) is being compiled.
;; Warning: The variable |t| is not used.
; (DEFUN |mkAndApplyZippedPredicates| ...) is being compiled.
;; The variable |$indexList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkIterZippedFun| ...) is being compiled.
;; The variable |$index| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |indexList| is not used.
; (DEFUN |replaceSymbols| ...) is being compiled.
;; The variable |$declaredMode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upNullList| ...) is being compiled.
;; Warning: The variable |l| is not used.

```

```
; (DEFUN |replaceSharps| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |containsPolynomial| ...) is being compiled.
;; The variable |$univariateDomains| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$multivariateDomains| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1095 section

```
Compiling /research2/test0819/int/interp/i-spec2.clisp.
; (DEFUN |upDollar| ...) is being compiled.
;; The variable |$localVars| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$immediateDataSymbol| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |uperror| ...) is being compiled.
;; The variable |$mapName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upfreeWithType| ...) is being compiled.
;; Warning: The variable |type| is not used.
; (DEFUN |uplocalWithType| ...) is being compiled.
;; Warning: The variable |type| is not used.
; (DEFUN |compileIF| ...) is being compiled.
;; The variable |$declaredMode| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |cond| is not used.
; (DEFUN |evalIF| ...) is being compiled.
;; The variable |$lastLineInSEQ| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |evalis| ...) is being compiled.
;; The variable |$opIsIs| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |evalIsPredicate| ...) is being compiled.
;; Warning: The variable |mode| is not used.
; (DEFUN |isPatMatch| ...) is being compiled.
;; The variable |$subs| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upiterate| ...) is being compiled.
;; The variable |$repeatBodyLabel| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$iterateCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upbreak| ...) is being compiled.
;; The variable |$repeatLabel| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$breakCount| is undefined.
```

```
;; The compiler will assume this variable is a global.
; (DEFUN |getInterpMacroNames| ...) is being compiled.
;; The variable |$InterpreterMacroAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isInterpMacro| ...) is being compiled.
;; The variable |$specialOps| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upREPEAT| ...) is being compiled.
;; The variable |$compilingLoop| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upREPEAT1| ...) is being compiled.
;; The variable |$interpOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upreturn| ...) is being compiled.
;; The variable |$mapTarget| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mapThrowCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |upNullTuple| ...) is being compiled.
;; Warning: The variable |l| is not used.
```

### 15.0.1096 section

```
Compiling /research2/test0819/int/interp/i-util.clisp.
; (DEFUN MKPROMPT ...) is being compiled.
;; The variable |$interpreterFrameName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Zeros| ...) is being compiled.
;; The variable |$ZeroVecCache| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |variableNumber| ...) is being compiled.
;; The variable |$variableNumberAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |newType?| ...) is being compiled.
;; Warning: The variable |t| is not used.
; (DEFUN |Undef| ...) is being compiled.
;; The variable |Undef| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |addModemap| ...) is being compiled.
;; The variable |$CapsuleModemapFrame| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |orderUnionEntries| ...) is being compiled.
;; The variable |$newCompilerUnionFlag| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1097 section



```

Compiling /research2/test0819/int/interp/lisplib.clisp.
; (DEFUN |hasFilePropertyNoCache| ...) is being compiled.
;; Warning: The variable |abbrev| is not used.
; (DEFUN |loadLibNoUpdate| ...) is being compiled.
;; Warning: The variable |libName| is not used.
; (DEFUN |autoLoad| ...) is being compiled.
;; Warning: The variable |abb| is not used.
; (DEFUN |compileConstructorLib| ...) is being compiled.
;; The variable /FN is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compConLib1| ...) is being compiled.
;; The variable /EDITFILE is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$listingDirectory| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compDefineLisplib| ...) is being compiled.
;; The variable |$compileDocumentation| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$libraryDirectory| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$newConlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |initializeLisplib| ...) is being compiled.
;; The variable ERRORS is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibAbbreviation| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibAncestors| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibOpAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibSuperDomain| is undefined.
;; The compiler will assume this variable is a global.
;; The variable /MAJOR-VERSION is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |finalizeLisplib| ...) is being compiled.
;; The variable |$lisplibCategory| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibAttributes| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibPredicates| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibParents| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibSlot1| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$profileCompiler| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |transformOperationAlist| ...) is being compiled.
;; The variable |$functionLocations| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getSlotFromDomain| ...) is being compiled.
;; The variable |Undef| is undefined.

```

```
;; The compiler will assume this variable is a global.
```

### 15.0.1098 section

```
Compiling /research2/test0819/int/interp/match.clisp.
; (DEFUN |patternCheck,subWild| ...) is being compiled.
;; The variable |$oldWild| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$wildCard| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1099 section

```
Compiling /research2/test0819/int/interp/msg.clisp.
; (DEFUN |putDatabaseStuff| ...) is being compiled.
;; The variable |aL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |posPointers| ...) is being compiled.
;; The variable |getMsgFTTag| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setMsgCatlessAttr| ...) is being compiled.
;; The variable |catless| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1100 section

```
Compiling /research2/test0819/int/interp/msgdb.clisp.
; (DEFUN |substituteSegmentedMsg| ...) is being compiled.
;; The variable |$texFormatting| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |noBlankBeforeP| ...) is being compiled.
;; The variable |$msgdbNoBlanksBeforeGroup| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$msgdbListPrims| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |noBlankAfterP| ...) is being compiled.
;; The variable |$msgdbNoBlanksAfterGroup| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |throwPatternMsg| ...) is being compiled.
;; The variable |$testingSystem| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$testingErrorPrefix| is undefined.
```

```

;; The compiler will assume this variable is a global.
; (DEFUN |sayKeyedMsgLocal| ...) is being compiled.
;; The variable |$displayMsgNumber| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$printMsgsToFile| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |returnStLFromKey| ...) is being compiled.
;; The variable |$msgDatabaseName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |keyedMsgCompFailure| ...) is being compiled.
;; The variable |$useCoerceOrCroak| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Coerce| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$reportInterpOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |throwKeyedMsgCannotCoerceWithValue| ...) is being compiled.
;; The variable |$OutputForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |spadStartUpMsgs| ...) is being compiled.
;; The variable *BUILD-VERSION* is undefined.
;; The compiler will assume this variable is a global.
;; The variable *YEARWEEK* is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$opSysName| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$msgAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |brightPrint0| ...) is being compiled.
;; The variable $MARG is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |escapeSpecialChars| ...) is being compiled.
;; The variable |$htCharAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$htSpecialChars| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1101 section

```

Compiling /research2/test0819/int/interp/newfort.clisp.
; (DEFUN |newFortranTempVar| ...) is being compiled.
;; The variable |$exp2FortTempVarIndex| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$defaultFortranType| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |exp2FortOptimize| ...) is being compiled.
;; The variable |$fortranOptimizationLevel| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |beenHere| ...) is being compiled.
;; The variable |$fortCsList| is undefined.

```

```

;; The compiler will assume this variable is a global.
; (DEFUN |exp2FortOptimizeCS1,pushCsStacks| ...) is being compiled.
;; The variable |$fortCsExprStack| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$fortCsFuncStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |exp2FortOptimizeCS1,popCsStacks| ...) is being compiled.
;; Warning: The variable |x| is not used.
; (DEFUN |exp2FortOptimizeCS1| ...) is being compiled.
;; The variable |$fortCsHash| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |exp2FortOptimizeArray| ...) is being compiled.
;; The variable |$fortName| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$exprStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |fortran2Lines1| ...) is being compiled.
;; The variable |$fortIndent| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$fortLength| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |fortError1| ...) is being compiled.
;; The variable |$fortError| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |exp2FortSpecial| ...) is being compiled.
;; The variable |$fortranArrayStartingIndex| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |fortranifyIntrinsicFunctionName| ...) is being compiled.
;; The variable |$useIntrinsicFunctions| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$intrinsic| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$fortranPrecision| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |indentFortLevel| ...) is being compiled.
;; The variable |$maximumFortranExpressionLength| is undefined.
;; The compiler will assume this variable is a global.
; (DEFMACRO |changeExprLength| ...) is being compiled.
;; Warning: The variable #:G155164 is not used.
; (DEFMACRO |nameLen| ...) is being compiled.
;; Warning: The variable #:G155334 is not used.
; (DEFUN |currentSP| ...) is being compiled.
;; The variable |$currentSubprogram| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |fortPre1| ...) is being compiled.
;; The variable |$fortInts2Floats| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |segment| ...) is being compiled.
;; The variable |$fortranSegment| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1102 section

```

Compiling /research2/test0819/int/interp/nrunfast.clisp.
; (DEFUN |initNewWorld| ...) is being compiled.
;; The variable |$NRTflag| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTvec| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTmakeCompactDirect| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTquick| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTmakeShortDirect| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$newWorld| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$monitorNewWorld| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTmonitorIfTrue| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$doNotCompressHashTableIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |replaceGoGetSlot| ...) is being compiled.
;; The variable |$returnNowhereFromGoGet| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |newLookupInTable| ...) is being compiled.
;; The variable |$lookupDefaults| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |opIsHasCat| ...) is being compiled.
;; The variable |$hasCatOpHash| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hashNewLookupInTable| ...) is being compiled.
;; The variable |$hashOp1| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOp0| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hashNewLookupInCategories| ...) is being compiled.
;; The variable |$Slot1DataBase| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getNewDefaultPackage| ...) is being compiled.
;; The variable |packageVec| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |catVec| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |dom| is not used.
;; Warning: The variable |dollar| is not used.
; (DEFUN |lazyMatchArg2| ...) is being compiled.
;; The variable |$isDefaultingPackage| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |newExpandGoGetTypeSlot| ...) is being compiled.
;; Warning: The variable |dollar| is not used.
; (DEFUN |sigDomainVal| ...) is being compiled.

```

```
;; Warning: The variable |dollar| is not used.
```

### 15.0.1103 section

```
Compiling /research2/test0819/int/interp/nrunngo.clisp.
; (DEFUN |basicLookup| ...) is being compiled.
;; The variable |$hashOp0| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOp1| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOpApply| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOpSet| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashSeg| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |basicLookupCheckDefaults| ...) is being compiled.
;; The variable |$lookupDefaults| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |domain| is not used.
; (DEFUN |lookupInTable| ...) is being compiled.
;; The variable |$predVector| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |lookupInCategories| ...) is being compiled.
;; The variable |$Slot1DataBase| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTcompileEvalForm| ...) is being compiled.
;; The variable |$insideCompileBodyIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTgetMinivectorIndex| ...) is being compiled.
;; The variable |$minivector| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compilingInputFile| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorCode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkDiffAssoc| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1104 section

```
Compiling /research2/test0819/int/interp/nrunopt.clisp.
; (DEFUN |getInfovecCode| ...) is being compiled.
;; The variable |$template| is undefined.
;; The compiler will assume this variable is a global.
```

```

;; The variable |$NRTslot1Info| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lookupFunction| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeDomainTemplate| ...) is being compiled.
;; The variable |$byteVec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeGoGetSlot| ...) is being compiled.
;; The variable |$byteAddress| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeCompactDirect| ...) is being compiled.
;; The variable |$NRTslot1PredicateList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeCompactDirect1,fn| ...) is being compiled.
;; The variable |$isOpPackageName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeCompactDirect1| ...) is being compiled.
;; The variable |$byteVecAcc| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |orderBySubsumption| ...) is being compiled.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTgenInitialAttributeAlist| ...) is being compiled.
;; The variable |$lisplibAttributes| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$pairlis| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTgenFinalAttributeAlist| ...) is being compiled.
;; The variable |$NRTattributeAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makePredicateBitVector| ...) is being compiled.
;; The variable |$insideCategoryPackageIfTrue| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$categoryPredicateList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$predGensymAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lisplibPredicates| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |augmentPredCode| ...) is being compiled.
;; The variable $ is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTmakeCategoryAlist| ...) is being compiled.
;; The variable |$uncondAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$condAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTcatCompare| ...) is being compiled.
;; The variable |$levelAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |depthAssoc| ...) is being compiled.
;; The variable |$depthAssocCache| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |getCodeVector| ...) is being compiled.

```

```
;; The variable |$infovec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dcOpTable| ...) is being compiled.
;; Warning: The variable |i| is not used.
; (DEFUN |dcOpPrint| ...) is being compiled.
;; The variable |$predvec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |extendsCategory| ...) is being compiled.
;; The variable |$why| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |templateVal| ...) is being compiled.
;; Warning: The variable |domform| is not used.
```

### 15.0.1105 section

```
Compiling /research2/test0819/int/interp/record.clisp.
; (DEFUN |inputFile2RecordFile| ...) is being compiled.
;; The variable |$testStream| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |recordAndPrintTest| ...) is being compiled.
;; The variable |$mkTestOutputStack| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$mkTestInputStack| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1106 section

```
Compiling /research2/test0819/int/interp/rulesets.clisp.
; (DEFUN |createResolveTTRules| ...) is being compiled.
;; The variable |$mpolyTTRules| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$Res| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$nameList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$abList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$generalTTRules| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |createResolveTMRules| ...) is being compiled.
;; The variable |$mpolyTMRules| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$ResMode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$generalTMRules| is undefined.
;; The compiler will assume this variable is a global.
```



```
; (DEFUN |createTypeEquivRules| ...) is being compiled.
;; The variable |$TypeEQ| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$TypeEqui| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |initializeRuleSets| ...) is being compiled.
;; The variable |$newResolveAbbreviations| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$ruleSetsInitialized| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1107 section

```
Compiling /research2/test0819/int/interp/server.clisp.
; (DEFUN |serverReadLine| ...) is being compiled.
;; The variable |$EndServerSession| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NeedToSignalSessionManager| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$SessionManager| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$EndOfOutput| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$CallInterp| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$CreateFrame| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$frameAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$frameNumber| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$currentFrameNum| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$CreateFrameAnswer| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$SwitchFrames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$EndSession| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$LispCommand| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$sockBufferLength| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$MenuServer| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$QuietSpadCommand| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$SpadCommand| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NonSmanSession| is undefined.
```

```
;; The compiler will assume this variable is a global.
;; The variable |$KillLispSystem| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |parseAndInterpret| ...) is being compiled.
;; The variable |$useNewParser| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |serverLoop| ...) is being compiled.
;; The variable |$Prompt| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1108 section

```
Compiling /research2/test0819/int/interp/sfsfun.clisp.
; (DEFUN |logH| ...) is being compiled.
;; Warning: The variable |z| is not used.
; (DEFUN |BesselIBackRecur| ...) is being compiled.
;; Warning: The variable |largev| is not used.
```

### 15.0.1109 section

```
Compiling /research2/test0819/int/interp/slam.clisp.
; (DEFUN |reportFunctionCompilation| ...) is being compiled.
;; The variable |$compiledOpNameList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorNames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compilingInputFile| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivectorCode| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$minivector| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$compileRecurrence| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkCircularAlist| ...) is being compiled.
;; The variable |$failed| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |compileRecurrenceRelation| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |junk| is not used.
; (DEFUN |clearAllSlams,fn| ...) is being compiled.
;; The variable |$functorDependencyAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFMACRO |clearSlam| ...) is being compiled.
;; Warning: The variable #:G154929 is not used.
```

### 15.0.1110 section

```

Compiling /research2/test0819/int/interp/template.clisp.
; (DEFUN |putPredHash| ...) is being compiled.
;; The variable |$predHash| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$predVectorFrontier| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$predVector| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkSigPredVectors| ...) is being compiled.
;; The variable |$consDB| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTdescendCodeTran| ...) is being compiled.
;; The variable |$template| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |measure| ...) is being compiled.
;; The variable |SparseUnivariatePolynomial;| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |SparseUnivariatePolynomial;opDirect| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |SparseUnivariatePolynomial;template| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |measureCommon,fn| ...) is being compiled.
;; The variable HASH is undefined.
;; The compiler will assume this variable is a global.
;; The variable TABLE is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$table| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1111 section

```

Compiling /research2/test0819/int/interp/fortcall.clisp.
; (DEFUN |makeFort1| ...) is being compiled.
;; The variable |$fortranDirectory| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeFortranFun| ...) is being compiled.
;; The variable |$fortranLibraries| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |writeCFile| ...) is being compiled.
;; The variable |$addUnderscoreToFortranNames| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeAspGenerators1| ...) is being compiled.
;; Warning: The variable |type| is not used.

```

```

; (DEFUN |makeCompilation| ...) is being compiled.
;; The variable |$fortranCompilerName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |spadify| ...) is being compiled.
;; The variable RESULTS is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |prepareResults,defaultValue| ...) is being compiled.
;; The variable |shortZero| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |longZero| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |generateDataName| ...) is being compiled.
;; The variable |$fortranTmpDir| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |nagCall| ...) is being compiled.
;; The variable |$nagMessages| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$nagHost| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$fortPersistence| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1112 section

```

Compiling /research2/test0819/int/interp/util.lisp.
; (DEFUN MAKE-DIRECTORY ...) is being compiled.
;; The variable $SPADROOT is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN INTERP-MAKE-DIRECTORY ...) is being compiled.
;; The variable $CURRENT-DIRECTORY is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN TRANSLATE ...) is being compiled.
;; Warning: The variable FN is not used.
; (DEFUN MAKE-DEPSYS ...) is being compiled.
;; Warning: The variable LSP is not used.
;; Warning: The variable SRC is not used.
;; Warning: The variable INT is not used.
;; Warning: The variable MNT is not used.
; (IN-PACKAGE "BOOTTRAN") is being compiled.
;; Warning: The package operation (IN-PACKAGE "BOOTTRAN") was in a bad place.
; (DEFUN BOOTTOCL ...) is being compiled.
;; Warning: The variable FN is not used.
; (IN-PACKAGE "BOOT") is being compiled.
;; Warning: The package operation (IN-PACKAGE "BOOT") was in a bad place.
; (DEFUN BUILD-INTERPSYS ...) is being compiled.
;; The variable COMP-FUNCTIONS is undefined.
;; The compiler will assume this variable is a global.
;; The variable PARSE-FUNCTIONS is undefined.
;; The compiler will assume this variable is a global.
;; The variable BROWSE-FUNCTIONS is undefined.

```

```

;; The compiler will assume this variable is a global.
;; The variable TRANSLATE-FUNCTIONS is undefined.
;; The compiler will assume this variable is a global.
;; The variable NAGBR-FUNCTIONS is undefined.
;; The compiler will assume this variable is a global.
;; The variable ASAUTO-FUNCTIONS is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable LSP is not used.
;; Warning: The variable SRC is not used.
;; Warning: The variable INT is not used.
;; Warning: The variable OBJ is not used.
;; Warning: The variable MNT is not used.
;; Warning: The variable SYS is not used.
; (IN-PACKAGE "COMPILER") is being compiled.
;; Warning: The package operation (IN-PACKAGE "COMPILER") was in a bad place.
; (IN-PACKAGE "BOOT") is being compiled.
;; Warning: The package operation (IN-PACKAGE "BOOT") was in a bad place.
; (DEFUN MAKELIB ...) is being compiled.
;; Warning: The variable NOOPTIMIZE is not used.
; (DEFUN LIBCHECK ...) is being compiled.
;; The variable ABBREVS is undefined.
;; The compiler will assume this variable is a global.
;; The variable CONSTRUCTORS is undefined.
;; The compiler will assume this variable is a global.
;; The variable SRCABBREVS is undefined.
;; The compiler will assume this variable is a global.
;; The variable SRCCONSTRUCTORS is undefined.
;; The compiler will assume this variable is a global.
;; The variable SPADS is undefined.
;; The compiler will assume this variable is a global.
;; The variable SHORT is undefined.
;; The compiler will assume this variable is a global.
;; The variable LONG is undefined.
;; The compiler will assume this variable is a global.
;; The variable POINT is undefined.
;; The compiler will assume this variable is a global.
;; The variable MARK is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable END is not used.
;; Warning: The variable START is not used.
;; Warning: The variable IN is not used.
;; Warning: The variable INTERP is not used.
;; Warning: The variable END is not used.
;; Warning: The variable START is not used.
;; Warning: The variable IN is not used.
;; Warning: The variable INTERP is not used.

```

## 15.0.1113 section

Compiling /research2/test0819/int/interp/c-util.clisp.

```

; (DEFUN |continue| ...) is being compiled.
;; The variable |$x| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$m| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$f| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |level| ...) is being compiled.
;; The variable |$level| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |displayComp| ...) is being compiled.
;; The variable |$bright| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$dim| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$s| is undefined.
;; The compiler will assume this variable is a global.
;; The variable $X is undefined.
;; The compiler will assume this variable is a global.
;; The variable $M is undefined.
;; The compiler will assume this variable is a global.
;; The variable $F is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |intersectionContour,modeCompare| ...) is being compiled.
;; The variable |$var| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |isAlmostSimple,setAssignment| ...) is being compiled.
;; The variable |$assignmentList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |stackSemanticError| ...) is being compiled.
;; The variable |$initCapsuleErrorCount| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |stackMessage| ...) is being compiled.
;; The variable |$compErrorMessageStack| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |?modemaps| ...) is being compiled.
;; The variable |$CapsuleModemapFrame| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |traverse,traverseInner| ...) is being compiled.
;; The variable |$seen| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$notseen| is undefined.
;; The compiler will assume this variable is a global.
;; The variable SET-PA-SPEC is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1114 section

```

Compiling /research2/test0819/int/interp/profile.clisp.
; (DEFUN |profileWrite| ...) is being compiled.
;; The variable |$profileAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |profileTran| ...) is being compiled.
;; The variable |$profileHash| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |profileRecord| ...) is being compiled.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$signatureOfForm| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1115 section

```

Compiling /research2/test0819/int/interp/category.clisp.
; (DEFUN |SigListUnion| ...) is being compiled.
;; The variable |$NewCatVec| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |e| is not used.
; (DEFUN |SourceLevelSubset| ...) is being compiled.
;; The variable |$noSubsumption| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$noSubsets| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1116 section

```

Compiling /research2/test0819/int/interp/functor.clisp.
; (DEFUN |DomainPrint1| ...) is being compiled.
;; The variable |$Sublis| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$WhereList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DPname| ...) is being compiled.
;; The variable |$WhereCounter| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NewbFVectorCopy| ...) is being compiled.
;; The variable |Undef| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setVector12| ...) is being compiled.
;; The variable |$extraParms| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$domainShell| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setVector4| ...) is being compiled.

```

```

;; The variable |$HackSlot4| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$getDomainCode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setVector4Onecat,Supplementaries| ...) is being compiled.
;; The variable |$supplementaries| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setVector4part3| ...) is being compiled.
;; The variable |$epilogue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |mkVectorWithDeferral| ...) is being compiled.
;; The variable |$ConstantAssignments| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DescendCodeAdd1| ...) is being compiled.
;; The variable |$addFormLhs| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DescendCode| ...) is being compiled.
;; The variable |$packagesUsed| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$locals| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ProcessCond| ...) is being compiled.
;; The variable |$pairlis| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTslot1PredicateList| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |viewassoc| is not used.
; (DEFUN |SetFunctionSlots| ...) is being compiled.
;; The variable |$catvecList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$MissingFunctionInfo| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LookUpSigSlots| ...) is being compiled.
;; The variable |$insideCategoryPackageIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |CheckVector| ...) is being compiled.
;; The variable |$catNames| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$CheckVectorList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |InvestigateConditions,pessimise| ...) is being compiled.
;; The variable |$Conditions| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |InvestigateConditions| ...) is being compiled.
;; Warning: The variable |u| is not used.
; (DEFUN |resolvePatternVars| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1117 section



```

Compiling /research2/test0819/int/interp/info.clisp.
; (DEFUN |addInfo| ...) is being compiled.
;; The variable |$Information| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |actOnInfo| ...) is being compiled.
;; The variable |$functorLocalParameters| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1118 section

```

Compiling /research2/test0819/int/interp/iterator.clisp.
; (DEFUN |getIdentity| ...) is being compiled.
;; Warning: The variable |e| is not used.
; (DEFUN |compIterator| ...) is being compiled.
;; The variable |$until| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1119 section

```

Compiling /research2/test0819/int/interp/nruncomp.clisp.
; (DEFUN |NRTaddDeltaCode| ...) is being compiled.
;; The variable |$catvecList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTbase| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTdeltaList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTdeltaListComp| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$template| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTaddForm| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$addForm| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |optDeltaEntry| ...) is being compiled.
;; The variable |$killOptimizeIfTrue| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$optimizableConstructorNames| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |genDeltaEntry| ...) is being compiled.
;; The variable |$profileCompiler| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$functorLocalParameters| is undefined.
;; The compiler will assume this variable is a global.

```

```

;; The variable |$NRTdeltaLength| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTassocIndex| ...) is being compiled.
;; The variable |$found| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTgetLocalIndex1| ...) is being compiled.
;; Warning: The variable |killBindingIfTrue| is not used.
; (DEFUN |NRTgetAddForm| ...) is being compiled.
;; The variable |$Slot1DataBase| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTassignCapsuleFunctionSlot| ...) is being compiled.
;; The variable |$insideCategoryPackageIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTisExported?| ...) is being compiled.
;; The variable |$domainShell| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |consDomainName| ...) is being compiled.
;; The variable |$devaluateList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |buildFunctor| ...) is being compiled.
;; The variable |$NRTvec| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$uncondAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$condAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTslot1PredicateList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$setelt| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$CheckVectorList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTdomainFormList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$getDomainCode| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTvectorCopy| ...) is being compiled.
;; Warning: The variable |cacheName| is not used.
;; Warning: The variable |domName| is not used.
; (DEFUN |NRTsetVector4| ...) is being compiled.
;; The variable |$lisplibCategoriesExtended| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTsetVector4Part2| ...) is being compiled.
;; The variable |$pairlis| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTsetVector4a| ...) is being compiled.
;; The variable |$uncondList| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$condList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTmakeSlot1| ...) is being compiled.
;; The variable |$NRTmakeCompactDirect| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |domainShell| is not used.

```

```

; (DEFUN |NRTmakeSlot1Info| ...) is being compiled.
;; The variable |$lisplibOpAlist| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NRTderivedTargetIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRToptimizeHas| ...) is being compiled.
;; The variable |$hasCategoryAlist| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NRTaddToSlam| ...) is being compiled.
;; The variable |$mutableDomain| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |changeDirectoryInSlot1,fn| ...) is being compiled.
;; The variable |$lastPred| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$newEnv| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |genSlotSig| ...) is being compiled.
;; Warning: The variable |pred| is not used.
; (DEFUN |NRTputInHead| ...) is being compiled.
;; The variable |$elt| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1120 section

```

Compiling /research2/test0819/int/interp/htcheck.clisp.
; (DEFUN |buildHtMacroTable| ...) is being compiled.
;; The variable |$htMacroTable| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$primitiveHtCommands| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1121 section

```

Compiling /research2/test0819/int/interp/ht-util.clisp.
; (DEFUN |httpDestroyPage| ...) is being compiled.
;; The variable |$activePageList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |iht| ...) is being compiled.
;; The variable |$newPage| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$htLineList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |bcHt| ...) is being compiled.
;; The variable |$curPage| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |doDoitButton| ...) is being compiled.

```

```
;; Warning: The variable |htPage| is not used.
; (DEFUN |typeCheckInputAreas| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |parseAndEval1| ...) is being compiled.
;; The variable |$useNewParser| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |htEscapeString| ...) is being compiled.
;; The variable |$funnyQuote| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$funnyBacks| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1122 section

```
Compiling /research2/test0819/int/interp/br-con.clisp.
; (DEFUN |conPageFastPath| ...) is being compiled.
;; The variable |$lowerCaseConTb| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |kxPage| ...) is being compiled.
;; Warning: The variable |htPage| is not used.
; (DEFUN |kiPage| ...) is being compiled.
;; The variable |$conformsAreDomains| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |junk| is not used.
; (DEFUN |kePage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |ksPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |dbSearchOrder| ...) is being compiled.
;; The variable |$predvec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |kcPage| ...) is being compiled.
;; The variable |$defaultPackageNamesHT| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcpPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcaPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcdPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcdoPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcaPage1| ...) is being compiled.
;; Warning: The variable |article| is not used.
; (DEFUN |kccPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcdePage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
```

```

; (DEFUN |kcuPage| ...) is being compiled.
;; Warning: The variable |junk| is not used.
; (DEFUN |kcnPage| ...) is being compiled.
;; The variable |conname| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |junk| is not used.
; (DEFUN |conOpPage| ...) is being compiled.
;; Warning: The variable |conform| is not used.
; (DEFUN |conOpPage1| ...) is being compiled.
;; The variable |$Primitives| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbConstructorDoc,hn| ...) is being compiled.
;; The variable |$sig| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$args| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbConstructorDoc,gn| ...) is being compiled.
;; The variable |$op| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbDocTable| ...) is being compiled.
;; The variable |$docTableHash| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbAddDocTable| ...) is being compiled.
;; The variable |$docTable| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbGetDocTable,hn| ...) is being compiled.
;; The variable |$which| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$conform| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |kTestPred| ...) is being compiled.
;; The variable |$domain| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbAddChainDomain| ...) is being compiled.
;; The variable |$infovec| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbPresentCons| ...) is being compiled.
;; The variable |$includeUnexposed?| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$exposedOnlyIfTrue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbConsExposureMessage| ...) is being compiled.
;; The variable |$atLeastOneUnexposed| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbShowConsDoc1| ...) is being compiled.
;; The variable |$TriangleVariableList| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |dbSelectCon| ...) is being compiled.
;; Warning: The variable |which| is not used.

```

**15.0.1123 section**

```

Compiling /research2/test0819/int/interp/topics.clisp.
; (DEFUN |mkTopicHashTable| ...) is being compiled.
;; The variable |$defaultsHash| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$topicsDefaults| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$conTopicHash| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$topicHash| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$groupAssoc| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$topicIndex| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |skipBlanks| ...) is being compiled.
;; The variable |$charBlank| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |topicCode| ...) is being compiled.
;; The variable |$topicSynonyms| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |td| ...) is being compiled.
;; The variable |$topicClasses| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1124 section**

```

Compiling /research2/test0819/int/interp/interop.clisp.
; (DEFUN |DNameToSExpri| ...) is being compiled.
;; The variable |DNameStringID| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DNameToSExpri| ...) is being compiled.
;; The variable |DNameOtherID| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SExpriToDName| ...) is being compiled.
;; The variable |DNameApplyID| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |DNameTupleID| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |runOldAxiomFunctor| ...) is being compiled.
;; The variable |$oldAxiomPreCategoryDispatch| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |makeLazyOldAxiomDispatchDomain| ...) is being compiled.
;; The variable |$attributeDispatch| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$lazyOldAxiomDomainDispatch| is undefined.
;; The compiler will assume this variable is a global.

```

```

; (DEFUN |makeOldAxiomDispatchDomain| ...) is being compiled.
;; The variable |$oldAxiomDomainDispatch| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |lazyOldAxiomDomainLookupExport| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |lazyOldAxiomDomainHashCode| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |lazyOldAxiomDomainDevaluate| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |lazyOldAxiomAddChild| ...) is being compiled.
;; Warning: The variable |kid| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomPreCategoryBuild| ...) is being compiled.
;; The variable |$oldAxiomCategoryDispatch| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomPreCategoryHashCode| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryDefaultPackage| ...) is being compiled.
;; Warning: The variable |dom| is not used.
; (DEFUN |oldAxiomPreCategoryDevaluate| ...) is being compiled.
;; The variable T$ is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryDevaluate| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryLookupExport| ...) is being compiled.
;; Warning: The variable |box| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryParentCount| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryNthParent| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomCategoryHashCode| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeDevaluate| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeLookupExport| ...) is being compiled.
;; Warning: The variable |box| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeHashCode| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeCategoryBuild| ...) is being compiled.
;; Warning: The variable |dom| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeCategoryParentCount| ...) is being compiled.
;; Warning: The variable |attrObj| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |attributeNthParent| ...) is being compiled.
;; Warning: The variable |attrObj| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomDomainLookupExport| ...) is being compiled.
;; The variable |$hashOp1| is undefined.
;; The compiler will assume this variable is a global.

```

```
;; The variable |$hashOp0| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOpApply| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashOpSet| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$hashSeg| is undefined.
;; The compiler will assume this variable is a global.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomDomainHashCode| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomDomainHasCategory| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomDomainDevaluate| ...) is being compiled.
;; Warning: The variable |env| is not used.
; (DEFUN |oldAxiomAddChild| ...) is being compiled.
;; Warning: The variable |child| is not used.
;; Warning: The variable |env| is not used.
; (DEFUN |coerceConvertMmSelection| ...) is being compiled.
;; The variable |coerceConvertMmSelection;AL| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1125 section

```
Compiling /research2/test0819/int/interp/patches.lisp.
; (DEFUN CATCHALL ...) is being compiled.
;; Warning: The variable B is not used.
; (DEFUN CLEAR-HIGHLIGHT ...) is being compiled.
;; The variable |$specialCharacters| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN RESET-HIGHLIGHT ...) is being compiled.
;; The variable |$saveHighlight| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$saveSpecialchars| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |cd| ...) is being compiled.
;; The variable $CURRENT-DIRECTORY is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN TOPLEVEL ...) is being compiled.
;; Warning: The variable FOO is not used.
; (DEFUN /RF ...) is being compiled.
;; Warning: The variable FOO is not used.
; (DEFUN /RQ ...) is being compiled.
;; Warning: The variable FOO is not used.
; (DEFUN |/RQ,LIB| ...) is being compiled.
;; Warning: The variable FOO is not used.
; (DEFUN /RF-1 ...) is being compiled.
;; The variable /EDITFILE is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$useNewParser| is undefined.
```



```

;; The compiler will assume this variable is a global.
; (DEFUN /EF ...) is being compiled.
;; Warning: The variable FOO is not used.
; (DEFUN AKCL-VERSION ...) is being compiled.
;; The variable SYSTEM::*AKCL-VERSION* is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN SHAREDITEMS ...) is being compiled.
;; Warning: The variable X is not used.
; (DEFUN WHOCALLED ...) is being compiled.
;; Warning: The variable N is not used.
; (SHADOW 'MAP) is being compiled.
;; Warning: The package operation (SHADOW 'MAP) was in a bad place.
; (DEFUN |spadtestValueHook| ...) is being compiled.
;; Warning: The variable VAL is not used.
;; Warning: The variable TYPE is not used.
; (DEFUN |testError| ...) is being compiled.
;; Warning: The variable ERROTYPE is not used.
;; Warning: The variable ERROVALUE is not used.
; (DEFUN |bootFind| ...) is being compiled.
;; Warning: The variable WORD is not used.
; (DEFUN |fetchKeyedMsg| ...) is being compiled.
;; The variable |$defaultMsgDatabaseName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |setViewportProcess| ...) is being compiled.
;; The variable |$ViewportProcessToWatch| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |waitForViewport| ...) is being compiled.
;; The variable |$MenuServer| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN PRINT-XDR-STREAM ...) is being compiled.
;; Warning: The variable Z is not used.
; (DEFUN |xdrOpen| ...) is being compiled.
;; Warning: The variable DIR is not used.
; (DEFUN |clearParserMacro| ...) is being compiled.
;; The variable |$pfMacros| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN /VERSIONCHECK ...) is being compiled.
;; The variable /MAJOR-VERSION is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1126 section

```

Compiling /research2/test0819/int/interp/hashcode.clisp.
; (DEFUN |hashType| ...) is being compiled.
;; The variable |$VoidHash| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$DomainsWithoutLisplibs| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |hashString| ...) is being compiled.

```

```
;; The variable |$hashModulus| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1127 section

```
Compiling /research2/test0819/int/interp/nag-c02.clisp.
; (DEFUN |c02affSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1128 section

```
Compiling /research2/test0819/int/interp/nag-c05.clisp.
; (DEFUN |c05nbfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1129 section

```
Compiling /research2/test0819/int/interp/nag-c06.clisp.
; (DEFUN |c06eafSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1130 section

```
Compiling /research2/test0819/int/interp/nag-d01.clisp.
; (DEFUN |d01ajfGen| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1131 section

```

Compiling /research2/test0819/int/interp/nag-d02.clisp.
; (DEFUN |d02bbfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1132 section

```

Compiling /research2/test0819/int/interp/nag-d03.clisp.
; (DEFUN |d03edfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1133 section

```

Compiling /research2/test0819/int/interp/nag-e01.clisp.
; (DEFUN |e01bafSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1134 section

```

Compiling /research2/test0819/int/interp/nag-e02.clisp.
; (DEFUN |e02adfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1135 section

```

Compiling /research2/test0819/int/interp/nag-e04.clisp.
; (DEFUN |e04dggfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1136 section

```

Compiling /research2/test0819/int/interp/nag-f01.clisp.
; (DEFUN |f01brfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |f01qcfDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.
; (DEFUN |f01qdfDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.
;; Warning: The variable |ldb| is not used.
; (DEFUN |f01qefDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.
; (DEFUN |f01rdfDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.
;; Warning: The variable |ldb| is not used.
; (DEFUN |f01refDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.

```

### 15.0.1137 section

```

Compiling /research2/test0819/int/interp/nag-f02.clisp.
; (DEFUN |f02aafSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |f02aafDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
; (DEFUN |f02abfDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |iv| is not used.
; (DEFUN |f02adfDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |ib| is not used.
; (DEFUN |f02aefDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |ib| is not used.
;; Warning: The variable |iv| is not used.
; (DEFUN |f02affDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
; (DEFUN |f02agfDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |ivr| is not used.
;; Warning: The variable |ivi| is not used.
; (DEFUN |f02ajfDefaultSolve| ...) is being compiled.
;; Warning: The variable |iar| is not used.
;; Warning: The variable |iai| is not used.
; (DEFUN |f02akfDefaultSolve| ...) is being compiled.
;; Warning: The variable |iar| is not used.
;; Warning: The variable |iai| is not used.
;; Warning: The variable |ivr| is not used.
;; Warning: The variable |ivi| is not used.

```

```
; (DEFUN |f02awfDefaultSolve| ...) is being compiled.
;; Warning: The variable |iar| is not used.
;; Warning: The variable |iai| is not used.
; (DEFUN |f02axfDefaultSolve| ...) is being compiled.
;; Warning: The variable |iar| is not used.
;; Warning: The variable |iai| is not used.
;; Warning: The variable |ivr| is not used.
;; Warning: The variable |ivi| is not used.
; (DEFUN |f02bbfDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |iv| is not used.
; (DEFUN |f02bjfDefaultSolve| ...) is being compiled.
;; Warning: The variable |ia| is not used.
;; Warning: The variable |ib| is not used.
;; Warning: The variable |iv| is not used.
```

### 15.0.1138 section

```
Compiling /research2/test0819/int/interp/nag-f04.clisp.
; (DEFUN |f04adfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |f04atfDefaultSolve| ...) is being compiled.
;; Warning: The variable |iaa| is not used.
; (DEFUN |f04jgfDefaultSolve| ...) is being compiled.
;; Warning: The variable |nra| is not used.
;; Warning: The variable |lwork| is not used.
```

### 15.0.1139 section

```
Compiling /research2/test0819/int/interp/nag-f07.clisp.
; (DEFUN |f07adfSolve| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |f07adfDefaultSolve| ...) is being compiled.
;; Warning: The variable |lda| is not used.
```

### 15.0.1140 section

```
Compiling /research2/test0819/int/interp/nag-s.clisp.
; (DEFUN |s17dcfGen| ...) is being compiled.
;; The variable |$bcParseOnly| is undefined.
```

```
;; The compiler will assume this variable is a global.
```

### 15.0.1141 section

```
finalizing nrlib AHYP
; (DEFUN |ArcHyperbolicFunctionCategory| ...) is being compiled.
;; The variable |ArcHyperbolicFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1142 section

```
finalizing nrlib ATTREG
; (DEFUN |AttributeRegistry| ...) is being compiled.
;; The variable |AttributeRegistry;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1143 section

```
finalizing nrlib CFCAT
; (DEFUN |CombinatorialFunctionCategory| ...) is being compiled.
;; The variable |CombinatorialFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1144 section

```
finalizing nrlib ELTAB
; (DEFUN |Eltable| ...) is being compiled.
;; The variable |Eltable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Eltable;| ...) is being compiled.
;; The variable |Eltable;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1145 section

```

 finalizing nrlib KOERCE
; (DEFUN |CoercibleTo| ...) is being compiled.
;; The variable |CoercibleTo;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |CoercibleTo;| ...) is being compiled.
;; The variable |CoercibleTo;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

#### 15.0.1146 section

```

 finalizing nrlib KONVERT
; (DEFUN |ConvertibleTo| ...) is being compiled.
;; The variable |ConvertibleTo;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ConvertibleTo;| ...) is being compiled.
;; The variable |ConvertibleTo;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

#### 15.0.1147 section

```

 finalizing nrlib OM
; (DEFUN |OpenMath| ...) is being compiled.
;; The variable |OpenMath;AL| is undefined.
;; The compiler will assume this variable is a global.

```

#### 15.0.1148 section

```

 finalizing nrlib PTRANFN
; (DEFUN |PartialTranscendentalFunctions| ...) is being compiled.
;; The variable |PartialTranscendentalFunctions;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PartialTranscendentalFunctions;| ...) is being compiled.
;; The variable |PartialTranscendentalFunctions;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

#### 15.0.1149 section

```

 finalizing nrlib SPFCAT
; (DEFUN |SpecialFunctionCategory| ...) is being compiled.
;; The variable |SpecialFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1150 section

```

 finalizing nrlib TYPE
; (DEFUN |Type| ...) is being compiled.
;; The variable |Type;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1151 section

```

 finalizing nrlib COMBOPC
; (DEFUN |CombinatorialOpsCategory| ...) is being compiled.
;; The variable |CombinatorialOpsCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1152 section

```

 finalizing nrlib FORTCAT
; (DEFUN |FortranProgramCategory| ...) is being compiled.
;; The variable |FortranProgramCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

```

-----non extending category-----

```

```

.. InfiniteTuple #1 of cat

```

```

(|Join| (|CoercibleTo| (|OutputForm|)) (CATEGORY |domain| (SIGNATURE |map| ($ (|Mapping| |#1| |#1|) $)) (SIGNATURE

```

### 15.0.1153 section

```

(|LazyStreamAggregate| |#1|) finalizing nrlib ITUPLE

```

### 15.0.1154 section



```

 finalizing nrlib PATAB
; (DEFUN |Patternable| ...) is being compiled.
;; The variable |Patternable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Patternable;| ...) is being compiled.
;; The variable |Patternable;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1155 section

```

 finalizing nrlib PPCURVE
; (DEFUN |PlottablePlaneCurveCategory| ...) is being compiled.
;; The variable |PlottablePlaneCurveCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1156 section

```

 finalizing nrlib PSCURVE
; (DEFUN |PlottableSpaceCurveCategory| ...) is being compiled.
;; The variable |PlottableSpaceCurveCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1157 section

```

 finalizing nrlib REAL
; (DEFUN |RealConstant| ...) is being compiled.
;; The variable |RealConstant;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1158 section

```

 finalizing nrlib RETRACT
; (DEFUN |RetractableTo| ...) is being compiled.
;; The variable |RetractableTo;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RetractableTo;| ...) is being compiled.
;; The variable |RetractableTo;CAT| is undefined.

```

```
;; The compiler will assume this variable is a global.
```

### 15.0.1159 section

```
finalizing nrlib SEGCAT
; (DEFUN |SegmentCategory| ...) is being compiled.
;; The variable |SegmentCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SegmentCategory;| ...) is being compiled.
;; The variable |SegmentCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1160 section

```
finalizing nrlib FMC
; (DEFUN |FortranMatrixCategory| ...) is being compiled.
;; The variable |FortranMatrixCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1161 section

```
finalizing nrlib FMFUN
; (DEFUN |FortranMatrixFunctionCategory| ...) is being compiled.
;; The variable |FortranMatrixFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1162 section

```
finalizing nrlib FORTFN
; (DEFUN |FortranFunctionCategory| ...) is being compiled.
;; The variable |FortranFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1163 section

```

 finalizing nrlib FVC
; (DEFUN |FortranVectorCategory| ...) is being compiled.
;; The variable |FortranVectorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1164 section

```

 finalizing nrlib FVFUN
; (DEFUN |FortranVectorFunctionCategory| ...) is being compiled.
;; The variable |FortranVectorFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1165 section

```

 finalizing nrlib SEGXCAT
; (DEFUN |SegmentExpansionCategory| ...) is being compiled.
;; The variable |SegmentExpansionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SegmentExpansionCategory;| ...) is being compiled.
;; The variable |SegmentExpansionCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1166 section

```

 finalizing nrlib AGG
; (DEFUN |Aggregate| ...) is being compiled.
;; The variable |Aggregate;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1167 section

```

 finalizing nrlib BASTYPE
; (DEFUN |BasicType| ...) is being compiled.
;; The variable |BasicType;AL| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1168 section**

```
finalizing nrlib ELTAGG
; (DEFUN |EltableAggregate| ...) is being compiled.
;; The variable |EltableAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |EltableAggregate;| ...) is being compiled.
;; The variable |EltableAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1169 section**

```
finalizing nrlib FAMONC
; (DEFUN |FreeAbelianMonoidCategory| ...) is being compiled.
;; The variable |FreeAbelianMonoidCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FreeAbelianMonoidCategory;| ...) is being compiled.
;; The variable |FreeAbelianMonoidCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1170 section**

```
finalizing nrlib FILECAT
; (DEFUN |FileCategory| ...) is being compiled.
;; The variable |FileCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FileCategory;| ...) is being compiled.
;; The variable |FileCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1171 section**

```
finalizing nrlib FINITE
; (DEFUN |Finite| ...) is being compiled.
;; The variable |Finite;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1172 section

```

 finalizing nrlib FNCAT
; (DEFUN |FileNameCategory| ...) is being compiled.
;; The variable |FileNameCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1173 section

```

 finalizing nrlib IDPC
; (DEFUN |IndexedDirectProductCategory| ...) is being compiled.
;; The variable |IndexedDirectProductCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |IndexedDirectProductCategory;| ...) is being compiled.
;; The variable |IndexedDirectProductCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1174 section

```

 finalizing nrlib IEVALAB
; (DEFUN |InnerEvalable| ...) is being compiled.
;; The variable |InnerEvalable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |InnerEvalable;| ...) is being compiled.
;; The variable |InnerEvalable;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1175 section

```

 finalizing nrlib LMODULE
; (DEFUN |LeftModule| ...) is being compiled.
;; The variable |LeftModule;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LeftModule;| ...) is being compiled.
;; The variable |LeftModule;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1176 section**

```
finalizing nrlib LOGIC
; (DEFUN |Logic| ...) is being compiled.
;; The variable |Logic;AL| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1177 section**

```
finalizing nrlib MONAD
; (DEFUN |Monad| ...) is being compiled.
;; The variable |Monad;AL| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1178 section**

```
finalizing nrlib NIPROB
Warnings:
[1] coerce: nia has no value
[2] coerce: mdnia has no value
[3] retract: nia has no value
[4] retract: mdnia has no value
```

**15.0.1179 section**

```
finalizing nrlib NUMINT
; (DEFUN |NumericalIntegrationCategory| ...) is being compiled.
;; The variable |NumericalIntegrationCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1180 section**

```
finalizing nrlib ODECAT
; (DEFUN |OrdinaryDifferentialEquationsSolverCategory| ...) is being compiled.
;; The variable |OrdinaryDifferentialEquationsSolverCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1181 section

```

 finalizing nrlib OPTCAT
; (DEFUN |NumericalOptimizationCategory| ...) is being compiled.
;; The variable |NumericalOptimizationCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1182 section

```

 finalizing nrlib OPTPROB
Warnings:
 [1] coerce: noa has no value
 [2] coerce: lsa has no value
 [3] retract: noa has no value
 [4] retract: lsa has no value

```

### 15.0.1183 section

```

 finalizing nrlib ORDSET
; (DEFUN |OrderedSet| ...) is being compiled.
;; The variable |OrderedSet;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1184 section

```

 finalizing nrlib PATMAB
; (DEFUN |PatternMatchable| ...) is being compiled.
;; The variable |PatternMatchable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PatternMatchable;| ...) is being compiled.
;; The variable |PatternMatchable;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1185 section

```

 finalizing nrlib PDECAT

```

```
; (DEFUN |PartialDifferentialEquationsSolverCategory| ...) is being compiled.
;; The variable |PartialDifferentialEquationsSolverCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1186 section

```
finalizing nrlib PDEPROB
--->/research2/test0819/mnt/fedora5/../../src/algebra/PDEPROB.spad-->NumericalPDEProblem(constructor): Not documented
--->/research2/test0819/mnt/fedora5/../../src/algebra/PDEPROB.spad-->NumericalPDEProblem(): Missing Description
```

```
REPSQ abbreviates package RepeatedSquaring
(PUSH (QUOTE |RepeatedSquaring|) |$mutableDomains|)
Value = (|RepeatedSquaring|)
```

```
REPDB abbreviates package RepeatedDoubling
(PUSH (QUOTE |RepeatedDoubling|) |$mutableDomains|)
Value = (|RepeatedDoubling|)
```

### 15.0.1187 section

```
finalizing nrlib RMODULE
; (DEFUN |RightModule| ...) is being compiled.
;; The variable |RightModule;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RightModule;| ...) is being compiled.
;; The variable |RightModule;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1188 section

```
finalizing nrlib SEXCAT
; (DEFUN |SExpressionCategory| ...) is being compiled.
;; The variable |SExpressionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SExpressionCategory;| ...) is being compiled.
;; The variable |SExpressionCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1189 section



```

 finalizing nrlib SPACEC
; (DEFUN |ThreeSpaceCategory| ...) is being compiled.
;; The variable |ThreeSpaceCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ThreeSpaceCategory;| ...) is being compiled.
;; The variable |ThreeSpaceCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1190 section

```

 finalizing nrlib STEP
; (DEFUN |StepThrough| ...) is being compiled.
;; The variable |StepThrough;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1191 section

```

 finalizing nrlib ATRIG
; (DEFUN |ArcTrigonometricFunctionCategory| ...) is being compiled.
;; The variable |ArcTrigonometricFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1192 section

```

 finalizing nrlib BMODULE
; (DEFUN |BiModule| ...) is being compiled.
;; The variable |BiModule;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |BiModule;| ...) is being compiled.
;; The variable |BiModule;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1193 section

```

 finalizing nrlib CACHSET
; (DEFUN |CachableSet| ...) is being compiled.
;; The variable |CachableSet;AL| is undefined.

```

```
;; The compiler will assume this variable is a global.
```

#### 15.0.1194 section

```
finalizing nrlib CHARNZ
; (DEFUN |CharacteristicNonZero| ...) is being compiled.
;; The variable |CharacteristicNonZero;AL| is undefined.
;; The compiler will assume this variable is a global.
```

#### 15.0.1195 section

```
finalizing nrlib CHARZ
; (DEFUN |CharacteristicZero| ...) is being compiled.
;; The variable |CharacteristicZero;AL| is undefined.
;; The compiler will assume this variable is a global.
```

#### 15.0.1196 section

```
finalizing nrlib DVARCAT
; (DEFUN |DifferentialVariableCategory| ...) is being compiled.
;; The variable |DifferentialVariableCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DifferentialVariableCategory;| ...) is being compiled.
;; The variable |DifferentialVariableCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

#### 15.0.1197 section

```
finalizing nrlib ELEMFUN
; (DEFUN |ElementaryFunctionCategory| ...) is being compiled.
;; The variable |ElementaryFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

#### 15.0.1198 section

```

 finalizing nrlib EVALAB
; (DEFUN |Evalable| ...) is being compiled.
;; The variable |Evalable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Evalable;| ...) is being compiled.
;; The variable |Evalable;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1199 section

```

 finalizing nrlib FEVALAB
; (DEFUN |FullyEvalableOver| ...) is being compiled.
;; The variable |FullyEvalableOver;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FullyEvalableOver;| ...) is being compiled.
;; The variable |FullyEvalableOver;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1200 section

```

 finalizing nrlib FPATMAB
; (DEFUN |FullyPatternMatchable| ...) is being compiled.
;; The variable |FullyPatternMatchable;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FullyPatternMatchable;| ...) is being compiled.
;; The variable |FullyPatternMatchable;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1201 section

```

 finalizing nrlib GROUP
; (DEFUN |Group| ...) is being compiled.
;; The variable |Group;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1202 section

```

 finalizing nrlib IXAGG
; (DEFUN |IndexedAggregate| ...) is being compiled.
;; The variable |IndexedAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |IndexedAggregate;| ...) is being compiled.
;; The variable |IndexedAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1203 section

```

 finalizing nrlib LALG
; (DEFUN |LeftAlgebra| ...) is being compiled.
;; The variable |LeftAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LeftAlgebra;| ...) is being compiled.
;; The variable |LeftAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1204 section

```

 finalizing nrlib LINEXP
; (DEFUN |LinearlyExplicitRingOver| ...) is being compiled.
;; The variable |LinearlyExplicitRingOver;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LinearlyExplicitRingOver;| ...) is being compiled.
;; The variable |LinearlyExplicitRingOver;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

-----non extending category-----

.. ModuleMonomial(#1,#2,#3) of cat

(|Join| (|OrderedSet|) (CATEGORY |domain| (SIGNATURE |exponent| (|#2| \$)) (SIGNATURE |index| (|#1| \$)) (SIGNATURE

### 15.0.1205 section

(|RecordCategory| (|:| |index| |#1|) (|:| |exponent| |#2|))      finalizing nrlib MODMONOM

### 15.0.1206 section

finalizing nrlib MONADWU-

Warnings:

```
[1] rightPower: signature of lhs not unique: SS(NonNegativeInteger) chosen
[2] leftPower: signature of lhs not unique: SS(NonNegativeInteger) chosen
```

### 15.0.1207 section

```
finalizing nrlib MONADWU
; (DEFUN |MonadWithUnit| ...) is being compiled.
;; The variable |MonadWithUnit;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1208 section

```
finalizing nrlib NARNG
; (DEFUN |NonAssociativeRng| ...) is being compiled.
;; The variable |NonAssociativeRng;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1209 section

```
finalizing nrlib OASGP
; (DEFUN |OrderedAbelianSemiGroup| ...) is being compiled.
;; The variable |OrderedAbelianSemiGroup;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1210 section

```
finalizing nrlib ORDFIN
; (DEFUN |OrderedFinite| ...) is being compiled.
;; The variable |OrderedFinite;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1211 section

```

finalizing nrlib ORDMON
; (DEFUN |OrderedMonoid| ...) is being compiled.
;; The variable |OrderedMonoid;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1212 section

```

finalizing nrlib PATMATCH
Warnings:
[1] ist: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE is? ((Boolean) Subject Pat))

```

### 15.0.1213 section

```

finalizing nrlib PERMCAT
; (DEFUN |PermutationCategory| ...) is being compiled.
;; The variable |PermutationCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PermutationCategory;| ...) is being compiled.
;; The variable |PermutationCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1214 section

```

finalizing nrlib PDRING
; (DEFUN |PartialDifferentialRing| ...) is being compiled.
;; The variable |PartialDifferentialRing;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PartialDifferentialRing;| ...) is being compiled.
;; The variable |PartialDifferentialRing;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1215 section

```

finalizing nrlib TRIGCAT
; (DEFUN |TrigonometricFunctionCategory| ...) is being compiled.
;; The variable |TrigonometricFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1216 section

```

 finalizing nrlib BGAGG
; (DEFUN |BagAggregate| ...) is being compiled.
;; The variable |BagAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |BagAggregate;| ...) is being compiled.
;; The variable |BagAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1217 section

```

 finalizing nrlib BRAGG
; (DEFUN |BinaryRecursiveAggregate| ...) is being compiled.
;; The variable |BinaryRecursiveAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |BinaryRecursiveAggregate;| ...) is being compiled.
;; The variable |BinaryRecursiveAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1218 section

```

 finalizing nrlib DIFEXT
; (DEFUN |DifferentialExtension| ...) is being compiled.
;; The variable |DifferentialExtension;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DifferentialExtension;| ...) is being compiled.
;; The variable |DifferentialExtension;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1219 section

```

 finalizing nrlib DLAGG
; (DEFUN |DoublyLinkedAggregate| ...) is being compiled.
;; The variable |DoublyLinkedAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DoublyLinkedAggregate;| ...) is being compiled.
;; The variable |DoublyLinkedAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1220 section**

```

 finalizing nrlib ELAGG
; (DEFUN |ExtensibleLinearAggregate| ...) is being compiled.
;; The variable |ExtensibleLinearAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ExtensibleLinearAggregate;| ...) is being compiled.
;; The variable |ExtensibleLinearAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1221 section**

```

 finalizing nrlib ES2
Warnings:
 [1] map: IN has no value
 [2] map: x has no value

```

**15.0.1222 section**

```

 finalizing nrlib GRMOD
; (DEFUN |GradedModule| ...) is being compiled.
;; The variable |GradedModule;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |GradedModule;| ...) is being compiled.
;; The variable |GradedModule;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1223 section**

```

 finalizing nrlib HYPCAT
; (DEFUN |HyperbolicFunctionCategory| ...) is being compiled.
;; The variable |HyperbolicFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1224 section**



```
finalizing nrlib MODRING
Warnings:
 [1] coerce: signature of lhs not unique: R$ chosen
```

### 15.0.1225 section

```
finalizing nrlib MODULE
; (DEFUN |Module| ...) is being compiled.
;; The variable |Module;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Module;| ...) is being compiled.
;; The variable |Module;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1226 section

```
finalizing nrlib NASRING
; (DEFUN |NonAssociativeRing| ...) is being compiled.
;; The variable |NonAssociativeRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1227 section

```
finalizing nrlib ZMOD
; (DEFUN |IntegerMod;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1228 section

```
finalizing nrlib ALGEBRA
; (DEFUN |Algebra| ...) is being compiled.
;; The variable |Algebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Algebra;| ...) is being compiled.
;; The variable |Algebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1229 section**

```

 finalizing nrlib BTCAT
; (DEFUN |BinaryTreeCategory| ...) is being compiled.
;; The variable |BinaryTreeCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |BinaryTreeCategory;| ...) is being compiled.
;; The variable |BinaryTreeCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1230 section**

```

 finalizing nrlib FMCAT
; (DEFUN |FreeModuleCat| ...) is being compiled.
;; The variable |FreeModuleCat;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FreeModuleCat;| ...) is being compiled.
;; The variable |FreeModuleCat;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

-----non extending category-----

.. InnerFreeAbelianMonoid(#1,#2,#3) of cat

(|FreeAbelianMonoidCategory| |#1| |#2|) has no outputForm : (%,((OutputForm,OutputForm) -> OutputForm),((Out

**15.0.1231 section**

```

 finalizing nrlib IFAMON

```

**15.0.1232 section**

```

 finalizing nrlib GRALG
; (DEFUN |GradedAlgebra| ...) is being compiled.
;; The variable |GradedAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |GradedAlgebra;| ...) is being compiled.
;; The variable |GradedAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1233 section

```

 finalizing nrlib OCAMON
; (DEFUN |OrderedCancellationAbelianMonoid| ...) is being compiled.
;; The variable |OrderedCancellationAbelianMonoid;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1234 section

```

 finalizing nrlib PRQAGG
; (DEFUN |PriorityQueueAggregate| ...) is being compiled.
;; The variable |PriorityQueueAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PriorityQueueAggregate;| ...) is being compiled.
;; The variable |PriorityQueueAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1235 section

```

 finalizing nrlib QUAGG
; (DEFUN |QueueAggregate| ...) is being compiled.
;; The variable |QueueAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |QueueAggregate;| ...) is being compiled.
;; The variable |QueueAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1236 section

```

 finalizing nrlib SKAGG
; (DEFUN |StackAggregate| ...) is being compiled.
;; The variable |StackAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |StackAggregate;| ...) is being compiled.
;; The variable |StackAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

-----non extending category-----

.. BinarySearchTree #1 of cat

(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |shallowlyMutable|) (ATTRIBUTE |finiteAggregate|

-----non extending category-----

.. BinaryTournament #1 of cat

(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |shallowlyMutable|) (SIGNATURE |binaryTournament|

### 15.0.1237 section

finalizing nrlib CARD

Warnings:

[1] \*\*: signature of lhs not unique: \$\$\$ chosen

[2] \*\*: :(NonNegativeInteger) -- should replace by pretend

### 15.0.1238 section

finalizing nrlib DQAGG

; (DEFUN |DequeueAggregate| ...) is being compiled.

; The variable |DequeueAggregate;AL| is undefined.

; The compiler will assume this variable is a global.

; (DEFUN |DequeueAggregate;| ...) is being compiled.

; The variable |DequeueAggregate;CAT| is undefined.

; The compiler will assume this variable is a global.

### 15.0.1239 section

finalizing nrlib FACTFUNC

Warnings:

[1] nthRoot: radi has no value

### 15.0.1240 section

finalizing nrlib FMTC

; (DEFUN |FortranMachineTypeCategory| ...) is being compiled.

; The variable |FortranMachineTypeCategory;AL| is undefined.

; The compiler will assume this variable is a global.

### 15.0.1241 section

```

 finalizing nrllib MLO
; (DEFUN |MonogenicLinearOperator| ...) is being compiled.
;; The variable |MonogenicLinearOperator;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MonogenicLinearOperator;| ...) is being compiled.
;; The variable |MonogenicLinearOperator;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1242 section

```

 finalizing nrllib NAALG
; (DEFUN |NonAssociativeAlgebra| ...) is being compiled.
;; The variable |NonAssociativeAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NonAssociativeAlgebra;| ...) is being compiled.
;; The variable |NonAssociativeAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1243 section

```

 finalizing nrllib NEWTON
--->-->NewtonInterpolation((newton ((SparseUnivariatePolynomial F) (List F)))): Not documented!!!!

```

### 15.0.1244 section

```

 finalizing nrllib OAGROUP
; (DEFUN |OrderedAbelianGroup| ...) is being compiled.
;; The variable |OrderedAbelianGroup;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1245 section

```

 finalizing nrllib OAMONS
; (DEFUN |OrderedAbelianMonoidSup| ...) is being compiled.

```

```
;; The variable |OrderedAbelianMonoidSup;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1246 section

```
finalizing nrllib PID
; (DEFUN |PrincipalIdealDomain| ...) is being compiled.
;; The variable |PrincipalIdealDomain;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1247 section

```
finalizing nrllib XALG
; (DEFUN |XAlgebra| ...) is being compiled.
;; The variable |XAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |XAlgebra;| ...) is being compiled.
;; The variable |XAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1248 section

```
finalizing nrllib AMR
; (DEFUN |AbelianMonoidRing| ...) is being compiled.
;; The variable |AbelianMonoidRing;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |AbelianMonoidRing;| ...) is being compiled.
;; The variable |AbelianMonoidRing;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1249 section

```
finalizing nrllib FAGROUP
Warnings:
 [1] <: exp has no value
 [2] <: gen has no value
```

### 15.0.1250 section

finalizing nrlib FIELD-  
Warnings:

```
[1] squareFree: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE / (S S S)) (SIGNATURE
```

### 15.0.1251 section

```
finalizing nrlib FIELD
; (DEFUN |Field| ...) is being compiled.
;; The variable |Field;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1252 section

```
finalizing nrlib FLAGG
; (DEFUN |FiniteLinearAggregate| ...) is being compiled.
;; The variable |FiniteLinearAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteLinearAggregate;| ...) is being compiled.
;; The variable |FiniteLinearAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1253 section

finalizing nrlib FLINEXP-  
Warnings:

```
[1] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE reducedSystem ((Matrix (In
```

### 15.0.1254 section

```
finalizing nrlib FLINEXP
; (DEFUN |FullyLinearlyExplicitRingOver| ...) is being compiled.
;; The variable |FullyLinearlyExplicitRingOver;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FullyLinearlyExplicitRingOver;| ...) is being compiled.
```

```
;; The variable |FullyLinearlyExplicitRingOver;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1255 section

```
finalizing nrlib FRETRCT
; (DEFUN |FullyRetractableTo| ...) is being compiled.
;; The variable |FullyRetractableTo;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FullyRetractableTo;| ...) is being compiled.
;; The variable |FullyRetractableTo;CAT| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. FourierSeries(#1,#2) of cat
(|Join| (|Algebra| |#1|) (CATEGORY |domain| (IF (|has| |#2| (ATTRIBUTE |canonical|)) (IF (|has| |#1| (ATTRIBUTE
```

### 15.0.1256 section

```
(|IndexedDirectProductCategory| |#1| (|FourierComponent| |#2|)) finalizing nrlib FSERIES
```

### 15.0.1257 section

```
finalizing nrlib FT
Semantic Errors:
[1] void is not a known type
```

### 15.0.1258 section

```
finalizing nrlib IDPAG
Warnings:
[1] -: res has no value
[2] -: endcell has no value

-----non extending category-----
.. LocalAlgebra(#1,#2,#3) of cat
(|Join| (|Algebra| |#2|) (CATEGORY |domain| (IF (|has| |#1| (|OrderedRing|)) (ATTRIBUTE (|OrderedRing|)) |noBran
```



### 15.0.1259 section

```
(IF (|has| |#1| (|OrderedAbelianGroup|)) (ATTRIBUTE (|OrderedAbelianGroup|)) |noBranch|) finalizing nrlib LA
```

### 15.0.1260 section

```
finalizing nrlib OML0
Warnings:
[1] op: :$ -- should replace by @
[2] po: :P -- should replace by pretend
[3] *: :P -- should replace by pretend
[4] coerce: :P -- should replace by pretend
```

### 15.0.1261 section

```
finalizing nrlib PADICCT
; (DEFUN |PAdicIntegerCategory| ...) is being compiled.
;; The variable |PAdicIntegerCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PAdicIntegerCategory;| ...) is being compiled.
;; The variable |PAdicIntegerCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1262 section

```
finalizing nrlib RADCAT
; (DEFUN |RadicalCategory| ...) is being compiled.
;; The variable |RadicalCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1263 section

```
finalizing nrlib XFALG
; (DEFUN |XFreeAlgebra| ...) is being compiled.
;; The variable |XFreeAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
```

```
; (DEFUN |XFreeAlgebra;| ...) is being compiled.
;; The variable |XFreeAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1264 section

```
finalizing nrlib A1AGG
; (DEFUN |OneDimensionalArrayAggregate| ...) is being compiled.
;; The variable |OneDimensionalArrayAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |OneDimensionalArrayAggregate;| ...) is being compiled.
;; The variable |OneDimensionalArrayAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1265 section

```
finalizing nrlib ARR2CAT
; (DEFUN |TwoDimensionalArrayCategory| ...) is being compiled.
;; The variable |TwoDimensionalArrayCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |TwoDimensionalArrayCategory;| ...) is being compiled.
;; The variable |TwoDimensionalArrayCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1266 section

```
finalizing nrlib ASP34
Semantic Errors:
 [1] coerce: code is BOTH a variable and a literal
```

```
Warnings:
 [1] IFLAG has no value
 [2] N has no value
 [3] X has no value
 [4] Y has no value
 [5] LRWORK has no value
 [6] LIWORK has no value
 [7] RWORK has no value
 [8] IWORK has no value
 [9] coerce: I has no value
 [10] coerce: J has no value
 [11] coerce: W1 has no value
```

```
[12] coerce: W2 has no value
[13] coerce: MS has no value
```

```
-----non extending category-----
```

```
.. BalancedBinaryTree #1 of cat
```

```
(|Join| (|BinaryTreeCategory| |#1|) (CATEGORY |domain| (ATTRIBUTE |finiteAggregate|) (ATTRIBUTE |shallowlyMutabl
```

## 15.0.1267 section

```
finalizing nrlib BFUNCT
```

```
Processing BasicFunctions for Browser database:
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/BFUNCT.spad-->BasicFunctions(constructor): Not documented!
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/BFUNCT.spad-->BasicFunctions(): Missing Description
```

## 15.0.1268 section

```
finalizing nrlib BTREE
```

```
Warnings:
```

```
[1] empty: pretend$ -- should replace by @
```

```
[2] node: :Rep -- should replace by pretend
```

```
[3] setvalue!: :Rep -- should replace by pretend
```

```
[4] setleft!: :Rep -- should replace by pretend
```

```
[5] setright!: :(List (Tree S)) -- should replace by pretend
```

```
-----non extending category-----
```

```
.. Dequeue #1 of cat
```

```
(|Join| (|DequeueAggregate| |#1|) (CATEGORY |domain| (SIGNATURE |dequeue| ($ (|List| |#1|)))) has no queue
```

```
-----non extending category-----
```

```
.. DataList #1 of cat
```

```
(|Join| (|ListAggregate| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|List| |#1|))) (SIGNATURE |coerce| ((
```

## 15.0.1269 section

```
finalizing nrlib DRAWCX
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/DRAWCX.spad-->DrawComplex(constructor): Not documented!!!!
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/DRAWCX.spad-->DrawComplex(): Missing Description
```

```
-----non extending category-----
```

```
.. d01gbfAnnaType of cat
```

```
(|NumericalIntegrationCategory|) has no
```

**15.0.1270 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01GBFA

-----non extending category-----
.. d02ejfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
```

**15.0.1271 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02EJFA

-----non extending category-----
.. d03fafAnnaType of cat
(|PartialDifferentialEquationsSolverCategory|) has no
```

**15.0.1272 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D03FAFA
```

**15.0.1273 section**

```
 finalizing nrlib FAMR
; (DEFUN |FiniteAbelianMonoidRing| ...) is being compiled.
;; The variable |FiniteAbelianMonoidRing;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteAbelianMonoidRing;| ...) is being compiled.
;; The variable |FiniteAbelianMonoidRing;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

```
 FLASORT abbreviates package FiniteLinearAggregateSort
(PUSH (QUOTE |FiniteLinearAggregateSort|) |$mutableDomains|)
Value = (|FiniteLinearAggregateSort|)
```

```
-----non extending category-----
.. FreeGroup #1 of cat
(|Join| (|Group|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE * ($ |#1| $)) (SIGNATURE * ($ $ |#1|)) (S
```

**15.0.1274 section**

```

finalizing nrlib FM1
Warnings:
 [1] ListOfTerms: :(List (Record (: k S) (: c R))) -- should replace by pretend

-----non extending category-----
.. FreeModule1(#1,#2) of cat
(|Join| (|FreeModuleCat| |#1| |#2|) (CATEGORY |domain| (SIGNATURE * ($ |#2| |#1|)))) has no

```

### 15.0.1275 section

```

(|IndexedDirectProductCategory| |#1| |#2|) finalizing nrlib FM1

```

### 15.0.1276 section

```

finalizing nrlib FPC
; (DEFUN |FieldOfPrimeCharacteristic| ...) is being compiled.
;; The variable |FieldOfPrimeCharacteristic;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1277 section

```

finalizing nrlib FMONOID
Warnings:
 [1] overlap: l has no value
 [2] divide: l has no value
 [3] hclf: h has no value
 [4] lquo: gen has no value
 [5] lquo: exp has no value

```

### 15.0.1278 section

```

finalizing nrlib FMONOID
-----non extending category-----
.. FreeMonoid #1 of cat
(|Join| (|Monoid|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE * ($ |#1| $)) (SIGNATURE * ($ $ |#1|)) (

```

## 15.0.1279 section

```

finalizing nrlib IPADIC
Warnings:
 [1] padic: pretend$ -- should replace by @
 [2] =: st has no value
 [3] intToPAdic: digit has no value
 [4] intToPAdic: carry has no value
 [5] intPlusPAdic: digit has no value
 [6] intPlusPAdic: carry has no value
 [7] intMinusPAdic: digit has no value
 [8] intMinusPAdic: carry has no value
 [9] plusAux: digit has no value
 [10] plusAux: carry has no value
 [11] minusAux: digit has no value
 [12] minusAux: carry has no value
 [13] intMult: digit has no value
 [14] intMult: carry has no value
 [15] timesAux: digit has no value
 [16] timesAux: carry has no value
 [17] coerce: pretend(Integer) -- should replace by @
 [18] coerce: 1 has no value

-----non extending category-----
.. LieExponentials(#1,#2,#3) of cat
(|Join| (|Group|) (CATEGORY |domain| (SIGNATURE |exp| ($ (|LiePolynomial| |#1| |#2|))) (SIGNATURE |log| ((|LiePo

```

## 15.0.1280 section

```

(|XPolynomialsCat| |#1| |#2|) finalizing nrlib LEXP

```

## 15.0.1281 section

```

finalizing nrlib LIECAT
; (DEFUN |LieAlgebra| ...) is being compiled.
;; The variable |LieAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LieAlgebra;| ...) is being compiled.
;; The variable |LieAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1282 section

finalizing nrlib LMOPS

Warnings:

- [1] mapExpon: ans has no value
- [2] outputForm: The conditional modes (List (OutputForm)) and \$ conflict

### 15.0.1283 section

finalizing nrlib LZSTAGG

```
; (DEFUN |LazyStreamAggregate| ...) is being compiled.
;; The variable |LazyStreamAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LazyStreamAggregate;| ...) is being compiled.
;; The variable |LazyStreamAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1284 section

finalizing nrlib MOEBIUS

Semantic Errors:

- [1] a is BOTH a variable and a literal
- [2] b is BOTH a variable and a literal
- [3] c is BOTH a variable and a literal
- [4] d is BOTH a variable and a literal
- [5] eval: a is BOTH a variable and a literal
- [6] eval: b is BOTH a variable and a literal
- [7] eval: c is BOTH a variable and a literal
- [8] eval: d is BOTH a variable and a literal
- [9] proportional?: a is BOTH a variable and a literal
- [10] proportional?: b is BOTH a variable and a literal
- [11] proportional?: c is BOTH a variable and a literal
- [12] proportional?: d is BOTH a variable and a literal

Warnings:

- [1] recip: signature of lhs not unique: \$\$ chosen

-----non extending category-----

.. ModuleOperator(#1,#2) of cat

(|Join| (|Ring|) (|RetractableTo| |#1|) (|RetractableTo| (|BasicOperator|)) (|Eltable| |#2| |#2|) (CATEGORY |dom

**15.0.1285 section**

```
(|Module| (|Integer|)) finalizing nrllib MODOP
```

**15.0.1286 section**

```
finalizing nrllib MRING
Warnings:
[1] index: ans has no value
[2] retractIfCan: coef has no value
[3] retractIfCan: monom has no value
[4] recip: monom has no value
[5] recip: coef has no value
[6] coerce: coef has no value
[7] coerce: monom has no value
[8] =: coef has no value
[9] =: monom has no value
[10] sortAndAdd: m has no value
[11] sortAndAdd: res has no value

-----non extending category-----
.. OrderedFreeMonoid #1 of cat
(|Join| (|OrderedMonoid|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE * ($ |#1| $)) (SIGNATURE * ($ $ |
```

**15.0.1287 section**

```
finalizing nrllib ONECOMP
; (DEFUN |OnePointCompletion;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1288 section**

```
finalizing nrllib ORDCOMP
Warnings:
[1] retract: fin has no value
[2] retractIfCan: fin has no value
[3] coerce: fin has no value
[4] coerce: inf has no value
[5] whatInfinity: inf has no value
```



```

[6] =: inf has no value
[7] =: fin has no value
[8] *: inf has no value
[9] *: fin has no value
[10] -: inf has no value
[11] -: fin has no value
[12] +: inf has no value
[13] +: fin has no value
[14] recip: fin has no value
[15] <: inf has no value
[16] <: fin has no value

```

### 15.0.1289 section

```

finalizing nrlib ORDCOMP
; (DEFUN |OrderedCompletion;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1290 section

```

finalizing nrlib OREPCAT
; (DEFUN |UnivariateSkewPolynomialCategory| ...) is being compiled.
;; The variable |UnivariateSkewPolynomialCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariateSkewPolynomialCategory;| ...) is being compiled.
;; The variable |UnivariateSkewPolynomialCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1291 section

```

finalizing nrlib PENDTREE
Warnings:
[1] ptree: pretend$ -- should replace by @
[2] ptree: :Rep -- should replace by pretend
[3] ptree: :$ -- should replace by @
[4] =: :Rep -- should replace by pretend

```

### 15.0.1292 section

```
finalizing nrlib PFR
```

```
Warnings:
```

- [1] LessThan: :(Boolean) -- should replace by pretend
- [2] multiplyFracTerms: :Rep -- should replace by pretend
- [3] multiplyFracTerms: c has no value
- [4] compactFraction: :(NonNegativeInteger) -- should replace by pretend
- [5] compactFraction: s has no value
- [6] compactFraction: bf has no value

### 15.0.1293 section

```
finalizing nrlib PMDOWN
```

```
Warnings:
```

- [1] patternMatch: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE fixPredicate ((Map

### 15.0.1294 section

```
finalizing nrlib PRITION
```

```
Warnings:
```

- [1] coerce: signature of lhs not unique: (List (Integer))\$ chosen
- [2] conjugate: pretendRep -- should replace by @
- [3] coerce: pretendRep -- should replace by @
- [4] pdct: pretendRep -- should replace by @

### 15.0.1295 section

```
finalizing nrlib PMLSAGG
```

```
Warnings:
```

- [1] match: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE patternMatch ((PatternMatch

### 15.0.1296 section

```
finalizing nrlib PSCAT
```

```
; (DEFUN |PowerSeriesCategory| ...) is being compiled.
;; The variable |PowerSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PowerSeriesCategory;| ...) is being compiled.
```

```
;; The variable |PowerSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
```

```
.. QuadraticForm(#1,#2) of cat
```

```
(|Join| (|AbelianGroup|) (CATEGORY |domain| (SIGNATURE |quadraticForm| ($ (|SquareMatrix| |#1| |#2|))) (SIGNATURE
```

### 15.0.1297 section

```
(|SquareMatrixCategory| |#1| |#2| (|DirectProduct| |#1| |#2|) (|DirectProduct| |#1| |#2|)) finalizing nrlib Q
```

```
-----non extending category-----
```

```
.. Queue #1 of cat
```

```
(|Join| (|QueueAggregate| |#1|) (CATEGORY |domain| (SIGNATURE |queue| ($ (|List| |#1|)))) has no
```

### 15.0.1298 section

```
(|StackAggregate| |#1|) finalizing nrlib QUEUE
```

### 15.0.1299 section

```
finalizing nrlib SEXOF
```

```
Warnings:
```

```
[1] convert: pretend$ -- should replace by @
```

### 15.0.1300 section

```
finalizing nrlib STTAYLOR
```

```
Warnings:
```

```
[1] powern: order has no value
```

### 15.0.1301 section

```
finalizing nrlib TRANFUN
```

```
; (DEFUN |TranscendentalFunctionCategory| ...) is being compiled.
```

```
; The variable |TranscendentalFunctionCategory;AL| is undefined.
```



```
[1] binomial: s has no value
[2] binomial: b has no value
```

```
-----non extending category-----
.. d01fcfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

### 15.0.1306 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01FCFA
```

```
-----non extending category-----
.. e04mbfAnnaType of cat
(|NumericalOptimizationCategory|) has no
```

### 15.0.1307 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04MBFA
```

### 15.0.1308 section

```
finalizing nrlib FLALG
; (DEFUN |FreeLieAlgebra| ...) is being compiled.
;; The variable |FreeLieAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FreeLieAlgebra;| ...) is being compiled.
;; The variable |FreeLieAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
.. Heap #1 of cat
(|Join| (|PriorityQueueAggregate| |#1|) (CATEGORY |domain| (SIGNATURE |heap| ($ (|List| |#1|))))) has no
```

### 15.0.1309 section

```
(|OneDimensionalArrayAggregate| |#1|) finalizing nrlib HEAP
```

### 15.0.1310 section

```
finalizing nrlib IFARRAY
Warnings:
 [1] remove!: k has no value
 [2] select!: k has no value
```

### 15.0.1311 section

```
finalizing nrlib INTCAT
; (DEFUN |IntervalCategory| ...) is being compiled.
;; The variable |IntervalCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |IntervalCategory;| ...) is being compiled.
;; The variable |IntervalCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1312 section

```
finalizing nrlib INTHEORY
Warnings:
 [1] fibonacci: f2 has no value
 [2] jacobi: j has no value
 [3] eulerPhi: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE bernoulli ((Fraction
```

### 15.0.1313 section

```
finalizing nrlib LFCAT
; (DEFUN |LiouvillianFunctionCategory| ...) is being compiled.
;; The variable |LiouvillianFunctionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1314 section

```
finalizing nrlib LODOCAT
; (DEFUN |LinearOrdinaryDifferentialOperatorCategory| ...) is being compiled.
;; The variable |LinearOrdinaryDifferentialOperatorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LinearOrdinaryDifferentialOperatorCategory;| ...) is being compiled.
```

```
;; The variable |LinearOrdinaryDifferentialOperatorCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1315 section

```
finalizing nrlib LWORD
Warnings:
 [1] factor1: d has no value
 [2] LyndonWordsList1: :(Integer) -- should replace by pretend
 [3] LyndonWordsList1: lbase1 has no value

-----non extending category-----
.. LyndonWord #1 of cat
(|Join| (|OrderedSet|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE |retractable?| ((|Boolean|) $)) (SIG
```

### 15.0.1316 section

```
finalizing nrlib LWORD
--->/research2/test0819/mnt/fedora5/../../src/algebra/LWORD.spad--->LyndonWord(): Spurious comments: \spad{=>} ri
```

### 15.0.1317 section

```
finalizing nrlib MATCAT
; (DEFUN |MatrixCategory| ...) is being compiled.
;; The variable |MatrixCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MatrixCategory;| ...) is being compiled.
;; The variable |MatrixCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. SparseUnivariateSkewPolynomial(#1,#2,#3) of cat
(|Join| (|UnivariateSkewPolynomialCategory| |#1|) (CATEGORY |domain| (SIGNATURE |outputForm| ((|OutputForm|) $ (
```

### 15.0.1318 section

```
(|UnivariatePolynomialCategory| |#1|) finalizing nrlib ORESUP
Processing SparseUnivariateSkewPolynomial for Browser database:
```

```
-----non extending category-----
.. UnivariateSkewPolynomial(#1,#2,#3,#4) of cat
(|Join| (|UnivariateSkewPolynomialCategory| |#2|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|Variable| |#1|))))
```

### 15.0.1319 section

```
finalizing nrlib PLOT3D
Warnings:
[1] select: fp has no value
[2] rangeRefine: c has no value
[3] rangeRefine: q has no value
[4] rangeRefine: NUMFUNVALS has no value
[5] refine: curves has no value
[6] plot: curves has no value
```

### 15.0.1320 section

```
finalizing nrlib PLOT3D
; (DEFUN |PLOT3D;select| ...) is being compiled.
;; The variable |$NaNvalue| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PLOT3D;myTrap| ...) is being compiled.
;; The variable |$numericFailure| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1321 section

```
finalizing nrlib PR
Warnings:
[1] times!: endcell has no value
[2] times!: res has no value
[3] addm!: newcell has no value
[4] addm!: res has no value
[5] addm!: endcell has no value
[6] **: pretend(NonNegativeInteger) -- should replace by @
[7] ^: pretend(NonNegativeInteger) -- should replace by @
[8] unitNormal: lcf has no value
[9] unitCanonical: lcf has no value
[10] fmeqg: rout has no value
```

```
-----non extending category-----
.. PolynomialRing(#1,#2) of cat
```



```
(|Join| (|FiniteAbelianMonoidRing| |#1| |#2|) (CATEGORY |domain| (IF (|has| |#1| (|IntegralDomain|)) (IF (|has|
```

### 15.0.1322 section

```
(|IndexedDirectProductCategory| |#1| |#2|) finalizing nrlib PR
```

### 15.0.1323 section

```
 finalizing nrlib SRAGG
; (DEFUN |StringAggregate| ...) is being compiled.
;; The variable |StringAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1324 section

```
finalizing nrlib STREAM
Warnings:
[1] pretendS -- should replace by @
[2] showAllElements: not known that (LazyStreamAggregate S) is of mode (CATEGORY domain (SIGNATURE repeati
[3] remove: signature of lhs not unique: $(Mapping (Boolean) S)$ chosen
[4] lazyEval: :(Mapping $) -- should replace by pretend
[5] expand!: d has no value
```

### 15.0.1325 section

```
 finalizing nrlib STREAM
; (DEFUN |STREAM;showAll?;B;12| ...) is being compiled.
;; The variable |$streamsShowAll| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Stream;| ...) is being compiled.
;; The variable |$NullStream| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NonNullStream| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. TaylorSeries #1 of cat
(|Join| (|MultivariateTaylorSeriesCategory| |#1| (|Symbol|)) (CATEGORY |domain| (SIGNATURE |coefficient| ((|Poly
```

## 15.0.1326 section

```

finalizing nrlib UPSCAT
; (DEFUN |UnivariatePowerSeriesCategory| ...) is being compiled.
;; The variable |UnivariatePowerSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariatePowerSeriesCategory;| ...) is being compiled.
;; The variable |UnivariatePowerSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1327 section

```

finalizing nrlib VECTCAT
; (DEFUN |VectorCategory| ...) is being compiled.
;; The variable |VectorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |VectorCategory;| ...) is being compiled.
;; The variable |VectorCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

-----non extending category-----

```

.. XDistributedPolynomial(#1,#2) of cat
(|Join| (|FreeModuleCat| |#2| (|OrderedFreeMonoid| |#1|)) (|XPolynomialsCat| |#1| |#2|)) has no #? : % -> No

```

## 15.0.1328 section

```

finalizing nrlib XF
; (DEFUN |ExtensionField| ...) is being compiled.
;; The variable |ExtensionField;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ExtensionField;| ...) is being compiled.
;; The variable |ExtensionField;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

-----non extending category-----

```

.. XPBWPolynomial(#1,#2) of cat
(|Join| (|XPolynomialsCat| |#1| |#2|) (|FreeModuleCat| |#2| (|PoincareBirkhoffWittLyndonBasis| |#1|)) (CATEGORY

```

--->/research2/test0819/mnt/fedora5/../../src/algebra/XRPOLY.spad-->XRecursivePolynomial(): Spurious comments: a

-----non extending category-----

```

.. Bits of cat
(|Join| (|BitAggregate|) (CATEGORY |domain| (SIGNATURE |bits| ($ (|NonNegativeInteger|) (|Boolean|)))))) has n

```

```
-----non extending category-----
```

```
.. LiePolynomial(#1,#2) of cat
```

```
(|Join| (|FreeLieAlgebra| |#1| |#2|) (|FreeModuleCat| |#2| (|LyndonWord| |#1|)) (CATEGORY |domain| (SIGNATURE |L
```

### 15.0.1329 section

```
finalizing nrlib PTCAT
; (DEFUN |PointCategory| ...) is being compiled.
;; The variable |PointCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PointCategory;| ...) is being compiled.
;; The variable |PointCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1330 section

```
finalizing nrlib STRICAT
; (DEFUN |StringCategory| ...) is being compiled.
;; The variable |StringCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1331 section

```
finalizing nrlib CARTEN
Warnings:
[1] index2int: n has no value
[2] permsign!: nTrans has no value
[3] elt: n has no value
```

### 15.0.1332 section

```
finalizing nrlib CLIP
Warnings:
[1] discardAndSplit: ans has no value
[2] clip: yMax has no value
[3] clip: yMin has no value
```

```
-----non extending category-----
```

```
.. Database #1 of cat
(|Join| (|SetCategory|) (CATEGORY |domain| (SIGNATURE |elt| ($ $ (|QueryEquation|))) (SIGNATURE |elt| ((|DataList|
```

### 15.0.1333 section

```
(|ListAggregate| |#1|) finalizing nrllib DBASE

-----non extending category-----
.. DenavitHartenbergMatrix #1 of cat
(|Join| (|MatrixCategory| |#1| (|Vector| |#1|) (|Vector| |#1|)) (CATEGORY |domain| (SIGNATURE * ((|Point| |#1|)
```

### 15.0.1334 section

```
finalizing nrllib DIOSP
Warnings:
[1] dioSolve: c has no value
```

### 15.0.1335 section

```
finalizing nrllib DIRPCAT-
Warnings:
[1] reducedSystem: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S (Fraction (Integ
```

### 15.0.1336 section

```
finalizing nrllib DIRPCAT
; (DEFUN |DirectProductCategory| ...) is being compiled.
;; The variable |DirectProductCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DirectProductCategory;| ...) is being compiled.
;; The variable |DirectProductCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. d02bbfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
```

**15.0.1337 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02BBFA
Processing d02bbfAnnaType for Browser database:
```

```
-----non extending category-----
.. d02bbfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
```

**15.0.1338 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02BHFA
```

**15.0.1339 section**

```
finalizing nrlib D02CJFA
Warnings:
[1] ODESolve: i has no value
```

```
-----non extending category-----
.. d02cjfAnnaType of cat
(|OrdinaryDifferentialEquationsSolverCategory|) has no
```

**15.0.1340 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D02CJFA
```

**15.0.1341 section**

```
finalizing nrlib FAXF-
Warnings:
[1] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
[2] minimalPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S f
[3] degree: signature of lhs not unique: (PositiveInteger)S chosen
```

**15.0.1342 section**

```

finalizing nrlib FAXF
; (DEFUN |FiniteAlgebraicExtensionField| ...) is being compiled.
;; The variable |FiniteAlgebraicExtensionField;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteAlgebraicExtensionField;| ...) is being compiled.
;; The variable |FiniteAlgebraicExtensionField;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1343 section**

```

finalizing nrlib FFPOLY2
Warnings:
 [1] rootOfIrreduciblePoly: basispointer has no value
 [2] rootOfIrreduciblePoly: beta has no value

```

**15.0.1344 section**

```

finalizing nrlib FNLA
Warnings:
 [1] have: hi has no value

-----non extending category-----
.. FreeNilpotentLie(#1,#2,#3) of cat
(|Join| (|NonAssociativeAlgebra| |#3|) (CATEGORY |domain| (SIGNATURE |dimension| ((|NonNegativeInteger|))) (SIGN

```

**15.0.1345 section**

```

(|IndexedDirectProductCategory| |#3| (|OrdSetInts|)) finalizing nrlib FNLA

```

**15.0.1346 section**

```

finalizing nrlib IRSN
Warnings:
 [1] aIdInverse: :(NonNegativeInteger) -- should replace by @
 [2] signum: s has no value

```

```
[3] signum: z has no value
[4] testPermutation: n has no value
[5] testPermutation: ok has no value
```

### 15.0.1347 section

```
finalizing nrlib MHROWRED
Warnings:
[1] non0: allZero has no value
[2] non0: ans has no value
[3] mkMat: STEP has no value
[4] mkMat: i has no value
[5] diagSubMatrix: IN has no value
[6] diagSubMatrix: r has no value
[7] diagSubMatrix: STEP has no value
[8] diagSubMatrix: z has no value
[9] rowEchelonLocal: pivord has no value
```

### 15.0.1348 section

```
finalizing nrlib NUMQUAD
Warnings:
[1] romberg: change has no value
[2] simpson: change has no value
[3] trapezoidal: change has no value
[4] rombergo: change has no value
[5] simpsono: change has no value
[6] trapezoidalo: change has no value
```

### 15.0.1349 section

```
finalizing nrlib ODESYS
Warnings:
[1] backsolve: part has no value
```

### 15.0.1350 section

```
finalizing nrlib PERMAN
```

Warnings:

```
[1] permanent3: a has no value
[2] permanent: :(Integer) -- should replace by pretend
[3] permanent: :(PositiveInteger) -- should replace by pretend
[4] permanent: a has no value
[5] permanent2: :(Integer) -- should replace by pretend
[6] permanent2: :(PositiveInteger) -- should replace by pretend
[7] permanent2: :(NonNegativeInteger) -- should replace by pretend
[8] permanent2: a has no value
```

### 15.0.1351 section

```
finalizing nrlib PERMAN
Processing Permanent for Browser database:
--->/research2/test0819/mnt/fedora5/../../src/algebra/PERMAN.spad-->Permanent((commutative (attribute *))) : Not

(permanent (R SM))-----
--->/research2/test0819/mnt/fedora5/../../src/algebra/PERMAN.spad-->Permanent((permanent (R SM))) : Mismatch: lef
--->/research2/test0819/mnt/fedora5/../../src/algebra/PERMAN.spad-->Permanent((permanent (R SM))) : Mismatch: lef
"\spad{permanent(x)} computes the permanent of a square matrix \spad{x}. The {\em permanent} is equivalent to
```

### 15.0.1352 section

finalizing nrlib PFECAT-

Warnings:

```
[1] gcdPolynomial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S failed
[2] charthRoot: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot ((Union S failed)
[3] solveLinearPolynomialEquation: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE charthRoot
```

### 15.0.1353 section

```
finalizing nrlib PFECAT
; (DEFUN |PolynomialFactorizationExplicit| ...) is being compiled.
;; The variable |PolynomialFactorizationExplicit;AL| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
.. Point #1 of cat
(|PointCategory| |#1|) has no vector : List #1 -> %
```

### 15.0.1354 section



finalizing nrlib POINT

## 15.0.1355 section

finalizing nrlib PSEUDLIN

Warnings:

- [1] normalForm0: B has no value
- [2] normalForm0: Binv has no value

## 15.0.1356 section

finalizing nrlib REP2

Warnings:

- [1] cyclicSubmodule: basis has no value
- [2] standardBasisOfCyclicSubmodule: standardBasis has no value
- [3] splitInternal: submoduleRepresentation has no value
- [4] splitInternal: factormoduleRepresentation has no value
- [5] areEquivalent?: x0 has no value
- [6] areEquivalent?: x1 has no value
- [7] areEquivalent?: foundResult has no value
- [8] areEquivalent?: result has no value
- [9] areEquivalent?: transitionM has no value
- [10] isAbsolutelyIrreducible?: result has no value
- [11] meatAxe: :(PositiveInteger) -- should replace by pretend
- [12] meatAxe: x has no value
- [13] meatAxe: foundResult has no value
- [14] meatAxe: result has no value
- [15] meatAxe: signature of lhs not unique: (List (List (Matrix R)))(List (Matrix R))(Boolean) chosen

## 15.0.1357 section

finalizing nrlib SETMN

Warnings:

- [1] elements: l has no value
- [2] replaceKthElement: found has no value
- [3] replaceKthElement: i has no value

## 15.0.1358 section

```

finalizing nrlib STRING
Warnings:
 [1] OMwrite: pretend(String) -- should replace by @

-----non extending category-----
.. String of cat
(|StringCategory|) has no hash : % -> Integer

```

### 15.0.1359 section

```

finalizing nrlib STRING
--->/research2/test0819/mnt/fedora5/../../src/algebra/STRING.spad-->String(): Missing Description

```

### 15.0.1360 section

```

finalizing nrlib ASP1
Warnings:
 [1] X has no value

```

### 15.0.1361 section

```

finalizing nrlib ASP10
Warnings:
 [1] P has no value
 [2] Q has no value
 [3] DQDL has no value
 [4] X has no value
 [5] ELAM has no value
 [6] JINT has no value

```

### 15.0.1362 section

```

finalizing nrlib ASP24
Warnings:
 [1] N has no value
 [2] XC has no value
 [3] FC has no value

```

```
[4] coerce: FC has no value
```

### 15.0.1363 section

```
finalizing nrlib ASP4
Warnings:
 [1] NDIM has no value
 [2] X has no value
```

### 15.0.1364 section

```
finalizing nrlib ASP50
Warnings:
 [1] M has no value
 [2] N has no value
 [3] XC has no value
 [4] FVECC has no value
 [5] I has no value
 [6] coerce: FVECC has no value
```

### 15.0.1365 section

```
finalizing nrlib ASP6
Warnings:
 [1] N has no value
 [2] X has no value
 [3] FVEC has no value
 [4] IFLAG has no value
 [5] coerce: FVEC has no value
```

### 15.0.1366 section

```
finalizing nrlib ASP73
Warnings:
 [1] X has no value
 [2] Y has no value
 [3] ALPHA has no value
 [4] BETA has no value
```

```

[5] GAMMA has no value
[6] DELTA has no value
[7] EPSOLN has no value
[8] PHI has no value
[9] PSI has no value

```

### 15.0.1367 section

```

finalizing nrlib BALFACT
Warnings:
[1] balancedFactorisation: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE balance
-----non extending category-----
.. BinaryExpansion of cat
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $

```

### 15.0.1368 section

```

finalizing nrlib BOUNDZRO
Warnings:
[1] bringDown: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE integerBound ((Integer)
[2] qbound: bound has no value

```

### 15.0.1369 section

```

finalizing nrlib CHVAR
Warnings:
[1] eval: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE mkIntegral ((Record (: c
[2] rootPoly: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE mkIntegral ((Record

```

### 15.0.1370 section

```

finalizing nrlib CONTFRAC
Warnings:
[1] =: whole has no value
[2] =: den has no value
[3] partialQuotients: whole has no value
[4] extend: fract has no value

```

```

[5] complete: fract has no value
[6] iGenApproximants: num has no value
[7] iGenApproximants: den has no value
[8] iGenConvergents: num has no value
[9] iGenConvergents: den has no value
[10] coerce: 1 has no value

```

### 15.0.1371 section

```

finalizing nrlib CONTFRAC
; (DEFUN |CONTFRAC;showAll?| ...) is being compiled.
;; The variable |$streamsShowAll| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1372 section

```

finalizing nrlib CYCLOTOM
Warnings:
[1] cyclotomic: 1 has no value

```

### 15.0.1373 section

```

finalizing nrlib DDFACT
Warnings:
[1] notSqFr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored FP)
[2] exptMod: :FP -- should replace by pretend
[3] ddffact1: ddfact has no value
[4] separateFactors: n1 has no value
[5] separateFactors: ris has no value
[6] separateFactors: newaux has no value
[7] distdfact: factlist has no value

-----non extending category-----
.. DecimalExpansion of cat
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $

```

### 15.0.1374 section

```

finalizing nrlib DIOPS
; (DEFUN |DictionaryOperations| ...) is being compiled.
;; The variable |DictionaryOperations;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DictionaryOperations;| ...) is being compiled.
;; The variable |DictionaryOperations;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1375 section

```

finalizing nrlib DIRPROD
Warnings:
 [1] Zero: pretend$ -- should replace by @
 [2] One: pretend$ -- should replace by @
 [3] subtractIfCan: pretend$ -- should replace by @
 [4] recip: pretend$ -- should replace by @
 [5] unitVector: pretend$ -- should replace by @

-----non extending category-----
.. DirectProduct(#1,#2) of cat
(|DirectProductCategory| |#1| |#2|) has no

```

### 15.0.1376 section

```

(|VectorCategory| |#2|) finalizing nrlib DIRPROD

```

### 15.0.1377 section

```

finalizing nrlib DIRPROD
; (DEFUN |DirectProduct;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1378 section

```

finalizing nrlib DISPLAY
Warnings:
 [1] sayLength: sum has no value

```

### 15.0.1379 section

finalizing nrlib DPOLCAT-

Warnings:

```
[1] degree: d has no value
[2] weights: ws has no value
[3] initial: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (A A)) (SIGNATURE coerce
[4] eval: IN has no value
[5] eval: s has no value
[6] eval: e has no value
```

### 15.0.1380 section

```
finalizing nrlib DPOLCAT
; (DEFUN |DifferentialPolynomialCategory| ...) is being compiled.
;; The variable |DifferentialPolynomialCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |DifferentialPolynomialCategory;| ...) is being compiled.
;; The variable |DifferentialPolynomialCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
.. d01ajfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

### 15.0.1381 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01AJFA
```

```
-----non extending category-----
.. d01akfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

### 15.0.1382 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01AKFA
```

```
-----non extending category-----
.. d01alfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

**15.0.1383 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01ALFA

-----non extending category-----
.. d01amfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

**15.0.1384 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01AMFA

-----non extending category-----
.. d01apfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

**15.0.1385 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01APFA

-----non extending category-----
.. d01aqfAnnaType of cat
(|NumericalIntegrationCategory|) has no
```

**15.0.1386 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01AQFA
```

**15.0.1387 section**

```
 finalizing nrlib EQ
extension of ##1 to (Polynomial (Integer)) ignored
```

**15.0.1388 section**



finalizing nrlib EQ

Semantic Errors:

[1] factorAndSplit: rcf has two modes:

Warnings:

[1] factorAndSplit: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE factorAndSplit

[2] factorAndSplit: not known that (IntegralDomain) is of mode (CATEGORY S (SIGNATURE factor ((Factored S

## 15.0.1389 section

finalizing nrlib EQ

; (DEFUN |Equation;| ...) is being compiled.

;; The variable IDENTITY is undefined.

;; The compiler will assume this variable is a global.

-----non extending category-----

.. e04dggfAnnaType of cat

(|NumericalOptimizationCategory|) has no

## 15.0.1390 section

(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04DGFA

-----non extending category-----

.. e04fdfAnnaType of cat

(|NumericalOptimizationCategory|) has no

## 15.0.1391 section

(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04FDFA

-----non extending category-----

.. e04gcfAnnaType of cat

(|NumericalOptimizationCategory|) has no

## 15.0.1392 section

(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04GCFA

-----non extending category-----

.. e04jafAnnaType of cat

(|NumericalOptimizationCategory|) has no

**15.0.1393 section**

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04JAFA
```

**15.0.1394 section**

```
finalizing nrlib FFHOM
```

```
Warnings:
```

- [1] compare: equal has no value
- [2] initialize: mat has no value
- [3] unknown Functor code (error FFHOM: one extension degree must divide the other one)

**15.0.1395 section**

```
finalizing nrlib FFPOLY
```

```
Warnings:
```

- [1] leastAffineMultiple: coeffVector has no value
- [2] primitive?: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE primitive? ((Boole
- [3] nextSubset: restOfs has no value
- [4] nextSubset: noGap has no value
- [5] nextSubset: i has no value
- [6] nextIrreduciblePoly: fcopy has no value
- [7] nextIrreduciblePoly: s has no value
- [8] nextPrimitivePoly: fcopy has no value
- [9] nextPrimitivePoly: term has no value
- [10] nextPrimitivePoly: noGenerator has no value
- [11] nextPrimitivePoly: c has no value
- [12] nextPrimitivePoly: weight has no value
- [13] nextPrimitivePoly: s has no value
- [14] nextPrimitivePoly: l has no value
- [15] nextNormalPoly: fcopy has no value
- [16] nextNormalPoly: l has no value
- [17] nextNormalPoly: a has no value
- [18] nextNormalPoly: s has no value
- [19] nextNormalPrimitivePoly: fcopy has no value
- [20] nextNormalPrimitivePoly: term has no value
- [21] nextNormalPrimitivePoly: noGenerator has no value
- [22] nextNormalPrimitivePoly: c has no value
- [23] nextNormalPrimitivePoly: la has no value
- [24] nextNormalPrimitivePoly: a has no value
- [25] nextNormalPrimitivePoly: middlelookuplist has no value
- [26] nextNormalPrimitivePoly: middlepol has no value
- [27] nextNormalPrimitivePoly: weight has no value
- [28] nextNormalPrimitivePoly: s has no value

```
[29] nextNormalPrimitivePoly: lc has no value
[30] random: polRepr has no value
```

### 15.0.1396 section

```
finalizing nrlib FGLMICPK
```

```
Warnings:
```

```
[1] zeroDim?: not known that (Ring) is of mode (CATEGORY package (SIGNATURE zeroDimensional? ((Boolean) (I
[2] zeroDim?: lv has no value
```

### 15.0.1397 section

```
finalizing nrlib FINAALG
```

```
; (DEFUN |FiniteRankNonAssociativeAlgebra| ...) is being compiled.
;; The variable |FiniteRankNonAssociativeAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteRankNonAssociativeAlgebra;| ...) is being compiled.
;; The variable |FiniteRankNonAssociativeAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1398 section

```
finalizing nrlib FINRALG
```

```
; (DEFUN |FiniteRankAlgebra| ...) is being compiled.
;; The variable |FiniteRankAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteRankAlgebra;| ...) is being compiled.
;; The variable |FiniteRankAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1399 section

```
finalizing nrlib FFF
```

```
Warnings:
```

```
[1] createLowComplexityTable: k has no value
[2] createLowComplexityTable: t1 has no value
[3] createLowComplexityTable: a has no value
[4] createLowComplexityTable: pretend(NonNegativeInteger) -- should replace by @
```

```
[5] createLowComplexityTable: 1 has no value
[6] createMultiplicationTable: 1 has no value
```

FOP abbreviates package FortranOutputStackPackage  
(SPADLET |\$noSubsumption| NIL)

### 15.0.1400 section

```
finalizing nrlib FORMULA
```

Warnings:

```
[1] display: pretend(Integer) -- should replace by @
[2] coerce: pretend(Integer) -- should replace by @
[3] stringify: pretend(String) -- should replace by @
[4] splitLong1: 1 has no value
[5] splitLong1: 1s has no value
[6] splitLong1: s has no value
[7] formatSpecial: form has no value
[8] formatPlex: s has no value
[9] formatFormula: pretend(Boolean) -- should replace by @
[10] formatFormula: :(Integer) -- should replace by pretend
```

FORT abbreviates package FortranPackage  
(SPADLET |\$noSubsumption| (QUOTE T))

### 15.0.1401 section

```
finalizing nrlib FORT
```

Warnings:

```
[1] linkToFortran: fst has no value
```

### 15.0.1402 section

```
finalizing nrlib FRAC
```

Warnings:

```
[1] OMwrite: pretend(String) -- should replace by @
[2] factorPolynomial: den1 has no value
[3] factorSquareFreePolynomial: den1 has no value
```

-----non extending category-----

```
.. Fraction #1 of cat
```

```
(|Join| (|QuotientFieldCategory| |#1|) (CATEGORY |package| (IF (|has| |#1| (|IntegerNumberSystem|)) (IF (|has| |
```

### 15.0.1403 section

```
(IF (|has| |#1| (|OrderedRing|)) (ATTRIBUTE (|OrderedRing|)) |noBranch|) finalizing nrllib FRAC
```

### 15.0.1404 section

```
finalizing nrllib FTEM
Warnings:
 [1] processTemplate: active has no value

-----non extending category-----
.. FortranTemplate of cat
(|Join| (|FileCategory| (|FileName|) (|String|)) (CATEGORY |package| (SIGNATURE |processTemplate| ((|FileName|)
```

### 15.0.1405 section

```
finalizing nrllib FTEM
; (DEFUN |FTEM;processTemplate;2Fn;7| ...) is being compiled.
;; The variable |$fortranOutputFile| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1406 section

```
finalizing nrllib GENMFACT
Warnings:
 [1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P) P
```

### 15.0.1407 section

```
finalizing nrllib GENPGCD
Warnings:
 [1] gcdPolynomial: canonical has no value
 [2] gcdSameVariables: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcdPolynomial ((SparsePo
 [3] gcdSameVariables: up1 has no value
 [4] gcdSameVariables: up2 has no value
 [5] lift: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcdPolynomial ((SparseUnivariatePo
```

## 15.0.1408 section

```
finalizing nrlib GALFACTU
```

```
Warnings:
```

```
[1] singleFactorBound: not known that (Ring) is of mode (CATEGORY F (SIGNATURE Gamma (F F)))
```

## 15.0.1409 section

```
finalizing nrlib GBF
```

```
Warnings:
```

```
[1] createGroebnerBases: nP has no value
```

```
[2] createGroebnerBases: allReducedFactors has no value
```

```
[3] factorGroebnerBasis: fctr has no value
```

```
[4] groebnerFactorize: signature of lhs not unique: (List (List Dpol))(List Dpol)(List Dpol) chosen
```

## 15.0.1410 section

```
finalizing nrlib GBINTERN
```

```
Warnings:
```

```
[1] redPo: m has no value
```

## 15.0.1411 section

```
finalizing nrlib GHENSEL
```

```
Warnings:
```

```
[1] genFact: auxfl has no value
```

```
[2] Hensellift: constp has no value
```

```
[3] Hensellift: fln has no value
```

```
[4] completeHensel: factlist has no value
```

```
[5] completeHensel: finallist has no value
```

```
[6] completeHensel: aux has no value
```

```
[7] completeHensel: auxfl has no value
```

```
(|Module| |#6|) extends
```

```
(|BiModule| |#6| |#6|) but not
```

```
(|BiModule| |#2| |#2|) -----non extending category-----
```

```
.. GeneralModulePolynomial(#1,#2,#3,#4,#5,#6) of cat
```

```
(|Join| (|Module| |#6|) (|Module| |#2|) (CATEGORY |domain| (SIGNATURE |leadingCoefficient| (|#2| $)) (SIGNATURE
```

## 15.0.1412 section

```
(|IndexedDirectProductCategory| |#2| (|ModuleMonomial| |#3| |#4| |#5|)) finalizing nrlib GMODPOL
```

## 15.0.1413 section

```
finalizing nrlib GRIMAGE
```

```
Warnings:
```

```
[1] makeGraphImage: signature of lhs not unique: $(List (List (Point (DoubleFloat)))) chosen
```

## 15.0.1414 section

```
finalizing nrlib GRIMAGE
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/GRIMAGE.spad-->GraphImage((figureUnits (UNITSF (L (L P)))))
```

## 15.0.1415 section

```
finalizing nrlib GROEBSOL
```

```
Warnings:
```

```
[1] testPower: not known that (Ring) is of mode (CATEGORY package (SIGNATURE groebSolve ((List (List (Dist
```

```
[2] testGenPos: newlpol has no value
```

```
[3] groebSolve: result has no value
```

```
-----non extending category-----
```

```
.. HexadecimalExpansion of cat
```

```
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $
```

## 15.0.1416 section

```
finalizing nrlib HEUGCD
```

```
Warnings:
```

```
[1] localgcd: flag has no value
```

```
[2] localgcd: result has no value
```

```
[3] internal: Cgcd has no value
```

```
[4] internal: contgcd has no value
```

```
[5] internal: ans has no value
```

**15.0.1417 section**

```
finalizing nrllib ICARD
Warnings:
 [1] elt: pretend(String) -- should replace by @
```

**15.0.1418 section**

```
finalizing nrllib IDECOMP
Warnings:
 [1] internalForm: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeIn
 [2] internalForm: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (
 [3] externalForm: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (
 [4] externalForm: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeIn
 [5] zeroRadComp: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv (N
 [6] zeroRadComp: not known that (Ring) is of mode (CATEGORY package (SIGNATURE zeroDimPrime? ((Boolean) (P
 [7] findvar: lmonicvar has no value
 [8] zeroPrimDecomp: not known that (PolynomialCategory (Fraction (Polynomial (Integer))) (DirectProduct nv
 [9] testPower: :(Integer) -- should replace by pretend
 [10] primaryDecomp: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegative
 [11] contract: IN has no value
 [12] contract: vv has no value
 [13] contract: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteg
```

**15.0.1419 section**

```
finalizing nrllib IIARRAY2
Warnings:
 [1] latex: s has no value
```

**15.0.1420 section**

```
finalizing nrllib IMATLIN
Warnings:
 [1] nullSpace: basis has no value
 [2] determinant: ans has no value
 [3] generalizedInverse: not known that (MatrixCategory FSUP VFSUP VFSUP) is of mode (CATEGORY domain (SIGN
```



### 15.0.1421 section

finalizing nrlib IMATQF

Warnings:

[1] nullSpace: not known that (FiniteLinearAggregate QF) is of mode (CATEGORY Col2 (ATTRIBUTE shallowlyMut

### 15.0.1422 section

finalizing nrlib INMODGCD

--->/research2/test0819/mnt/fedora5/../../../../src/algebra/INMODGCD.spad-->InnerModularGcd(constructor): Not document

--->/research2/test0819/mnt/fedora5/../../../../src/algebra/INMODGCD.spad-->InnerModularGcd(): Missing Description

### 15.0.1423 section

finalizing nrlib INNMFAC

Warnings:

[1] supFactor: factorlist has no value

[2] supFactor: irr has no value

[3] supFactor: pow has no value

[4] varChoose: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored P) P (Mappi

[5] intChoose: unifact has no value

[6] intChoose: int has no value

[7] simplify: pol1 has no value

[8] simplify: factorlist has no value

[9] intfact: unifact has no value

[10] intfact: lpol has no value

[11] intfact: factfin has no value

[12] mFactor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P)

[13] mFactor: flead has no value

[14] mFactor: irr has no value

[15] mFactor: pow has no value

[16] mFactor: x has no value

[17] mFactor: ffactor has no value

[18] mFactor: lvar has no value

[19] mFactor: factorlist has no value

### 15.0.1424 section

finalizing nrlib INTSLPE

Warnings:

```
[1] solveLinearPolynomialEquation: slpePrime has no value
[2] solveLinearPolynomialEquation: oldtable has no value
```

### 15.0.1425 section

```
finalizing nrlib INTTR
Warnings:
[1] expintegratepoly: coef0 has no value
[2] explimintfrac: logand has no value
[3] explimintfrac: coeff has no value
```

### 15.0.1426 section

```
finalizing nrlib ISUMP
Warnings:
[1] sum: not known that (Ring) is of mode (CATEGORY package (SIGNATURE sum ((Record (: num P) (: den (Inte
```

### 15.0.1427 section

```
finalizing nrlib LAUPOL
Warnings:
[1] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE separate ((Record (: polyPart $) (: fracP
```

### 15.0.1428 section

```
finalizing nrlib LEADCDET
Warnings:
[1] distFact: c has no value
```

### 15.0.1429 section

```
finalizing nrlib LGROBP
Warnings:
[1] totalex: result has no value
```

```

[2] minPol: :(NonNegativeInteger) -- should replace by pretend
[3] intcompBasis: part has no value
[4] linGenPos: :(PositiveInteger) -- should replace by pretend
[5] linGenPos: result has no value
[6] groebgen: :(NonNegativeInteger) -- should replace by pretend
[7] groebgen: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linGenPos ((Record (: gblist (

```

### 15.0.1430 section

```

finalizing nrlib LINDEP
Warnings:
[1] linearlyDependent?: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linearlyDependent? (

```

### 15.0.1431 section

```

finalizing nrlib LPEFRAC
Warnings:
[1] solveLinearPolynomialEquationByFractions: not known that (Ring) is of mode (CATEGORY package (SIGNATURE

```

### 15.0.1432 section

```

finalizing nrlib LSPP
Warnings:
[1] poly2vect: not known that (Ring) is of mode (CATEGORY package (SIGNATURE linSolve ((Record (: particul

```

### 15.0.1433 section

```

finalizing nrlib MATLIN
Warnings:
[1] minorDet: ans has no value
[2] rowEchelon: xnj has no value

```

### 15.0.1434 section

finalizing nrlib MDDFACT

Semantic Errors:

- [1] ddfactor: degree is BOTH a variable and a literal
- [2] ddfact: degree is BOTH a variable and a literal
- [3] ddFact: degree is BOTH a variable and a literal
- [4] sepfact: degree is BOTH a variable and a literal
- [5] separateFactors: degree is BOTH a variable and a literal
- [6] sepFact1: degree is BOTH a variable and a literal

Warnings:

- [1] ddfact: ans has no value
- [2] ddfact: :(Integer) -- should replace by @
- [3] sepFact1: ans has no value
- [4] sepFact1: stack has no value
- [5] probSplit: :(NonNegativeInteger) -- should replace by pretend

## 15.0.1435 section

finalizing nrlib MFINFACT

Warnings:

- [1] pretendOV -- should replace by @
- [2] supFactor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored P
- [3] mFactor: irr has no value
- [4] mFactor: pow has no value
- [5] mFactor: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored PG) PG)) (SIG
- [6] mFactor: ffactor has no value
- [7] mFactor: factorlist has no value
- [8] intfact: unifact has no value
- [9] intfact: lpol has no value
- [10] intfact: factfin has no value
- [11] intChoose: newm has no value
- [12] intChoose: unifact has no value
- [13] intChoose: int has no value
- [14] simplify: pol1 has no value
- [15] simplify: factorlist has no value

## 15.0.1436 section

finalizing nrlib MLIFT

Warnings:

- [1] Use: import (GenExEuclid R (SparseUnivariatePolynomial R))
- [2] Use: import (NPCoef (SparseUnivariatePolynomial R) E OV R P)
- [3] Use: import (IntegerCombinatoricFunctions (Integer))
- [4] lifting: nplist has no value
- [5] normalDerivM: not known that (Ring) is of mode (CATEGORY package (SIGNATURE corrPoly ((Union (List (Sp

```
MODMON abbreviates domain ModMonic
(PUSH (QUOTE |ModMonic|) |$mutableDomains|)
```

### 15.0.1437 section

```
finalizing nrlib MODMON
Warnings:
[1] :(NonNegativeInteger) -- should replace by pretend
[2] lift: pretendRep -- should replace by @
[3] not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
[4] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
[5] not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE frobenius ($ $)))
```

### 15.0.1438 section

```
finalizing nrlib MONOTOOL
Warnings:
[1] splitSquarefree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE split ((Record
[2] splitSquarefree: s has no value
```

### 15.0.1439 section

```
finalizing nrlib MPCPF
Warnings:
[1] factor: not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGORY domain (S
```

### 15.0.1440 section

```
finalizing nrlib MPC3
Warnings:
[1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE map (PR2 (Mapping Vars2 Vars1) PR1)
```

### 15.0.1441 section

finalizing nrlib MPRFF

Warnings:

- [1] factor: not known that (PolynomialCategory (Fraction (Integer)) (IndexedExponents (Symbol)) (Symbol))
- [2] factor: pretend(Factored (Polynomial R)) -- should replace by @
- [3] factor: flist has no value
- [4] pushdown: not known that (Ring) is of mode (CATEGORY package (SIGNATURE totalfract ((Record (: sup (Po

## 15.0.1442 section

finalizing nrlib MULTSQFR

Semantic Errors:

- [1] squareFree: ff has two modes:

Warnings:

- [1] nsqfree: lcf has no value
- [2] nsqfree: leadpol has no value
- [3] nsqfree: sqlc has no value
- [4] nsqfree: :(NonNegativeInteger) -- should replace by pretend
- [5] nsqfree: sqlead has no value
- [6] nsqfree: unitsq has no value
- [7] nsqfree: sqdec has no value
- [8] squareFree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE squareFree ((Facto
- [9] squareFree: fctr has no value
- [10] squareFree: xpnt has no value
- [11] squareFree: p has no value
- [12] squareFree: result1 has no value
- [13] squareFree: lvar has no value
- [14] squareFree: not known that (Ring) is of mode (CATEGORY package (SIGNATURE squareFree ((Factored P) P)
- [15] intChoose: :R -- should replace by @
- [16] intChoose: d1 has no value
- [17] coefChoose: lcoef has no value
- [18] lift: leadlist has no value
- [19] lift: p0 has no value
- [20] lift: p1 has no value

## 15.0.1443 section

finalizing nrlib NPCOEF

Warnings:

- [1] npcoef: :(NonNegativeInteger) -- should replace by pretend
- [2] npcoef: ndet has no value
- [3] npcoef: detufact has no value
- [4] npcoef: ltodel has no value
- [5] npcoef: detcoef has no value
- [6] check: :(NonNegativeInteger) -- should replace by pretend
- [7] check: doit has no value

```

[8] check: cfu has no value
[9] check: poselt has no value
[10] check: pp has no value
[11] buildtable: table has no value
[12] modify: :(NonNegativeInteger) -- should replace by pretend
[13] modify: lterase has no value

```

### 15.0.1444 section

```

finalizing nrlib NSUP
Warnings:
 [1] subResultantGcd: not known that (UnivariatePolynomialCategory R) is of mode (CATEGORY domain (SIGNATURE
-----non extending category-----
.. NewSparseUnivariatePolynomial #1 of cat
(|Join| (|UnivariatePolynomialCategory| |#1|) (|CoercibleTo| (|SparseUnivariatePolynomial| |#1|)) (|RetractableT

```

### 15.0.1445 section

```

finalizing nrlib ODEPRIM
Warnings:
 [1] indicialEquations: eq has no value
 [2] NPMulambda: lamb has no value
 [3] NPMulambda: lf has no value

```

### 15.0.1446 section

```

finalizing nrlib ODEPRRIC
Warnings:
 [1] leadingDenomRicDE: ind has no value
 [2] constantCoefficientOperator: ans has no value
 [3] innermax: ans has no value
 [4] leadingCoefficientRicDE: ind has no value
 [5] innerlb: lb has no value

```

### 15.0.1447 section

```

finalizing nrlib OMPKG

```

Warnings:

- [1] OMreadStr: pretend(String) -- should replace by @
- [2] OMlistCDs: pretend(List (String)) -- should replace by @
- [3] OMlistSymbols: pretend(List (String)) -- should replace by @

### 15.0.1448 section

```
finalizing nrlib OMSERVER
-->/research2/test0819/mnt/fedora5/../../src/algebra/OMSERVER.spad-->OpenMathServerPackage((OMsend ((Void) (OpenMathServerPackage)))
"\spad{OMsend(c,{u})} attempts to output \axiom{\spad{u}} on \axiom{\spad{c}} in OpenMath."
```

### 15.0.1449 section

```
finalizing nrlib PADICRC
Warnings:
[1] coerce: 1 has no value
```

### 15.0.1450 section

```
finalizing nrlib PF
Warnings:
[1] unknown Functor code (error Argument to prime field must be a prime)
```

### 15.0.1451 section

```
finalizing nrlib PFBR
Warnings:
[1] hensel: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolynomialEquationByR
[2] hensel: foundFactors has no value
[3] factorSFBRlcUnitInner: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolyno
[4] factorSFBRlcUnitInner: fctr has no value
[5] chooseFSQViableSubstitutions: ppR has no value
[6] chooseSLPEViableSubstitutions: lpolysR has no value
[7] raise: :R -- should replace by pretend
[8] raise: :R -- should replace by @
[9] factorByRecursion: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solveLinear
[10] factorByRecursion: :S -- should replace by @
[11] factorSquareFreeByRecursion: lcppPow has no value
```



## 15.0.1452 section

finalizing nrlib PFBRU

Warnings:

- [1] solveLinearPolynomialEquationByRecursion: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolynomialEquationByRecursion))
- [2] solveLinearPolynomialEquationByRecursion: answer has no value
- [3] hensel: foundFactors has no value
- [4] chooseFSQViableSubstitutions: ppR has no value
- [5] raise: :R -- should replace by pretend
- [6] raise: :R -- should replace by @
- [7] factorSFBRlcUnitInner: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveLinearPolynomialEquationByRecursion))
- [8] factorSFBRlcUnitInner: fctr has no value
- [9] factorByRecursion: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solveLinearPolynomialEquationByRecursion))
- [10] factorByRecursion: :S -- should replace by pretend
- [11] factorByRecursion: :S -- should replace by @
- [12] factorSquareFreeByRecursion: lcppPow has no value

## 15.0.1453 section

finalizing nrlib PGCD

Warnings:

- [1] localgcd: s has no value
- [2] gcdTermList: not known that (Ring) is of mode (CATEGORY package (SIGNATURE gcd (P P P)) (SIGNATURE gcdTermList))
- [3] lift: p0 has no value

## 15.0.1454 section

finalizing nrlib PLEQN

Warnings:

- [1] regime: wcd has no value
- [2] regime: yzero has no value
- [3] bsolve: rksoln has no value
- [4] bsolve: lrec3 has no value
- [5] ParCondList: covered has no value
- [6] ParCondList: zro has no value
- [7] ParCondList: npc has no value
- [8] ParCondList: done has no value
- [9] ParCondList: rcl has no value
- [10] pr2dmp: pretendGR -- should replace by @
- [11] sqfree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE psolve ((List (Record)))
- [12] ParCond: found has no value
- [13] ParCond: DetEqn has no value

**15.0.1455 section**

```
finalizing nrlib PNTHEORY
Warnings:
 [1] cyclotomic: s has no value
 [2] cyclotomic: c has no value
```

**15.0.1456 section**

```
finalizing nrlib POLUTIL
Warnings:
 [1] sylvesterSequence: res has no value
 [2] sturmVariationsOf: ll has no value
```

**15.0.1457 section**

```
finalizing nrlib POLYCATQ
Warnings:
 [1] isPower: var has no value
 [2] P2UP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE variables ((List V) F)) (SIGNATURE
```

**15.0.1458 section**

```
finalizing nrlib POLYCATQ
Processing PolynomialCategoryQuotientFunctions for Browser database:
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYCATQ.spad-->PolynomialCategoryQuotientFunctions((coerc
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYCATQ.spad-->PolynomialCategoryQuotientFunctions((numer
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYCATQ.spad-->PolynomialCategoryQuotientFunctions((denom
```

**15.0.1459 section**

```
finalizing nrlib POLYLIFT
Warnings:
 [1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE map (S (Mapping S Vars) (Mapping S
```

## 15.0.1460 section

```
finalizing nrlib POLYLIFT
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYLIFT.spad-->PolynomialCategoryLifting((+ (% % %)): No
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYLIFT.spad-->PolynomialCategoryLifting((* (% % %)): No
--->/research2/test0819/mnt/fedora5/../../src/algebra/POLYLIFT.spad-->PolynomialCategoryLifting(** (% % (NonNeg
```

## 15.0.1461 section

```
finalizing nrlib POLYROOT
Warnings:
[1] zroot: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE rroot ((Record (: expon
```

## 15.0.1462 section

```
finalizing nrlib POLY2UP
Warnings:
[1] univariate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE univariate ((UnivariatePolyn
```

## 15.0.1463 section

```
finalizing nrlib PRS
Warnings:
[1] resultantnaif: a has no value
[2] resultantEuclideanNaif: a has no value
[3] semiResultantEuclideanNaif: a has no value
[4] chainSubResultants: L has no value
[5] schema: L has no value
```

## 15.0.1464 section

```
finalizing nrlib PSQFR
Warnings:
[1] pPolRoot: not known that (Ring) is of mode (CATEGORY package (SIGNATURE squareFree ((Factored P) P)))
[2] pthPower: isSq has no value
[3] pthPower: fctr has no value
```

```
[4] pthPower: xpnt has no value
[5] finSqFr: :(NonNegativeInteger) -- should replace by pretend
[6] finSqFr: cont1 has no value
```

### 15.0.1465 section

```
finalizing nrlib PUSHVAR
```

```
Warnings:
```

```
[1] map: not known that (Ring) is of mode (CATEGORY package (SIGNATURE pushdown (PPR PPR OV)) (SIGNATURE p
```

### 15.0.1466 section

```
finalizing nrlib QALGSET
```

```
Warnings:
```

```
[1] npoly: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has (NonNegativeInteger)
[2] idealSimplify: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has (NonNegative
[3] idealSimplify: not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has (NonNegat
[4] idealSimplify: not known that (PolynomialCategory R (Product (NonNegativeInteger) Expon) Var) is of mo
[5] idealSimplify: gb has no value
```

### 15.0.1467 section

```
finalizing nrlib RADIX
```

```
Warnings:
```

```
[1] fractionPart: signature of lhs not unique: (Fraction (Integer))$ chosen
[2] coerce: le has no value
[3] radixFrac: c has no value
[4] unknown Functor code (error Radix base must be at least 2)
```

### 15.0.1468 section

```
finalizing nrlib RATFACT
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/RATFACT.spad-->RationalFactorize(constructor): Not document
--->/research2/test0819/mnt/fedora5/../../src/algebra/RATFACT.spad-->RationalFactorize(): Missing Description
```

### 15.0.1469 section

```
finalizing nrllib RCFIELD-
```

```
Warnings:
```

- [1] rootOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE sqrt (S (Integer))) (SIGNATURE sq
- [2] allRootsOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE sqrt (S (Integer))) (SIGNATUR

### 15.0.1470 section

```
finalizing nrllib RCFIELD
```

```
; (DEFUN |RealClosedField| ...) is being compiled.
;; The variable |RealClosedField;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1471 section

```
finalizing nrllib RDETR
```

```
Warnings:
```

- [1] polyRDE: eq has no value
- [2] SPDEnocancel1: q has no value
- [3] SPDEnocancel2: q has no value

### 15.0.1472 section

```
finalizing nrllib REALO
```

```
Warnings:
```

- [1] makeSqfr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE realZeros ((List (Re
- [2] Zero1: G has no value
- [3] rootBound: i has no value
- [4] transMultInv: :(NonNegativeInteger) -- should replace by pretend
- [5] var: i has no value

### 15.0.1473 section

```
finalizing nrllib REALSOLV
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/REALSOLV.spad-->RealSolvePackage(constructor): Not document
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/REALSOLV.spad-->RealSolvePackage(): Missing Description
```

### 15.0.1474 section

```
finalizing nrlib RESRING
```

```
Warnings:
```

```
[1] unknown Functor code (error the residue ring is the zero ring)
```

### 15.0.1475 section

```
finalizing nrlib RETSOL
```

```
Warnings:
```

```
[1] PQIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveRetract ((List (List (Equa
```

### 15.0.1476 section

```
finalizing nrlib RFFACTOR
```

```
Warnings:
```

```
[1] factorFraction: not known that (PolynomialCategory (Fraction (Integer)) (IndexedExponents (Symbol)) (S
```

### 15.0.1477 section

```
finalizing nrlib RMACAT
```

```
; (DEFUN |RectangularMatrixCategory| ...) is being compiled.
```

```
;; The variable |RectangularMatrixCategory;AL| is undefined.
```

```
;; The compiler will assume this variable is a global.
```

```
; (DEFUN |RectangularMatrixCategory;| ...) is being compiled.
```

```
;; The variable |RectangularMatrixCategory;CAT| is undefined.
```

```
;; The compiler will assume this variable is a global.
```

### 15.0.1478 section

```
finalizing nrlib RRCC
```

```
; (DEFUN |RealRootCharacterizationCategory| ...) is being compiled.
```

```
;; The variable |RealRootCharacterizationCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RealRootCharacterizationCategory;| ...) is being compiled.
;; The variable |RealRootCharacterizationCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1479 section

finalizing nrlib SHP

Warnings:

- [1] subresultantSequenceNext: :(List (UnivariatePolynomial x R)) -- should replace by @
- [2] subresultantSequenceInner: :(UnivariatePolynomial x R) -- should replace by @
- [3] subresultantSequenceInner: :(List (UnivariatePolynomial x R)) -- should replace by @
- [4] subresultantSequence: :(List (UnivariatePolynomial x R)) -- should replace by @
- [5] polsth1: :(List (UnivariatePolynomial x R)) -- should replace by @
- [6] polsth1: Listf has no value
- [7] polsth2: :(List (UnivariatePolynomial x R)) -- should replace by @
- [8] polsth3: :(List (UnivariatePolynomial x R)) -- should replace by @
- [9] wfunctaux: :(List R) -- should replace by @
- [10] wfunctaux: :(NonNegativeInteger) -- should replace by @
- [11] wfunct: :(List R) -- should replace by @
- [12] SturmHabicht: :(UnivariatePolynomial x R) -- should replace by @
- [13] SturmHabichtMultiple: :(UnivariatePolynomial x R) -- should replace by @
- [14] SturmHabichtMultiple: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE countRea

## 15.0.1480 section

finalizing nrlib SIGNRF

Warnings:

- [1] psign: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE sign ((Union (Integer)

## 15.0.1481 section

finalizing nrlib SMP

Warnings:

- [1] ^: pretend(NonNegativeInteger) -- should replace by @
- [2] \*\*: pretend(NonNegativeInteger) -- should replace by @
- [3] exquo: The conditional modes (SparseUnivariatePolynomial \$) and D conflict
- [4] eval: IN has no value
- [5] eval: val has no value

**15.0.1482 section**

```
finalizing nrlib SOLVEFOR
```

```
Warnings:
```

```
[1] intsolve: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE solve ((List F) UP))
```

**15.0.1483 section**

```
finalizing nrlib SOLVEFOR
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/SOLVEFOR.spad-->PolynomialSolveByFormulas((** (% % (Fracti
```

**15.0.1484 section**

```
finalizing nrlib SPLTREE
```

```
compiling exported eq? : ($,$) -> Boolean
```

```
SPLTREE;eq?;2$B;20 is replaced by errorin eq? from SPLTREE : la vache qui rit est-elle folle?
```

**15.0.1485 section**

```
finalizing nrlib SPLTREE
```

```
Warnings:
```

```
[1] splitNodeOf!: la has no value
```

**15.0.1486 section**

```
finalizing nrlib STTFNC
```

```
compiling exported acos : Stream Coef -> Stream Coef
```

```
STTFNC;acos;2S;12 is replaced by erroracos: acos undefined on this coefficient domain
```

```
compiling exported acot : Stream Coef -> Stream Coef
```

```
STTFNC;acot;2S;13 is replaced by erroracot: acot undefined on this coefficient domain
```

```
compiling exported asec : Stream Coef -> Stream Coef
```

```
STTFNC;asec;2S;14 is replaced by errorasec: asec undefined on this coefficient domain
```

```
compiling exported acsc : Stream Coef -> Stream Coef
```

```
STTFNC;acsc;2S;15 is replaced by erroracsc: acsc undefined on this coefficient domain
```

```
compiling exported acosh : Stream Coef -> Stream Coef
```

```
STTFNC;acosh;2S;24 is replaced by erroracosh: acosh undefined on this coefficient domain
```



```

compiling exported acoth : Stream Coef -> Stream Coef
 STTFNC;acoth;2S;25 is replaced by erroracoth: acoth undefined on this coefficient domain
compiling exported asech : Stream Coef -> Stream Coef
 STTFNC;asech;2S;26 is replaced by errorasech: asech undefined on this coefficient domain
compiling exported acsch : Stream Coef -> Stream Coef
 STTFNC;acsch;2S;27 is replaced by erroracsch: acsch undefined on this coefficient domain

```

## 15.0.1487 section

```

finalizing nrllib SUP
Warnings:
[1] **: pretend(NonNegativeInteger) -- should replace by @
[2] ^: pretend(NonNegativeInteger) -- should replace by @
[3] **: y has no value
[4] pomopo!: rout has no value
[5] exquo: signature of lhs not unique: (Union $ failed)$$ chosen
[6] fmeceg: rout has no value
[7] pseudoRemainder: :(Integer) -- should replace by pretend
[8] pseudoRemainder: :(NonNegativeInteger) -- should replace by pretend
[9] elt: :(NonNegativeInteger) -- should replace by pretend

-----non extending category-----
.. SparseUnivariatePolynomial #1 of cat
(|Join| (|UnivariatePolynomialCategory| #1|) (CATEGORY |domain| (SIGNATURE |outputForm| ((|OutputForm|) $ (|Out

```

## 15.0.1488 section

```

(IF (|has| #1| (|IntegralDomain|)) (IF (|has| (|NonNegativeInteger|) (|CancellationAbelianMonoid|)) (SIGNATURE

```

## 15.0.1489 section

```

finalizing nrllib SUPFRACF
Warnings:
[1] squareFree: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored

```

## 15.0.1490 section

```

finalizing nrllib TEX
Warnings:

```

```

[1] display: pretend(Integer) -- should replace by @
[2] coerce: pretend(Integer) -- should replace by @
[3] stringify: pretend(String) -- should replace by @
[4] splitLong1: 1 has no value
[5] splitLong1: 1s has no value
[6] splitLong1: s has no value
[7] formatSpecial: form has no value
[8] formatSpecial: prescript has no value
[9] formatPlex: s has no value
[10] formatTex: pretend(Boolean) -- should replace by @

```

### 15.0.1491 section

finalizing nrlib TEXTFILE

Warnings:

```

[1] endOfFile?: pretend(Boolean) -- should replace by @

```

### 15.0.1492 section

finalizing nrlib TREE

Warnings:

```

[1] children: node has no value
[2] setchildren!: node has no value
[3] setchildren!: pretend$ -- should replace by @
[4] setvalue!: node has no value
[5] count: signature of lhs not unique: (NonNegativeInteger)$ chosen
[6] value: node has no value
[7] node?: t has no value
[8] multipleOverbar: The conditional modes (String) and S conflict

```

### 15.0.1493 section

finalizing nrlib TWOFACT

Warnings:

```

[1] generalSqFr: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE generalTwoFactor
[2] generalSqFr: flg has no value
[3] generalSqFr: xpnt has no value
[4] generalSqFr: :(NonNegativeInteger) -- should replace by pretend
[5] generalSqFr: fctr has no value
[6] generalTwoFactor: flg has no value
[7] generalTwoFactor: fctr has no value
[8] generalTwoFactor: xpnt has no value

```

```

[9] generalTwoFactor: ll has no value
[10] generalTwoFactor: unitPart has no value
[11] twoFactor: n has no value
[12] twoFactor: look has no value
[13] twoFactor: umv has no value
[14] twoFactor: umex has no value

```

## 15.0.1494 section

```

finalizing nrlib UNIFACT
Warnings:
 [1] eisenstein: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored
 [2] bound: :(NonNegativeInteger) -- should replace by pretend
 [3] bound: cbound has no value
 [4] numFactors: pretend(Integer) -- should replace by @
 [5] numFactors: ans has no value
 [6] choose: qSave has no value
 [7] choose: ddSave has no value
 [8] quadratic: beta has no value
 [9] quadratic: alpha has no value
 [10] subMinusX: :ZP -- should replace by pretend
 [11] henselFact: c has no value
 [12] henselFact: factorlist has no value
 [13] henselFact: :(List ZP) -- should replace by pretend

-----non extending category-----
.. UnivariatePolynomial(#1,#2) of cat
(|Join| (|UnivariatePolynomialCategory| |#2|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|Variable| |#1|))) (SIG

```

## 15.0.1495 section

```

finalizing nrlib UPDECOMP
Warnings:
 [1] leftFactorIfCan: g has no value

```

## 15.0.1496 section

```

finalizing nrlib UPXSCAT
; (DEFUN |UnivariatePuisseuxSeriesCategory| ...) is being compiled.
;; The variable |UnivariatePuisseuxSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariatePuisseuxSeriesCategory;| ...) is being compiled.

```

```
;; The variable |UnivariatePuisseuxSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1497 section

```
finalizing nrlib UPSQFREE
Warnings:
 [1] BumInSepFFE: :(NonNegativeInteger) -- should replace by @
 [2] squareFree: lffe has no value
 [3] squareFree: dunit has no value
```

### 15.0.1498 section

```
finalizing nrlib VIEWDEF
Warnings:
 [1] viewWriteDefault: thingsToWrite has no value
```

### 15.0.1499 section

```
finalizing nrlib WEIER
Warnings:
 [1] transback: :(Stream (Stream (Polynomial R))) -- should replace by pretend
 [2] transback: :(TaylorSeries R) -- should replace by pretend
 [3] transback: :(Stream (TaylorSeries R)) -- should replace by pretend
 [4] clikeUniv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE crest ((Mapping (Stream (Poly
 [5] streamlikeUniv: :(NonNegativeInteger) -- should replace by pretend
 [6] sts2stst: :(Stream (NonNegativeInteger)) -- should replace by pretend
 [7] weier: :(TaylorSeries R) -- should replace by pretend
 [8] wei: :(Stream (Polynomial R)) -- should replace by pretend
```

### 15.0.1500 section

```
finalizing nrlib WP
Warnings:
 [1] innercoerce: ans has no value
 [2] unknown Functor code (error incompatible length lists in WeightedPolynomial)
```

### 15.0.1501 section

```

 finalizing nrllib DIAGG
; (DEFUN |Dictionary| ...) is being compiled.
;; The variable |Dictionary;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |Dictionary;| ...) is being compiled.
;; The variable |Dictionary;CAT| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. ExponentialOfUnivariatePuisseuxSeries(#1,#2,#3) of cat
(|Join| (|UnivariatePuisseuxSeriesCategory| |#1|) (|OrderedAbelianMonoid|) (CATEGORY |domain| (SIGNATURE |exponen
```

### 15.0.1502 section

```
(|UnivariatePuisseuxSeriesConstructorCategory| |#1| (|UnivariateLaurentSeries| |#1| |#2| |#3|)) finalizing nrl
```

### 15.0.1503 section

```

 finalizing nrllib FRAMALG-
Warnings:
 [1] coordinates: signature of lhs not unique: (Matrix R)(Vector S) chosen
```

### 15.0.1504 section

```

 finalizing nrllib FRAMALG
; (DEFUN |FramedAlgebra| ...) is being compiled.
;; The variable |FramedAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FramedAlgebra;| ...) is being compiled.
;; The variable |FramedAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1505 section

```

 finalizing nrllib MDAGG
```

```
; (DEFUN |MultiDictionary| ...) is being compiled.
;; The variable |MultiDictionary;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MultiDictionary;| ...) is being compiled.
;; The variable |MultiDictionary;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1506 section

```
finalizing nrlib PLOT
Warnings:
[1] listBranches: newl has no value
[2] listBranches: outList has no value
[3] rangeRefine: c has no value
[4] rangeRefine: q has no value
[5] rangeRefine: NUMFUNVALS has no value
[6] refine: curves has no value
[7] plot: curves has no value
[8] plot: t has no value
[9] coerce: l has no value
```

### 15.0.1507 section

```
finalizing nrlib PLOT
; (DEFUN |PLOT;myTrap| ...) is being compiled.
;; The variable |$numericFailure| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$NaNvalue| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1508 section

```
finalizing nrlib SMATCAT-
Warnings:
[1] equation2R: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE ** (S S (Integer))) (SIGNATURE
```

### 15.0.1509 section

```

 finalizing nrlib SMATCAT
; (DEFUN |SquareMatrixCategory| ...) is being compiled.
;; The variable |SquareMatrixCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SquareMatrixCategory;| ...) is being compiled.
;; The variable |SquareMatrixCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1510 section

```

 finalizing nrlib UPXSCCA
; (DEFUN |UnivariatePuisseuxSeriesConstructorCategory| ...) is being compiled.
;; The variable |UnivariatePuisseuxSeriesConstructorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariatePuisseuxSeriesConstructorCategory;| ...) is being compiled.
;; The variable |UnivariatePuisseuxSeriesConstructorCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1511 section

```

 finalizing nrlib FFINTBAS
Warnings:

```

```

 [1] squaredFactors: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE integralBasis

```

### 15.0.1512 section

```

 finalizing nrlib FSAGG
; (DEFUN |FiniteSetAggregate| ...) is being compiled.
;; The variable |FiniteSetAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteSetAggregate;| ...) is being compiled.
;; The variable |FiniteSetAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1513 section

```

 finalizing nrlib KDAGG
; (DEFUN |KeyedDictionary| ...) is being compiled.

```

```
;; The variable |KeyedDictionary;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |KeyedDictionary;| ...) is being compiled.
;; The variable |KeyedDictionary;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1514 section

```
finalizing nrlib MSETAGG
; (DEFUN |MultisetAggregate;| ...) is being compiled.
;; The variable |MultisetAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MultisetAggregate;| ...) is being compiled.
;; The variable |MultisetAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1515 section

```
finalizing nrlib MONOGEN
; (DEFUN |MonogenicAlgebra;| ...) is being compiled.
;; The variable |MonogenicAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MonogenicAlgebra;| ...) is being compiled.
;; The variable |MonogenicAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1516 section

```
finalizing nrlib NFINTBAS
Warnings:
[1] wildPrimes: ans has no value
[2] tameProduct: ans has no value
[3] integralBasis: runningRbden has no value
[4] iWildLocalIntegralBasis: rbden has no value
```

### 15.0.1517 section

```
finalizing nrlib SPACE3
```



Warnings:

[1] coerce: llliPt has no value

## 15.0.1518 section

finalizing nrllib CCLASS

Warnings:

[1] remove!: signature of lhs not unique: \$(Character)\$ chosen

## 15.0.1519 section

finalizing nrllib GALFACT

Warnings:

[1] eisensteinIrreducible?: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE makeFR  
 [2] modularFactor: s has no value  
 [3] completeFactor: g0 has no value  
 [4] completeFactor: degg has no value  
 [5] completeFactor: g has no value  
 [6] completeFactor: ltrue has no value  
 [7] completeFactor: level has no value  
 [8] divideSet: l has no value  
 [9] btwFactor: reverse? has no value  
 [10] btwFactor: negativelc? has no value  
 [11] btwFactor: lf has no value  
 [12] henselFact: c has no value  
 [13] henselFact: factorlist has no value  
 [14] btwFact: c has no value  
 [15] btwFact: factorlist has no value

## 15.0.1520 section

finalizing nrllib IALGFACT

Warnings:

[1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored AlPo

## 15.0.1521 section

```
finalizing nrlib MMLFORM
Warnings:
[1] exprex: s has no value
[2] formatSub: j has no value
[3] formatSub: s has no value
[4] formatSub1: s has no value
[5] formatPlex: s has no value
```

### 15.0.1522 section

```
finalizing nrlib OMSAGG
; (DEFUN |OrderedMultisetAggregate| ...) is being compiled.
;; The variable |OrderedMultisetAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |OrderedMultisetAggregate;| ...) is being compiled.
;; The variable |OrderedMultisetAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1523 section

```
finalizing nrlib PERM
Warnings:
[1] rotateCycle: minpos has no value
[2] coerceToCycle: nextCycle has no value
[3] coercePreimagesImages: preImage has no value
[4] coercePreimagesImages: image has no value
```

### 15.0.1524 section

```
finalizing nrlib PERMGRP
Warnings:
[1] shortenWord: newlw has no value
[2] orbitInternal: pos has no value
[3] orbitInternal: orbitList has no value
[4] bsgs1: j has no value
[5] bsgs1: out has no value
[6] bsgs1: outword has no value
[7] bsgs1: baseOfGroup has no value
[8] reduceGenerators: wordlist has no value
[9] bsgs: gpbase has no value
[10] bsgs: baseOfGroup has no value
[11] bsgs: wordProblem has no value
```

```

[12] bsgs: wordlist has no value
[13] bsgs: gporb has no value
[14] bsgs: noresult has no value
[15] bsgs: newBasePoint has no value
[16] bsgs: basePoint has no value
[17] memberInternal: supp has no value
[18] memberInternal: sgs has no value
[19] memberInternal: baseOfGroup has no value
[20] memberInternal: gporb has no value
[21] coerce: :(Symbol) -- should replace by pretend

```

### 15.0.1525 section

```

finalizing nrlib PWFFINTB
Warnings:
[1] listSquaredFactors: ans has no value

```

### 15.0.1526 section

```

finalizing nrlib SAE
Warnings:
[1] lift: pretendRep -- should replace by @
[2] index: ans has no value
[3] unknown Functor code (error Modulus cannot be made monic)

```

### 15.0.1527 section

```

finalizing nrlib SGCF
Warnings:
[1] unrankImproperPartitions0: l has no value
[2] unrankImproperPartitions1: nonZeros has no value
[3] subSet: l has no value
[4] nextLatticePermutation: ready has no value
[5] listYoungTableaus: lattice has no value

```

### 15.0.1528 section

```

finalizing nrlib TBAGG-

```

Warnings:

```
[1] map!: signature of lhs not unique: S(Mapping Entry Entry)S chosen
```

### 15.0.1529 section

```
finalizing nrlib TBAGG
; (DEFUN |TableAggregate| ...) is being compiled.
;; The variable |TableAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |TableAggregate;| ...) is being compiled.
;; The variable |TableAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1530 section

finalizing nrlib VIEW3D

Warnings:

```
[1] viewpoint: Theta has no value
```

### 15.0.1531 section

```
finalizing nrlib VIEW3D
--->/research2/test0819/mnt/fedora5/../../src/algebra/VIEW3D.spad-->ThreeDimensionalViewport(constructor): Not d
--->/research2/test0819/mnt/fedora5/../../src/algebra/VIEW3D.spad-->ThreeDimensionalViewport(): Missing Descript
```

### 15.0.1532 section

finalizing nrlib ALIST

Warnings:

```
[1] latex: s has no value
```

```
[2] remove!: key has no value
```

### 15.0.1533 section

```
finalizing nrlib HASHTBL
```

```
Warnings:
```

- [1] remove!: pretendEntry -- should replace by @
- [2] search: pretendEntry -- should replace by @

## 15.0.1534 section

```
finalizing nrlib INTPACK
```

```
Warnings:
```

- [1] preAnalysis: nia has no value
- [2] measureSpecific: nia has no value
- [3] measureSpecific: mdnia has no value
- [4] integrateSpecific: nia has no value
- [5] integrateSpecific: mdnia has no value
- [6] recoverAfterFail: nia has no value
- [7] integrateArgs: mdnia has no value
- [8] integrateArgs: nia has no value

## 15.0.1535 section

```
finalizing nrlib INTPACK
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/INTPACK.spad-->AnnaNumericalIntegrationPackage(constructor
--->/research2/test0819/mnt/fedora5/../../src/algebra/INTPACK.spad-->AnnaNumericalIntegrationPackage(): Missing
```

## 15.0.1536 section

```
finalizing nrlib IPF
```

```
Warnings:
```

- [1] tableForDiscreteLogarithm: pretend(Table (PositiveInteger) (NonNegativeInteger)) -- should replace by
- [2] initializeLog: n has no value
- [3] coordinates: signature of lhs not unique: (Vector \$)\$ chosen
- [4] charthRoot: signature of lhs not unique: \$\$ chosen

## 15.0.1537 section

```
finalizing nrlib ACF-
```

```
Warnings:
```

- [1] zeroOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) (SparseUnivaria

## 15.0.1538 section

```

finalizing nrllib ACF
; (DEFUN |AlgebraicallyClosedField| ...) is being compiled.
;; The variable |AlgebraicallyClosedField;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1539 section

```

finalizing nrllib ACPLLOT
Warnings:
[1] listPtsOnHorizBdry: pointList has no value
[2] listPtsOnVertBdry: pointList has no value
[3] listPtsInRect: pointList has no value
[4] makeOneVarSketch: sketchRoots has no value
[5] makeOneVarSketch: lf has no value
[6] makeOneVarSketch: rt has no value
[7] makeOneVarSketch: bt has no value
[8] makeOneVarSketch: tp has no value
[9] makeLineSketch: branch has no value
[10] makeLineSketch: lf has no value
[11] makeLineSketch: rt has no value
[12] makeLineSketch: bt has no value
[13] makeLineSketch: tp has no value
[14] makeRatFcnSketch: outList has no value
[15] makeRatFcnSketch: lf has no value
[16] makeRatFcnSketch: rt has no value
[17] makeRatFcnSketch: bt has no value
[18] makeRatFcnSketch: tp has no value
[19] makeRatFcnSketch: topList has no value
[20] makeRatFcnSketch: botList has no value
[21] listPtsOnLoop: pointList has no value
[22] computeNextPt: xPointList has no value
[23] computeNextPt: yPointList has no value

-----non extending category-----
.. AntiSymm(#1,#2) of cat
(|Join| (|LeftAlgebra| |#1|) (|RetractableTo| |#1|) (CATEGORY |domain| (SIGNATURE |leadingCoefficient| (|#1| $))

```

## 15.0.1540 section

```

(|BiModule| |#1| |#1|) finalizing nrllib ANTISYM

```

### 15.0.1541 section

```
finalizing nrlib ANTISYM
Warnings:
 [1] retractable?: k has no value
 [2] retractIfCan: k has no value
 [3] *: k has no value
 [4] *: c has no value
 [5] *: z has no value
 [6] coerce: c has no value
 [7] coerce: k has no value
```

### 15.0.1542 section

```
finalizing nrlib ASP12
Warnings:
 [1] MAXIT has no value
 [2] IFLAG has no value
 [3] ELAM has no value
 [4] FINFO has no value
```

### 15.0.1543 section

```
finalizing nrlib ASP27
Warnings:
 [1] IFLAG has no value
 [2] N has no value
 [3] LRWORK has no value
 [4] LIWORK has no value
 [5] Z has no value
 [6] W has no value
 [7] RWORK has no value
 [8] IWORK has no value
```

### 15.0.1544 section

```
finalizing nrlib ASP28
Warnings:
 [1] IFLAG has no value
 [2] N has no value
```

```
[3] LRWORK has no value
[4] LIWORK has no value
[5] Z has no value
[6] W has no value
[7] RWORK has no value
[8] IWORK has no value
```

### 15.0.1545 section

```
finalizing nrlib ASP33
Warnings:
[1] JINT has no value
[2] X has no value
[3] V has no value
```

### 15.0.1546 section

```
finalizing nrlib ASP49
Warnings:
[1] MODE has no value
[2] N has no value
[3] X has no value
[4] OBJF has no value
[5] OBJGRD has no value
[6] NSTATE has no value
[7] IUSER has no value
[8] USER has no value
```

### 15.0.1547 section

```
finalizing nrlib ASP55
Warnings:
[1] MODE has no value
[2] NCNLN has no value
[3] N has no value
[4] NROWJ has no value
[5] NEEDC has no value
[6] X has no value
[7] C has no value
[8] CJAC has no value
[9] NSTATE has no value
[10] IUSER has no value
```



```
[11] USER has no value
[12] makeCond: NEEDC has no value
```

### 15.0.1548 section

```
finalizing nrlib ASP7
Warnings:
[1] X has no value
[2] Y has no value
[3] F has no value
[4] coerce: F has no value
```

### 15.0.1549 section

```
finalizing nrlib ASP78
Warnings:
[1] X has no value
[2] G has no value
[3] coerce: G has no value
```

### 15.0.1550 section

```
finalizing nrlib ASP8
Semantic Errors:
[1] coerce: code is BOTH a variable and a literal
```

```
Warnings:
[1] COUNT has no value
[2] XSOL has no value
[3] N has no value
[4] Y has no value
[5] FORWRD has no value
[6] RESULT has no value
[7] M has no value
[8] coerce: POINTS has no value
[9] coerce: X02ALF has no value
[10] coerce: RESULT has no value
[11] coerce: COUNT has no value
[12] coerce: XSOL has no value
```



```

[2] drawPlot: xValues has no value
[3] drawPlot: yValues has no value
[4] draw: fcn has no value
[5] makeObject: fcn has no value
[6] makeObject: pointsColored? has no value
[7] makeObject: col2 has no value
[8] makeObject: col3 has no value

```

### 15.0.1555 section

```

 finalizing nrlib DRAWCFUN
; (DEFUN |DRAWCFUN;myTrap1| ...) is being compiled.
;; The variable |$numericFailure| is undefined.
;; The compiler will assume this variable is a global.

-----non extending category-----
.. d01anfAnnaType of cat
(|NumericalIntegrationCategory|) has no

```

### 15.0.1556 section

```

(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01ANFA

-----non extending category-----
.. d01asfAnnaType of cat
(|NumericalIntegrationCategory|) has no

```

### 15.0.1557 section

```

(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01ASFA

```

### 15.0.1558 section

```

 finalizing nrlib D03AGNT
--->/research2/test0819/mnt/fedora5/../../src/algebra/D03AGNT.spad-->d03AgentsPackage(constructor): Not document
--->/research2/test0819/mnt/fedora5/../../src/algebra/D03AGNT.spad-->d03AgentsPackage(): Missing Description

```

**15.0.1559 section**

```
finalizing nrllib EP
```

```
Warnings:
```

```
[1] not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGORY domain (SIGNATURE
[2] charpol: :(PositiveInteger) -- should replace by pretend
[3] eigenvalues: lrat has no value
[4] eigenvalues: lsym has no value
[5] intAlgEig: not known that (Ring) is of mode (CATEGORY package (SIGNATURE characteristicPolynomial ((Po
[6] eigenvectors: ratSol has no value
[7] eigenvectors: algSol has no value
```

**15.0.1560 section**

```
finalizing nrllib E04AGNT
```

```
Warnings:
```

```
[1] optAttributes: noa has no value
[2] optAttributes: lsa has no value
[3] optAttributes: s has no value
```

**15.0.1561 section**

```
finalizing nrllib E04AGNT
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/E04AGNT.spad-->e04AgentsPackage(constructor): Not document
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/E04AGNT.spad-->e04AgentsPackage(): Missing Description
```

```
-----non extending category-----
```

```
.. FortranExpression(#1,#2,#3) of cat
```

```
(|Join| (|ExpressionSpace|) (|Algebra| |#3|) (|RetractableTo| |#3|) (|PartialDifferentialRing| (|Symbol|)) (CATE
```

**15.0.1562 section**

```
(|FunctionSpace| |#3|) finalizing nrllib FEXPR
```

**15.0.1563 section**

```
finalizing nrllib FEXPR
```

Warnings:

- [1] checkSymbols: IN has no value
- [2] checkForNagOperators: X01AAF has no value
- [3] pi: X01AAF has no value

## 15.0.1564 section

finalizing nrlib FFCAT-

Warnings:

- [1] rationalPoint?: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE differentiate (
- [2] primitivePart: STEP has no value
- [3] primitivePart: i has no value
- [4] repOrder: nostart has no value
- [5] kmin: nostart has no value
- [6] kmin: k has no value
- [7] integral?: den has no value

## 15.0.1565 section

finalizing nrlib FFCAT

```
; (DEFUN |FunctionFieldCategory| ...) is being compiled.
;; The variable |FunctionFieldCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FunctionFieldCategory;| ...) is being compiled.
;; The variable |FunctionFieldCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

## 15.0.1566 section

finalizing nrlib FFCGP

Warnings:

- [1] pretend(NonNegativeInteger) -- should replace by @
- [2] +: pretend(SingleInteger) -- should replace by @
- [3] +: pretendRep -- should replace by @
- [4] retractIfCan: pretendRep -- should replace by @
- [5] inGroundField?: pretendRep -- should replace by @
- [6] -: pretendRep -- should replace by @
- [7] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen
- [8] unknown Functor code (error field too large for this representation)

**15.0.1567 section**

finalizing nrlib FFNBP

Warnings:

- [1] degree: signature of lhs not unique: (PositiveInteger)\$ chosen
- [2] coerce: l has no value
- [3] initializeLog: n has no value
- [4] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen

**15.0.1568 section**

finalizing nrlib FFP

Warnings:

- [1] degree: signature of lhs not unique: (PositiveInteger)\$ chosen
- [2] tableForDiscreteLogarithm: pretend(Table (PositiveInteger) (NonNegativeInteger)) -- should replace by
- [3] initializeLog: n has no value
- [4] extensionDegree: signature of lhs not unique: (PositiveInteger) chosen

**15.0.1569 section**

finalizing nrlib FLOAT

Warnings:

- [1] OMwrite: pretend(String) -- should replace by @
- [2] cos: s has no value
- [3] exp: e1 has no value
- [4] exp1: E has no value
- [5] normalize: e has no value
- [6] power: y has no value
- [7] power10: y has no value

**15.0.1570 section**

finalizing nrlib FPARFRAC

Warnings:

- [1] fullPartialFraction: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE + (\$ UP \$))
- [2] fullParFrac: ans has no value

## 15.0.1571 section

```

finalizing nrlib FPARFRAC
--->/research2/test0819/mnt/fedora5/../../src/algebra/FPARFRAC.spad-->FullPartialFractionExpansion((fullPartialF
--->/research2/test0819/mnt/fedora5/../../src/algebra/FPARFRAC.spad-->FullPartialFractionExpansion((fullPartialF
"\spad{fullPartialFraction(f)} returns \spad{[p,{} [[j,{ } Dj,{ } Hj]...]]} such that \spad{f = p(x) + \sum_{[

```

## 15.0.1572 section

```

finalizing nrlib FR
Warnings:
[1] zero?: fctr has no value
[2] eval: IN has no value
[3] eval: e has no value
[4] convert: fctr has no value
[5] convert: xpnt has no value
[6] exquo: associate has no value
[7] exquo: goodQuotient has no value

```

## 15.0.1573 section

```

finalizing nrlib FRNAALG-
Warnings:
[1] leftRankPolynomial: xx has no value
[2] rightRankPolynomial: xx has no value
[3] coordinates: signature of lhs not unique: (Matrix R)(Vector S) chosen

```

## 15.0.1574 section

```

finalizing nrlib FRNAALG-
; (DEFUN |FRNAALG-;leftRankPolynomial;Sup;1| ...) is being compiled.
;; The variable |xx| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1575 section

```

finalizing nrlib FRNAALG
; (DEFUN |FramedNonAssociativeAlgebra| ...) is being compiled.
;; The variable |FramedNonAssociativeAlgebra;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FramedNonAssociativeAlgebra;| ...) is being compiled.
;; The variable |FramedNonAssociativeAlgebra;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1576 section

```

finalizing nrlib FS-
Warnings:

```

```

[1] coerce: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S))
[2] subs: IN has no value
[3] subs: x has no value
[4] variables: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S))
[5] eval: IN has no value
[6] eval: f has no value
[7] smprep: IN has no value
[8] smprep: a has no value
[9] smprep: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S)) (SIGNA
[10] diffdiff0: ans has no value
[11] diffEval: k has no value
[12] univariate: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger) S)) (
[13] convert: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE * (S (PositiveInteger)

```

### 15.0.1577 section

```

finalizing nrlib FS
; (DEFUN |FunctionSpace| ...) is being compiled.
;; The variable |FunctionSpace;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FunctionSpace;| ...) is being compiled.
;; The variable |FunctionSpace;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1578 section

```

finalizing nrlib FST
Warnings:

```

```

[1] coerce: REAL has no value
[2] coerce: INTEGER has no value

```



```

[3] coerce: COMPLEX has no value
[4] coerce: CHARACTER has no value
[5] coerce: LOGICAL has no value
[6] coerce: real has no value
[7] coerce: integer has no value
[8] coerce: complex has no value
[9] coerce: character has no value
[10] coerce: logical has no value
[11] coerce: upperDoubleComplexSymbol has no value

```

### 15.0.1579 section

finalizing nrlib GDMP

Warnings:

```

[1] zero?: :Rep -- should replace by pretend
[2] listCoef: :Rep -- should replace by pretend
[3] numberOfMonomials: :Rep -- should replace by pretend
[4] monomial?: :Rep -- should replace by pretend
[5] maxNorm: m has no value
[6] variables: :(PositiveInteger) -- should replace by pretend
[7] univariate: deg has no value
[8] coerce: l has no value

```

-----non extending category-----

```

.. GeneralDistributedMultivariatePolynomial(#1,#2,#3) of cat
(|Join| (|PolynomialCategory| |#2| |#3| (|OrderedVariableList| |#1|)) (CATEGORY |domain| (SIGNATURE |reorder| ($ $ |#3|

```

### 15.0.1580 section

```

(IF (|has| |#2| (|IntegralDomain|)) (IF (|has| |#3| (|CancellationAbelianMonoid|)) (SIGNATURE |fmecg| ($ $ |#3|

```

-----non extending category-----

```

.. Pi of cat
(|Join| (|Field|) (|CharacteristicZero|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fraction| (|Integer|))

```

### 15.0.1581 section

```

(|QuotientFieldCategory| (|SparseUnivariatePolynomial| (|Integer|))) finalizing nrlib HACKPI

```

### 15.0.1582 section

```
finalizing nrlib HACKPI
Warnings:
 [1] pi: pretend$ -- should replace by @
```

### 15.0.1583 section

```
finalizing nrlib IDEAL
Warnings:
 [1] not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has (NonNegativeInteger) (Fin
 [2] leadterm: not known that (Ring) is of mode (CATEGORY package (SIGNATURE * ($ $ $)) (SIGNATURE ** ($ $
 [3] contractGrob: not known that (PolynomialCategory F newExpon VarSet) is of mode (CATEGORY domain (IF (h
 [4] monomDim: monvar has no value
 [5] **: :(NonNegativeInteger) -- should replace by pretend
 [6] relationsIdeal: not known that (OrderedAbelianMonoid) is of mode (CATEGORY domain (IF (has Expon (Fin
 [7] relationsIdeal: not known that (OrderedAbelianMonoidSup) is of mode (CATEGORY domain (IF (has Expon (F
 [8] relationsIdeal: not known that (PolynomialCategory F nExponent VarSet1) is of mode (CATEGORY domain (I
 [9] relationsIdeal: :(Vector (NonNegativeInteger)) -- should replace by pretend
 [10] relationsIdeal: The conditional modes (Polynomial F) and nPoly conflict
```

### 15.0.1584 section

```
finalizing nrlib INFORM
Warnings:
 [1] conv: pretend$ -- should replace by @
```

### 15.0.1585 section

```
finalizing nrlib IR
Warnings:
 [1] nesimp: IN has no value
 [2] nesimp: ne has no value
```

### 15.0.1586 section

```
finalizing nrlib ISUPS
Warnings:
 [1] cSin: %sin has no value
```

```

[2] cCos: %cos has no value
[3] sinhcosh: %sin has no value
[4] sinhcosh: %cos has no value
[5] cSinh: %sinh has no value
[6] cCosh: %cosh has no value

```

-----non extending category-----

.. Library of cat

```
(|Join| (|TableAggregate| (|String|) (|Any|)) (CATEGORY |domain| (SIGNATURE |library| ($ (|FileName|))) (SIGNATURE
```

## 15.0.1587 section

```
(|FileCategory| (|FileName|) (|Record| (|:| |key| (|String|)) (|:| |entry| (|Any|)))) finalizing nrlib LIB
```

## 15.0.1588 section

```

finalizing nrlib LMDICT
--->/research2/test0819/mnt/fedora5/../../src/algebra/LMDICT.spad-->ListMultiDictionary(constructor): Not documented
--->/research2/test0819/mnt/fedora5/../../src/algebra/LMDICT.spad-->ListMultiDictionary(): Missing Description

```

## 15.0.1589 section

finalizing nrlib LODOOPS

Warnings:

```
[1] killer: not known that (Ring) is of mode (CATEGORY package (SIGNATURE symmetricProduct (L L L (Mapping
```

## 15.0.1590 section

finalizing nrlib MATRIX

Warnings:

```
[1] positivePower: pretend(Matrix R) -- should replace by @
```

```
[2] determinant: not known that (CommutativeRing) is of mode (CATEGORY R (ATTRIBUTE (commutative *)))
```

## 15.0.1591 section

```
finalizing nrlib MKFLCFN
Warnings:
 [1] mkLisp: pretend(InputForm) -- should replace by @
```

### 15.0.1592 section

```
finalizing nrlib MKFLCFN
; (DEFUN |MKFLCFN;mkDefun| ...) is being compiled.
;; The variable |$compileDontDefineFunctions| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1593 section

```
finalizing nrlib MSET
Warnings:
 [1] intersect: n has no value
 [2] difference: n has no value
```

### 15.0.1594 section

```
finalizing nrlib M3D
Warnings:
 [1] matrixConcat3D: retVal has no value

-----non extending category-----
.. ThreeDimensionalMatrix #1 of cat
(|Join| (|HomogeneousAggregate| |#1|) (CATEGORY |domain| (IF (|has| |#1| (|Ring|)) (PROGN (SIGNATURE |zeroMatrix|
```

### 15.0.1595 section

```
(|OneDimensionalArrayAggregate| (|PrimitiveArray| (|PrimitiveArray| |#1|))) finalizing nrlib M3D
```

### 15.0.1596 section

```
finalizing nrlib NAGC02
```

Warnings:

- [1] c02aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [2] c02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

## 15.0.1597 section

finalizing nrlib NAGC05

Warnings:

- [1] c05adf: fn has no value
- [2] c05adf: fp has no value
- [3] c05adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [4] c05nbf: fn has no value
- [5] c05nbf: fp has no value
- [6] c05nbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [7] c05pbf: fn has no value
- [8] c05pbf: fp has no value
- [9] c05pbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

## 15.0.1598 section

finalizing nrlib NAGC06

Warnings:

- [1] c06eaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [2] c06ebf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [3] c06ecf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [4] c06ekf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [5] c06fpf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [6] c06fqf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [7] c06frf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [8] c06fuf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [9] c06gbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [10] c06gcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [11] c06gqf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [12] c06gsf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

## 15.0.1599 section

finalizing nrlib NAGD03

Warnings:

- [1] d03edf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
- [2] d03eef: fn has no value
- [3] d03eef: fp has no value

```
[4] d03eef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] d03faf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

### 15.0.1600 section

finalizing nrlib NAGE01

Warnings:

```
[1] e01baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] e01bef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] e01bff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e01bgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] e01bhf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] e01daf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e01saf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] e01sbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] e01sef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e01sff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

### 15.0.1601 section

finalizing nrlib NAGE02

Warnings:

```
[1] e02adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] e02aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] e02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e02ahf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] e02ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] e02akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e02baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] e02bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] e02bcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e02bdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] e02bef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] e02daf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] e02dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] e02ddf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[15] e02def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] e02dff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] e02gaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[18] e02zaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

### 15.0.1602 section

finalizing nrlib NAGE04

Warnings:

```
[1] e04dgf: fn has no value
[2] e04dgf: fp has no value
[3] e04dgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] e04fdf: fn has no value
[5] e04fdf: fp has no value
[6] e04fdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] e04gcf: fn has no value
[8] e04gcf: fp has no value
[9] e04gcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] e04jaf: fn has no value
[11] e04jaf: fp has no value
[12] e04jaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] e04mbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] e04naf: fn has no value
[15] e04naf: fp has no value
[16] e04naf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] e04ucf: fn has no value
[18] e04ucf: fp has no value
[19] e04ucf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[20] e04ycf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

## 15.0.1603 section

finalizing nrlib NAGF07

Warnings:

```
[1] f07adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f07aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f07fdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f07fef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

## 15.0.1604 section

finalizing nrlib NAGS

Warnings:

```
[1] s01eaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] s13aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] s13acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] s13adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] s14aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] s14abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] s14baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] s15adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] s15aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

```

[10] s17acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] s17adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] s17aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] s17aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[14] s17agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[15] s17ahf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] s17ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] s17akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[18] s17dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] s17def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[20] s17dgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[21] s17dhf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] s17dlf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[23] s18acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[24] s18adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[25] s18aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[26] s18aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[27] s18dcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[28] s18def: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[29] s19aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[30] s19abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[31] s19acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[32] s19adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[33] s20acf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[34] s20adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[35] s21baf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[36] s21bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[37] s21bcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[38] s21bdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

### 15.0.1605 section

finalizing nrlib NAGSP

Warnings:

```
[1] getUniqueId: uniqueId has no value
```

### 15.0.1606 section

finalizing nrlib NAGSP

```

; (DEFUN |NAGSP;checkPrecision;B;1| ...) is being compiled.
;; The variable |$fortranPrecision| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$nagEnforceDouble| is undefined.
;; The compiler will assume this variable is a global.
;; The variable |$nagMessages| is undefined.
;; The compiler will assume this variable is a global.

```



```
; (DEFUN |NAGSP;fortranCompilerName;S;4| ...) is being compiled.
;; The variable |$fortranCompilerName| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NAGSP;fortranLinkerArgs;S;5| ...) is being compiled.
;; The variable |$fortranLibraries| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1607 section

```
finalizing nrlib NUMFMT
Warnings:
 [1] ScanRoman: nprens has no value
```

### 15.0.1608 section

```
finalizing nrlib OC
; (DEFUN |OctonionCategory| ...) is being compiled.
;; The variable |OctonionCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |OctonionCategory;| ...) is being compiled.
;; The variable |OctonionCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1609 section

```
finalizing nrlib ODEPACK
--->/research2/test0819/mnt/fedora5/../../src/algebra/ODEPACK.spad-->AnnaOrdinaryDifferentialEquationPackage(con
--->/research2/test0819/mnt/fedora5/../../src/algebra/ODEPACK.spad-->AnnaOrdinaryDifferentialEquationPackage():
```

### 15.0.1610 section

```
finalizing nrlib ODERAT
Warnings:
 [1] ratDsolve1: not known that (Ring) is of mode (CATEGORY package (SIGNATURE ratDsolve ((Record (: partic
 [2] ratDsolve0: b has no value
 [3] infMuLambda: lamb has no value
 [4] infMuLambda: lf has no value
```

**15.0.1611 section**

```
finalizing nrlib OPTPACK
```

```
Warnings:
```

- [1] constant: noa has no value
- [2] measureSpecific: noa has no value
- [3] measureSpecific: lsa has no value
- [4] optimizeSpecific: noa has no value
- [5] optimizeSpecific: lsa has no value
- [6] goodnessOfFit: lsa has no value
- [7] goodnessOfFit: method has no value
- [8] goodnessOfFit: nameOfRoutine has no value
- [9] goodnessOfFit: w has no value
- [10] goodnessOfFit: objf has no value

**15.0.1612 section**

```
finalizing nrlib OPTPACK
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/OPTPACK.spad-->AnnaNumericalOptimizationPackage(constructo
--->/research2/test0819/mnt/fedora5/../../src/algebra/OPTPACK.spad-->AnnaNumericalOptimizationPackage(): Missing
```

**15.0.1613 section**

```
finalizing nrlib PATTERN
```

```
Warnings:
```

- [1] quoted?: sym has no value
- [2] generic?: sym has no value
- [3] multiple?: sym has no value
- [4] optional?: sym has no value
- [5] =: pretend(Boolean) -- should replace by @
- [6] isOp: ker has no value
- [7] variables: exp has no value
- [8] variables: qot has no value
- [9] variables: ker has no value
- [10] PAT20: ret has no value
- [11] PAT20: sym has no value
- [12] PAT20: exp has no value
- [13] PAT20: qot has no value
- [14] PAT20: ker has no value
- [15] patcopy: ret has no value
- [16] patcopy: sym has no value
- [17] patcopy: ker has no value
- [18] patcopy: qot has no value
- [19] patcopy: exp has no value

```

[20] pateq?: ret has no value
[21] pateq?: qot has no value
[22] pateq?: sym has no value
[23] pateq?: ker has no value
[24] pateq?: exp has no value

```

### 15.0.1614 section

```

finalizing nrlib PATTERN
; (DEFUN |Pattern;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1615 section

```

finalizing nrlib PMKERNEL
Warnings:
[1] patternMatchArg: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE patternMatch ((P
[2] patternMatchInner: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE patternMatch ((P

```

### 15.0.1616 section

```

finalizing nrlib PRIMELT
Warnings:
[1] triangularLinearIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE primitiveElement

```

### 15.0.1617 section

```

finalizing nrlib QALGSET2
Warnings:
[1] npoly: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteger)))
[2] radicalSimplify: not known that (PolynomialCategory (Fraction (Integer)) (DirectProduct nv (NonNegativeInteger)))
[3] radicalSimplify: gb has no value

```

### 15.0.1618 section

```

finalizing nrlib REP1
Warnings:
 [1] antisymmetricTensors: not known that (Ring) is of mode (CATEGORY R (ATTRIBUTE (commutative *)))

-----non extending category-----
.. Result of cat
(|Join| (|TableAggregate| (|Symbol|) (|Any|)) (CATEGORY |package| (SIGNATURE |showScalarValues| ((|Boolean|) (|E

```

### 15.0.1619 section

```
(ATTRIBUTE |finiteAggregate|) finalizing nrlib RESULT
```

### 15.0.1620 section

```

finalizing nrlib QUATCAT
; (DEFUN |QuaternionCategory| ...) is being compiled.
; The variable |QuaternionCategory;AL| is undefined.
; The compiler will assume this variable is a global.
; (DEFUN |QuaternionCategory;| ...) is being compiled.
; The variable |QuaternionCategory;CAT| is undefined.
; The compiler will assume this variable is a global.

```

### 15.0.1621 section

```

finalizing nrlib RFFACT
Warnings:
 [1] likuniv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP)))

-----non extending category-----
.. RectangularMatrix(#1,#2,#3) of cat
(|Join| (|RectangularMatrixCategory| |#1| |#2| |#3| (|DirectProduct| |#2| |#3|) (|DirectProduct| |#1| |#3|)) (|C

```

### 15.0.1622 section

```

(|MatrixCategory| |#3| (|Vector| |#3|) (|Vector| |#3|)) finalizing nrlib RMATRIX

(|RealConstant|) extends
(|ConvertibleTo| (|DoubleFloat|)) but not
(|ConvertibleTo| (|String|)) -----non extending category-----

```

```
.. RomanNumeral of cat
(|Join| (|IntegerNumberSystem|) (CATEGORY |domain| (ATTRIBUTE |canonical|) (ATTRIBUTE |canonicalsClosed|) (ATTRI
```

### 15.0.1623 section

```
(|ConvertibleTo| (|String|)) finalizing nrlib ROMAN

-----non extending category-----
.. RoutinesTable of cat
(|Join| (|TableAggregate| (|Symbol|) (|Any|)) (CATEGORY |domain| (SIGNATURE |concat| ($ $ $)) (SIGNATURE |routin
```

### 15.0.1624 section

```
finalizing nrlib RPOLCAT-
Warnings:
 [1] mainCoefficients: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE coerce (S S)) (SIGNATUR
 [2] convert: stpol has no value
```

### 15.0.1625 section

```
finalizing nrlib RPOLCAT-
Warning: RPOLCAT-;exactQuo has a duplicate definition in this file
Warning: RPOLCAT-;ZToR has a duplicate definition in this file
Warning: RPOLCAT-;PZToPR has a duplicate definition in this file
```

### 15.0.1626 section

```
finalizing nrlib RPOLCAT
; (DEFUN |RecursivePolynomialCategory| ...) is being compiled.
;; The variable |RecursivePolynomialCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RecursivePolynomialCategory;| ...) is being compiled.
;; The variable |RecursivePolynomialCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1627 section

```

finalizing nrlib SAOS
--->/research2/test0819/mnt/fedora5/../../src/algebra/SAOS.spad-->SingletonAsOrderedSet((create (%))): Not docum
--->/research2/test0819/mnt/fedora5/../../src/algebra/SAOS.spad-->SingletonAsOrderedSet((convert ((Symbol) %)))

-----non extending category-----
.. SquareMatrix(#1,#2) of cat
(|Join| (|SquareMatrixCategory| |#1| |#2| (|DirectProduct| |#1| |#2|) (|DirectProduct| |#1| |#2|)) (|CoercibleTo

```

### 15.0.1628 section

```
(|MatrixCategory| |#2| (|Vector| |#2|) (|Vector| |#2|)) finalizing nrlib SQMATRIX

```

### 15.0.1629 section

```

finalizing nrlib SWITCH
Warnings:
 [1] NULL has no value

```

### 15.0.1630 section

```

finalizing nrlib SYMS
Semantic Errors:
 [1] Domain is not a known type
 [2] void is not a known type

```

### 15.0.1631 section

```

finalizing nrlib SYMTAB
Warnings:
 [1] typeList: fst has no value
 [2] typeList2: fst has no value
 [3] newTypeLists: fst has no value
 [4] oForm2: S has no value
 [5] oForm2: P has no value
 [6] oForm: bounds has no value

```

### 15.0.1632 section

```
finalizing nrlib SYSSOLP
```

```
Warnings:
```

```
[1] makeEq: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solve ((List (List (Equation (Fr
[2] triangularSystems: not known that (SIGNATURE variable ((Union $ failed) (Symbol))) is of mode (CATEGOR
[3] triangularSystems: not known that (PolynomialCategory (Polynomial R) DP OV) is of mode (CATEGORY domai
[4] triangularSystems: not known that (PolynomialCategory (Polynomial R) (DirectProduct (# lv) (NonNegativ
[5] triangularSystems: not known that (PolynomialCategory (Polynomial R) (DirectProduct (call LENGTH lv) (
```

### 15.0.1633 section

```
finalizing nrlib SYSSOLP
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/SYSSOLP.spad-->SystemSolvePackage(constructor): Not docume
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/SYSSOLP.spad-->SystemSolvePackage(): Missing Description
```

### 15.0.1634 section

```
finalizing nrlib UTSCAT-
```

```
Warnings:
```

```
[1] coerce: 1 has no value
```

### 15.0.1635 section

```
finalizing nrlib UTSCAT
```

```
; (DEFUN |UnivariateTaylorSeriesCategory| ...) is being compiled.
;; The variable |UnivariateTaylorSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariateTaylorSeriesCategory;| ...) is being compiled.
;; The variable |UnivariateTaylorSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1636 section

```
finalizing nrlib WFFINTBS
```

```
Warnings:
```

```
[1] listSquaredFactors: ans has no value
[2] iLocalIntegralBasis: rbdn has no value
[3] integralBasis: runningRbdn has no value
```

### 15.0.1637 section

finalizing nrlib ACFS-

Warnings:

```
[1] zeroOf: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol))) (S
[2] zeroOf: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol
[3] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE zerosOf ((List S) S (Symbol))) (SIGNATURE
```

### 15.0.1638 section

finalizing nrlib ACFS

```
; (DEFUN |AlgebraicallyClosedFunctionSpace| ...) is being compiled.
;; The variable |AlgebraicallyClosedFunctionSpace;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |AlgebraicallyClosedFunctionSpace;| ...) is being compiled.
;; The variable |AlgebraicallyClosedFunctionSpace;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1639 section

finalizing nrlib AF

Warnings:

```
[1] rootOf: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePolyn
[2] rootOf: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePolyn
[3] inrootof: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootOf (F (SparseUnivariatePol
[4] hackroot: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE iroot (F R (Integer))))
[5] inroot0: rn has no value
[6] inroot0: coef has no value
[7] inroot0: radicand has no value
[8] inroot0: exponent has no value
[9] inroot0: rd has no value
```

### 15.0.1640 section



finalizing nrllib ALGFACT

Warnings:

- [1] allk: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (
- [2] extend: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (
- [3] fact: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE factor ((Factored UP) UP (List (
- [4] fact: not known that (SIGNATURE coerce (\$ (SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumbe
- [5] fact: not known that (SIGNATURE numer ((SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumbe
- [6] fact: not known that (SIGNATURE denom ((SparseMultivariatePolynomial (Integer) (Kernel (AlgebraicNumbe

## 15.0.1641 section

finalizing nrllib ALGMANIP

Warnings:

- [1] ratDenom: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE
- [2] ratPoly: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE
- [3] ratPoly: not known that (SIGNATURE coerce (\$ (SparseMultivariatePolynomial R (Kernel F)))) is of mode
- [4] ratPoly: not known that (SIGNATURE numer ((SparseMultivariatePolynomial R (Kernel F)) \$)) is of mode
- [5] ratPoly: not known that (SIGNATURE denom ((SparseMultivariatePolynomial R (Kernel F)) \$)) is of mode
- [6] innerRF: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE rat

## 15.0.1642 section

finalizing nrllib ALGSC

Warnings:

- [1] elt: :Rep -- should replace by pretend
- [2] coerce: le has no value

-----non extending category-----

.. AlgebraGivenByStructuralConstants(#1,#2,#3,#4) of cat

(|Join| (|FramedNonAssociativeAlgebra| |#1|) (|LeftModule| (|SquareMatrix| |#2| |#1|)) (CATEGORY |domain| (SIGNA

## 15.0.1643 section

(|DirectProductCategory| |#2| |#1|) finalizing nrllib ALGSC

(|RealConstant|) extends

(|ConvertibleTo| (|DoubleFloat|)) but not

(|ConvertibleTo| (|Complex| (|Float|))) -----non extending category-----

.. AlgebraicNumber of cat

(|Join| (|ExpressionSpace|) (|AlgebraicallyClosedField|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fracti

**15.0.1644 section**

```
finalizing nrlib AN
```

**15.0.1645 section**

```
finalizing nrlib APPRULE
```

```
Warnings:
```

- [1] splitRules: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (R
- [2] rewrite: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (Rwr
- [3] isitwithpred: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE applyRules (F (List

**15.0.1646 section**

```
finalizing nrlib ASP19
```

```
Warnings:
```

- [1] M has no value
- [2] N has no value
- [3] LJC has no value
- [4] XC has no value
- [5] FVECC has no value
- [6] FJACC has no value
- [7] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct) (construct (QUOTE X
- [8] coerce: FJACC has no value

**15.0.1647 section**

```
finalizing nrlib ASP20
```

```
Warnings:
```

- [1] N has no value
- [2] NROWH has no value
- [3] NCOLH has no value
- [4] JTHCOL has no value
- [5] HESS has no value
- [6] X has no value
- [7] HX has no value

## 15.0.1648 section

finalizing nrlib ASP30

Semantic Errors:

[1] coerce: code is BOTH a variable and a literal

Warnings:

[1] MODE has no value  
 [2] M has no value  
 [3] N has no value  
 [4] LRWORK has no value  
 [5] LIWORK has no value  
 [6] X has no value  
 [7] Y has no value  
 [8] RWORK has no value  
 [9] IWORK has no value  
 [10] IFAIL has no value  
 [11] coerce: A has no value

## 15.0.1649 section

finalizing nrlib ASP31

Semantic Errors:

[1] coerce: code is BOTH a variable and a literal

Warnings:

[1] X has no value  
 [2] Y has no value  
 [3] localAssign: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X)) (construct  
 [4] coerce: PW has no value

## 15.0.1650 section

finalizing nrlib ASP35

Warnings:

[1] N has no value  
 [2] X has no value  
 [3] FVEC has no value  
 [4] LDFJAC has no value  
 [5] FJAC has no value  
 [6] IFLAG has no value  
 [7] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct) (construct (QUOTE X

**15.0.1651 section**

```
finalizing nrlib ASP41
```

```
Warnings:
```

```
[1] N has no value
```

```
[2] X has no value
```

```
[3] EPS has no value
```

```
[4] Y has no value
```

```
[5] F has no value
```

```
[6] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X) (QUOTE EPS
```

```
[7] makeCodeThree: EPS has no value
```

**15.0.1652 section**

```
finalizing nrlib ASP42
```

```
Warnings:
```

```
[1] EPS has no value
```

```
[2] N has no value
```

```
[3] YA has no value
```

```
[4] YB has no value
```

```
[5] BC has no value
```

```
[6] AJ has no value
```

```
[7] BJ has no value
```

```
[8] BCEP has no value
```

```
[9] localAssign1: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE EPS)) (constr
```

```
[10] makeCodeThree: EPS has no value
```

**15.0.1653 section**

```
finalizing nrlib ASP74
```

```
Warnings:
```

```
[1] X has no value
```

```
[2] Y has no value
```

```
[3] A has no value
```

```
[4] B has no value
```

```
[5] C has no value
```

```
[6] IBND has no value
```

**15.0.1654 section**

finalizing nrlib ASP77

Warnings:

[1] X has no value

[2] localAssign: not known that (FiniteLinearAggregate (FortranExpression (construct (QUOTE X)) (construct

[3] coerce: F has no value

## 15.0.1655 section

finalizing nrlib ASP80

Warnings:

[1] XL has no value

[2] XR has no value

[3] ELAM has no value

[4] YL has no value

[5] YR has no value

## 15.0.1656 section

finalizing nrlib CINTSLPE

Warnings:

[1] solveLinearPolynomialEquation: slpePrime has no value

[2] solveLinearPolynomialEquation: oldtable has no value

## 15.0.1657 section

finalizing nrlib COMPFACT

Warnings:

[1] conv: pris has no value

[2] conv: dris has no value

[3] backConv: fctr has no value

[4] backConv: xpnt has no value

[5] backConv: flg has no value

## 15.0.1658 section

finalizing nrlib COMPLEX

Warnings:

[1] OMwrite: pretend(String) -- should replace by @

**15.0.1659 section**

```
finalizing nrllib CMPLXRT
--->/research2/test0819/mnt/fedora5/../../src/algebra/CMPLXRT.spad-->ComplexRootPackage(constructor): Not documented
--->/research2/test0819/mnt/fedora5/../../src/algebra/CMPLXRT.spad-->ComplexRootPackage(): Missing Description
```

**15.0.1660 section**

```
finalizing nrllib CPMATCH
Warnings:
[1] patternMatch: not known that (SetCategory) is of mode (CATEGORY $ (SIGNATURE patternMatch ((PatternMat
```

**15.0.1661 section**

```
finalizing nrllib CRFP
Warnings:
[1] pleskenSplit: split has no value
[2] startPolynomial: centerIsRoot has no value
[3] startPolynomial: fp has no value
[4] factor: result has no value
```

**15.0.1662 section**

```
finalizing nrllib CTRIGMNP
Warnings:
[1] complexForm: not known that (RadicalCategory) is of mode (CATEGORY domain (IF (has R (IntegralDomain)))
[2] complexForm: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has R (I
[3] real?: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormalize (F F)) (SI
[4] complexElementary: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE complexNormaliz
```

**15.0.1663 section**

```
finalizing nrllib D01WGTS
Warnings:
[1] exprIsLogarithmicWeight: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprHasWe
[2] functionIsQuotient: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprHasWeightC
```

### 15.0.1664 section

```
finalizing nrlib D02AGNT
Warnings:
 [1] stiffnessAndStabilityFactor: b has no value
 [2] stiffnessAndStabilityFactor: e has no value
 [3] stiffnessAndStabilityOfODE: Y has no value

-----non extending category-----
.. d03eefAnnaType of cat
(|PartialDifferentialEquationsSolverCategory|) has no
```

### 15.0.1665 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D03EEFA

-----non extending category-----
.. DeRhamComplex(#1,#2) of cat
(|Join| (|LeftAlgebra| (|Expression| |#1|)) (|RetractableTo| (|Expression| |#1|)) (CATEGORY |domain| (SIGNATURE
```

### 15.0.1666 section

```
finalizing nrlib DERHAM
```

### 15.0.1667 section

```
finalizing nrlib DRAWCURV
Warnings:
 [1] draw: xRangeFloat has no value
 [2] draw: yRangeFloat has no value
 [3] draw: floatRanges has no value

-----non extending category-----
.. e04nafAnnaType of cat
(|NumericalOptimizationCategory|) has no
```

### 15.0.1668 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04NAFA
```

```
-----non extending category-----
.. e04ucfAnnaType of cat
(|NumericalOptimizationCategory|) has no
```

### 15.0.1669 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib E04UCFA
```

### 15.0.1670 section

```
finalizing nrlib EF
Warnings:
[1] pi: Pie has no value
[2] iisqrt1: isqrt1 has no value
[3] iisqrt2: isqrt2 has no value
[4] iisqrt3: isqrt3 has no value
[5] kernel: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exp (F F)) (SIGNATURE log (F F)))
[6] ilog: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exp (F F)) (SIGNATURE log (F F)))
```

### 15.0.1671 section

```
finalizing nrlib EFSTRUC
Warnings:
[1] realElem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE log (F F)))
[2] rtNormalize: func has no value
[3] tanQ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE log (F F)))
[4] rootNormalize0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE log (F F)))
[5] ktoY: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE normalize (F F)) (SIGNATURE log (F F)))
[6] k2Elem: ez has no value
[7] k2Elem: iez has no value
[8] k2Elem: tz2 has no value
[9] tannosimp: den has no value
[10] tannosimp: num has no value
[11] expnosimp: den has no value
[12] expnosimp: num has no value
[13] rischNormalize: vec has no value
[14] rootKernelNormalize: vec has no value
[15] validExponential: IN has no value
[16] validExponential: g has no value
```



## 15.0.1672 section

```
finalizing nrlib ESTOOLS
Warnings:
 [1] isQuotient: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE f2df ((DoubleFloat) (F
 [2] numberOfOperations1: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE f2df ((Double

-----non extending category-----
.. ExponentialExpansion(#1,#2,#3,#4) of cat
(|Join| (|QuotientFieldCategory| (|UnivariatePuisseuxSeriesWithExponentialSingularity| |#1| |#2| |#3| |#4|)) (|Re
```

## 15.0.1673 section

```
(IF (|has| (|UnivariatePuisseuxSeriesWithExponentialSingularity| |#1| |#2| |#3| |#4|) (|IntegerNumberSystem|)) (I
```

## 15.0.1674 section

```
finalizing nrlib EXPRODE
Warnings:
 [1] diffRhs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equat
 [2] k2exquo: IN has no value
 [3] k2exquo: f has no value
 [4] div2exquo: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equ
 [5] diffRhsK: not known that (Ring) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equation F
 [6] findEq: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE seriesSolve ((Any) (Equati
 [7] seriesSolve: IN has no value
 [8] seriesSolve: deq has no value
 [9] seriesSolve: y has no value
```

## 15.0.1675 section

```
finalizing nrlib FC
Semantic Errors:
 [1] common: name is BOTH a variable and a literal
 [2] common: contents is BOTH a variable and a literal
 [3] forLoop: body is BOTH a variable and a literal

Warnings:
 [1] getElseIf: conditionalBranch has no value
 [2] getCode: assignmentBranch has no value
 [3] getCode: arrayAssignmentBranch has no value
```

```

[4] getCode: conditionalBranch has no value
[5] getCode: returnBranch has no value
[6] getCode: blockBranch has no value
[7] getCode: commentBranch has no value
[8] getCode: callBranch has no value
[9] getCode: forBranch has no value
[10] getCode: labelBranch has no value
[11] getCode: loopBranch has no value
[12] getCode: printBranch has no value
[13] getCode: commonBranch has no value

```

### 15.0.1676 section

```

finalizing nrlib FC
; (DEFUN |FC;getContinue| ...) is being compiled.
;; The variable |$fortIndent| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1677 section

```

finalizing nrlib FDIVCAT
; (DEFUN |FiniteDivisorCategory| ...) is being compiled.
;; The variable |FiniteDivisorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |FiniteDivisorCategory;| ...) is being compiled.
;; The variable |FiniteDivisorCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1678 section

```

finalizing nrlib FSRED

```

Warnings:

```

[1] bringDown: not known that (Ring) is of mode (CATEGORY package (SIGNATURE bringDown ((Fraction (Integer
[2] bringDown: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE bringDown ((Fraction (I

```

### 15.0.1679 section

```

finalizing nrlib FSUPFACT

```

Warnings:

- [1] anfactor: overq has no value
- [2] anfactor: overan has no value
- [3] ffactor0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE ffactor ((Factored UP) U
- [4] ffactor0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE ffactor ((Factored UP) UP)) (S
- [5] qfactor: overq has no value

## 15.0.1680 section

finalizing nrlib FSPECF

Warnings:

- [1] iiabs: not known that (Ring) is of mode (CATEGORY R (SIGNATURE abs (R R)))

## 15.0.1681 section

finalizing nrlib FS2

Warnings:

- [1] map: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE map (B (Mapping S R) A)))

## 15.0.1682 section

finalizing nrlib FS2UPS

Warnings:

- [1] exprToUPS: not known that (Ring) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (: %series
- [2] listToUPS: %series has no value
- [3] powerToUPS: %series has no value
- [4] kernelToUPS: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (:
- [5] nthRootToUPS: %series has no value
- [6] logToUPS: %series has no value
- [7] atancotToUPS: %series has no value
- [8] applyIfCan: %series has no value
- [9] powToUPS: %series has no value
- [10] newElem: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union (: %se
- [11] opsInvolvingX: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE exprToUPS ((Union
- [12] powerToGenUPS: %series has no value
- [13] nthRootToGenUPS: %series has no value
- [14] logToGenUPS: %series has no value
- [15] expToGenUPS: %series has no value
- [16] expGenUPS: %series has no value
- [17] atancotToGenUPS: %problem has no value
- [18] atancotToGenUPS: %series has no value
- [19] genUPSApplyIfCan: %series has no value

```

[20] applyBddIfCan: %problem has no value
[21] applyBddIfCan: %series has no value
[22] powToGenUPS: %series has no value

```

### 15.0.1683 section

```

finalizing nrlib GAUSSFAC
Warnings:
[1] intfactor: unity has no value
[2] factor: :(NonNegativeInteger) -- should replace by pretend
[3] factor: result has no value
[4] factor: unity has no value

```

### 15.0.1684 section

```

finalizing nrlib GCNAALG
Warnings:
[1] leftRankPolynomial: signature of lhs not unique: (SparseUnivariatePolynomial (Fraction (Polynomial R)))
[2] rightRankPolynomial: signature of lhs not unique: (SparseUnivariatePolynomial (Fraction (Polynomial R)))
[3] genericLeftNorm: rf has no value
[4] genericRightNorm: rf has no value

```

### 15.0.1685 section

```

finalizing nrlib GCNAALG
(|Module| (|Fraction| (|Polynomial| |#1|))) extends
(|LeftModule| (|Fraction| (|Polynomial| |#1|))) but not
(|LeftModule| (|SquareMatrix| |#2| (|Fraction| (|Polynomial| |#1|))))

```

### 15.0.1686 section

```

finalizing nrlib GENUFACT
Warnings:
[1] factor: not known that (UnivariatePolynomialCategory (Integer)) is of mode (CATEGORY domain (SIGNATURE
[2] factor: not known that (UnivariatePolynomialCategory (Fraction (Integer))) is of mode (CATEGORY domain
[3] factor: not known that (UnivariatePolynomialCategory (Complex (Integer))) is of mode (CATEGORY domain
[4] factor: not known that (UnivariatePolynomialCategory (Complex (Fraction (Integer)))) is of mode (CATEG

```

```
[5] factor: not known that (UnivariatePolynomialCategory (AlgebraicNumber)) is of mode (CATEGORY domain (S
[6] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((Factored (Spa
```

```
-----non extending category-----
```

```
.. InnerAlgebraicNumber of cat
(|Join| (|ExpressionSpace|) (|AlgebraicallyClosedField|) (|RetractableTo| (|Integer|)) (|RetractableTo| (|Fracti
```

### 15.0.1687 section

```
(|FunctionSpace| (|Integer|)) finalizing nrlib IAN
```

### 15.0.1688 section

```
finalizing nrlib INEP
```

```
Warnings:
```

```
[1] charpol: :(PositiveInteger) -- should replace by pretend
[2] unknown Functor code (error unsupported matrix type)
```

### 15.0.1689 section

```
finalizing nrlib INFSP
```

```
Warnings:
```

```
[1] evaluate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE innerSolve1 ((List F) (SparseU
[2] innerSolve1: not known that (UnivariatePolynomialCategory (Complex (Integer))) is of mode (CATEGORY do
[3] innerSolve1: pretend(List F) -- should replace by @
[4] innerSolve: pretenddmp -- should replace by @
[5] innerSolve: lq has no value
[6] innerSolve: not known that (PolynomialCategory K (DirectProduct (# lv) (NonNegativeInteger)) OV) is of
[7] innerSolve: not known that (PolynomialCategory K (DirectProduct (call LENGTH lv) (NonNegativeInteger))
[8] innerSolve: pretend(List dmp) -- should replace by @
[9] innerSolve: listGen has no value
[10] innerSolve: result has no value
```

### 15.0.1690 section

```
finalizing nrlib INTAF
```

```
Warnings:
```

```
[1] rootintegrate: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algint ((IntegrationResul
[2] rootintegrate: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE algint ((Integratio
```

[3] UP2UPUP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algint ((IntegrationResult F) F

### 15.0.1691 section

finalizing nrlib INTALG

Warnings:

- [1] R2UP: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F
- [2] R2UP: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F
- [3] R2UP: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F
- [4] univ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE algintegrate ((IntegrationResult F) F

### 15.0.1692 section

finalizing nrlib INTEF

Warnings:

- [1] tanint: not known that (Ring) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (F) F) F
- [2] tanint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (F) F) F
- [3] unknownint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (F) F) F
- [4] droponex: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (F) F) F
- [5] alglfint: not known that (Ring) is of mode (CATEGORY package (SIGNATURE lfextendedint ((Union (Record (F) F) F

### 15.0.1693 section

finalizing nrlib INTG0

Warnings:

- [1] kerdiff: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F
- [2] univ: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F
- [3] univ: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F
- [4] palgint0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F
- [5] palgint0: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE palgint0 ((IntegrationResult F) F
- [6] palgRDEO: var has no value
- [7] palgRDEO: coeff has no value

### 15.0.1694 section

finalizing nrlib INTHERAL

Warnings:

- [1] HermiteIntegrate: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE HermiteIntegrate ((IntegrationResult F) F

```
[2] localsolve: coef1 has no value
```

## 15.0.1695 section

```
finalizing nrlib INTPAF
```

```
Warnings:
```

```
[1] UPUP2F0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[2] chv: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[3] linearInXIfCan: not known that (Ring) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[4] linearInXIfCan: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[5] prootintegrate1: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE palgint ((IntegrationResult F) F (K
[6] candidates: 1 has no value
```

## 15.0.1696 section

```
finalizing nrlib INTPM
```

```
Warnings:
```

```
[1] splitConstant: more than 1 modemap for: (One) with dc=F ==>(((F F) ((has R (SemiGroup)) (CONST F ($)))
[2] matcherfei: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record F) (Record F)
[3] matchdilog: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record F) (Record F)
[4] matchdilog0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record F) (Record F)
[5] matchdilog0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record F) (Record F)
[6] matchli0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record F) (Record F)
[7] matchsici: ci0? has no value
[8] pmintegrate: const has no value
[9] pmintegrate: nconst has no value
[10] pmComplexintegrate: const has no value
[11] pmComplexintegrate: nconst has no value
[12] formula1: not known that (OrderedSet) is of mode (CATEGORY $ (SIGNATURE pmintegrate ((Union F failed))
```

## 15.0.1697 section

```
finalizing nrlib INTTOOLS
```

```
Warnings:
```

```
[1] varselect: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE varselect ((List (Kernel F) (Kernel F)
[2] vark: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE varselect ((List (Kernel F) (Kernel F)
[3] removeConstantTerm: not known that (OrderedSet) is of mode (CATEGORY $ (SIGNATURE removeConstantTerm ((List (Kernel F) (Kernel F)
[4] removeConstantTerm: ans has no value
[5] cont: not known that (Ring) is of mode (CATEGORY $ (SIGNATURE mkPrim (F F (Symbol))))
[6] cont: unit has no value
[7] linearLog?: not known that (Ring) is of mode (CATEGORY $ (SIGNATURE mkPrim (F F (Symbol))))
[8] intPatternMatch: nl has no value
```

**15.0.1698 section**

finalizing nrlib ITRIGMNP

Warnings:

- [1] FG2F: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F)))) (SIG
- [2] ker2explogs: IN has no value
- [3] ker2explogs: v has no value
- [4] ker2explogs: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F)))) (SIG
- [5] ker2explogs: a has no value
- [6] ker2trigs: IN has no value
- [7] explogs2trigs: not known that (Ring) is of mode (CATEGORY package (SIGNATURE GF2FG (FG (Complex F)))) (SIG

**15.0.1699 section**

finalizing nrlib KOVACIC

Warnings:

- [1] kovacic: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE kovacic ((Union (Span

**15.0.1700 section**

finalizing nrlib LF

Warnings:

- [1] integrand: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (Bas
- [2] eqint: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE belong? ((Boolean) (BasicOp

**15.0.1701 section**

finalizing nrlib LODOF

Warnings:

- [1] factor: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE factor ((List (LinearC
- [2] zro1: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE factor1 ((List (LinearOrdinaryDiffe

**15.0.1702 section**



```
finalizing nrlib LSQM
```

```
Warnings:
```

```
[1] not known that (NonAssociativeAlgebra R) is of mode (CATEGORY domain (SIGNATURE transpose ($ $)) (SIGNATURE transpose ($ $)))
```

```
-----non extending category-----
```

```
.. LieSquareMatrix(#1,#2) of cat
```

```
(|Join| (|SquareMatrixCategory| |#1| |#2| (|DirectProduct| |#1| |#2|) (|DirectProduct| |#1| |#2|)) (|CoercibleTo|
```

### 15.0.1703 section

```
(|CoercibleTo| (|SquareMatrix| |#1| |#2|)) finalizing nrlib LSQM
```

### 15.0.1704 section

```
finalizing nrlib OMEXPR
```

```
Warnings:
```

```
[1] outputOMFunction: %defint has no value
```

```
[2] outputOMFunction: %defsum has no value
```

```
[3] outputOMFunction: %defprod has no value
```

```
[4] outputOMFunction: %power has no value
```

```
[5] outputOMExpr: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE OMwrite ((String) (String)))
```

```
[6] OMwrite: pretend(String) -- should replace by @
```

### 15.0.1705 section

```
finalizing nrlib OMEXPR
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((String) (String)))
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((String) (String)))
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((Void) (OpenMath)))
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((Void) (OpenMath)))
```

```
-----non extending category-----
```

```
.. MachineComplex of cat
```

```
(|Join| (|FortranMachineTypeCategory|) (|ComplexCategory| (|MachineFloat|)) (CATEGORY |domain| (SIGNATURE |coercion|
```

### 15.0.1706 section

```
(IF (|has| (|MachineFloat|) (|OpenMath|)) (ATTRIBUTE (|OpenMath|)) |noBranch|) finalizing nrlib MCMPLX
```

**15.0.1707 section**

```
finalizing nrlib MULTFACT
```

```
Warnings:
```

```
[1] factor: not known that (OrderedSet) is of mode (CATEGORY OV (SIGNATURE convert ((Symbol) $)))
```

**15.0.1708 section**

```
finalizing nrlib NAGD01
```

```
Warnings:
```

```
[1] d01ajf: fn has no value
[2] d01ajf: fp has no value
[3] d01ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] d01akf: fn has no value
[5] d01akf: fp has no value
[6] d01akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] d01alf: fn has no value
[8] d01alf: fp has no value
[9] d01alf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] d01amf: fn has no value
[11] d01amf: fp has no value
[12] d01amf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] d01anf: fn has no value
[14] d01anf: fp has no value
[15] d01anf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] d01apf: fn has no value
[17] d01apf: fp has no value
[18] d01apf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] d01aqf: fn has no value
[20] d01aqf: fp has no value
[21] d01aqf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] d01asf: fn has no value
[23] d01asf: fp has no value
[24] d01asf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[25] d01bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[26] d01fcf: fn has no value
[27] d01fcf: fp has no value
[28] d01fcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[29] d01gaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[30] d01gbf: fn has no value
[31] d01gbf: fp has no value
[32] d01gbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

**15.0.1709 section**

```

finalizing nrlib NAGD01
--->/research2/test0819/mnt/fedora5/../../src/algebra/NAGD01.spad-->NagIntegrationPackage((d01asf ((Result) (Dou
"\spad{d01asf(a,{omega,{key,{epsabs,{limlst,{lw,{liw,{ifail,{g}} calculates an approximation to the sin

```

## 15.0.1710 section

```

finalizing nrlib NAGD02
Warnings:
[1] d02bbf: fn has no value
[2] d02bbf: fp has no value
[3] d02bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] d02bhf: fn has no value
[5] d02bhf: fp has no value
[6] d02bhf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] d02cjf: fn has no value
[8] d02cjf: fp has no value
[9] d02cjf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] d02ejf: fn has no value
[11] d02ejf: fp has no value
[12] d02ejf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] d02gaf: fn has no value
[14] d02gaf: fp has no value
[15] d02gaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] d02gbf: fn has no value
[17] d02gbf: fp has no value
[18] d02gbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[19] d02kef: fn has no value
[20] d02kef: fp has no value
[21] d02kef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[22] d02raf: fn has no value
[23] d02raf: fp has no value
[24] d02raf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

## 15.0.1711 section

```

finalizing nrlib NAGF01
Warnings:
[1] f01brf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f01bsf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f01maf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f01mcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f01qcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] f01qdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f01qef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f01rcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @

```

```
[9] f01rdf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] f01ref: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

## 15.0.1712 section

finalizing nrlib NAGF02

Warnings:

```
[1] f02aaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f02abf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f02adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f02aef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f02aff: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] f02agf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f02ajf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f02akf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] f02awf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[10] f02axf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[11] f02bbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] f02bjf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] f02fjf: fn has no value
[14] f02fjf: fp has no value
[15] f02fjf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[16] f02wef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[17] f02xef: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

## 15.0.1713 section

finalizing nrlib NAGF04

Warnings:

```
[1] f04adf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[2] f04arf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[3] f04asf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[4] f04atf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[5] f04axf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[6] f04faf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[7] f04jgf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[8] f04maf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[9] f04mbf: fn has no value
[10] f04mbf: fp has no value
[11] f04mbf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[12] f04mcf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
[13] f04qaf: fn has no value
[14] f04qaf: fp has no value
[15] f04qaf: pretend(List (Record (: key (Symbol)) (: entry (Any)))) -- should replace by @
```

**15.0.1714 section**

```
finalizing nrlib NLINSOL
```

```
Warnings:
```

```
[1] allRoots: not known that (Ring) is of mode (CATEGORY package (SIGNATURE solveInField ((List (List (Equ
```

**15.0.1715 section**

```
finalizing nrlib NSMP
```

```
Warnings:
```

```
[1] monicModulo: mM has no value
```

**15.0.1716 section**

```
finalizing nrlib ODERTRIC
```

```
Semantic Errors:
```

```
[1] RatODETools is not a known type
```

```
Warnings:
```

```
[1] ricDsolve: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE ricDsolve ((List (F
```

```
[2] ratsln: ls has no value
```

```
[3] ratsln: lv has no value
```

```
[4] ratsol: ans has no value
```

```
[5] polyRicDE: deg has no value
```

```
[6] polyRicDE: ans has no value
```

```
[7] newtonSolution: m has no value
```

```
[8] zroi: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE ricDsolve ((List (Fraction UP)) (Li
```

**15.0.1717 section**

```
finalizing nrlib PADE
```

```
Warnings:
```

```
[1] padeInner: plist has no value
```

```
[2] padeInner: alist has no value
```

**15.0.1718 section**

```

finalizing nrlib PDEPACK
--->/research2/test0819/mnt/fedora5/../../src/algebra/PDEPACK.spad-->AnnaPartialDifferentialEquationPackage(cons
--->/research2/test0819/mnt/fedora5/../../src/algebra/PDEPACK.spad-->AnnaPartialDifferentialEquationPackage(): M

```

### 15.0.1719 section

```

finalizing nrlib PFO
Warnings:
[1] klist: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegativeI
[2] UPQ2F: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegativeI
[3] commonDen: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegat
[4] selectIntegers: not known that (Ring) is of mode (CATEGORY package (SIGNATURE order ((Union (NonNegati

Warning: PFO;cmult has a duplicate definition in this file

```

### 15.0.1720 section

```

finalizing nrlib PMASSFS
Warnings:
[1] ass: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE assert (F F (String))) (SIGNA

```

### 15.0.1721 section

```

finalizing nrlib PMFS
Warnings:
[1] patternMatch: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE patternMatch ((Patte
[2] patternMatch: var has no value

```

### 15.0.1722 section

```

finalizing nrlib PMPREDFS
Warnings:
[1] suchThat: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE suchThat (F F (Mapping (

```

## 15.0.1723 section

finalizing nrlib PSETPK

Warnings:

- [1] selectPolynomials: gps has no value
- [2] selectPolynomials: bps has no value
- [3] selectOrPolynomials: gps has no value
- [4] selectOrPolynomials: bps has no value
- [5] selectAndPolynomials: gps has no value
- [6] selectAndPolynomials: bps has no value
- [7] certainlySubVariety?: polnum has no value
- [8] autoRemainder: newlp has no value
- [9] rewriteSetByReducingWithParticularGenerators: rs has no value
- [10] squareFreeFactors: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE removeRedun
- [11] univariatePolynomialsGcds: p has no value
- [12] univariatePolynomialsGcds: pInV has no value
- [13] univariatePolynomialsGcds: stop has no value
- [14] univariatePolynomialsGcds: lg has no value
- [15] removeRoughlyRedundantFactorsInContents: newcp has no value
- [16] removeRedundantFactorsInContents: newcp has no value
- [17] removeRedundantFactorsInPols: newcp has no value
- [18] removeRedundantFactorsInPols: newp has no value
- [19] unprotectedRemoveRedundantFactors: d has no value
- [20] removeRedundantFactors: toSee has no value
- [21] removeRedundantFactors: toSave has no value

## 15.0.1724 section

finalizing nrlib RDEEF

Warnings:

- [1] rischDEalg: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: an
- [2] rischDEalg: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: ans F) (
- [3] normalise0: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: an
- [4] normalise0: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDE ((Record (: ans F) (
- [5] polyDElog: limitedlogs has no value
- [6] polyDElog: more than 1 modemap for: (Zero) with dc=F ==>(((F F) ((has R (AbelianSemiGroup)) (CONST F
- [7] polyDElog: eq has no value
- [8] polyDEexp: eq has no value

## 15.0.1725 section

finalizing nrlib RDEEFS

Warnings:

- [1] basecase: not known that (Ring) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (List F) fa

```
[2] basecase: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (List
[3] rischDEsys: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE rischDEsys ((Union (Li
```

### 15.0.1726 section

```
finalizing nrlib RSETCAT-
Warnings:
[1] intersect: toSave has no value
```

### 15.0.1727 section

```
finalizing nrlib RSETCAT
; (DEFUN |RegularTriangularSetCategory| ...) is being compiled.
;; The variable |RegularTriangularSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RegularTriangularSetCategory;| ...) is being compiled.
;; The variable |RegularTriangularSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1728 section

```
finalizing nrlib RULE
Warnings:
[1] F2Symbol: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE rule ($ F F)) (SIGNATURE
[2] retractIfCan: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE rule ($ F F)) (SIGNAT
```

### 15.0.1729 section

```
finalizing nrlib SIMPAN
Warnings:
[1] simplify: not known that (TranscendentalFunctionCategory) is of mode (CATEGORY domain (IF (has (Intege

SFORT abbreviates domain SimpleFortranProgram
(SPADLET |$noSubsumption| (QUOTE T))
```



### 15.0.1730 section

finalizing nrllib SOLVESER

Warnings:

- [1] unvectorise: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE decomposeFunc ((Fract
- [2] unvectorise: not known that (Ring) is of mode (CATEGORY package (SIGNATURE decomposeFunc ((Fraction (S

### 15.0.1731 section

finalizing nrllib SUMFS

Warnings:

- [1] sum: not known that (OrderedSet) is of mode (CATEGORY package
- [2] notRF?: not known that (OrderedSet) is of mode (CATEGORY package

```
(|UnivariateTaylorSeriesCategory| |#1|) extends
(|UnivariatePowerSeriesCategory| |#1| (|NonNegativeInteger|)) but not
(|UnivariatePowerSeriesCategory| |#1| (|Integer|)) -----non
extending category-----
.. SparseUnivariateTaylorSeries(#1,#2,#3) of cat
(|Join| (|UnivariateTaylorSeriesCategory| |#1|) (CATEGORY |domain|
```

### 15.0.1732 section

```
(|UnivariatePowerSeriesCategory| |#1| (|Integer|)) finalizing nrllib SUTS
```

### 15.0.1733 section

finalizing nrllib TOOLSIGN

Warnings:

- [1] nonQsign: pretend(AlgebraicNumber) -- should replace by @
- [2] nonQsign: not known that (AlgebraicallyClosedField) is of mode
- [3] nonQsign: not known that (TranscendentalFunctionCategory) is of

### 15.0.1734 section

finalizing nrllib TRIGMNIP

Warnings:

```

[1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain
[2] K2KG: not known that (TranscendentalFunctionCategory) is of mode
[3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package
[4] real?: ker has no value
[5] complexKernels: not known that (OrderedSet) is of mode (CATEGORY
[6] complexKernels: lk has no value
[7] complexKernels: lv has no value
[8] complexNormalize: not known that (AlgebraicallyClosedField) is of
[9] complexNormalize: not known that (TranscendentalFunctionCategory)

```

### 15.0.1735 section

finalizing nrlib TRMANIP

Warnings:

```

[1] logArgs: not known that (OrderedSet) is of mode (CATEGORY package
[2] logArgs: sum has no value
[3] logArgs: arg has no value
[4] simplifyLog1: exprs has no value
[5] simplifyLog1: terms has no value
[6] simplifyLog1: not known that (OrderedSet) is of mode (CATEGORY
[7] expandpow: not known that (OrderedSet) is of mode (CATEGORY
[8] termexp: exponent has no value
[9] htrigs: not known that (Ring) is of mode (CATEGORY package
[10] exlog: not known that (IntegralDomain) is of mode
[11] logexpand: IN has no value
[12] logexpand: x has no value
[13] kerexpand: IN has no value
[14] kerexpand: x has no value

```

### 15.0.1736 section

```

finalizing nrlib ULSCCAT
; (DEFUN |UnivariateLaurentSeriesConstructorCategory| ...) is being compiled.
;; The variable |UnivariateLaurentSeriesConstructorCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |UnivariateLaurentSeriesConstructorCategory;| ...) is being compiled.
;; The variable |UnivariateLaurentSeriesConstructorCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1737 section

finalizing nrlib UPXSSING

```

Warnings:
 [1] retractIfCan: signature of lhs not unique: (Union
(UnivariatePuisseuxSeries FE var cen) failed)$ chosen
 [2] sortAndDiscardTerms: zeroTerms has no value
 [3] sortAndDiscardTerms: infiniteTerms has no value
 [4] sortAndDiscardTerms: failedTerms has no value
 [5] dominantTermOnList: %list has no value
 [6] dominantTermOnList: %order has no value

-----non extending category-----
.. UnivariatePuisseuxSeriesWithExponentialSingularity(#1,#2,#3,#4) of cat
(|Join| (|FiniteAbelianMonoidRing| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|))

```

### 15.0.1738 section

```

(IF (|has| (|UnivariatePuisseuxSeries| |#2| |#3| |#4|) (|IntegralDomain|))

```

### 15.0.1739 section

```

finalizing nrlib WUTSET
Warnings:
 [1] medialSetWithTrace: rs has no value
 [2] medialSetWithTrace: contradiction has no value
 [3] medialSetWithTrace: bs has no value
 [4] characteristicSetUsingTrace: contradiction has no value
 [5] characteristicSetUsingTrace: rs has no value
 [6] characteristicSetUsingTrace: ms has no value
 [7] zeroSetSplit: newlts has no value

```

### 15.0.1740 section

```

finalizing nrlib DEFINTEF
Warnings:
 [1] checkForPole: not known that (OrderedSet) is of mode (CATEGORY
 [2] polyIfCan: not known that (Ring) is of mode (CATEGORY package
 [3] polyIfCan: not known that (OrderedSet) is of mode (CATEGORY package

```

### 15.0.1741 section

```
finalizing nrlib DFINTTLS
```

```
Warnings:
```

- [1] findLimit: not known that (OrderedSet) is of mode (CATEGORY package
- [2] mkLogPos: not known that (OrderedSet) is of mode (CATEGORY package
- [3] checkForZero: not known that (Ring) is of mode (CATEGORY package
- [4] findRealZero: fin has no value
- [5] findRealZero: halfinf has no value
- [6] var: i has no value

### 15.0.1742 section

```
finalizing nrlib DEFINTRF
```

```
Warnings:
```

- [1] nopole: not known that (TranscendentalFunctionCategory) is of mode
- [2] nopole: not known that (AlgebraicallyClosedFunctionSpace R) is of

### 15.0.1743 section

```
finalizing nrlib D01TRNS
```

```
Warnings:
```

- [1] transformFunction: not known that (TranscendentalFunctionCategory)

```
-----non extending category-----
.. d01TransformFunctionType of cat
(|NumericalIntegrationCategory|) has no
```

### 15.0.1744 section

```
(|TableAggregate| (|Symbol|) (|Any|)) finalizing nrlib D01TRNS
```

### 15.0.1745 section

```
finalizing nrlib D01TRNS
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/D01TRNS.spad
-->d01TransformFunctionType(): Missing Description
```

## 15.0.1746 section

finalizing nrlib EFULS

Warnings:

[1] tanIfCan: not known that (Algebra (Fraction (Integer))) is

## 15.0.1747 section

finalizing nrlib ESCONT

Warnings:

[1] zerosOf: not known that (OrderedSet) is of mode (CATEGORY

## 15.0.1748 section

finalizing nrlib ESCONT

-----non extending category-----

.. ExpertSystemContinuityPackage of cat

(CATEGORY |package| (SIGNATURE |getlo| ((|DoubleFloat|) (|Segment|

## 15.0.1749 section

finalizing nrlib EXPR

Warnings:

[1] not known that (OrderedSet) is of mode (CATEGORY domain

[2] simplifyPower: not known that (OrderedSet) is of mode

[3] \*\*: pretend(Integer) -- should replace by @

[4] \*\*: not known that (OrderedSet) is of mode (CATEGORY domain

[5] <: not known that (OrderedSet) is of mode (CATEGORY domain

[6] numer: not known that (OrderedSet) is of mode (CATEGORY domain

[7] toprat: not known that (Field) is of mode (CATEGORY domain

[8] toprat: not known that (ExpressionSpace) is of mode

[9] toprat: not known that (SIGNATURE numer

[10] toprat: not known that (SIGNATURE denom

[11] toprat: not known that (SIGNATURE coerce (\$

[12] reducedSystem: not known that (Ring) is of mode (CATEGORY domain

[13] commonk0: not known that (OrderedSet) is of mode (CATEGORY domain

[14] rootOf: not known that (FunctionSpace R) is of mode (CATEGORY

[15] rootOf: not known that (Ring) is of mode (CATEGORY domain

[16] pi: not known that (FunctionSpace R) is of mode (CATEGORY domain

[17] pi: not known that (RadicalCategory) is of mode (CATEGORY domain

```

[18] abs: not known that (FunctionSpace R) is of mode (CATEGORY domain
[19] **: not known that (FunctionSpace R) is of mode (CATEGORY domain
[20] erf: not known that (FunctionSpace R) is of mode (CATEGORY domain
[21] erf: not known that (RadicalCategory) is of mode (CATEGORY domain
[22] erf: not known that (TranscendentalFunctionCategory) is of mode
[23] operator: not known that (FunctionSpace R) is of mode (CATEGORY
[24] operator: not known that (ExpressionSpace) is of mode (CATEGORY
[25] evl0: not known that (OrderedSet) is of mode (CATEGORY domain
[26] gcdPolynomial: not known that (GcdDomain) is of mode (CATEGORY
[27] factorPolynomial: not known that (OrderedSet) is of mode
[28] factorPolynomial: not known that (Ring) is of mode (CATEGORY
[29] coerce: not known that (OrderedSet) is of mode (CATEGORY domain
[30] retract: not known that (OrderedSet) is of mode (CATEGORY domain
[31] retractIfCan: not known that (OrderedSet) is of mode (CATEGORY
[32] k2expr: not known that (ExpressionSpace) is of mode (CATEGORY
[33] smp2expr: not known that (SetCategory) is of mode (CATEGORY
[34] smp2expr: not known that (SIGNATURE + ($ $ $)) is of mode
[35] smp2expr: not known that (SIGNATURE * ($ $ $)) is of mode
[36] smp2expr: not known that (SIGNATURE ** ($ $ (NonNegativeInteger)))
[37] smp2an: not known that (OrderedSet) is of mode (CATEGORY domain
[38] convert: not known that (OrderedSet) is of mode (CATEGORY domain
[39] eval: not known that (ConvertibleTo (InputForm)) is of mode
[40] patternMatch: not known that (FunctionSpace R) is of mode
[41] patternMatch: not known that (ConvertibleTo (Pattern (Integer)))
[42] patternMatch: not known that (PatternMatchable (Integer)) is of
[43] patternMatch: not known that (RetractableTo (Kernel $)) is of
[44] patternMatch: not known that (SetCategory) is of mode (CATEGORY
[45] patternMatch: not known that (ConvertibleTo (Pattern (Float)))
[46] patternMatch: not known that (PatternMatchable (Float)) is of
[47] isPlus: gen has no value
[48] not known that (Ring) is of mode (CATEGORY domain (SIGNATURE
[49] not known that (IntegralDomain) is of mode (CATEGORY domain

```

### 15.0.1750 section

```

finalizing nrlib EXPR
; (DEFUN |Expression;| ...) is being compiled.
;; The variable IDENTITY is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1751 section

```

finalizing nrlib EXPR2UPS
Warnings:
[1] iTaylor: %problem has no value
[2] iTaylor: %series has no value

```

```

[3] taylor: more than 1 modemap for: (Zero) with dc=FE ==>
(((FE FE) ((has R (AbelianSemiGroup)) (CONST FE ($)))) ((FE FE)
(T (CONST FE ($)))))
[4] iLaurent: %problem has no value
[5] iLaurent: %series has no value
[6] laurent: more than 1 modemap for: (Zero) with dc=FE ==>
(((FE FE) ((has R (AbelianSemiGroup)) (CONST FE ($)))) ((FE FE)
(T (CONST FE ($)))))
[7] iPuisseux: %problem has no value
[8] iPuisseux: %series has no value
[9] puisseux: more than 1 modemap for: (Zero) with dc=FE ==>
(((FE FE) ((has R (AbelianSemiGroup)) (CONST FE ($)))) ((FE FE)
(T (CONST FE ($)))))
[10] iSeries: %problem has no value
[11] iSeries: %series has no value
[12] series: more than 1 modemap for: (Zero) with dc=FE ==>
(((FE FE) ((has R (AbelianSemiGroup)) (CONST FE ($)))) ((FE FE)
(T (CONST FE ($)))))

```

### 15.0.1752 section

finalizing nrlib FDIV

Warnings:

```
[1] *: signature of lhs not unique: $(Integer)$ chosen
```

### 15.0.1753 section

finalizing nrlib FDIV

; (DEFUN |FiniteDivisor;| ...) is being compiled.

;; The variable IDENTITY is undefined.

;; The compiler will assume this variable is a global.

### 15.0.1754 section

finalizing nrlib FSCINT

Warnings:

```

[1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain
[2] K2KG: not known that (TranscendentalFunctionCategory) is of mode
[3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package
[4] internalIntegrate: not known that (OrderedSet) is of mode (CATEGORY
[5] internalIntegrate: not known that (AlgebraicallyClosedField) is of
[6] internalIntegrate: not known that (TranscendentalFunctionCategory)

```

## 15.0.1755 section

finalizing nrlib FSINT

Warnings:

- [1] K2KG: not known that (RadicalCategory) is of mode (CATEGORY domain
- [2] K2KG: not known that (TranscendentalFunctionCategory) is of mode
- [3] K2KG: not known that (OrderedSet) is of mode (CATEGORY package
- [4] postSubst: not known that (Ring) is of mode (CATEGORY package
- [5] postSubst: not known that (OrderedSet) is of mode (CATEGORY
- [6] integrate: not known that (AlgebraicallyClosedField) is of mode
- [7] integrate: not known that (TranscendentalFunctionCategory) is of

## 15.0.1756 section

finalizing nrlib FS2EXXPX

Warnings:

- [1] newElem: not known that (OrderedSet) is of mode
- [2] k2Elem: not known that (OrderedSet) is of mode
- [3] iExprToXXP: %series has no value
- [4] listToXXP: %expansion has no value
- [5] powerToXXP: %expansion has no value
- [6] nthRootXXPIfCan: %problem has no value
- [7] nthRootXXPIfCan: %series has no value
- [8] nthRootToXXP: %problem has no value
- [9] nthRootToXXP: %expansion has no value
- [10] genPowerToXXP: %expansion has no value
- [11] genExp: %series has no value
- [12] exponential: %problem has no value
- [13] exponential: %series has no value
- [14] expToXXP: %expansion has no value
- [15] logToXXP: %expansion has no value
- [16] logToXXP: %problem has no value
- [17] logToXXP: %series has no value
- [18] applyIfCan: %expansion has no value
- [19] applyBddIfCan: %problem has no value
- [20] applyBddIfCan: %expansion has no value
- [21] opsInvolvingX: not known that (OrderedSet) is of mode
- [22] atancotToXXP: %problem has no value
- [23] atancotToXXP: %series has no value

-----non extending category-----

```
.. GeneralUnivariatePowerSeries(#1,#2,#3) of cat
(|Join| (|UnivariatePuisseuxSeriesCategory| |#1|) (CATEGORY |domain|
```



### 15.0.1757 section

```
(|UnivariatePuisseuxSeriesConstructorCategory| |#1|
```

### 15.0.1758 section

```
finalizing nrlib HELLFDIV
Warnings:
 [1] unknown Functor code (error HyperellipticFiniteDivisor:
curve must be hyperelliptic)
```

### 15.0.1759 section

```
finalizing nrlib INVLAPLA
Warnings:
 [1] ilt: not known that (Ring) is of mode (CATEGORY package
 [2] ilt: not known that (OrderedSet) is of mode (CATEGORY package
 [3] iltsqfr: not known that (IntegralDomain) is of mode (CATEGORY
 [4] iltirred: not known that (Ring) is of mode (CATEGORY package
```

### 15.0.1760 section

```
finalizing nrlib IR2F
Warnings:
 [1] evenRoots: not known that (OrderedSet) is of mode
 [2] ilog: not known that (OrderedSet) is of mode (CATEGORY package
 [3] ilog: not known that (Ring) is of mode (CATEGORY package
 [4] lg2func: not known that (Ring) is of mode (CATEGORY package
```

### 15.0.1761 section

```
finalizing nrlib IRRF2F
Warnings:
 [1] expand: not known that (AlgebraicallyClosedFunctionSpace R)
 [2] expand: not known that (TranscendentalFunctionCategory) is of
 [3] integrate: not known that (AlgebraicallyClosedField) is of
```

```
[4] integrate: not known that (TranscendentalFunctionCategory)
```

### 15.0.1762 section

```
finalizing nrllib LAPLACE
```

```
Warnings:
```

```
[1] algebraic?: not known that (OrderedSet) is of mode
[2] isLinear: not known that (Ring) is of mode
[3] isLinear: not known that (OrderedSet) is of mode
[4] atn: d has no value
[5] mkPlus: not known that (OrderedSet) is of mode
[6] locallaplace: const has no value
[7] locallaplace: nconst has no value
```

### 15.0.1763 section

```
finalizing nrllib LIMITPS
```

```
Warnings:
```

```
[1] firstNonLogPtr: not known that (OrderedSet) is of mode
[2] complLimit: %series has no value
[3] realLimit: %problem has no value
[4] realLimit: %series has no value
[5] realLimit: func has no value
[6] realLimit: prob has no value
[7] xxpLimit: %expansion has no value
[8] limitPlus: %problem has no value
[9] limitPlus: %series has no value
[10] limitPlus: func has no value
[11] limitPlus: prob has no value
```

### 15.0.1764 section

```
finalizing nrllib LODEEF
```

```
Warnings:
```

```
[1] algSolve: not known that (OrderedSet) is of mode (CATEGORY
[2] algSolve: not known that (Ring) is of mode (CATEGORY package
[3] xpart: not known that (OrderedSet) is of mode (CATEGORY
[4] ulodo: not known that (Ring) is of mode (CATEGORY package
```

### 15.0.1765 section

finalizing nrlib NODE1

Warnings:

- [1] solve: not known that (OrderedSet) is of mode (CATEGORY package
- [2] checkBernoulli: not known that (Ring) is of mode (CATEGORY package

### 15.0.1766 section

finalizing nrlib ODECONST

Warnings:

- [1] basisSqfr: not known that (Ring) is of mode

### 15.0.1767 section

finalizing nrlib ODEINT

Warnings:

- [1] expint: not known that (OrderedSet) is of mode
- [2] expint: lrec has no value
- [3] expint: exponent has no value
- [4] isQlog: not known that (OrderedSet) is of mode

### 15.0.1768 section

finalizing nrlib REP

Warnings:

- [1] evalvect: not known that (OrderedSet) is of mode (CATEGORY
  - [2] gramschmidt: :(PositiveInteger) -- should replace by pretend
  - [3] gramschmidt: :RMR -- should replace by pretend
  - [4] gramschmidt: :(Matrix (Expression (Integer))) --
- should replace by pretend

### 15.0.1769 section

finalizing nrlib ULSCONS

Warnings:

```
[1] termsToOutputForm: 1 has no value
```

### 15.0.1770 section

```
finalizing nrlib UPXS
Warnings:
 [1] termsToOutputForm: 1 has no value

-----non extending category-----
.. UnivariateTaylorSeries(#1,#2,#3) of cat
(|Join| (|UnivariateTaylorSeriesCategory| |#1|) (CATEGORY |domain|
```

### 15.0.1771 section

```
finalizing nrlib UTS
```

### 15.0.1772 section

```
finalizing nrlib ASP29
Warnings:
 [1] ISTATE has no value
 [2] NEXTIT has no value
 [3] NEVALS has no value
 [4] NVECS has no value
 [5] K has no value
 [6] F has no value
 [7] D has no value
```

### 15.0.1773 section

```
finalizing nrlib COMBF
Warnings:
 [1] **: not known that (OrderedSet) is of mode (CATEGORY package
 [2] facts: not known that (OrderedSet) is of mode (CATEGORY package
 [3] summand: not known that (OrderedSet) is of mode (CATEGORY package
 [4] ipow: n has no value
```

### 15.0.1774 section

```
finalizing nrlib D01AGNT
Warnings:
 [1] continuousAtPoint?: not known that (AlgebraicallyClosedField)
 [2] continuousAtPoint?: not known that (TranscendentalFunctionCategory)
 [3] functionIsOscillatory: not known that (OrderedSet) is of mode
 [4] singularitiesOf: str has no value

-----non extending category-----
.. d01AgentsPackage of cat
(CATEGORY |package| (SIGNATURE |rangeIsFinite|
```

### 15.0.1775 section

```
finalizing nrlib D01AGNT
```

### 15.0.1776 section

```
finalizing nrlib FSPRMELT
Warnings:
 [1] F2P: not known that (OrderedSet) is of mode
 [2] K2P: not known that (OrderedSet) is of mode
 [3] primitiveElement: not known that (Ring) is of mode
 [4] primitiveElement: not known that (OrderedSet) is of mode
 [5] F2UP: not known that (Ring) is of mode (CATEGORY $
```

### 15.0.1777 section

```
finalizing nrlib NTSCAT
; (DEFUN |NormalizedTriangularSetCategory| ...) is being compiled.
;; The variable |NormalizedTriangularSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |NormalizedTriangularSetCategory;| ...) is being compiled.
;; The variable |NormalizedTriangularSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1778 section

```
finalizing nrlib REGSET
Warnings:
 [1] construct: ts has no value
 [2] preprocess: lp1 has no value
 [3] preprocess: lp2 has no value
 [4] preprocess: lts has no value
```

### 15.0.1779 section

```
finalizing nrlib REGSET
Warning: REGSET;decompose has a duplicate definition in this file

-----non extending category-----
.. RegularChain(#1,#2) of cat
(|Join| (|RegularTriangularSetCategory| |#1| (|IndexedExponents|
```

### 15.0.1780 section

```
finalizing nrlib RGCHAIN
```

### 15.0.1781 section

```
finalizing nrlib RSETGCD
Warnings:
 [1] toseInvertibleSet: toSave has no value
 [2] prepareSubResAlgo: toSave has no value
 [3] internalLastSubResultant: toReturn has no value
```

### 15.0.1782 section

```
finalizing nrlib RSDCMPK
Warnings:
 [1] algebraicDecompose: llpwt has no value
 [2] internalDecompose: llpwt has no value
 [3] internalDecompose: lts has no value
 [4] decompose: toSave has no value
 [5] upDateBranches: branches1 has no value
 [6] upDateBranches: branches2 has no value
```

## 15.0.1783 section

```

finalizing nrlib RSDCMPK

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((KrullNumber (N LP Split))):
Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((numberOfVariables (N LP Split))):
Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((algebraicDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS B))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((transcendentalDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS N))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((transcendentalDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((internalDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS N B))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((internalDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS N))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((internalDecompose ((Record
(: done Split) (: todo (List LpWT))) P TS))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((decompose (Split LP Split B B))) :
Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((decompose (Split LP Split B B B B B))) :
Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((updateBranches ((List LpWT) LP Split
(List LpWT) Wip N))) : Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((convert ((String) (Record (: val
(List P) (: tower TS))))) : Not documented!!!!

```

```
-->/research2/test0819/mnt/fedora5/../../src/algebra/RSDCMPK.spad
-->RegularSetDecompositionPackage((printInfo ((Void) (List (Record
(: val (List P)) (: tower TS))) N))) : Not documented!!!!
```

### 15.0.1784 section

```
finalizing nrlib SFRTCAT
; (DEFUN |SquareFreeRegularTriangularSetCategory| ...) is being compiled.
;; The variable |SquareFreeRegularTriangularSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SquareFreeRegularTriangularSetCategory;| ...) is being compiled.
;; The variable |SquareFreeRegularTriangularSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1785 section

```
finalizing nrlib SIGNEF
Warnings:
[1] sign: not known that (OrderedSet) is of mode
[2] smpsign: not known that (IntegralDomain) is of mode
```

### 15.0.1786 section

```
finalizing nrlib SNTSCAT
; (DEFUN |SquareFreeNormalizedTriangularSetCategory| ...) is being compiled.
;; The variable |SquareFreeNormalizedTriangularSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SquareFreeNormalizedTriangularSetCategory;| ...) is being compiled.
;; The variable |SquareFreeNormalizedTriangularSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1787 section

```
finalizing nrlib SOLVETRA
Warnings:
[1] solveInner: not known that (OrderedSet) is of mode
[2] solveInner: not known that (Ring) is of mode
[3] tryToTrans: not known that (TranscendentalFunctionCategory) is of
```



```

[4] tryToTrans: not known that (AlgebraicallyClosedField) is of mode
[5] subsTan: not known that (IntegralDomain) is of mode
[6] buildnexpr: anscoeff has no value
[7] buildnexpr: ansmant has no value
[8] combineLog: ans has no value
[9] funcinv: not known that (OrderedSet) is of mode

```

## 15.0.1788 section

```

finalizing nrllib SRDCMPK
Warnings:
[1] algebraicDecompose: lts has no value
[2] internalDecompose: llpwt has no value
[3] internalDecompose: lts has no value
[4] decompose: toSave has no value
[5] upDateBranches: branches1 has no value
[6] upDateBranches: branches2 has no value

```

## 15.0.1789 section

```

finalizing nrllib SRDCMPK
Processing SquareFreeRegularSetDecompositionPackage for Browser database:

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((KrullNumber (N LP
-->Split))): Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((numberOfVariables (N LP
-->Split))): Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((algebraicDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS))): Not
-->documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((transcendentalDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS N))): Not
-->documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((transcendentalDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS))): Not
-->documented!!!!

```

```

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((internalDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS N B))) : Not
-->documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((internalDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS N))) : Not
-->documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((internalDecompose
-->((Record (: done Split) (: todo (List LpWT))) P TS))) : Not
-->documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((decompose (Split LP Split
-->B B))) : Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((decompose (Split LP Split
-->B B B B B))) : Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((updateBranches ((List
-->LpWT) LP Split (List LpWT) Wip N))) : Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((convert ((String) (Record
-->(: val (List P)) (: tower TS)))) : Not documented!!!!

-->/research2/test0819/mnt/fedora5/../../src/algebra/SRDCMPK.spad
-->SquareFreeRegularSetDecompositionPackage((printInfo ((Void) (List
-->(Record (: val (List P)) (: tower TS))) N))) : Not documented!!!!

```

### 15.0.1790 section

```

finalizing nrlib SREGSET
Warnings:
[1] construct: ts has no value
[2] internalAugment: lts has no value
[3] preprocess: lp1 has no value
[4] preprocess: lp2 has no value
[5] preprocess: lts has no value

```

### 15.0.1791 section

```
finalizing nrlib ZDSOLVE
Warnings:
 [1] squareFree: toSave has no value
 [2] realSolve: not known that (Ring) is of mode
 [3] realSolve: toSave has no value
 [4] positiveSolve: toSave has no value
 [5] univariateSolve: lq2 has no value
```

## 15.0.1792 section

```
finalizing nrlib IRURPK
Warnings:
 [1] makeLinearAndMonic: toSave has no value
 [2] rur: toSave has no value
```

## 15.0.1793 section

```
finalizing nrlib LEXTRIPK
Warnings:
 [1] trueVariables: truels has no value
 [2] lexTriangular: polnum has no value
 [3] lexTriangular: toSave has no value
 [4] squareFreeLexTriangular: polnum has no value
 [5] squareFreeLexTriangular: toSave has no value
```

## 15.0.1794 section

```
finalizing nrlib NORMPK
Semantic Errors:
 [1] recip: hesrg has two modes:

Warnings:
 [1] normalizedAssociate: mp has no value
 [2] normalizedAssociate: tp has no value
```

## 15.0.1795 section

```
finalizing nrlib QCMPPACK
```

```
Warnings:
```

- [1] removeSuperfluousCases: maxcases has no value
- [2] removeSuperfluousCases: lpwt1 has no value
- [3] removeSuperfluousCases: headmaxcases has no value
- [4] removeSuperfluousCases: toSave has no value
- [5] removeSuperfluousQuasiComponents: maxlts has no value
- [6] removeSuperfluousQuasiComponents: headmaxlts has no value
- [7] removeSuperfluousQuasiComponents: toSave has no value
- [8] branchIfCan: polnum has no value
- [9] prepareDecompose: branches has no value

### 15.0.1796 section

```
finalizing nrlib RURPK
```

```
Warnings:
```

- [1] rur: lq has no value
- [2] rur: q has no value
- [3] rur: toSave has no value
- [4] rur: toReturn has no value

### 15.0.1797 section

```
finalizing nrlib SFRGCD
```

```
Warnings:
```

- [1] stosePrepareSubResAlgo: toSave has no value
- [2] stoseInternalLastSubResultant: toReturn has no value
- [3] stoseInvertibleSetsqfreg: toSave has no value
- [4] stoseInvertibleSetreg: toSave has no value

### 15.0.1798 section

```
finalizing nrlib SFRGCD
```

```
Processing SquareFreeRegularTriangularSetGcdPackage for Browser database:
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad-->
SquareFreeRegularTriangularSetGcdPackage((startTableGcd! ((Void) S S
S))) : Not documented!!!!
```

```
--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stopTableGcd!
```

```

((Void)))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((startTableInvSet!
 ((Void) S S S))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stopTableInvSet!
 ((Void)))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stosePrepareSubResAlgo
 ((List LpWT) P P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInternalLastSubResultant
 ((List PWT) P P TS B B))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInternalLastSubResultant
 ((List PWT) (List LpWT) V B))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseIntegralLastSubResultant
 ((List PWT) P P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseLastSubResultant
 ((List PWT) P P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?
 (B P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?sqfreg
 ((List BWT) P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSetsqfreg
 (Split P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?reg
 ((List BWT) P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSetreg
 (Split P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertible?
 ((List BWT) P TS))): Not documented!!!!

```

```

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseInvertibleSet
 (Split P TS))): Not documented!!!!

--->/research2/test0819/mnt/fedora5/../../src/algebra/SFRGCD.spad
-->SquareFreeRegularTriangularSetGcdPackage((stoseSquareFreePart
 ((List PWT) P TS))): Not documented!!!!

```

### 15.0.1799 section

```

finalizing nrllib SFQCMPPK
Warnings:
[1] removeSuperfluousCases: maxcases has no value
[2] removeSuperfluousCases: lpwt1 has no value
[3] removeSuperfluousCases: headmaxcases has no value
[4] removeSuperfluousCases: toSave has no value
[5] removeSuperfluousQuasiComponents: maxlts has no value
[6] removeSuperfluousQuasiComponents: headmaxlts has no value
[7] removeSuperfluousQuasiComponents: toSave has no value
[8] branchIfCan: polnum has no value
[9] prepareDecompose: branches has no value

```

### 15.0.1800 section

```

finalizing nrllib ODEEF
Warnings:
[1] solve: not known that (OrderedSet) is of mode
[2] parseODE: n has no value
[3] parseODE: c has no value
[4] parseODE: k has no value
[5] getcoeff: not known that (OrderedSet) is of mode
[6] getcoeff: not known that (Ring) is of mode

```

### 15.0.1801 section

```

finalizing nrllib RINTERP
Processing RationalInterpolation for Browser database:
--->-->RationalInterpolation((interpolate ((Fraction (Polynomial F))
 (List F) (List F) (NonNegativeInteger) (NonNegativeInteger)))):
 Not documented!!!!

```

### 15.0.1802 section

```

 finalizing nrlib ABELGRP
; (DEFUN |AbelianGroup| ...) is being compiled.
;; The variable |AbelianGroup;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1803 section

```

 finalizing nrlib ABELMON
; (DEFUN |AbelianMonoid| ...) is being compiled.
;; The variable |AbelianMonoid;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1804 section

```

 finalizing nrlib ABELSG
; (DEFUN |AbelianSemiGroup| ...) is being compiled.
;; The variable |AbelianSemiGroup;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1805 section

```

 finalizing nrlib ALAGG
; (DEFUN |AssociationListAggregate| ...) is being compiled.
;; The variable |AssociationListAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |AssociationListAggregate;| ...) is being compiled.
;; The variable |AssociationListAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1806 section

```

 finalizing nrlib CABMON
; (DEFUN |CancellationAbelianMonoid| ...) is being compiled.
;; The variable |CancellationAbelianMonoid;AL| is undefined.

```

```
;; The compiler will assume this variable is a global.
```

### 15.0.1807 section

```
finalizing nrlib COMRING
; (DEFUN |CommutativeRing| ...) is being compiled.
;; The variable |CommutativeRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1808 section

```
finalizing nrlib DIFRING
; (DEFUN |DifferentialRing| ...) is being compiled.
;; The variable |DifferentialRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1809 section

```
finalizing nrlib DIVRING
; (DEFUN |DivisionRing| ...) is being compiled.
;; The variable |DivisionRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1810 section

```
finalizing nrlib ENTIRER
; (DEFUN |EntireRing| ...) is being compiled.
;; The variable |EntireRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1811 section

```
finalizing nrlib ES-
Warnings:
```



```

[1] tower: not known that (OrderedSet) is of mode
[2] freeOf?: not known that (OrderedSet) is of mode
[3] eval: IN has no value
[4] eval: f has no value
[5] eval: s has no value
[6] map: IN has no value
[7] map: x has no value

```

## 15.0.1812 section

```

finalizing nrlib ES
; (DEFUN |ExpressionSpace| ...) is being compiled.
;; The variable |ExpressionSpace;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1813 section

```

finalizing nrlib EUCDOM-
Warnings:
 [1] principalIdeal: coef1 has no value
 [2] principalIdeal: coef2 has no value

```

## 15.0.1814 section

```

finalizing nrlib EUCDOM
; (DEFUN |EuclideanDomain| ...) is being compiled.
;; The variable |EuclideanDomain;AL| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1815 section

```

finalizing nrlib FFIELDC-
Warnings:
 [1] conditionP: not known that (Ring) is of mode
 [2] order: signature of lhs not unique: (PositiveInteger)S chosen
 [3] order: ord has no value
 [4] discreteLog: disc1 has no value
 [5] discreteLog: disclog has no value

```

```
[6] discreteLog: not known that (IntegralDomain) is of mode
[7] gcdPolynomial: not known that (Ring) is of mode
```

### 15.0.1816 section

```
finalizing nrlib FFIELDC
; (DEFUN |FiniteFieldCategory| ...) is being compiled.
;; The variable |FiniteFieldCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1817 section

```
finalizing nrlib FPS
; (DEFUN |FloatingPointSystem| ...) is being compiled.
;; The variable |FloatingPointSystem;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1818 section

```
finalizing nrlib GCDDOM-
Warnings:
[1] gcdPolynomial: not known that (Ring) is of mode
```

### 15.0.1819 section

```
finalizing nrlib GCDDOM
; (DEFUN |GcdDomain| ...) is being compiled.
;; The variable |GcdDomain;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1820 section

```
finalizing nrlib HOAGG
; (DEFUN |HomogeneousAggregate| ...) is being compiled.
```

```
;; The variable |HomogeneousAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |HomogeneousAggregate;| ...) is being compiled.
;; The variable |HomogeneousAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1821 section

```
finalizing nrlib ILIST
Warnings:
 [1] latex: s has no value
```

### 15.0.1822 section

```
finalizing nrlib INS-
Warnings:
 [1] factor: not known that (IntegralDomain) is of mode
 [2] patternMatch: not known that (SetCategory) is of mode
 [3] powmod: y has no value
```

### 15.0.1823 section

```
finalizing nrlib INS
; (DEFUN |IntegerNumberSystem| ...) is being compiled.
;; The variable |IntegerNumberSystem;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1824 section

```
finalizing nrlib INT
Warnings:
 [1] OMwrite: pretend(String) -- should replace by @
 [2] hash: signature of lhs not unique: $$ chosen
 [3] factorPolynomial: not known that (UnivariatePolynomialCategory
 [4] gcdPolynomial: not known that (UnivariatePolynomialCategory
```

**15.0.1825 section**

```
finalizing nrlib INTDOM
; (DEFUN |IntegralDomain| ...) is being compiled.
;; The variable |IntegralDomain;AL| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1826 section**

```
finalizing nrlib ISTRING
Warnings:
 [1] split: j has no value
```

**15.0.1827 section**

```
finalizing nrlib LNAGG
; (DEFUN |LinearAggregate| ...) is being compiled.
;; The variable |LinearAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |LinearAggregate;| ...) is being compiled.
;; The variable |LinearAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1828 section**

```
finalizing nrlib LSAGG
; (DEFUN |ListAggregate| ...) is being compiled.
;; The variable |ListAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |ListAggregate;| ...) is being compiled.
;; The variable |ListAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1829 section**

```
finalizing nrlib MONOID
```

```
; (DEFUN |Monoid| ...) is being compiled.
;; The variable |Monoid;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1830 section

```
finalizing nrlib MTSCAT
; (DEFUN |MultivariateTaylorSeriesCategory| ...) is being compiled.
;; The variable |MultivariateTaylorSeriesCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |MultivariateTaylorSeriesCategory;| ...) is being compiled.
;; The variable |MultivariateTaylorSeriesCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
.. NonNegativeInteger of cat
(|Join| (|OrderedAbelianMonoidSup|) (|Monoid|) (CATEGORY |domain| ‘
```

### 15.0.1831 section

```
(|IntegerNumberSystem|) finalizing nrlib NNI
```

### 15.0.1832 section

```
finalizing nrlib OINTDOM
; (DEFUN |OrderedIntegralDomain| ...) is being compiled.
;; The variable |OrderedIntegralDomain;AL| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1833 section

```
finalizing nrlib ORDRING
; (DEFUN |OrderedRing| ...) is being compiled.
;; The variable |OrderedRing;AL| is undefined.
;; The compiler will assume this variable is a global.
```

```
-----non extending category-----
.. PositiveInteger of cat
(|Join| (|AbelianSemiGroup|) (|OrderedSet|) (|Monoid|) (CATEGORY |domain| (SIGNATURE |gcd| ($ $ $)) (ATTRIBUTE (
```

**15.0.1834 section**

```
(|OrderedAbelianMonoidSup|) finalizing nrllib PI
```

**15.0.1835 section**

```
finalizing nrllib POLYCAT-
Warnings:
[1] eval: IN has no value
[2] coefficient: not known that (Ring) is of mode
[3] totalDegree: w has no value
[4] reducedSystem: IN has no value
[5] reducedSystem: r has no value
[6] reducedSystem: not known that (Ring) is of mode
[7] solveLinearPolynomialEquation: not known that (Ring) is of mode
[8] factorPolynomial: not known that (Ring) is of mode
[9] factor: not known that (IntegralDomain) is of mode
[10] conditionP: :(Integer) --should replace by pretend
[11] patternMatch: not known that (SetCategory) is of mode
```

**15.0.1836 section**

```
finalizing nrllib POLYCAT
; (DEFUN |PolynomialCategory| ...) is being compiled.
;; The variable |PolynomialCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PolynomialCategory;| ...) is being compiled.
;; The variable |PolynomialCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

**15.0.1837 section**

```
finalizing nrllib PSETCAT-
Warnings:
[1] collectUnder: lq has no value
[2] collectUpper: lq has no value
[3] collect: lq has no value
[4] sort: us has no value
[5] sort: vs has no value
[6] sort: ws has no value
```

```

[7] localTriangular?: q has no value
[8] headRemainder: r has no value
[9] rewriteIdealWithHeadRemainder: rs has no value
[10] rewriteIdealWithRemainder: rs has no value

```

## 15.0.1838 section

```

finalizing nrlib PSETCAT-
Warning: PSETCAT-;exactQuo has a duplicate definition in this file

```

## 15.0.1839 section

```

finalizing nrlib PSETCAT
; (DEFUN |PolynomialSetCategory| ...) is being compiled.
;; The variable |PolynomialSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |PolynomialSetCategory;| ...) is being compiled.
;; The variable |PolynomialSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

## 15.0.1840 section

```

finalizing nrlib QFCAT-
Warnings:
[1] reducedSystem: not known that (Ring) is of mode
[2] patternMatch: not known that (SetCategory) is of mode

```

## 15.0.1841 section

```

finalizing nrlib QFCAT
; (DEFUN |QuotientFieldCategory| ...) is being compiled.
;; The variable |QuotientFieldCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |QuotientFieldCategory;| ...) is being compiled.
;; The variable |QuotientFieldCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1842 section**

```

 finalizing nrlib RCAGG
; (DEFUN |RecursiveAggregate| ...) is being compiled.
;; The variable |RecursiveAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |RecursiveAggregate;| ...) is being compiled.
;; The variable |RecursiveAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1843 section**

```

 finalizing nrlib RING
; (DEFUN |Ring| ...) is being compiled.
;; The variable |Ring;AL| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1844 section**

```

 finalizing nrlib RNG
; (DEFUN |Rng| ...) is being compiled.
;; The variable |Rng;AL| is undefined.
;; The compiler will assume this variable is a global.

```

**15.0.1845 section**

```

 finalizing nrlib RNS-
Warnings:

```

```

 [1] patternMatch: not known that (SetCategory) is of mode (CATEGORY domain (SIGNATURE round (S S)) (SIGNATURE

```

**15.0.1846 section**

```

 finalizing nrlib RNS
; (DEFUN |RealNumberSystem| ...) is being compiled.
;; The variable |RealNumberSystem;AL| is undefined.
;; The compiler will assume this variable is a global.

```



### 15.0.1847 section

```

 finalizing nrlib SETAGG
; (DEFUN |SetAggregate| ...) is being compiled.
;; The variable |SetAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |SetAggregate;| ...) is being compiled.
;; The variable |SetAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1848 section

```

 finalizing nrlib SETCAT
; (DEFUN |SetCategory| ...) is being compiled.
;; The variable |SetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.

```

### 15.0.1849 section

```

 finalizing nrlib SINT
Warnings:
 [1] hash: signature of lhs not unique: $$ chosen

```

### 15.0.1850 section

```

 finalizing nrlib SINT
(SPADLET |$noSubsets| NIL)
Value = NIL

```

### 15.0.1851 section

```

 finalizing nrlib STAGG
; (DEFUN |StreamAggregate| ...) is being compiled.
;; The variable |StreamAggregate;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |StreamAggregate;| ...) is being compiled.

```

```
;; The variable |StreamAggregate;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1852 section

```
finalizing nrlib SYMBOL
Warnings:
 [1] latex: s has no value
 [2] latex: sc has no value
```

### 15.0.1853 section

```
finalizing nrlib TSETCAT-
Warnings:
 [1] basicSet: p has no value
 [2] basicSet: gps has no value
 [3] basicSet: bps has no value
 [4] initials: lip has no value
 [5] initiallyReduced?: red has no value
 [6] reduce: signature of lhs not unique: PPS(Mapping P P P)(Mapping (Boolean) P P) chosen
 [7] rewriteSetWithReduction: rs has no value
 [8] select: signature of lhs not unique: (Union P failed)SV chosen
 [9] collectQuasiMonic: newlp has no value
```

### 15.0.1854 section

```
finalizing nrlib TSETCAT
; (DEFUN |TriangularSetCategory| ...) is being compiled.
;; The variable |TriangularSetCategory;AL| is undefined.
;; The compiler will assume this variable is a global.
; (DEFUN |TriangularSetCategory;| ...) is being compiled.
;; The variable |TriangularSetCategory;CAT| is undefined.
;; The compiler will assume this variable is a global.
```

### 15.0.1855 section

```
finalizing nrlib UFD-
Warnings:
```

```
[1] squareFreePart: not known that (IntegralDomain) is of mode (CATEGORY domain (SIGNATURE squareFreePart
```

## 15.0.1856 section

```
finalizing nrllib UFD
; (DEFUN |UniqueFactorizationDomain| ...) is being compiled.
;; The variable |UniqueFactorizationDomain;AL| is undefined.
;; The compiler will assume this variable is a global.
```

