

axiomTM



The 30 Year Horizon

<i>Manuel Bronstein</i>	<i>William Burge</i>	<i>Timothy Daly</i>
<i>James Davenport</i>	<i>Michael Dewar</i>	<i>Martin Dunstan</i>
<i>Albrecht Fortenbacher</i>	<i>Patrizia Gianni</i>	<i>Johannes Grabmeier</i>
<i>Jocelyn Guidry</i>	<i>Richard Jenks</i>	<i>Larry Lambe</i>
<i>Michael Monagan</i>	<i>Scott Morrison</i>	<i>William Sit</i>
<i>Jonathan Steinbach</i>	<i>Robert Sutor</i>	<i>Barry Trager</i>
<i>Stephen Watt</i>	<i>Jim Wen</i>	<i>Clifton Williamson</i>

Volume BugList: Axiom Bugs

January 7, 2020

a2ae5e586103ae221199916cfcc2309ad1b5109e

Portions Copyright (c) 2005 Timothy Daly

The Blue Bayou image Copyright (c) 2004 Jocelyn Guidry

Portions Copyright (c) 2004 Martin Dunstan

Portions Copyright (c) 2007 Alfredo Portes

Portions Copyright (c) 2007 Arthur Ralfs

Portions Copyright (c) 2005 Timothy Daly

Portions Copyright (c) 1991-2002,
The Numerical ALgorithms Group Ltd.
All rights reserved.

This book and the Axiom software is licensed as follows:

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- Neither the name of The Numerical ALgorithms Group Ltd. nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

Inclusion of names in the list of credits is based on historical information and is as accurate as possible. Inclusion of names does not in any way imply an endorsement but represents historical influence on Axiom development.

Michael Albaugh	Cyril Alberga	Roy Adler
Christian Aistleitner	Richard Anderson	George Andrews
Jerry Archibald	S.J. Atkins	Jeremy Avigad
Knut Bahr	Henry Baker	Martin Baker
Stephen Balzac	Yurij Baransky	David R. Barton
Thomas Baruchel	Gerald Baumgartner	Gilbert Baumslag
Michael Becker	Nelson H. F. Beebe	Jay Belanger
Siddharth Bhat	David Bindel	Fred Blair
Vladimir Bondarenko	Mark Botch	Raoul Bourquin
Alexandre Bouyer	Karen Braman	Wolfgang Brehm
Peter A. Broadbery	Martin Brock	Manuel Bronstein
Christopher Brown	Stephen Buchwald	Florian Bundschuh
Luanne Burns	William Burge	Ralph Byers
Quentin Carpent	Jacques Carette	Pierre Casteran
Robert Cavines	Pablo Cayuela	Bruce Char
Ondrej Certik	Tzu-Yi Chen	Bobby Cheng
Cheekai Chin	David V. Chudnovsky	Gregory V. Chudnovsky
Mark Clements	Roland Coeurjoly	Emil Cohen
Hirsh Cohen	Josh Cohen	James Cloos
Jia Zhao Cong	Christophe Conil	Don Coppersmith
George Corliss	Robert Corless	Gary Cornell
Frank Costa	Meino Cramer	Karl Crary
Jeremy Du Croz	David Cyganski	Nathaniel Daly
Timothy Daly Sr.	Timothy Daly Jr.	James H. Davenport
David Day	James Demmel	Didier Deshommes
Michael Dewar	Inderjit Dhillon	Jack Dongarra
Jean Della Dora	Gabriel Dos Reis	Claire DiCrescendo
Sam Dooley	Nicolas James Doye	Zlatko Drmac
Lionel Ducos	Iain Duff	Lee Duhem
Martin Dunstan	Brian Dupee	Dominique Duval
Robert Edwards	Hans-Dieter Ehrich	Heow Eide-Goodman
Carl Engelman	Lars Erickson	Mark Fahey
William Farmer	Richard Fateman	Bertfried Fauser
Stuart Feldman	John Fletcher	Brian Ford
Albrecht Fortenbacher	George Frances	Constantine Frangos
Timothy Freeman	Korrinn Fu	Marc Gaetano
Rudiger Gebauer	Van de Geijn	Kathy Gerber
Patricia Gianni	Gustavo Goertkin	Samantha Goldrich
Max Goldstein	Holger Gollan	Teresa Gomez-Diaz
Ralph Gomory	Laureano Gonzalez-Vega	Stephen Gortler
Johannes Grabmeier	Matt Grayson	Martin Griss
Klaus Ebbe Grue	James Griesmer	Vladimir Grinberg
Oswald Gschnitzer	Ming Gu	Fred Gustavson
Jocelyn Guidry	Gaetan Hache	Steve Hague
Satoshi Hamaguchi	Sven Hammarling	Mike Hansen
Richard Hanson	Richard Harke	Joseph Harry
Bill Hart	Vilya Harvey	Martin Hassner
Arthur S. Hathaway	Dan Hatton	Waldek Hebisch
Karl Hegbloom	Ralf Hemmecke	Tony Hearn
Henderson	Antoine Hersen	Nicholas J. Higham
Lou Hodes	Alan Hoffman	Hoon Hong
Roger House	Gernot Hueber	Pietro Iglio
Joan Jaffe	Alejandro Jakubi	Richard Jenks
Bo Kagstrom	William Kahan	Kyriakos Kalorkoti
Kai Kaminski	Grant Keady	Tom Kelsey
Wilfrid Kendall	Tony Kennedy	David Kincaid
Keshav Kini	Knut Korsvold	Ted Kosan

Paul Kosinski	Igor Kozachenko	Fred Krogh
Klaus Kusche	Bernhard Kutzler	Tim Lahey
Larry Lambe	Kaj Laurson	Charles Lawson
George L. Legendre	Franz Lehner	Frederic Lehobey
Michel Levaud	Howard Levy	J. Lewis
Ren-Cang Li	John Lipson	Rudiger Loos
Craig Lucas	Michael Lucks	Richard Luczak
Camm Maguire	Dave Mainey	Francois Maltey
William Martin	Ursula Martin	Osni Marques
Alasdair McAndrew	Bob McElrath	Michael McGettrick
Bob McNeill	Edi Meier	Ian Meikle
David Mentre	Jonathan Millen	Victor S. Miller
Gerard Milmeister	William Miranker	Mohammed Mobarak
H. Michael Moeller	Michael Monagan	Marc Moreno-Maza
Scott Morrison	Joel Moses	Mark Murray
William Naylor	Patrice Naudin	C. Andrew Neff
John Nelder	Godfrey Nolan	Arthur Norman
Jinzhong Niu	Michael O'Connor	Summat Oemrawsingh
Kostas Oikonomou	Humberto Ortiz-Zuazaga	Julian A. Padget
Bill Page	David Parnas	Norm Pass
Susan Pelzel	Michel Petitot	Didier Pinchon
Ayal Pinkus	Frederick H. Pitts	Frank Pfenning
Jose Alfredo Portes	E. Quintana-Orti	Gregorio Quintana-Orti
Beresford Parlett	A. Petitot	Andre Platzter
Peter Poromaas	Greg Puhak	Claude Quitte
Arthur C. Ralfs	Norman Ramsey	Anatoly Raportirenko
Guilherme Reis	Huan Ren	Albert D. Rich
Michael Richardson	Jason Riedy	Renaud Rioboo
Robert Risch	Jean Rivlin	Nicolas Robidoux
Simon Robinson	Raymond Rogers	Michael Rothstein
Martin Rubey	Jeff Rutter	R.W Ryniker II
Philip Santas	David Saunders	Alfred Scheerhorn
William Schelter	Gerhard Schneider	Martin Schoenert
Marshall Schor	Frithjof Schulze	Fritz Schwartz
Steven Segletes	V. Sima	Nick Simicich
William Sit	Elena Smirnova	Jacob Nyffeler Smith
Matthieu Sozeau	Srinivasan Seshan	Ken Stanley
Jonathan Steinbach	Fabio Stumbo	Christine Sundaresan
Klaus Sutner	Robert Sutor	Moss E. Sweedler
Eugene Surowitz	Yong Kiam Tan	Max Tegmark
T. Doug Telford	James Thatcher	Laurent Thery
Balbir Thomas	Mike Thomas	Carol Thompson
Dylan Thurston	Francoise Tisseur	Steve Toleque
Dick Toupin	Raymond Toy	Barry Trager
Hale Trotter	Themos T. Tsikas	Gregory Vanuxem
Kresimir Veselic	Christof Voemel	E.G. Wagner
Bernhard Wall	Paul Wang	Stephen Watt
Andreas Weber	Jaap Weel	Al Weis
Juergen Weiss	M. Weller	Mark Wegman
James Wen	Thorsten Werther	Michael Wester
R. Clint Whaley	James T. Wheeler	John M. Wiley
Berhard Will	Clifton J. Williamson	Stephen Wilson
Shmuel Winograd	Robert Wisbauer	Sandra Wityak
Waldemar Wiwianka	Knut Wolf	Yanyang Xiao
Liu Xiaojun	Clifford Yapp	David Yun
Qian Yun	Vadim Zhytnikov	Richard Zippel
Evelyn Zoernack	Bruno Zuercher	Dan Zwillinger

Contents

1	Introduction	1
1.1	The Numbering Scheme	1
1.1.1	bug 7335: type resolution failure	1
1.1.2	bug 7334: coerce missing from <code>EXPR(Quaternion (Complex (Float)))</code>	1
1.1.3	bug 7333: <code>elt</code> : index out of range	2
1.1.4	bug 7332: cannot be coerced to mode <code>(SUP(INT))</code>	2
1.1.5	bug 7331: raise an error but works interpreted	2
1.1.6	bug 7330: does not modify <code>emptybst</code>	2
1.1.7	bug 7329: fails	2
1.1.8	bug 7328: <code>delete!</code> does not delete first table item	2
1.1.9	bug 7327: This truncates the list	3
1.1.10	bug 7326: <code>insert!</code> does not modify the list	3
2	book0 Jenks	5
2.0.11	todo 341: merge endpapers with text	5
3	book5 Interpreter	7
3.0.12	bug 7322: <code>)co dh)constructor DHMATRIX)functions identity</code>	7
3.0.13	bug 7321: missing spaces in <code>)show output</code>	8
3.0.14	todo 334: eliminate <code>bcString2HyString</code>	8
3.0.15	todo 333: eliminate <code>bcFindString</code> , replace with position	8
3.0.16	todo 332: rename <code>linkGen</code> to <code>bcGen</code> in all source files	8
3.0.17	bug 7250: <code>print(typeOf(1)::OutputForm)</code> Value Stack Overflow	8
3.0.18	bug 7262: bad expression parse	9
3.0.19	bug 7265: interpreter does early retract to Taylor series	9

3.0.20	bug 7269: hash does not work for Record	9
3.0.21	bug 7268: Typechecker gets confused by flow control	10
3.0.22	bug 7272:)savesystem does not build a restorable session	10
3.0.23	todo 336: getdatabase should handle special forms	11
3.0.24	bug 7285: tracing of Kernel failed	11
3.0.25	bug 7282: Cannot convert from type Matrix(Integer)...	11
3.0.26	bug 7281:)show TYPE gives duplicate output	12
3.0.27	bug 7280: Enumeration fails	12
3.0.28	bug 7279: subscripting "1"::Symbol fails	12
3.0.29	bug 7284: outputFixed seems wrong	12
3.0.30	bug 7283: printing of typeOf failed	13
3.0.31	bug 7293:)trace EXPR)math	13
3.0.32	bug 7292:)with API fails	13
3.0.33	bug 7291: cos(2/3@Float) parses wrong	13
3.0.34	bug 7290:)d op coerce fails	14
3.0.35	bug 7303: Duplicate signature in)show ALIST	14
3.0.36	todo 338: Convert to Float fails	14
3.0.37	bug 7302: rich12b.input 457 failed	15
4	book7 Hyperdoc	17
4.0.38	bug 7320: bookvol7.1 ugInOutFortranPage fails	17
4.0.39	bug 7277: Hyperdoc fails to reconnect after failure	17
4.0.40	bug 7308: Hyperdoc page Menuexlap fails to format	18
5	book8 Graphics	19
5.0.41	bug 7319: ignoring return values	19
5.0.42	bug 7245: graphs differ from CRC book	20
5.0.43	bug 7242: calling title on an empty viewport shows no title	20
5.0.44	bug 7244: graphs differ from CRC book	21
5.0.45	bug 7243: graphs differ from CRC book	21
5.0.46	bug 7266: integration failure for $1/(\sin(x)^4+1)$	21
5.0.47	bug 7296: connect from VIEW2D is not graph specific	21
6	book9 Compiler	23

7	book10.2 Algebra Categories	25
7.1	U	25
7.1.1	bug 7318: ULSCAT undefined variables	25
7.1.2	bug 7316: UPOLYC undefined variable	25
7.1.3	bug 7317: UPOLYC- not known that (Ring) is of mode...	25
7.1.4	bug 7314: URAGG undefined variables	26
8	book10.3 Algebra Domains	27
8.0.5	bug 7325: Won't Parse	27
8.1	E	27
8.1.1	bug 7311: EQ undefined variable	27
8.2	F	27
8.2.1	bug 7312: FDIV undefined variable	27
8.3	O	28
8.3.1	bug 7289: OrderedVariableList type coercion failed	28
8.4	P	28
8.4.1	bug 7263: POLY(ANTISYM(INT,[x])) missing function	28
8.5	T	28
8.5.1	bug 7288: TexFormat radix escapes characters	28
8.5.2	bug 7287: TexFormat is incorrect	29
8.6	U	29
8.6.1	bug 7286: UPXS arithmetic fails	29
9	book10.4 Algebra Packages	31
9.1	A	31
9.1.1	bug 7313: AXSERV undefined variables	31
9.2	N	32
9.2.1	bug 7309: NAGE04 undefined variable	32
9.2.2	bug 7310: NAGD02 undefined variables	32
9.2.3	bug 7273: SOLVERAD wester algebra radicalSolve bug	33
10	book10.5 Algebra Numerics	37
11	Build System	39
11.0.4	bug 7278: make complains on TESTSET=notests	39

12 CATS	41
12.0.5 bug 7246: kamke tests missing	41
13 Testing	43
13.0.6 bug 7240: in richtrig800-899 there is an occasional failure	43
13.0.7 bug 7238: en.regress failures	43
13.0.8 bug 7241: missing algebra	43
14 Documentation	45
14.0.9 todo 330: fix the inheritance graph for these	45
15 Unclassified	47
15.0.10 warning 20573: rec has no value	47
15.0.11 bug 7249: radicalSolve($z^7=1, z$)	47
15.0.12 bug 7248: differentiation bug in $D(1,z)$	52
15.0.13 bug 7142: $\exp\log(x)$ Cannot take first of an empty list	52
15.0.14 bug 7259: in taylor expansion	54
15.0.15 wish 1011: $\text{sum}(1/(k+a), k=1..n)$ by Gosper's method	54
15.0.16 bug 7258: $\text{acosh}(0.0)$ invalid argument to acosh	54
15.0.17 bug 7257: $\text{normalize}(\text{subst}(\text{asin}(z), z=-1))$ division by zero	55
15.0.18 bug 7256: $\text{acot}(-1)$ values differ	55
15.0.19 bug 7254: $f==n+-i\text{sum}(\text{sum}(1/i, i=1..j), j=1..n)$ complains	56
15.0.20 bug 7253: There are no library operations named 'when'	56
15.0.21 bug 7252: $\text{argument}(-\%i)$	57
15.0.22 bug 7251: $\text{integrate}(1/(1+z^4), z=0..1) :: \text{Complex Float}$	58
15.0.23 bug 7261: wrong integral	59
15.0.24 bug 7267: $\text{src}/\text{input}/\text{liu}$ is not always **	59
15.0.25 bug 7270: integral confused by branches	60
15.0.26 bug 7275: typos in axbook	61
15.0.27 bug 7276: The axbook does not display correctly in Chrome	61
15.0.28 bug 7306: bad counter in)regress function	61
15.0.29 bug 7305: series should simplify	61
15.0.30 todo 340: exponential-linear	62
15.0.31 todo 339: missing side conditions	62

15.0.32 todo 337: erf does not evaluate	62
15.0.33 bug 7301: rich12c.input 310 failed	62
15.0.34 bug 7300: outputDomainConstructor failure	63
15.0.35 bug 7295: guessRat : (1 . arbitrary) cannot be coerced	63
15.0.36 bug 7294: GuessOption: displayAsGF not set	63
15.0.37 warnings 20572: IDPAM	64
15.0.38 warnings 20571: INBFF	64
15.0.39 warnings 20570: DFLOAT	64
15.0.40 warnings 20569: LIST	64
15.0.41 warnings 20568: MFLOAT	64
15.0.42 nonextend 60076: AFFSP	65
15.0.43 nonextend 60075: BSTREE	65
15.0.44 nonextend 60074: BTOURN	65
15.0.45 nonextend 60073: BBTREE	65
15.0.46 nonextend 60072: D01GBFA	65
15.0.47 nonextend 60071: D02EJFA	66
15.0.48 nonextend 60070: D03FAFA	66
15.0.49 nonextend 60069: D01FCFA	66
15.0.50 nonextend 60068: LPOLY	66
15.0.51 nonextend 60067: DBASE	66
15.0.52 nonextend 60066: DHMATRIX	67
15.0.53 nonextend 60065: D02BBFA	67
15.0.54 nonextend 60064: D02BHFA	67
15.0.55 nonextend 60063: D02CJFA	67
15.0.56 nonextend 60062: FNLA	67
15.0.57 nonextend 60061: POINT	68
15.0.58 nonextend 60060: STRING	68
15.0.59 nonextend 60059: BINARY	68
15.0.60 nonextend 60058: DECIMAL	68
15.0.61 nonextend 60057: E04DGFA	68
15.0.62 nonextend 60056: E04FDFA	69
15.0.63 nonextend 60055: E04GCFA	69
15.0.64 nonextend 60054: E04JAF	69

15.0.65 nonextend 60053: E04UCFA	69
15.0.66 nonextend 60052: FRAC	69
15.0.67 nonextend 60051: FTEM	70
15.0.68 nonextend 60050: GMODPOL	70
15.0.69 nonextend 60049: HEXADEC	70
15.0.70 nonextend 60048: MINT	70
15.0.71 nonextend 60047: NSUP	71
15.0.72 nonextend 60046: SMTS	71
15.0.73 nonextend 60045: SUP	71
15.0.74 nonextend 60044: SUEXPR	71
15.0.75 nonextend 60043: UP	71
15.0.76 nonextend 60042: EXPUPXS	72
15.0.77 nonextend 60041: BSD	72
15.0.78 nonextend 60040: ANTISYM	72
15.0.79 nonextend 60039: FEXPR	72
15.0.80 nonextend 60038: GDMP	73
15.0.81 nonextend 60037: HACKPI	73
15.0.82 nonextend 60036: LIB	73
15.0.83 nonextend 60035: LODO	73
15.0.84 nonextend 60034: M3D	73
15.0.85 nonextend 60033: NSDPS	74
15.0.86 nonextend 60032: RESULT	74
15.0.87 nonextend 60031: RMATRIX	74
15.0.88 nonextend 60030: ROMAN	74
15.0.89 nonextend 60029: ROUTINE	75
15.0.90 nonextend 60028: SQMATRIX	75
15.0.91 nonextend 60027: ALGSC	75
15.0.92 nonextend 60026: AN	75
15.0.93 nonextend 60025: D03EEFA	75
15.0.94 nonextend 60024: D01AGNT	76
15.0.95 nonextend 60023: DERHAM	76
15.0.96 nonextend 60022: D01TRNS	76
15.0.97 nonextend 60021: E04NAFA	76

15.0.98nonextend 60020: EXPEXPAN	77
15.0.99nonextend 60019: GCNAALG	77
15.0.100nonextend 60018: IAN	77
15.0.101nonextend 60017: LSQM	77
15.0.102nonextend 60016: MCMPLX	77
15.0.103nonextend 60015: MYUP	78
15.0.104nonextend 60014: MYEXPR	78
15.0.105nonextend 60013: MYEXPR	78
15.0.106nonextend 60012: SD	78
15.0.107nonextend 60011: SUTS	79
15.0.108nonextend 60010: UPXSSING	79
15.0.109nonextend 60009: ESCONT	79
15.0.110nonextend 60008: GSERIES	79
15.0.111nonextend 60007: RGCHAIN	79
15.0.112nonextend 60006: SULS	80
15.0.113nonextend 60005: UTS	80
15.0.114nonextend 60004: UTSZ	80
15.0.115nonextend 60003: INFCLSPT	80
15.0.116nonextend 60002: GUESSUP	80
15.0.117nonextend 60001: NNI	81
15.0.118nonextend 60000: PI	81
15.0.119dup 50004: duplication definition	81
15.0.120dup 50003: duplication definition	81
15.0.121dup 50002: duplication definition	81
15.0.122dup 50000: duplication definition	82
15.0.123typos 40356: RFDIST	82
15.0.124typos 40354: BLMETCT	82
15.0.125typos 40349: NONE	82
15.0.126typos 40348: NUMINT	82
15.0.127typos 40343: SETCATD	83
15.0.128typos 40337: AFSPCAT	83
15.0.129typos 40328: PlacesCategory	83
15.0.130typos 40327: PRSPCAT	83

15.0.131	typos 40324: IFAMON	84
15.0.132	typos 40321a: BSTREE	84
15.0.133	typos 40317: FACTFUNC	84
15.0.134	typos 40301: DIRRING	84
15.0.135	typos 40300: DIV	84
15.0.136	typos 40299: D01GBFA	85
15.0.137	typos 40294: LIECAT	85
15.0.138	typos 40288: PACPERC	85
15.0.139	typos 40265a: LOCPOWC	85
15.0.140	typos 40248a: LOP	86
15.0.141	typos 40246: PERMAN	86
15.0.142	typos 40242: ASP24	86
15.0.143	typos 40241: AXSERV	86
15.0.144	typos 40224: FFSQFR	86
15.0.145	typos 40212a: GOSPER	87
15.0.146	typos 40211: GRIMAGE	87
15.0.147	typos 40205: INTERGB	87
15.0.148	typos 40202: LISYSER	87
15.0.149	typos 40193: PARAMP	87
15.0.150	typos 40192: PFORP	88
15.0.151	typos 40189: POLYCATQ	88
15.0.152	typos 40188: POLYLIFT	88
15.0.153	typos 40184: RINTERP	88
15.0.154	typos 40180: SOLVEFOR	89
15.0.155	typos 40166: FACTRN	89
15.0.156	typos 40165: FFFACTSE	89
15.0.157	typos 40163: INTFRSP	89
15.0.158	typos 40161: NPOLYGON	89
15.0.159	typos 40158: AFALGGRO	90
15.0.160	typos 40157: AFALGRES	90
15.0.161	typos 40134b: BlowUpPackage	90
15.0.162	typos 40126b: Float	90
15.0.163	typos 40120a: INFCLCT	90

15.0.164	typos 40115: NAGD02	91
15.0.165	typos 40114: NAGD03	91
15.0.166	typos 40112: NAGE04	91
15.0.167	typos 70111: NSDPS	92
15.0.168	typos 40107: PACOFF	92
15.0.169	typos 40106: PACRAT	92
15.0.170	typos 40096: SAOS	92
15.0.171	typos 40082a: DTP	92
15.0.172	nonextend 40081: D01TRNS	93
15.0.173	typos 40078: EXPRODE	93
15.0.174	typos 40069: MYUP	93
15.0.175	typos 40068: MYEXPR	93
15.0.176	typos 40067: MYEXPR	93
15.0.177	typos 40066: NAGF02	94
15.0.178	typos 40065: NAGF04	94
15.0.179	typos 40064: OMEXPR	94
15.0.180	typos 40058: TRMANIP	95
15.0.181	typos 40057: UPXSSING	95
15.0.182	typos 40056: UTSSOL	95
15.0.183	typos 40050: EXPRSOL	95
15.0.184	typos 40049: FACTEXT	95
15.0.185	typos 40047: GSERIES	96
15.0.186	typos 40046: REGSET	96
15.0.187	typos 40044: RSDCMPK	96
15.0.188	typos 40040: UFPS1	96
15.0.189	typos 40037a: GPAFF	97
15.0.190	typos 40036: PACEXT	97
15.0.191	typos 40035: RECOP	97
15.0.192	typos 40034: SFRGCD	97
15.0.193	typos 40033: SRDCMPK	98
15.0.194	typos 40031: GUESS	98
15.0.195	typos 40029a: PAFF	99
15.0.196	typos 40028a: PAFFF	99

15.0.197	warnings 20566: MAPPKG1	100
15.0.198	warnings 20565: MAPPKG2	101
15.0.199	warnings 20564: MAPPKG3	101
15.0.200	warnings 20563: MKBCFUNC	101
15.0.201	warnings 20562: MKUCFUNC	101
15.0.202	warnings 20561: NIPROB	101
15.0.203	warnings 20560: OPTPROB	102
15.0.204	warnings 20559: PATTERN1	102
15.0.205	warnings 20558: ASP29	102
15.0.206	warnings 20557: BEZIER	102
15.0.207	warnings 20556: FCOMP	103
15.0.208	warnings 20555: IDPAG	103
15.0.209	warnings 20554: IDPAM	103
15.0.210	warnings 20553: INCRMAPS	103
15.0.211	warnings 20552: MONADWU	104
15.0.212	warnings 20551: PATMATCH	104
15.0.213	warnings 20550: AUTOMOR	104
15.0.214	warnings 20549: CHARPOL	104
15.0.215	warnings 20548: ELAGG	104
15.0.216	warnings 20547: ES2	105
15.0.217	warnings 20546: MKCHSET	105
15.0.218	warnings 20545: IFAMON	105
15.0.219	warnings 20544: CARD	105
15.0.220	warnings 20543: FACTFUNC	106
15.0.221	warnings 20541: AMR	106
15.0.222	warnings 20540: DEGRED	106
15.0.223	warnings 20539: DLP	106
15.0.224	warnings 20538: FAGROUP	106
15.0.225	warnings 20537: FIELD	107
15.0.226	warnings 20536: FLAGG	107
15.0.227	warnings 20535: FLINEXP	107
15.0.228	warnings 20534: MAPPKG4	107
15.0.229	warnings 20533: OMLO	107

15.0.230	warnings 20532: PRODUCT	108
15.0.231	warnings 20531: ARR2CAT	108
15.0.232	warnings 20530: ASP34	108
15.0.233	warnings 20529: BFUNCT	108
15.0.234	warnings 20528: BTREE	109
15.0.235	warnings 20527: CRAPACK	109
15.0.236	warnings 20526: DIRRING	109
15.0.237	warnings 20525: DIV	109
15.0.238	warnings 20524: D01GBFA	110
15.0.239	warnings 20523: FAMR	110
15.0.240	warnings 20522: FM1	110
15.0.241	warnings 20521: FMONOID	110
15.0.242	warnings 20520: IPADIC	111
15.0.243	warnings 20519: LIST2MAP	111
15.0.244	warnings 20518: LMOPS	111
15.0.245	warnings 20517: MESH	112
15.0.246	warnings 20516: MOEBIUS	112
15.0.247	warnings 20515: MRING	112
15.0.248	warnings 20514: ODR	112
15.0.249	warnings 20513: ORDCOMP	113
15.0.250	warnings 20512: PARTPERM	113
15.0.251	warnings 20511: PENDTREE	113
15.0.252	warnings 20510: PLOTTOOL	113
15.0.253	warnings 20509: PFR	114
15.0.254	warnings 20508: PMDOWN	114
15.0.255	warnings 20507: PMINS	114
15.0.256	warnings 20506: PMLSAGG	114
15.0.257	warnings 20505: PMTOOLS	115
15.0.258	warnings 20504: PRITION	115
15.0.259	warnings 20503: PSCAT	115
15.0.260	warnings 20502: SCACHE	115
15.0.261	warnings 20500: STTAYLOR	116
15.0.262	warnings 20499: TABLBUMP	116

15.0.263	warnings 20498: UDPO	116
15.0.264	warnings 20497: UNISEG	117
15.0.265	warnings 20496: XPR	117
15.0.266	warnings 20495: AFFSP	117
15.0.267	warnings 20494: COMBINAT	117
15.0.268	warnings 20493: D01FCFA	117
15.0.269	warnings 20492: IFARRAY	118
15.0.270	warnings 20491: INTHEORY	118
15.0.271	warnings 20490: LWORD	118
15.0.272	warnings 20489: MATCAT	118
15.0.273	warnings 20488: PLOT3D	119
15.0.274	warnings 20487: POLYVEC	119
15.0.275	warnings 20486: PR	119
15.0.276	warnings 20485: PROJSP	119
15.0.277	warnings 20484: STREAM	120
15.0.278	warnings 20483: VECTCAT	120
15.0.279	warnings 20482: XRPOLY	120
15.0.280	warnings 20481: IMATRIX	120
15.0.281	warnings 20479: ASSOCEQ	121
15.0.282	warnings 20478: CARTEN	121
15.0.283	warnings 20477: CLIF	121
15.0.284	warnings 20476: CLIP	121
15.0.285	warnings 20475: COORDSYS	122
15.0.286	warnings 20474: DHMATRIX	122
15.0.287	warnings 20473: DIOSP	122
15.0.288	warnings 20472: DIRPCAT	122
15.0.289	warnings 20471: D02CJFA	122
15.0.290	warnings 20470: FAXF	123
15.0.291	warnings 20469: FFPOLY2	123
15.0.292	warnings 20468: FNLA	123
15.0.293	warnings 20466: HB	123
15.0.294	warnings 20464: IRSN	123
15.0.295	warnings 20463: LOP	124

15.0.296	warnings 20462: MHROWRED	124
15.0.297	warnings 20461: NUMQUAD	124
15.0.298	warnings 20460: ODESYS	124
15.0.299	warnings 20459: ODETOOLS	125
15.0.300	warnings 20458: PERMAN	125
15.0.301	warnings 20457: PFECAT	125
15.0.302	warnings 20456: PSEUDLIN	125
15.0.303	warnings 20455: REP2	126
15.0.304	warnings 20454: SETMN	126
15.0.305	warnings 20453: STRING	126
15.0.306	warnings 20452: ASP1	127
15.0.307	warnings 20451: ASP10	127
15.0.308	warnings 20450: ASP24	127
15.0.309	warnings 20449: ASP4	127
15.0.310	warnings 20448: ASP50	127
15.0.311	warnings 20447: ASP6	128
15.0.312	warnings 20446: ASP73	128
15.0.313	warnings 20445: AXSERV	128
15.0.314	warnings 20444: BALFACT	129
15.0.315	warnings 20443: BOUNDZRO	129
15.0.316	warnings 20442: CDEN	129
15.0.317	warnings 20441: CHVAR	129
15.0.318	warnings 20440: CONTFRAC	129
15.0.319	warnings 20439: DDFACT	130
15.0.320	warnings 20438: DIRPROD	130
15.0.321	warnings 20437: DISPLAY	131
15.0.322	warnings 20436: DPOLCAT	131
15.0.323	warnings 20435: DSTREE	131
15.0.324	warnings 20434: D01AMFA	131
15.0.325	warnings 20433: D01APFA	132
15.0.326	warnings 20432: D01AQFA	132
15.0.327	warnings 20431: EQ	132
15.0.328	warnings 20430: MDDFACT	132

15.0.329	warnings 20429: MMAP	132
15.0.330	warnings 20428: MODMON	133
15.0.331	warnings 20427: MONOTOOL	133
15.0.332	warnings 20426: MPCPF	133
15.0.333	warnings 20425: MPC2	133
15.0.334	warnings 20424: MPC3	133
15.0.335	warnings 20423: MPRFF	134
15.0.336	warnings 20422: MULTSQFR	134
15.0.337	warnings 20421: NPCOEF	135
15.0.338	warning 20420: NSUP	135
15.0.339	warnings 20419: ODEPRIM	135
15.0.340	warnings 20418: ODEPRRIC	135
15.0.341	warnings 20417: OMPKG	136
15.0.342	warnings 20416: PADICRC	136
15.0.343	warnings 20415: PFBR	136
15.0.344	warnings 20414: PFBRU	137
15.0.345	warnings 20413: PFORP	137
15.0.346	warnings 20412: PFRPAC	138
15.0.347	warnings 20411: PGCD	138
15.0.348	warnings 20410: PLEQN	138
15.0.349	warnings 20409: PMPLCAT	139
15.0.350	warnings 20408: PNTHEORY	139
15.0.351	warnings 20407: POLUTIL	139
15.0.352	warnings 20406: POLYCATQ	139
15.0.353	warnings 20405: POLYLIFT	139
15.0.354	warnings 20404: POLYROOT	140
15.0.355	warnings 20403: POLY2	140
15.0.356	warnings 20402: POLY2UP	140
15.0.357	warnings 20401: PRS	140
15.0.358	warnings 20400: PSQFR	140
15.0.359	warnings 20399: PUSHVAR	141
15.0.360	warnings 20398: QALGSET	141
15.0.361	warnings 20397: RADIX	141

15.0.362	warnings 20396: RCFIELD	141
15.0.363	warnings 20395: RDETR	142
15.0.364	warnings 20394: RDETRS	142
15.0.365	warnings 20393: REAL0	142
15.0.366	warnings 20392: REALSOLV	143
15.0.367	warnings 20391: RESRING	143
15.0.368	warnings 20390: RETSOL	143
15.0.369	warnings 20389: RF	143
15.0.370	warnings 20388: RFFACTOR	143
15.0.371	warnings 20387: SHP	143
15.0.372	warnings 20386: SIGNRF	144
15.0.373	warnings 20385: SMITH	144
15.0.374	warnings 20384: SMP	144
15.0.375	warnings 20382: SOLVEFOR	145
15.0.376	warnings 20381: SPLTREE	145
15.0.377	warnings 20380: STINPROD	145
15.0.378	warnings 20379: STTF	145
15.0.379	warnings 20378: SUBRESP	146
15.0.380	warnings 20377: SUMRF	146
15.0.381	warnings 20376: SUP	146
15.0.382	warnings 20375: SUPFRACF	146
15.0.383	warnings 20374: TEX	147
15.0.384	warnings 20373: TEXTFILE	147
15.0.385	warnings 20372: TREE	147
15.0.386	warnings 20371: TWOFACT	147
15.0.387	warnings 20370: UNIFACT	148
15.0.388	warnings 20369: UPCDEN	148
15.0.389	warnings 20368: UPDECOMP	149
15.0.390	warnings 20367: UPDIVP	149
15.0.391	warnings 20366: UPSQFREE	149
15.0.392	warnings 20365: VIEWDEF	149
15.0.393	warnings 20364: WEIER	149
15.0.394	warnings 20363: WP	150

15.0.395	warnings 20362: DIAGG	150
15.0.396	warnings 20361: DSMP	150
15.0.397	warnings 20360: FACTRN	150
15.0.398	warnings 20359: FFFACTSE	151
15.0.399	warnings 20358: FRAMALG	151
15.0.400	warnings 20357: INTFRSP	151
15.0.401	warnings 20356: LPARSPT	151
15.0.402	warnings 20355: NPOLYGON	151
15.0.403	warnings 20354: PLOT	152
15.0.404	warnings 20353: RFP	152
15.0.405	warnings 20352: ROIRC	152
15.0.406	warnings 20351: SMATCAT	152
15.0.407	warnings 20350: AFALGGRO	153
15.0.408	warnings 20349: AFALGRES	153
15.0.409	warnings 20348: FFINTBAS	153
15.0.410	warnings 20347: FRIDEAL	153
15.0.411	warnings 20346: FRIDEAL2	153
15.0.412	warnings 20345: FRMOD	153
15.0.413	warnings 20344: INTFACT	154
15.0.414	warnings 20343: MONOGEN	154
15.0.415	warnings 20342: NFINTBAS	154
15.0.416	warnings 20341: CCLASS	154
15.0.417	warnings 20340: CPIMA	154
15.0.418	warnings 20339: GALFACT	155
15.0.419	warnings 20338: IALGFACT	155
15.0.420	warnings 20337: IBACHIN	155
15.0.421	warnings 20336: MMLFORM	156
15.0.422	warnings 20335: NORMMA	156
15.0.423	warnings 20334: ODERED	156
15.0.424	warnings 20333: PERM	156
15.0.425	warnings 20332: PERMGRP	157
15.0.426	warnings 20331: PRIMES	157
15.0.427	warnings 20330: PRJALGPK	157

15.0.428	warnings 20329: PWFFINTB	158
15.0.429	warnings 20328: SAE	158
15.0.430	warnings 20327: SGCF	158
15.0.431	warnings 20326: SPACE3	158
15.0.432	warnings 200325: TBAGG	158
15.0.433	warnings 20324: VIEW3D	159
15.0.434	warnings 20323: WFFINTBS	159
15.0.435	warnings 20322: ALIST	159
15.0.436	warnings 20321: HASHTBL	159
15.0.437	warnings 20320: INTPACK	159
15.0.438	warnings 20319: IPF	160
15.0.439	warnings 20318: ACF	160
15.0.440	warnings 20317: ACPLLOT	160
15.0.441	warnings 20316: ANTISYM	161
15.0.442	warnings 20315: ASP12	161
15.0.443	warnings 20314: ASP27	161
15.0.444	warnings 20313: ASP28	162
15.0.445	warnings 20312: ASP30	162
15.0.446	warnings 20311: ASP33	162
15.0.447	warnings 20310: ASP49	163
15.0.448	warnings 20309: ASP55	163
15.0.449	warnings 20308: ASP7	163
15.0.450	warnings 20307: ASP78	164
15.0.451	warnings 20306: ASP8	164
15.0.452	warnings 20305: ASP9	164
15.0.453	warnings 20304: BLUPPACK	165
15.0.454	warnings 20303: BOP	165
15.0.455	warnings 20302: BOP1	165
15.0.456	warnings 20301: COMPCAT	165
15.0.457	warnings 20300: DRAWCFUN	165
15.0.458	warnings 20299: D01ANFA	166
15.0.459	warnings 20298: D01ASFA	166
15.0.460	warnings 20297: EP	166

15.0.461	warnings 20296: E04AGNT	167
15.0.462	warnings 20295: FEXPR	167
15.0.463	warnings 20294: FFCAT	167
15.0.464	warnings 20293: FFCGP	167
15.0.465	warnings 20292: FFNBP	168
15.0.466	warnings 20291: FFP	168
15.0.467	warnings 20290: FLOAT	168
15.0.468	warnings 20289: FPARFRAC	169
15.0.469	warnings 20288: FR	169
15.0.470	warnings 20287: FRNAALG	169
15.0.471	warnings 20286: FS	169
15.0.472	warnings 20285: FST	170
15.0.473	warnings 20284: GDMP	170
15.0.474	warnings 20283: HACKPI	171
15.0.475	warnings 20282: IDEAL	171
15.0.476	warnings 20281: INFORM	172
15.0.477	warnings 20280: IR	172
15.0.478	warnings 20279: ISUPS	172
15.0.479	warnings 20278: LMDICT	173
15.0.480	warnings 20277: LODOOPS	173
15.0.481	warnings 20276: MATRIX	173
15.0.482	warnings 20275: MKFLCFN	174
15.0.483	warnings 20274: MSET	174
15.0.484	warnings 20273: M3D	174
15.0.485	warnings 20272: NAGC02	174
15.0.486	warnings 20271: NAGC05	174
15.0.487	warnings 20270: NAGC06	175
15.0.488	warnings 20269: NAGD01	175
15.0.489	warnings 20268: NAGD02	176
15.0.490	warnings 20267: NAGD03	177
15.0.491	warnings 20266: NAGE01	177
15.0.492	warnings 20265: NAGE02	177
15.0.493	warnings 20264: NAGE04	178

15.0.494	warnings 20263: NAGF07	178
15.0.495	warnings 20262: NAGS	178
15.0.496	warnings 20261: NAGSP	179
15.0.497	warnings 20260: NSDPS	180
15.0.498	warnings 20259: NUMFMT	180
15.0.499	warnings 20258: ODERAT	180
15.0.500	warnings 20257: OMERRK	180
15.0.501	warnings 20256: OPTPACK	181
15.0.502	warnings 20255: OSI	181
15.0.503	warnings 20254: PACOFF	181
15.0.504	warnings 20253: PACRAT	182
15.0.505	warnings 20252: PATTERN	182
15.0.506	warnings 20251: PLCS	183
15.0.507	warnings 20250: PMKERNEL	183
15.0.508	warnings 20249: PRIMELT	183
15.0.509	warnings 20248: QALGSET2	183
15.0.510	warnings 20247: RECLOS	184
15.0.511	warnings 20246: REP1	184
15.0.512	warnings 20245: RFFACT	184
15.0.513	warnings 20244: RPOLCAT	184
15.0.514	warnings 20243: SWITCH	185
15.0.515	warnings 20242: SYMTAB	185
15.0.516	warnings 20241: SYSSOLP	185
15.0.517	warnings 20240: UTSCAT	185
15.0.518	warnings 20239: ACFS	185
15.0.519	warnings 20238: AF	186
15.0.520	warnings 20237: ALGFACT	186
15.0.521	warnings 20236: ALGFF	186
15.0.522	warnings 20235: ALGMANIP	187
15.0.523	warnings 20234: ALGMFACT	187
15.0.524	warnings 20233: ALGSC	187
15.0.525	warnings 20232: APPRULE	187
15.0.526	warnings 20231: ASP19	188

15.0.527	warnings 20230: ASP20	188
15.0.528	warnings 20229: ASP31	188
15.0.529	warnings 20228: ASP35	188
15.0.530	warnings 20227: ASP41	189
15.0.531	warnings 20226: ASP42	189
15.0.532	warnings 20225: ASP74	189
15.0.533	warnings 20224: ASP77	190
15.0.534	warnings 20223: ASP80	190
15.0.535	warnings 20222: CINTSLPE	190
15.0.536	warnings 20221: COMBF	190
15.0.537	warnings 20220: COMPFAC	191
15.0.538	warnings 20219: COMPLEX	191
15.0.539	warnings 20218: CPMATCH	191
15.0.540	warnings 20217: CRFP	191
15.0.541	warnings 20216: CTRIGMNP	192
15.0.542	warnings 20215: D01WGTS	192
15.0.543	warnings 20214: D02AGNT	192
15.0.544	warnings 20213: DBLRESP	192
15.0.545	warnings 20212: D01AGNT	192
15.0.546	warnings 20211: DFSFUN	193
15.0.547	warnings 20210: DRAWCURV	193
15.0.548	warnings 20209: DTP	193
15.0.549	warnings 20208: D01TRNS	193
15.0.550	warnings 20207: EF	194
15.0.551	warnings 20206: EFSTRUC	194
15.0.552	warnings 20205: ELFUTS	195
15.0.553	warnings 20204: ESTOOLS	195
15.0.554	warnings 20203: EXPRODE	195
15.0.555	warnings 20202: EXPRTUBE	195
15.0.556	warnings 20201: EXPR2	195
15.0.557	warnings 20200: FC	196
15.0.558	warnings 20199: FDIV	196
15.0.559	warnings 20198: FSPRMELT	196

15.0.560	warnings 20197: FSRED	197
15.0.561	warnings 20196: FSUPFACT	197
15.0.562	warnings 20195: FSPECF	197
15.0.563	warnings 20194: FS2	197
15.0.564	warnings 20193: FS2UPS	198
15.0.565	warnings 20192: GAUSSFAC	198
15.0.566	warnings 20191: GCNAALG	199
15.0.567	warnings 20190: GENUFACT	199
15.0.568	warnings 20189: GENUPS	199
15.0.569	warnings 20188: IAN	199
15.0.570	warnings 20187: INEP	200
15.0.571	warnings 20186: INFSP	200
15.0.572	warnings 20185: INPRODPF	200
15.0.573	warnings 20184: INTAF	200
15.0.574	warnings 20183: INTALG	201
15.0.575	warnings 20182: INTEF	201
15.0.576	warnings 20181: INTG0	202
15.0.577	warnings 20180: INTHERAL	203
15.0.578	warnings 20179: INTPAF	203
15.0.579	warnings 20178: INTPM	203
15.0.580	warnings 20177: INTTOOLS	204
15.0.581	warnings 20176: ITRIGMNP	204
15.0.582	warnings 20175: KOVACIC	205
15.0.583	warnings 20174: LF	205
15.0.584	warnings 20173: LODOF	205
15.0.585	warnings 20172: LSQM	205
15.0.586	warnings 20171: MULTFACT	206
15.0.587	warnings 20170: MYUP	206
15.0.588	warnings 20169: MYEXPR	206
15.0.589	warnings 20168: MYEXPR	206
15.0.590	warnings 20167: NAGF01	206
15.0.591	warnings 20166: NAGF02	207
15.0.592	warnings 20165: NAGF04	207

15.0.593	warnings 20164: NLINSOL	208
15.0.594	warnings 20163: NSMP	208
15.0.595	warnings 20162: ODERTRIC	208
15.0.596	warnings 20161: OMEXPR	208
15.0.597	warnings 20160: PADE	209
15.0.598	warnings 20159: PAN2EXPR	209
15.0.599	warnings 20158: PFO	209
15.0.600	warnings 20157: PFOQ	210
15.0.601	warnings 20156: PICOERCE	210
15.0.602	warnings 20155: PMASSFS	210
15.0.603	warnings 20154: PMFS	210
15.0.604	warnings 20153: PMPREDFS	210
15.0.605	warnings 20152: PSETPK	211
15.0.606	warnings 20151: RADFF	211
15.0.607	warnings 20150: RDEEF	211
15.0.608	warnings 20149: RDEEFS	212
15.0.609	warnings 20148: RSETCAT	212
15.0.610	warnings 20147: RSETGCD	212
15.0.611	warnings 20146: RULE	213
15.0.612	warnings 20145: SIGNEF	213
15.0.613	warnings 20144: SIMPAN	213
15.0.614	warnings 20143: SOLVESER	213
15.0.615	warnings 20142: SOLVETRA	213
15.0.616	warnings 20141: SUMFS	214
15.0.617	warnings 20140: TOOLSIGN	214
15.0.618	warnings 20139: TRIGMNIP	214
15.0.619	warnings 20138: TRMANIP	215
15.0.620	warnings 20137: UPXSSING	215
15.0.621	warnings 20136: UTSODE	216
15.0.622	warnings 20135: UTSODETL	216
15.0.623	warnings 20134: UTSSOL	216
15.0.624	warnings 20133: WUTSET	216
15.0.625	warnings 20132: DEFINTEF	217

15.0.626	warnings 20131: DEFINTRF	217
15.0.627	warnings 20130: DFINTTLS	217
15.0.628	warnings 20129: EFULS	217
15.0.629	warnings 20128: ESCONT	218
15.0.630	warnings 20127: EXPR	218
15.0.631	warnings 20126: EXPRSOL	219
15.0.632	warnings 20125: EXPR2UPS	219
15.0.633	warnings 20124: FACTEXT	220
15.0.634	warnings 20123: FDIV	220
15.0.635	warnings 20122: FSCINT	220
15.0.636	warnings 20121: FSINT	220
15.0.637	warnings 20120: FS2EXPPX	221
15.0.638	warnings 20119: GSERIES	221
15.0.639	warnings 20118: HELLDIV	222
15.0.640	warnings 20117: INTDIVP	222
15.0.641	warnings 20116: INVLAPLA	222
15.0.642	warnings 20115: IR2F	222
15.0.643	warnings 20114: IRRF2F	222
15.0.644	warnings 20113: LAPLACE	223
15.0.645	warnings 20112: LIMITPS	223
15.0.646	warnings 20111: LODEEF	223
15.0.647	warnings 20110: NODE1	224
15.0.648	warnings 20109: ODECONST	224
15.0.649	warnings 20108: ODEEF	224
15.0.650	warnings 20107: ODEINT	224
15.0.651	warnings 20106: QCMPACK	225
15.0.652	warnings 20105: REGSET	225
15.0.653	warnings 20104: REP	225
15.0.654	warnings 20103: RSDCMPK	226
15.0.655	warnings 20102: SOLVERAD	226
15.0.656	warnings 20101: SULS	226
15.0.657	warnings 20100: UFPS1	226
15.0.658	warnings 20099: ULSCONS	227

15.0.659	warnings 20098: UPXS	227
15.0.660	warnings 20097: UPXSCONS	227
15.0.661	warnings 20096: UTS	227
15.0.662	warnings 20095: GPAFF	228
15.0.663	warnings 20094: IRURPK	228
15.0.664	warnings 20093: LEXTRIPK	228
15.0.665	warnings 20092: NORMPK	228
15.0.666	warnings 20091: PACEXT	229
15.0.667	warnings 20090: RECOP	229
15.0.668	warnings 20089: RURPK	229
15.0.669	warnings 20088: SFRGCD	230
15.0.670	warnings 20087: SFQCMPIK	230
15.0.671	warnings 20086: SRDCMPIK	230
15.0.672	warnings 20085: SREGSET	231
15.0.673	warnings 20084: ZDSOLVE	231
15.0.674	warnings 20083: GUESS	231
15.0.675	warnings 20082: INFCLST	232
15.0.676	warnings 20081: GUESSAN	232
15.0.677	warnings 20080: GUESSINT	233
15.0.678	warnings 20079: GUESSP	233
15.0.679	warnings 20078: GUESSUP	233
15.0.680	warnings 20077: GUESSF	233
15.0.681	warnings 20076: PAFF	233
15.0.682	warnings 20075: PAFFFF	234
15.0.683	warnings 20074: CLAGG	234
15.0.684	warnings 20072: ES	234
15.0.685	warnings 20071: EUCDOM	234
15.0.686	warnings 20070: FFIELDC	235
15.0.687	warnings 20069: GCDDOM	235
15.0.688	warnings 20068: HOAGG	235
15.0.689	warnings 20067: ILIST	235
15.0.690	warnings 20066: INS	235
15.0.691	warnings 20065: INT	236

15.0.692	warnings 20064: ISTRING	236
15.0.693	warnings 20062: LSAGG	236
15.0.694	warnings 20061: POLYCAT	236
15.0.695	warnings 20060: PSETCAT	237
15.0.696	warnings 20059: QFCAT	237
15.0.697	warnings 20058: RNS	237
15.0.698	warnings 20057: SINT	238
15.0.699	warnings 20056: SYMBOL	238
15.0.700	warnings 20055: TSETCAT	238
15.0.701	warnings 20054: UFD	238
15.0.702	warnings 20053: UPOLYC	238
15.0.703	warnings 20052: FFFG	239
15.0.704	warnings 20051: FFFGF	239
15.0.705	warnings 20050: FFHOM	239
15.0.706	warnings 20049: FFPOLY	239
15.0.707	warnings 20048: FFSQFR	240
15.0.708	warnings 20047: FFSLPE	240
15.0.709	warnings 20046: FGLMICPK	241
15.0.710	warnings 20045: FFF	241
15.0.711	warnings 20044: FORMULA	241
15.0.712	warnings 20043: FORT	241
15.0.713	warnings 20042: FRAC	242
15.0.714	warnings 20041: FTEM	242
15.0.715	warnings 20040: GENEZ	242
15.0.716	warnings 20039: GENMFACT	242
15.0.717	warnings 20038: GENPGCD	242
15.0.718	warnings 20037: GALFACTU	243
15.0.719	warnings 20036: GB	243
15.0.720	warnings 20035: GBEUCLID	243
15.0.721	warnings 20034: GBF	243
15.0.722	warnings 20033: GBINTERN	244
15.0.723	warnings 20032: GHENSEL	244
15.0.724	warnings 20031: GOSPER	244

15.0.725	warnings 20030: GRIMAGE	245
15.0.726	warnings 20029: GROEBSOL	245
15.0.727	warnings 20028: HEUGCD	245
15.0.728	warnings 20027: HTMLFORM	245
15.0.729	warnings 20026: ICARD	246
15.0.730	warnings 20025: ICDEN	246
15.0.731	warnings 20024: IDECOMP	246
15.0.732	warnings 20023: IARRAY2	246
15.0.733	warnings 20022: IMATLIN	247
15.0.734	warnings 20021: IMATQF	247
15.0.735	warnings 20020: INMODGCD	247
15.0.736	warnings 20019: INNMFAC	247
15.0.737	warnings 20018: INTERGB	248
15.0.738	warnings 20017: INTRF	248
15.0.739	warnings 20016: INTSLPE	248
15.0.740	warnings 20015: INTTR	248
15.0.741	warnings 20014: ISUMP	249
15.0.742	warnings 20013: LAUPOL	249
15.0.743	warnings 20012: LEADCDET	249
15.0.744	warnings 20011: LGROBP	249
15.0.745	warnings 20010: LIMITRF	250
15.0.746	warnings 20009: LINDEP	250
15.0.747	warnings 20008: LISYSER	250
15.0.748	warnings 20007: LPEFRAC	250
15.0.749	warnings 20006: LSPP	250
15.0.750	warnings 20005: MATLIN	251
15.0.751	warnings 20004: MCDEN	251
15.0.752	warnings 20003: MDDFACT	251
15.0.753	warnings 20002: MFINFACT	251
15.0.754	warnings 20000: MLIFT	252
15.0.755	errors 10000: FT	252
15.0.756	errors 10001: ASP34	252
15.0.757	errors 10002: MOEBIUS	253

15.0.758 errors 10003: POLYVEC	253
15.0.759 errors 10004: EQ	253
15.0.760 errors 10005: MULTSQFR	253
15.0.761 errors 10006: ASP30	254
15.0.762 errors 10007: ASP8	254
15.0.763 errors 10008: ASP9	254
15.0.764 errors 10009: ISUPS	254
15.0.765 errors 10010: SYMS	254
15.0.766 errors 10011: ASP31	254
15.0.767 errors 10012: ASP77	255
15.0.768 errors 10013: FC	255
15.0.769 errors 10014: ODERTRIC	255
15.0.770 errors 10015: NORMPK	255
15.0.771 bug 7233: fill! operation from U8Vector does not show up	255
15.0.772 bug 7232: Cannot convert from type Symbol to PI for value #3	256
15.0.773 bug 7231: D2 is not of type SEQUENCE	256
15.0.774 bug 7230: richhyper1000-1098 S 272 failed	257
15.0.775 bug 7229:)show FortranCode has NIL for the containing file	257
15.0.776 bug 7228: graphics crash running space3	257
15.0.777 bug 7227: Unexpected end of #input stream	257
15.0.778 bug 7226:)d op coerce regression caused by waldek format update.	257
15.0.779 bug 7225: Lasagna Larga Doppia Riccia does not plot 0.0	258
15.0.780 bug 7224: Axiom2D PS save function clips right side of image	258
15.0.781 bug 7223: Bind stack overflow	258
15.0.782 bug 7222: errors while compiling bookvol7	260
15.0.783 bug 7221: The variable IDENTITY is undefined.	261
15.0.784 bug 7220: Manicotti only draws 1/2 of image	261
15.0.785 bug 7219: Funghini draws only lines	261
15.0.786 bug 7218: makeViewport3D closed unexpectedly	261
15.0.787 bug 7216: Sorry - cannot handle that integrand yet	262
15.0.788 bug 7215: integration bug?	264
15.0.789 bug 7214: integration bug?	264
15.0.790 bug 7213: different result appear	266

15.0.79	bug 7212: differing integration? due to random algorithm?	266
15.0.79	todo 329: axiom reference info update	267
15.0.79	bug 7210: but in partial fraction	267
15.0.79	bug 7209: Factoring in LODOF is incorrect	268
15.0.79	bug 7207: $\text{integrate}(1/(2-3*x)^{1/2}/(2+3*x)^{1/2},x)$	269
15.0.79	bug 7206: from http://bugs.debian.org/349877	269
15.0.79	bug 7205: interval is not recognized:	270
15.0.79	bug 7204: bug in this rule form?	271
15.0.79	bug 7203: in GRAS the line	271
15.0.80	bug 7201: $\sin(x)$ drawing error	272
15.0.80	bug 7200: Improper syntax after browse	272
15.0.80	bug 7199: real/imag giving wrong answers	272
15.0.80	bug 7198: missing coerce function in <code>OrderedCompletion Integer</code>	273
15.0.80	todo 326: <code>Guess.tex</code> needs to be used to document the guess package	273
15.0.80	todo 326: in LODOOPS the fricas version	273
15.0.80	todo 325: permute list of anything	273
15.0.80	bug 7197: hyperdoc/graphics failure	274
15.0.80	bug 7196: factor is partial	274
15.0.80	todo 324: integrate: implementation incomplete (constant residues)	274
15.0.81	bug 7195: draw bug	274
15.0.81	bug 7194: .fn files are not used during first compile phase	275
15.0.81	bug 7193: <code>src/algebra/*.pamphlet</code> files are not copied.	275
15.0.81	bug 7190: $\text{integrate}(\sqrt{1+\sec(x)},x)$ returns 0	275
15.0.81	bug 7189: browsing 'eigenMatrix' works only with 'Operations'	275
15.0.81	bug 7188: hyperdoc browsing with wildcards does not work	275
15.0.81	bug 7187: hyperdoc cat* bug	275
15.0.81	bug 7186: ACLOT missing functions	276
15.0.81	bug 7181: <code>SQMATRIX(2,INT)</code> has coerce Integer \rightarrow %	276
15.0.81	bug 7169: Matrix printing/parsing bug (notice the - in E21)	276
15.0.82	todo 322: use charts.jpg to guide axiom graphing	277
15.0.82	todo 321: try to use raphael to scale graphs	277
15.0.82	todo 320: pick up FLINT package	277
15.0.82	bug 7169: algebra bug	277

15.0.824	bug 7167: KeyedAccessFile fails because	277
15.0.825	bug 7166: library doesn't seem to work	277
15.0.826	bug 7165: this rule does not match	278
15.0.827	bug 7164: this rule does not match	280
15.0.828	bug 7163: tanhneg rule fails	281
15.0.829	bug 7162: (p,q):UP(x,INT) fails only in fixed.input.pamphlet	281
15.0.830	bug 7160: numeric(erf(0.1))	281
15.0.831	bug 7159: rootsOf($2z^4 + z^3 - z - 2$) is wrong	282
15.0.832	bug 7158: patch 3127 is wrong fix	284
15.0.833	bug 7157: 0::CARD0::CARD should be 1?	285
15.0.834	bug 7156: nonsense result	285
15.0.835	bug 7155: fatal error	286
15.0.836	bug 7154: strange handling of args outside $-\pi/2 \leq x \leq \pi/2$	286
15.0.837	bug 7153: division by zero due to definition problem	287
15.0.838	bug 7152: integration bug	287
15.0.839	bug 7151: bind stack overflow	288
15.0.840	bug 7150: exquo cannot detect zero equivalence?	289
15.0.841	bug 7149: bad choice of signature by interpreter	290
15.0.842	bug 7147: integrate($1/(1+x^4)$, x=%minusInfinity..%plusInfinity)	291
15.0.843	bug 7145: fxiedPointExquo bug	292
15.0.844	todo 319: construct coerce graph	292
15.0.845	bug 7144: bug in eval	292
15.0.846	bug 7143: asq cannot find AHYP	293
15.0.847	todo 318: do a plucker/grassman example	293
15.0.848	todo 317: update INFORM notes	298
15.0.849	todo 316: CircularList domain	298
15.0.850	bug 7140: this returns the wrong answers	299
15.0.851	bug 7139: this crashes Axiom when compiled	299
15.0.852	bug 7138: unravel in CartesianTensor does not work	300
15.0.853	bug 7137: {}\$(List INT)	301
15.0.854	neh 4: as of aug 2008, changecount/name/percent in changelog	301
15.0.855	bug 7136: uncommenting -output("") changes behavior	302
15.0.856	neh 3: from Bill Page	303

15.0.857	todo 316: EGADS Evolutionary Gaussian Automatic Decomposition .	304
15.0.858	todo 315: missing input files	304
15.0.859	todo 314: Tiny programs for computing constants	320
15.0.860	bug 7135: hyperdoc bug	320
15.0.861	meh 2: Fonts available at www.dafont.com	321
15.0.862	bug 7134: lodo.spad LinearOrdinaryDifferentialOperator1	321
15.0.863	bug 7133: files.spad Library	321
15.0.864	bug 7132: numtheor.spad IntegerNumberTheoryFunctions	321
15.0.865	bug 7131: – files.spad.pamphlet KeyedAccessFile	321
15.0.866	bug 7130: – table.spad.pamphlet GeneralSparseTable.input	322
15.0.867	bug 7129: these take a long time	323
15.0.868	todo 313: put PolynomialCategory, etc into front matter diagram . . .	323
15.0.869	todo 312: maple routines	323
15.0.870	bug 7128: This kills Axiom	323
15.0.871	meh 1: script for exploring domain relationships	323
15.0.872	bug 7127: Schaums 14:472 fails to integrate properly	324
15.0.873	bug 7126: sinaxminusaxBUG.input shows a bug	325
15.0.874	bug 7125: normalizeBug.input shows a bug	325
15.0.875	bug 7124: why is the superscript not in smallest terms?	325
15.0.876	todo 311: integerMathLibrary FFLAS.technical.report.ps.gz	326
15.0.877	todo 310: /research/femlisp (finite element meshes)	326
15.0.878	bug 7123: cannot simplify forms $(ax+b)(ax+b)^{\hat{n}}$ into $(ax+b)^{\hat{n}+1}$. .	326
15.0.879	wish 1010: look at ocalc.tex for big-O notation by Knuth	327
15.0.880	todo 309: huh?	327
15.0.881	todo 309: these won't integrate	327
15.0.882	bug 7122: "failed"	327
15.0.883	bug 7121: Imaginary part is nonzero. Cannot retract.	328
15.0.884	bug 7120: Zero divisor	328
15.0.885	bug 7119: Cannot take first of an empty list	328
15.0.886	wish 1009: integrate computational geometry algorithms (CGAL) . .	328
15.0.887	todo 308: combinat	329
15.0.888	todo 307: elliptic	329
15.0.889	todo 306: fastmatrix.spad	329

15.0.890bug 7118: Factored AlgebraicNumber	329
15.0.891todo 305: in bookvol11, in graphviewport.xhtml	330
15.0.892todo 304: make graphics be saved as .bmp during build	330
15.0.893todo 303: remove .Z format	330
15.0.894bug 7116: hyperdoc title does not show	330
15.0.895wish 1008: ArbitraryConstant domain	330
15.0.896bug 7114: "possible missing then" bug	330
15.0.897wish 1007: probe-file vs truename	331
15.0.898bug 7112: t3:=coerce([i for i in 1..10])\$Tuple(Integer)	331
15.0.899bug 7111: NIL is not of type CONS.	332
15.0.900todo 302: getdatabase information unit tests	332
15.0.90bug 7110: ramifiedAtInfinity? not implemented	332
15.0.902bug 7109: singularAtInfinity? not implemented	332
15.0.903bug 7108: axiom crashes if draw does not include all variables	332
15.0.904bug 7107: function xRange with hashcode is missing from ACLOT	333
15.0.905wish 1006: API domain for lisp functions	333
15.0.906wish 1005: algebra graph	333
15.0.907wish 1004: create)example for all functions in all domains	333
15.0.908bug 7105: [print [i,i*exp(-i)*Ei(i/10.0)] for i in 20..70]	333
15.0.909bug 7104: integrate(%e ^{a*x} /x ² ,x)	333
15.0.910wish 1003:)help limit, integrate, etc	334
15.0.911bug 7103/47: complexForm(log(-%i))	334
15.0.912todo 301: etags	334
15.0.913bug 7098: numeric(Si(0.01))	335
15.0.914bug 7097: numeric(Ci(0.01))	335
15.0.915wish 1000: WHERE form	335
15.0.916bug 7095: occasional failure of is.input	335
15.0.917todo 300: pending/besselk.input.pamphlet	336
15.0.918bug 7092: .axiom.input screws up builds	337
15.0.919bug 7091: bootstrap bugs	337
15.0.920bug 7088/347: bug in map\$Set	337
15.0.921bug 7087/312: Bug in sqrt() for UnivariateTaylorSeries (issue 312)	337
15.0.922bug 7086/340: 'divisors\$IntegerNumberTheoryFunctions' incorrect	337

15.0.923bug 7085/15: integration	338
15.0.924bug 7084/293: integration	338
15.0.925bug 7083/314: integration	338
15.0.926bug 7081/184: argument	338
15.0.927bug 7078/114: function fail	338
15.0.928bug 7077/156: maketaylor	338
15.0.929bug 7076/176: D(factor)	339
15.0.930bug 7075/182: round	339
15.0.931bug 7074/186: compose	339
15.0.932bug 7071/211: D(product)	339
15.0.933bug 7070/278: simplifyLog	339
15.0.934bug 7069/83: DMP	339
15.0.935bug 7068/371: trace fails	340
15.0.936bug 7067/102: solve(sinh(z)=cosh(z),z)	340
15.0.937bug 7066/187: missing exports	340
15.0.938bug 7064/258: every?	341
15.0.939bug 7063/198: zero?	341
15.0.940bug 7062/408: abs	341
15.0.941bug 7061: integrate sqrt	341
15.0.942bug 7060: integration bug (different answer in fricas)	342
15.0.943bug 7059: integration bug (different answer in fricas)	342
15.0.944bug 7058: calling AXIOMsys segfaults	343
15.0.945bug 7056:)browse has a bug	346
15.0.946bug 7055: cd doesn't start from the current location	346
15.0.947bug 7053: close(viewport) dumps core	346
15.0.948bug 7051: is.input intermittent failures	346
15.0.949bug 7050: DFLOAT ignores outputFixed	348
15.0.950bug 7049: Ei isn't computing correctly	349
15.0.951bug 7048: cannot simplify expression using $e^{\hat{x} \log e}$	349
15.0.952bug 7047: Gamma returns a random garbage value	349
15.0.953bug 7046: radix has wrong ragits	350
15.0.954idea:)example command taken from regression test chunks	350
15.0.955bug 7044: why?	350

15.0.956	bug 7043: FAILED 1 of 139 stanzas file kamke3	350
15.0.957	bug 7040: warning: missing sentinel in function call	381
15.0.958	bug 7039: suggest explicit braces to avoid ambiguous	381
15.0.959	bug 7038: suggest explicit braces to avoid ambiguous	381
15.0.960	bug 7037: passing arg 2 makes pointer from integer	381
15.0.961	bug 7036: dereferencing type-punned pointer will break rules	382
15.0.962	bug 7035: defined but not used	382
15.0.963	bug 7034: session.c defined but not used	382
15.0.964	Section	382
15.0.965	Section	382
15.0.966	Section	382
15.0.967	Section	383
15.0.968	Section	383
15.0.969	Section	383
15.0.970	Section	383
15.0.971	Section	383
15.0.972	Section	384
15.0.973	Section	384
15.0.974	Section	384
15.0.975	Section	384
15.0.976	Section	384
15.0.977	Section	385
15.0.978	Section	385
15.0.979	Section	385
15.0.980	Section	386
15.0.981	Section	386
15.0.982	Section	387
15.0.983	Section	387
15.0.984	Section	387
15.0.985	Section	388
15.0.986	Section	388
15.0.987	Section	388
15.0.988	Section	388

15.0.989section	389
15.0.990section	390
15.0.991section	390
15.0.992section	390
15.0.993section	390
15.0.994section	391
15.0.995section	391
15.0.996section	392
15.0.997section	393
15.0.998section	394
15.0.999section	394
15.0.1000section	395
15.0.1001section	395
15.0.1002section	396
15.0.1003section	396
15.0.1004section	396
15.0.1005section	397
15.0.1006section	398
15.0.1007section	398
15.0.1008section	399
15.0.1009section	400
15.0.1010section	400
15.0.1011section	401
15.0.1012section	401
15.0.1013section	403
15.0.1014section	404
15.0.1015section	404
15.0.1016section	407
15.0.1017section	407
15.0.1018section	407
15.0.1019section	407
15.0.1020section	408
15.0.1021section	408

15.0.1022ction	408
15.0.1023ction	408
15.0.1024ction	408
15.0.1025ction	409
15.0.1026ction	409
15.0.1027ction	409
15.0.1028ction	409
15.0.1029ction	409
15.0.1030ction	409
15.0.1031ction	410
15.0.1032ction	410
15.0.1033ction	410
15.0.1034ction	410
15.0.1035ction	410
15.0.1036ction	411
15.0.1037ction	411
15.0.1038ction	411
15.0.1039ction	411
15.0.1040ction	411
15.0.1041ction	411
15.0.1042ction	411
15.0.1043ction	412
15.0.1044ction	412
15.0.1045ction	412
15.0.1046ction	412
15.0.1047ction	412
15.0.1048ction	412
15.0.1049ction	413
15.0.1050ction	413
15.0.1051ction	413
15.0.1052ction	413
15.0.1053ction	413
15.0.1054ction	414

15.0.1055 Section	414
15.0.1056 Section	414
15.0.1057 Section	414
15.0.1058 Section	414
15.0.1059 Section	415
15.0.1060 Section	415
15.0.1061 Section	415
15.0.1062 Section	416
15.0.1063 Section	416
15.0.1064 Section	416
15.0.1065 Section	416
15.0.1066 Section	416
15.0.1067 Section	417
15.0.1068 Section	417
15.0.1069 Section	418
15.0.1070 Section	418
15.0.1071 Section	419
15.0.1072 Section	420
15.0.1073 Section	420
15.0.1074 Section	421
15.0.1075 Section	421
15.0.1076 Section	422
15.0.1077 Section	423
15.0.1078 Section	423
15.0.1079 Section	424
15.0.1080 Section	424
15.0.1081 Section	425
15.0.1082 Section	425
15.0.1083 Section	426
15.0.1084 Section	426
15.0.1085 Section	427
15.0.1086 Section	427
15.0.1087 Section	428

15.0.1088ction	429
15.0.1089ction	430
15.0.1090ction	431
15.0.1091ction	431
15.0.1092ction	433
15.0.1093ction	435
15.0.1094ction	435
15.0.1095ction	437
15.0.1096ction	438
15.0.1097ction	438
15.0.1098ction	440
15.0.1099ction	440
15.0.1100ction	440
15.0.1101ction	441
15.0.1102ction	443
15.0.1103ction	444
15.0.1104ction	444
15.0.1105ction	446
15.0.1106ction	446
15.0.1107ction	447
15.0.1108ction	448
15.0.1109ction	448
15.0.1110ction	449
15.0.1111ction	449
15.0.1112ction	450
15.0.1113ction	451
15.0.1114ction	452
15.0.1115ction	453
15.0.1116ction	453
15.0.1117ction	454
15.0.1118ction	455
15.0.1119ction	455
15.0.1120ction	457

15.0.1121ction	457
15.0.1122ction	458
15.0.1123ction	460
15.0.1124ction	460
15.0.1125ction	462
15.0.1126ction	463
15.0.1127ction	464
15.0.1128ction	464
15.0.1129ction	464
15.0.1130ction	464
15.0.1131ction	464
15.0.1132ction	465
15.0.1133ction	465
15.0.1134ction	465
15.0.1135ction	465
15.0.1136ction	465
15.0.1137ction	466
15.0.1138ction	467
15.0.1139ction	467
15.0.1140ction	467
15.0.1141ction	468
15.0.1142ction	468
15.0.1143ction	468
15.0.1144ction	468
15.0.1145ction	468
15.0.1146ction	469
15.0.1147ction	469
15.0.1148ction	469
15.0.1149ction	469
15.0.1150ction	470
15.0.1151ction	470
15.0.1152ction	470
15.0.1153ction	470

15.0.1154ction	470
15.0.1155ction	471
15.0.1156ction	471
15.0.1157ction	471
15.0.1158ction	471
15.0.1159ction	472
15.0.1160ction	472
15.0.1161ction	472
15.0.1162ction	472
15.0.1163ction	472
15.0.1164ction	473
15.0.1165ction	473
15.0.1166ction	473
15.0.1167ction	473
15.0.1168ction	474
15.0.1169ction	474
15.0.1170ction	474
15.0.1171ction	474
15.0.1172ction	475
15.0.1173ction	475
15.0.1174ction	475
15.0.1175ction	475
15.0.1176ction	476
15.0.1177ction	476
15.0.1178ction	476
15.0.1179ction	476
15.0.1180ction	476
15.0.1181ction	477
15.0.1182ction	477
15.0.1183ction	477
15.0.1184ction	477
15.0.1185ction	477
15.0.1186ction	478

15.0.1187ction	478
15.0.1188ction	478
15.0.1189ction	478
15.0.1190ction	479
15.0.1191ction	479
15.0.1192ction	479
15.0.1193ction	479
15.0.1194ction	480
15.0.1195ction	480
15.0.1196ction	480
15.0.1197ction	480
15.0.1198ction	480
15.0.1199ction	481
15.0.1200ction	481
15.0.1201ction	481
15.0.1202ction	481
15.0.1203ction	482
15.0.1204ction	482
15.0.1205ction	482
15.0.1206ction	482
15.0.1207ction	483
15.0.1208ction	483
15.0.1209ction	483
15.0.1210ction	483
15.0.1211ction	483
15.0.1212ction	484
15.0.1213ction	484
15.0.1214ction	484
15.0.1215ction	484
15.0.1216ction	485
15.0.1217ction	485
15.0.1218ction	485
15.0.1219ction	485

15.0.1220ction	486
15.0.1221ction	486
15.0.1222ction	486
15.0.1223ction	486
15.0.1224ction	486
15.0.1225ction	487
15.0.1226ction	487
15.0.1227ction	487
15.0.1228ction	487
15.0.1229ction	488
15.0.1230ction	488
15.0.1231ction	488
15.0.1232ction	488
15.0.1233ction	489
15.0.1234ction	489
15.0.1235ction	489
15.0.1236ction	489
15.0.1237ction	490
15.0.1238ction	490
15.0.1239ction	490
15.0.1240ction	490
15.0.1241ction	491
15.0.1242ction	491
15.0.1243ction	491
15.0.1244ction	491
15.0.1245ction	491
15.0.1246ction	492
15.0.1247ction	492
15.0.1248ction	492
15.0.1249ction	492
15.0.1250ction	493
15.0.1251ction	493
15.0.1252ction	493

15.0.1253ction	493
15.0.1254ction	493
15.0.1255ction	494
15.0.1256ction	494
15.0.1257ction	494
15.0.1258ction	494
15.0.1259ction	495
15.0.1260ction	495
15.0.1261ction	495
15.0.1262ction	495
15.0.1263ction	495
15.0.1264ction	496
15.0.1265ction	496
15.0.1266ction	496
15.0.1267ction	497
15.0.1268ction	497
15.0.1269ction	497
15.0.1270ction	498
15.0.1271ction	498
15.0.1272ction	498
15.0.1273ction	498
15.0.1274ction	498
15.0.1275ction	499
15.0.1276ction	499
15.0.1277ction	499
15.0.1278ction	499
15.0.1279ction	500
15.0.1280ction	500
15.0.1281ction	500
15.0.1282ction	501
15.0.1283ction	501
15.0.1284ction	501
15.0.1285ction	502

15.0.1286ction	502
15.0.1287ction	502
15.0.1288ction	502
15.0.1289ction	503
15.0.1290ction	503
15.0.1291ction	503
15.0.1292ction	503
15.0.1293ction	504
15.0.1294ction	504
15.0.1295ction	504
15.0.1296ction	504
15.0.1297ction	505
15.0.1298ction	505
15.0.1299ction	505
15.0.1300ction	505
15.0.1301ction	505
15.0.1302ction	506
15.0.1303ction	506
15.0.1304ction	506
15.0.1305ction	506
15.0.1306ction	507
15.0.1307ction	507
15.0.1308ction	507
15.0.1309ction	507
15.0.1310ction	507
15.0.1311ction	508
15.0.1312ction	508
15.0.1313ction	508
15.0.1314ction	508
15.0.1315ction	509
15.0.1316ction	509
15.0.1317ction	509
15.0.1318ction	509

15.0.1310ction	510
15.0.1320ction	510
15.0.1321ction	510
15.0.1322ction	511
15.0.1323ction	511
15.0.1324ction	511
15.0.1325ction	511
15.0.1326ction	512
15.0.1327ction	512
15.0.1328ction	512
15.0.1329ction	513
15.0.1330ction	513
15.0.1331ction	513
15.0.1332ction	513
15.0.1333ction	514
15.0.1334ction	514
15.0.1335ction	514
15.0.1336ction	514
15.0.1337ction	515
15.0.1338ction	515
15.0.1339ction	515
15.0.1340ction	515
15.0.1341ction	515
15.0.1342ction	516
15.0.1343ction	516
15.0.1344ction	516
15.0.1345ction	516
15.0.1346ction	516
15.0.1347ction	517
15.0.1348ction	517
15.0.1349ction	517
15.0.1350ction	517
15.0.1351ction	518

15.0.1352ction	518
15.0.1353ction	518
15.0.1354ction	518
15.0.1355ction	519
15.0.1356ction	519
15.0.1357ction	519
15.0.1358ction	519
15.0.1359ction	520
15.0.1360ction	520
15.0.1361ction	520
15.0.1362ction	520
15.0.1363ction	521
15.0.1364ction	521
15.0.1365ction	521
15.0.1366ction	521
15.0.1367ction	522
15.0.1368ction	522
15.0.1369ction	522
15.0.1370ction	522
15.0.1371ction	523
15.0.1372ction	523
15.0.1373ction	523
15.0.1374ction	523
15.0.1375ction	524
15.0.1376ction	524
15.0.1377ction	524
15.0.1378ction	524
15.0.1379ction	525
15.0.1380ction	525
15.0.1381ction	525
15.0.1382ction	525
15.0.1383ction	526
15.0.1384ction	526

15.0.1385ction	526
15.0.1386ction	526
15.0.1387ction	526
15.0.1388ction	526
15.0.1389ction	527
15.0.1390ction	527
15.0.1391ction	527
15.0.1392ction	527
15.0.1393ction	528
15.0.1394ction	528
15.0.1395ction	528
15.0.1396ction	529
15.0.1397ction	529
15.0.1398ction	529
15.0.1399ction	529
15.0.1400ction	530
15.0.1401ction	530
15.0.1402ction	530
15.0.1403ction	531
15.0.1404ction	531
15.0.1405ction	531
15.0.1406ction	531
15.0.1407ction	531
15.0.1408ction	532
15.0.1409ction	532
15.0.1410ction	532
15.0.1411ction	532
15.0.1412ction	533
15.0.1413ction	533
15.0.1414ction	533
15.0.1415ction	533
15.0.1416ction	533
15.0.1417ction	534

15.0.1418Section	534
15.0.1419Section	534
15.0.1420Section	534
15.0.1421Section	535
15.0.1422Section	535
15.0.1423Section	535
15.0.1424Section	535
15.0.1425Section	536
15.0.1426Section	536
15.0.1427Section	536
15.0.1428Section	536
15.0.1429Section	536
15.0.1430Section	537
15.0.1431Section	537
15.0.1432Section	537
15.0.1433Section	537
15.0.1434Section	537
15.0.1435Section	538
15.0.1436Section	538
15.0.1437Section	539
15.0.1438Section	539
15.0.1439Section	539
15.0.1440Section	539
15.0.1441Section	539
15.0.1442Section	540
15.0.1443Section	540
15.0.1444Section	541
15.0.1445Section	541
15.0.1446Section	541
15.0.1447Section	541
15.0.1448Section	542
15.0.1449Section	542
15.0.1450Section	542

15.0.1451	Section	542
15.0.1452	Section	543
15.0.1453	Section	543
15.0.1454	Section	543
15.0.1455	Section	544
15.0.1456	Section	544
15.0.1457	Section	544
15.0.1458	Section	544
15.0.1459	Section	544
15.0.1460	Section	545
15.0.1461	Section	545
15.0.1462	Section	545
15.0.1463	Section	545
15.0.1464	Section	545
15.0.1465	Section	546
15.0.1466	Section	546
15.0.1467	Section	546
15.0.1468	Section	546
15.0.1469	Section	547
15.0.1470	Section	547
15.0.1471	Section	547
15.0.1472	Section	547
15.0.1473	Section	547
15.0.1474	Section	548
15.0.1475	Section	548
15.0.1476	Section	548
15.0.1477	Section	548
15.0.1478	Section	548
15.0.1479	Section	549
15.0.1480	Section	549
15.0.1481	Section	549
15.0.1482	Section	550
15.0.1483	Section	550

15.0.1484ction	550
15.0.1485ction	550
15.0.1486ction	550
15.0.1487ction	551
15.0.1488ction	551
15.0.1489ction	551
15.0.1490ction	551
15.0.1491ction	552
15.0.1492ction	552
15.0.1493ction	552
15.0.1494ction	553
15.0.1495ction	553
15.0.1496ction	553
15.0.1497ction	554
15.0.1498ction	554
15.0.1499ction	554
15.0.1500ction	554
15.0.1501ction	555
15.0.1502ction	555
15.0.1503ction	555
15.0.1504ction	555
15.0.1505ction	555
15.0.1506ction	556
15.0.1507ction	556
15.0.1508ction	556
15.0.1509ction	556
15.0.1510ction	557
15.0.1511ction	557
15.0.1512ction	557
15.0.1513ction	557
15.0.1514ction	558
15.0.1515ction	558
15.0.1516ction	558

15.0.1517ction	558
15.0.1518ction	559
15.0.1519ction	559
15.0.1520ction	559
15.0.1521ction	559
15.0.1522ction	560
15.0.1523ction	560
15.0.1524ction	560
15.0.1525ction	561
15.0.1526ction	561
15.0.1527ction	561
15.0.1528ction	561
15.0.1529ction	562
15.0.1530ction	562
15.0.1531ction	562
15.0.1532ction	562
15.0.1533ction	562
15.0.1534ction	563
15.0.1535ction	563
15.0.1536ction	563
15.0.1537ction	563
15.0.1538ction	564
15.0.1539ction	564
15.0.1540ction	564
15.0.1541ction	565
15.0.1542ction	565
15.0.1543ction	565
15.0.1544ction	565
15.0.1545ction	566
15.0.1546ction	566
15.0.1547ction	566
15.0.1548ction	567
15.0.1549ction	567

15.0.1550	Section	567
15.0.1551	Section	568
15.0.1552	Section	568
15.0.1553	Section	568
15.0.1554	Section	568
15.0.1555	Section	569
15.0.1556	Section	569
15.0.1557	Section	569
15.0.1558	Section	569
15.0.1559	Section	570
15.0.1560	Section	570
15.0.1561	Section	570
15.0.1562	Section	570
15.0.1563	Section	570
15.0.1564	Section	571
15.0.1565	Section	571
15.0.1566	Section	571
15.0.1567	Section	572
15.0.1568	Section	572
15.0.1569	Section	572
15.0.1570	Section	572
15.0.1571	Section	573
15.0.1572	Section	573
15.0.1573	Section	573
15.0.1574	Section	573
15.0.1575	Section	573
15.0.1576	Section	574
15.0.1577	Section	574
15.0.1578	Section	574
15.0.1579	Section	575
15.0.1580	Section	575
15.0.1581	Section	575
15.0.1582	Section	575

15.0.1583ction	576
15.0.1584ction	576
15.0.1585ction	576
15.0.1586ction	576
15.0.1587ction	577
15.0.1588ction	577
15.0.1589ction	577
15.0.1590ction	577
15.0.1591ction	577
15.0.1592ction	578
15.0.1593ction	578
15.0.1594ction	578
15.0.1595ction	578
15.0.1596ction	578
15.0.1597ction	579
15.0.1598ction	579
15.0.1599ction	579
15.0.1600ction	580
15.0.1601ction	580
15.0.1602ction	580
15.0.1603ction	581
15.0.1604ction	581
15.0.1605ction	582
15.0.1606ction	582
15.0.1607ction	583
15.0.1608ction	583
15.0.1609ction	583
15.0.1610ction	583
15.0.1611ction	584
15.0.1612ction	584
15.0.1613ction	584
15.0.1614ction	585
15.0.1615ction	585

15.0.1616ction	585
15.0.1617ction	585
15.0.1618ction	585
15.0.1619ction	586
15.0.1620ction	586
15.0.1621ction	586
15.0.1622ction	586
15.0.1623ction	587
15.0.1624ction	587
15.0.1625ction	587
15.0.1626ction	587
15.0.1627ction	587
15.0.1628ction	588
15.0.1629ction	588
15.0.1630ction	588
15.0.1631ction	588
15.0.1632ction	589
15.0.1633ction	589
15.0.1634ction	589
15.0.1635ction	589
15.0.1636ction	589
15.0.1637ction	590
15.0.1638ction	590
15.0.1639ction	590
15.0.1640ction	590
15.0.1641ction	591
15.0.1642ction	591
15.0.1643ction	591
15.0.1644ction	592
15.0.1645ction	592
15.0.1646ction	592
15.0.1647ction	592
15.0.1648ction	593

15.0.1649	Section	593
15.0.1650	Section	593
15.0.1651	Section	594
15.0.1652	Section	594
15.0.1653	Section	594
15.0.1654	Section	594
15.0.1655	Section	595
15.0.1656	Section	595
15.0.1657	Section	595
15.0.1658	Section	595
15.0.1659	Section	596
15.0.1660	Section	596
15.0.1661	Section	596
15.0.1662	Section	596
15.0.1663	Section	596
15.0.1664	Section	597
15.0.1665	Section	597
15.0.1666	Section	597
15.0.1667	Section	597
15.0.1668	Section	597
15.0.1669	Section	598
15.0.1670	Section	598
15.0.1671	Section	598
15.0.1672	Section	599
15.0.1673	Section	599
15.0.1674	Section	599
15.0.1675	Section	599
15.0.1676	Section	600
15.0.1677	Section	600
15.0.1678	Section	600
15.0.1679	Section	600
15.0.1680	Section	601
15.0.1681	Section	601

15.0.1682ction	601
15.0.1683ction	602
15.0.1684ction	602
15.0.1685ction	602
15.0.1686ction	602
15.0.1687ction	603
15.0.1688ction	603
15.0.1689ction	603
15.0.1690ction	603
15.0.1691ction	604
15.0.1692ction	604
15.0.1693ction	604
15.0.1694ction	604
15.0.1695ction	605
15.0.1696ction	605
15.0.1697ction	605
15.0.1698ction	606
15.0.1699ction	606
15.0.1700ction	606
15.0.1701ction	606
15.0.1702ction	606
15.0.1703ction	607
15.0.1704ction	607
15.0.1705ction	607
15.0.1706ction	607
15.0.1707ction	608
15.0.1708ction	608
15.0.1709ction	608
15.0.1710ction	609
15.0.1711ction	609
15.0.1712ction	610
15.0.1713ction	610
15.0.1714ction	611

15.0.1715Section	611
15.0.1716Section	611
15.0.1717Section	611
15.0.1718Section	611
15.0.1719Section	612
15.0.1720Section	612
15.0.1721Section	612
15.0.1722Section	612
15.0.1723Section	613
15.0.1724Section	613
15.0.1725Section	613
15.0.1726Section	614
15.0.1727Section	614
15.0.1728Section	614
15.0.1729Section	614
15.0.1730Section	615
15.0.1731Section	615
15.0.1732Section	615
15.0.1733Section	615
15.0.1734Section	615
15.0.1735Section	616
15.0.1736Section	616
15.0.1737Section	616
15.0.1738Section	617
15.0.1739Section	617
15.0.1740Section	617
15.0.1741Section	617
15.0.1742Section	618
15.0.1743Section	618
15.0.1744Section	618
15.0.1745Section	618
15.0.1746Section	619
15.0.1747Section	619

15.0.1748 Section	619
15.0.1749 Section	619
15.0.1750 Section	620
15.0.1751 Section	620
15.0.1752 Section	621
15.0.1753 Section	621
15.0.1754 Section	621
15.0.1755 Section	622
15.0.1756 Section	622
15.0.1757 Section	623
15.0.1758 Section	623
15.0.1759 Section	623
15.0.1760 Section	623
15.0.1761 Section	623
15.0.1762 Section	624
15.0.1763 Section	624
15.0.1764 Section	624
15.0.1765 Section	625
15.0.1766 Section	625
15.0.1767 Section	625
15.0.1768 Section	625
15.0.1769 Section	625
15.0.1770 Section	626
15.0.1771 Section	626
15.0.1772 Section	626
15.0.1773 Section	626
15.0.1774 Section	627
15.0.1775 Section	627
15.0.1776 Section	627
15.0.1777 Section	627
15.0.1778 Section	627
15.0.1779 Section	628
15.0.1780 Section	628

15.0.1781 Section	628
15.0.1782 Section	628
15.0.1783 Section	629
15.0.1784 Section	630
15.0.1785 Section	630
15.0.1786 Section	630
15.0.1787 Section	630
15.0.1788 Section	631
15.0.1789 Section	631
15.0.1790 Section	632
15.0.1791 Section	632
15.0.1792 Section	633
15.0.1793 Section	633
15.0.1794 Section	633
15.0.1795 Section	633
15.0.1796 Section	634
15.0.1797 Section	634
15.0.1798 Section	634
15.0.1799 Section	636
15.0.1800 Section	636
15.0.1801 Section	636
15.0.1802 Section	637
15.0.1803 Section	637
15.0.1804 Section	637
15.0.1805 Section	637
15.0.1806 Section	637
15.0.1807 Section	638
15.0.1808 Section	638
15.0.1809 Section	638
15.0.1810 Section	638
15.0.1811 Section	638
15.0.1812 Section	639
15.0.1813 Section	639

15.0.1814ction	639
15.0.1815ction	639
15.0.1816ction	640
15.0.1817ction	640
15.0.1818ction	640
15.0.1819ction	640
15.0.1820ction	640
15.0.1821ction	641
15.0.1822ction	641
15.0.1823ction	641
15.0.1824ction	641
15.0.1825ction	642
15.0.1826ction	642
15.0.1827ction	642
15.0.1828ction	642
15.0.1829ction	642
15.0.1830ction	643
15.0.1831ction	643
15.0.1832ction	643
15.0.1833ction	643
15.0.1834ction	644
15.0.1835ction	644
15.0.1836ction	644
15.0.1837ction	644
15.0.1838ction	645
15.0.1839ction	645
15.0.1840ction	645
15.0.1841ction	645
15.0.1842ction	646
15.0.1843ction	646
15.0.1844ction	646
15.0.1845ction	646
15.0.1846ction	646

15.0.1847 Section	647
15.0.1848 Section	647
15.0.1849 Section	647
15.0.1850 Section	647
15.0.1851 Section	647
15.0.1852 Section	648
15.0.1853 Section	648
15.0.1854 Section	648
15.0.1855 Section	648
15.0.1856 Section	649

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.nrllib
```

```
; (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)
```

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

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

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

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

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

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

(3) -> %-1

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

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 nrlib E04DGFA
Processing e04dgfAnnaType for Browser database:
```

15.0.62 nonextend 60056: E04FDFA

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

15.0.63 nonextend 60055: E04GCFA

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

15.0.64 nonextend 60054: E04JAFA

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

15.0.65 nonextend 60053: E04UCFA

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

15.0.66 nonextend 60052: FRAC

```
>compiling FRAC.spad to FRAC.nrlib
```

```

.. Fraction(#1) of cat
(|Join| (|QuotientFieldCategory| |#1|) (CATEGORY |package| (IF (|has| |#1| (|IntegerNumberSystem|)) (IF (|has| |#1| (|IntegerNumberSystem|)) (IF (|has| |#1| (|OrderedRing|)) (ATTRIBUTE (|OrderedRing|)) |noBranch|) finalizing nrllib FRAC

```

```
.. FortranTemplate of cat
(|Join| (|FileCategory| (|FileName|) (|String|)) (CATEGORY |package| (SIGNATURE |processTemplate| ((|FileName|
```

```
(|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
(|IndexedDirectProductCategory| |#2| (|ModuleMonomial| |#3| |#4| |#5|)))      finalizing nrlib GMDPOL
```

```

.. HexadecimalExpansion of cat
(|Join| (|QuotientFieldCategory| (|Integer|)) (CATEGORY |domain| (SIGNATURE |coerce| ((|Fraction| (|Integer|)) $

```

```
(|RealConstant|)      extends
(|ConvertibleTo| (|DoubleFloat|))    but not
(|ConvertibleTo| (|String|)) -----non extending category-----
.. MachineInteger of cat
```



```
(|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 nrlib D03EEFA
    Processing d03eefAnnaType for Browser database:
-----constructor-----

```

15.0.94 nonextend 60024: D01AGNT

```
>compiling D01AGNT.spad to D01AGNT.nrlib
```

```

-----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.nrlib
```

```

-----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.nrlib
```

```

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

```

15.0.97 nonextend 60021: E04NAFA

```
>compiling E04NAFA.spad to E04NAFA.nrlib
```

```

-----non extending category-----
.. e04nafAnnaType of cat
(|NumericalOptimizationCategory|)  has no
(|TableAggregate| (|Symbol|) (|Any|))    finalizing nrlib 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

```

-----non extending category-----
.. RegularChain(#1,#2) of cat
(|Join| (|RegularTriangularSetCategory| |#1| (|IndexedExponents| (|OrderedVariableList| |#2|)) (|OrderedVariableList| |#2|))) (CAT)

```

15.0.112 nonextend 60006: SULS

>compiling SULS.spad to SULS.nrllib

```

-----non extending category-----
.. SparseUnivariateLaurentSeries(#1,#2,#3) of cat
(|Join| (|UnivariateLaurentSeriesConstructorCategory| |#1| (|SparseUnivariateTaylorSeries| |#1| |#2| |#3|)) (CAT)

```

15.0.113 nonextend 60005: UTS

>compiling UTS.spad to UTS.nrllib

```

-----non extending category-----
.. UnivariateTaylorSeries(#1,#2,#3) of cat
(|Join| (|UnivariateTaylorSeriesCategory| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|UnivariatePolynomial| |#1| |#2| |#3|)))) (CAT)

```

15.0.114 nonextend 60004: UTSZ

>compiling UTSZ.spad to UTSZ.nrllib

```

-----non extending category-----
.. UnivariateTaylorSeriesCZero(#1,#2) of cat
(|Join| (|UnivariateTaylorSeriesCategory| |#1|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|UnivariatePolynomial| |#1| |#2|)))) (CAT)

```

15.0.115 nonextend 60003: INFCLSPT

>compiling INFCLSPT.spad to INFCLSPT.nrllib

```

-----non extending category-----
.. InfinitelyClosePoint(#1,#2,#3,#4,#5,#6,#7,#8,#9) of cat
(|Join| (|InfinitelyClosePointCategory| |#1| |#2| |#3| |#4| |#5| |#6| |#7| |#8| |#9|) (CATEGORY |domain| (SIGNATURE |coerce| ($ (|UnivariatePolynomial| |#1| |#2| |#3| |#4| |#5| |#6| |#7| |#8| |#9|)))) (CAT)
(|RecordCategory| (|:| |point| |#5|) (|:| |curve| (|DistributedMultivariatePolynomial| (|construct| X Y) |#1|))) (CAT)

```

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,lambdaldimf,m

```

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

[illegible]

```
"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-->UnivariateFormalPowerSeriesFunctions((hadamard (UFPS UFPS UFPS))): Not documented!!!!
```

15.0.189 typos 40037a: GPAFF

```
>compiling GPAFF.spad to GPAFF.nrllib
```

```
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((reset ((Void)))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((setCurve (PolyRing PolyRing))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((homogenize (PolyRing PolyRing (Integer)))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((genusNeg (INT))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((findOrderOfDivisor ((Record (: ord (Integer))))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((interpolateFormsForFact ((List PolyRing) DIV)): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((placesAbove ((List Plc) ProjPt))): Not documented!!!!
--->bookvol10.4.pamphlet-->GeneralPackageForAlgebraicFunctionField((rationalPoints ((List ProjPt))): Not documented!!!!
```

15.0.190 typos 40036: PACEXT

```
>compiling PACEXT.spad to PACEXT.nrllib
```

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

15.0.191 typos 40035: RECOP

```
>compiling RECOP.spad to RECOP.nrllib
```

```
--->bookvol10.4.pamphlet-->RecurrenceOperator((numberOfValuesNeeded ((Integer) (Integer) (BasicOperator) (Symbol))): Not documented!!!!
--->bookvol10.4.pamphlet-->RecurrenceOperator((getShiftRec ((Union (Integer) failed) (BasicOperator) (Kernel F))): Not documented!!!!
--->bookvol10.4.pamphlet-->RecurrenceOperator((shiftInfoRec ((Record (: max (Union (Integer) failed)) (: ord (Integer))))): Not documented!!!!
```

15.0.192 typos 40034: SFRGCD

```
>compiling SFRGCD.spad to SFRGCD.nrllib
```

```
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((startTableGcd! ((Void) S S S)): Not documented!!!!
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((stopTableGcd! ((Void)))): Not documented!!!!
--->bookvol10.4.pamphlet-->SquareFreeRegularTriangularSetGcdPackage((startTableInvSet! ((Void) S S S)): Not documented!!!!
```

```

--->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) (Integer)))): 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))))): Not documented!!!!

```

```

--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((homogenize (PolyRing PolyRing (Integer)))
--->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 Integer)))): 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 Integer)))): 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 Integer)))): 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))
--->bookvol10.4.pamphlet-->PackageForAlgebraicFunctionFieldOverFiniteField((findOrderOfDivisor ((Record (: ord (
--->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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
Warnings:
```

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

15.0.231 warnings 20531: ARR2CAT

```
>compiling ARR2CAT.spad to ARR2CAT.nrlib
```

```
Warnings:
```

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

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

15.0.232 warnings 20530: ASP34

```
>compiling ASP34.spad to ASP34.nrlib
```

```
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.nrlib
```

```
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] intToPAAdic: digit has no value
[4] intToPAAdic: carry has no value
[5] intPlusPAAdic: digit has no value
[6] intPlusPAAdic: carry has no value
[7] intMinusPAAdic: digit has no value
[8] intMinusPAAdic: 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.nrllib

Warnings:

```
[1] wronskianMatrix: f1 has no value
```

15.0.300 warnings 20458: PERMAN

>compiling PERMAN.spad to PERMAN.nrllib

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.nrllib

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.nrllib

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.nrlib
```

```
Warnings:
```

```
[1] X has no value
```

15.0.307 warnings 20451: ASP10

```
>compiling ASP10.spad to ASP10.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
Warnings:
```

```
[1] NDIM has no value
```

```
[2] X has no value
```

15.0.310 warnings 20448: ASP50

```
>compiling ASP50.spad to ASP50.nrlib
```

```
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.nrllib
```

```
Warnings:
```

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

15.0.326 warnings 20432: D01AQFA

```
>compiling D01AQFA.spad to D01AQFA.nrllib
```

```
Warnings:
```

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

15.0.327 warnings 20431: EQ

```
>compiling EQ.spad to EQ.nrllib
```

```
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.nrllib
```

```
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.nrllib
```

```
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:  l 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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

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.nrlib
```

Warnings:

```
[1] splitNodeOf!:  la has no value
```

15.0.377 warnings 20380: STINPROD

```
>compiling STINPROD.spad to STINPROD.nrlib
```

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.nrlib
```

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 (Spa
[2] norm: not known that (Ring) is of mode (CATEGORY package (SIGNATURE factor ((Factored (SparseUnivariat

```


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: listPtsIdl has no value
```

15.0.408 warnings 20349: AFALGRES

```
>compiling AFALGRES.spad to AFALGRES.nrllib
```

```
Warnings:
  [1] affineAlgSetLocal: listPtsIdl 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.nrlib

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.nrlib

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.nrlib

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.nrlib
```

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.nrlib
```

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.nrlib
```

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.nrllib
```

```
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.nrllib
```

```
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.nrllib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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.nrlib
```

```
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) S)) (
[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.nrllib
```

```
Warnings:
```

```
[1] conv: pretend$ -- should replace by @
```

15.0.477 warnings 20280: IR

```
>compiling IR.spad to IR.nrllib
```

```
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.nrllib
```

```
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 rootSplit (F F)))
[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 rootSplit (F F)))
[5] ratPoly: not known that (SIGNATURE coerce ($ (SparseMultivariatePolynomial R (Kernel F)))) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE rootSplit (F F)))
[6] ratPoly: not known that (SIGNATURE numer ((SparseMultivariatePolynomial R (Kernel F)) $)) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE rootSplit (F F)))
[7] ratPoly: not known that (SIGNATURE denom ((SparseMultivariatePolynomial R (Kernel F)) $)) is of mode (CATEGORY package (SIGNATURE rootSplit (F F)) (SIGNATURE rootSplit (F F)))
[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 rootSplit (F F)))
[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 (RewriteRule)) (List (RewriteRule))))
[2] rewrite: not known that (OrderedSet) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (RewriteRule)) (List (RewriteRule))))
[3] isitwithpred: not known that (SetCategory) is of mode (CATEGORY package (SIGNATURE applyRules (F (List (RewriteRule)) (List (RewriteRule))))
```

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.nrllib

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.nrllib

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 pmlntegrate ((Union (R
[4] matchdilog: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmlntegrate ((Union (R
[5] matchdilog: x1 has no value
[6] matchdilog0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmlntegrate ((Union (Record
[7] matchdilog0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmlntegrate ((Union (R
[8] matchli: x1 has no value
[9] matchli0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmlntegrate ((Union (Record (:
[10] matchsici: ci0? has no value
[11] pmlntegrate: const has no value
[12] pmlntegrate: 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 pmlntegrate ((Union F failed)
[16] pmlntegrate: 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)) (SIGNAT
```

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) faile
```

```
[2] sign: z has no value
```

```
[3] smpsign: not known that (IntegralDomain) is of mode (CATEGORY package (SIGNATURE sign ((Union (Integer
```

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 (Intege
```

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 ((Fract
```

```
[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 squareFreePolyn
[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: FS2EXPXP

>compiling FS2EXPXP.spad to FS2EXPXP.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: HELFDIV

```
>compiling HELFDIV.spad to HELFDIV.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/cliue2.spad
```

```
cl1 making /research/test/mnt/ubuntu/algebra/PAFFFF.o from /research/test/int/algebra/cliue2.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
```



```

[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] GopherF: not known that (Ring) is of mode (CATEGORY package (SIGNATURE GosphersMethod ((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.nrllib
```

```
Warnings:
  [1] elt: pretend(String) -- should replace by @
```

15.0.730 warnings 20025: ICDEN

```
>compiling ICDEN.spad to ICDEN.nrllib
```

```
Warnings:
  [1] clearDenominator: x has no value
  [2] splitDenominator: x has no value
```

15.0.731 warnings 20024: IDECOMP

```
>compiling IDECOMP.spad to IDECOMP.nrllib
```

```
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.nrllib
```

```
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 (SIGNATU
[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 interpIO:
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/xhtml1 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)

$$\begin{array}{ccccccc}
 & & & & & 1 & 2 \\
 & & & & & - & - \\
 4 & 4 & 3 & 3 & 2 & 2 & 2 & 3 & 4 & n & n & n & n
 \end{array}$$


```

(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)
```

```

      +-----+
      |      2
(85) (tanh(x) - 1)\|tanh(x) - 1
                                         Type: Expression Integer
r0317:= -1/2*cosh(x)*(-sech(x)^2)^(1/2)*(atan(sinh(x))+sech(x)*tanh(x))

```

```

      +-----+
      |      2
(- cosh(x)atan(sinh(x)) - cosh(x)sech(x)tanh(x))\|- sech(x)
(86) -----
      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)
```

```

      +-----+
      |      2
(1)  x\|sin(x)

```

```
(2) -> r0062:= -csc(x)*(x*cos(x)-sin(x))*(sin(x)^2)^(1/2)
```

```

      +-----+
      |      2
(2)  (csc(x)sin(x) - x cos(x)csc(x))\|sin(x)

```

```
(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              +-----+ +-+
--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))),
```

(3) -> factor p

$$(3) \quad (x^3 - 1)(x + 1)(x^2 + (-\frac{1}{2}s5 + \frac{1}{2})x + 1)(x^2 + (-\frac{1}{2}s5 + \frac{1}{2})x + 1)$$

Type:

Factored(UnivariatePolynomial(x, SimpleAlgebraicExtension(Fraction(Integer), UnivariatePolynomial(s5, Fraction(Integer), 1))), 1)

(4) -> partialFraction(1/p, x)

$$(4) \quad \frac{\frac{13}{40}x^2 - \frac{9}{10}x + \frac{27}{40}}{(x-1)^3} - \frac{\frac{1}{8}}{x+1} + \frac{\frac{1}{50}(-\frac{1}{5}s5 - \frac{1}{10})x + \frac{1}{50}}{x^2 + (-\frac{1}{2}s5 + \frac{1}{2})x + 1} - \frac{\frac{1}{10}(-\frac{1}{5}s5 - \frac{1}{10})x - \frac{1}{10}}{x^2 + (-\frac{1}{2}s5 + \frac{1}{2})x + 1}$$

Type:

PartialFraction(UnivariatePolynomial(x, Fraction(Polynomial(SimpleAlgebraicExtension(Fraction(Integer), UnivariatePolynomial(s5, Fraction(Integer), 1))), 1)), 1)

Apart from that: Grbner bases are in Axiom (FriCAS, OpenAxiom), and a rather good implementation, too.

15.0.794 bug 7209: Factoring in LODOF is incorrect

```

rfactor(op, r, zeros, ezfactor, adj?) ==
--   degree r > 1 or not one? leadingCoefficient r =>
   degree r > 1 or not ((leadingCoefficient r) = 1) =>
     recurfactor(op, r, zeros, ezfactor, adj?)
   op1 := opeval(op, dd - coefficient(r, 0)::L)
   map_!((z:L):L+>opeval(z,r), recurfactor(op1, dd, zeros, ezfactor, adj?))

```

Waldek claims this should read:

```

rfactor(op, r, zeros, ezfactor, adj?) ==
  recurfactor(op, r, zeros, ezfactor, adj?)

```

Martin comments:

I reworked lodof.input into the unittest framework, including additionally a simplified version of the bug and a new product of two irreducible degree 2 factors, which fails, of course. Unfortunately, your patched rfactor seems to go into an infinite loop with

```
-- 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 $\text{rootsOf}(2z^4 + z^3 - z - 2)$ is wrong:
 $2z^4 + z^3 - z - 2 = (z^2 - 1)(2z^2 + z + 2)$,
 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 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)
```

```
      d      b
  +---+  ---+
(1)  | |  >   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::CARD⁰::CARD should be 1?

(1) -> 0::CARD

(1) 0

Type: CardinalNumber

(2) -> 0::CARD⁰::CARD

>> Error detected within library code:
0**0 not defined for cardinal numbers.

(2) -> complex(0,0)^{complex(0,0.0)}

>> Error detected within library code:
log 0 generated

(2) -> complex(0,0)^{complex(2,2.0)}

>> Error detected within library code:
log 0 generated

(2) ->

15.0.834 bug 7156: nonsense result

(1) -> matrix([[0,0],[0,0]])^{0.1}

(1) 0.0

Type: Float

(2) -> matrix([[0,0],[0,0]])^x

(2) ^x
0

Type: Expression Integer

(3) -> matrix([[0,0],[0,1]])^{0.1}

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

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+x⁴),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 2×4 matrix, and the minors are the determinants of the 2×2 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?

Reply | Reply to author | Forward | Print | Individual message | Show original | Report this message | Find mess

On Sep 10, 3:56 pm, DavidA <polyom...@f2s.com> wrote:

- Hide quoted text -

- Show quoted text -

> 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
 > 2×4 matrix, and the minors are the determinants of the 2×2 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?

[Reply](#) | [Reply to author](#) | [Forward](#) | [Print](#) | [Individual message](#) | [Show original](#) | [Report this message](#) | [Find messages by David L. Johnson](#)

- Hide quoted text -
- Show quoted text -

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 2×4 matrix, and the minors are the determinants of the 2×2 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 ξ 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 ξ 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?

Reply | Reply to author | Forward | Print | Individual message | Show original | Report this message | Find mess

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?

Reply | Reply to author | Forward | Print | Individual message | Show original | Report this message | Find mess

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 ξ 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?

Reply | Reply to author | Forward | Print | Individual message | Show original | Report this message | Find mess

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
ug03.input
ug04.input
ug05.input
ug06.input
ug07.input
ug08.input
ug10.input
ug11.input
ug12.input
ug13.input
ug14.input
ug15.input
ug16.input
ug17.input
ug18.input
ug19.input
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
HTXLinkPage3.input
HTXLinkPage4.input
HTXLinkPage5.input
HTXLinkPage6.input
HTXLinkTopPage.input
HTXTopPage.input
HTXTryPage.input
HTXplay.input
LAZM3PK.input
Link.input
algebra.input
aspex.input
basic.input
bmcad.input
coverex.input
exmatrix.input
expose.input
gloss.input
hilbert.input
hilbert0.input
hyperdoc.input
images6a.input
man0.input
mapping.input
matops.input
nagaux.input
nagc.input
nagd.input
nage.input
nagf.input
nagm.input
nags.input
nagx.input
newuser.input
patch.input
r2.0_bugs.input
r2.0a_bugs.input

r2.1_bugs.input
r2.1_bugs_big.input
record.input
romnum.input
rootpage.input
srchkey.input
topics.input
type.input
ug.input
ug00.input
ug01.input
ug02.input
ug03.input
ug04.input
ug05.input
ug06.input
ug07.input
ug08.input
ug10.input
ug11.input
ug12.input
ug13.input
ug14.input
ug15.input
ug16.input
ug20.input
ug21.input
union.input
util.input
xmpexp.input

/research/research/Axiom.NAG/development/int/newpaste/

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
HTXLinkPage3.input
HTXLinkPage4.input
HTXLinkPage5.input
HTXLinkPage6.input
HTXLinkTopPage.input
HTXTopPage.input
HTXTryPage.input
HTXplay.input
Link.input
algebra.input
asug.input
asug01.input
asug02.input
asug03.input
asug04.input
asug05.input
asug06.input
asug07.input
asug08.input
asug0A.input
asug0B.input
asug0C.input
asutil.input
basic.input
bmcatt.input
coverex.input
exmatrix.input
expose.input
gloss.input
hyperdoc.input
man0.input
mapping.input
nagaux.input
nagc.input
nagd.input
nage.input
nagf.input
nagm.input
nags.input
nagx.input
newuser.input
patch.input
record.input
redo.input
rootpage.input
srchkey.input
topics.input
type.input
ug.input
ug00.input
ug01.input

ug02.input
ug03.input
ug04.input
ug05.input
ug06.input
ug07.input
ug08.input
ug10.input
ug11.input
ug12.input
ug13.input
ug14.input
ug15.input
ug20.input
union.input
util.input
xmpexp.input

/research/research/Axiom.NAG/development/int/paste/

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
HTXLinkPage3.input
HTXLinkPage4.input
HTXLinkPage5.input
HTXLinkPage6.input
HTXLinkTopPage.input
HTXTopPage.input
HTXTryPage.input
HTXplay.input
LAZM3PK.input
Link.input

```

algebra.input
aspex.input
basic.input
bmcatt.input
mapping.input
redo.input
topics.input
ug00.input
ug01.input
ug02.input
ug03.input
ug04.input
ug05.input
ug06.input
ug07.input
ug08.input
ug10.input
ug11.input
ug12.input
ug13.input
ug14.input
ug15.input
ug16.input
ug21.input

/research/research/Axiom.NAG/development/src/algebra_marc

  benches.input

/research/research/Axiom.NAG/development/src/htex/input.awk

  input.awk
  mktinput.c
  tinput.awk
  tinput.awk.old

/research/research/Axiom.NAG/development/src/input

  as-eg7.input
  hilbert.input
  hilbert0.input
  images6a.input
  matops.input
  romnum.input

/research/research/gold/src/input

  images6a.input.pamphlet

/research/research/integration/src/input

  1.input
  10.input
  100.input

```

101.input
102.input
103.input
104.input
105.input
106.input
107.input
108.input
109.input
11.input
110.input
111.input
112.input
113.input
114.input
115.input
116.input
117.input
118.input
119.input
12.input
120.input
121.input
122.input
123.input
124.input
125.input
126.input
127.input
128.input
129.input
13.input
130.input
131.input
132.input
133.input
134.input
135.input
136.input
137.input
138.input
139.input
14.input
140.input
141.input
142.input
143.input
144.input
145.input
146.input
147.input
148.input
149.input
15.input

150.input
151.input
152.input
153.input
154.input
155.input
156.input
157.input
158.input
159.input
16.input
160.input
161.input
162.input
163.input
164.input
165.input
166.input
167.input
168.input
169.input
17.input
170.input
171.input
172.input
173.input
174.input
175.input
176.input
177.input
178.input
179.input
18.input
180.input
181.input
182.input
183.input
184.input
185.input
186.input
187.input
188.input
189.input
19.input
190.input
191.input
192.input
193.input
194.input
195.input
196.input
197.input
198.input
199.input

2.input
20.input
200.input
201.input
202.input
203.input
204.input
205.input
206.input
207.input
208.input
209.input
21.input
210.input
211.input
212.input
213.input
214.input
215.input
216.input
217.input
218.input
219.input
22.input
220.input
221.input
222.input
223.input
224.input
225.input
226.input
227.input
228.input
229.input
23.input
230.input
231.input
232.input
24.input
25.input
26.input
27.input
28.input
29.input
3.input
30.input
31.input
32.input
33.input
34.input
35.input
36.input
37.input
38.input

39.input
4.input
40.input
41.input
42.input
43.input
44.input
45.input
46.input
47.input
48.input
49.input
5.input
50.input
51.input
52.input
53.input
54.input
55.input
56.input
57.input
58.input
59.input
6.input
60.input
61.input
62.input
63.input
64.input
65.input
66.input
67.input
68.input
69.input
7.input
70.input
71.input
72.input
73.input
74.input
75.input
76.input
77.input
78.input
79.input
8.input
80.input
81.input
82.input
83.input
84.input
85.input
86.input
87.input

```
88.input
89.input
9.input
90.input
91.input
92.input
93.input
94.input
95.input
96.input
97.input
98.input
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

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^{a*x}/x²,x)

```
bug 7104: integrate(%e^(a*x)/x^2,x)
```

$$(5) \quad \int \frac{x^{\%I} e^{ax}}{x^2} dx$$

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\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

```

```
[root@localhost test]# echo $AXIOM
/research2/test/mnt/fedora5
```

```
[root@localhost test]# echo $PATH
/research2/test/mnt/fedora5/bin:/usr/kerberos/sbin:/usr/kerberos/bin:/usr/local/sbin:/usr/local/bin:/sbin:/bin:/
```

```
[root@localhost test]# uname -a
Linux localhost.localdomain 2.6.18-1.2239.fc5 #1 Fri Nov 10 13:04:06 EST 2006 i686 i686 i386 GNU/Linux
```

15.0.945 bug 7056:)browse has a bug

```
)browse
Your argument list is not valid.
```

15.0.946 bug 7055: cd doesn't start from the current location

```
)cd pending

>> System error:
Can't change the current directory to "/usr/local/axiom/mnt/fedora5/NIL/".
```

15.0.947 bug 7053: close(viewport) dumps core

```
bug 7053: close(viewport) dumps core
```

15.0.948 bug 7051: is.input intermittent failures

```
)set message test on

)set message auto off

)clear all

--S 1 of 4
f n == ( not empty?(u := Is(n, 2*m%)) => integer eval(m%, u) ; 3 * n + 1 )

--R
--R
--R
--E 1
```

Type: Void

Type: Void

```
)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) ->

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) -> 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) -> integrate(e^u/u,u)

(21) Ei(u log(e))

Type: Union(Expression Integer,...)

(22) -> Ei(13)

(22) Ei(13)

Type: Expression Integer

(23) ->

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"

```

```

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: "
MISMATCH
expected: "      + "
      got: "
MISMATCH
expected: "      c"
      got: "
MISMATCH
expected: "      (108a b - 840a b + 1920a b - 1152a b )c - 9b + 84b"
      got: "
MISMATCH
expected: "      2"
      got: "
MISMATCH
expected: "      12      10      8      6      14      12"
      got: "
MISMATCH
expected: "      *"
      got: "
MISMATCH
expected: "      + "
      got: "      (- 129024a + 64512a )b + 32256a - 32256a + 2304a"
      got: "
MISMATCH
expected: "      (- 432a b + 2688a b - 4560a b + 1920a b - 256a b )c"
      got: "
MISMATCH
expected: "      5      3      6      4      2"
      got: "
MISMATCH
expected: "      2 10      2 8      2 6      2 4      2 2 2"
      got: "
MISMATCH
expected: "      + "
      got: "
MISMATCH
expected: "      + "
      got: "      32256a b - 129024a b + (193536a - 32256a )b"
      got: "
MISMATCH
expected: "      (576a b - 2688a b + 2880a b - 768a b )c"
      got: "
MISMATCH
expected: "      2 4      3 3      4      2 2"
      got: "
MISMATCH
expected: "      3 8      3 6      3 4      3 2 3"
      got: "
MISMATCH
expected: "      + "
      got: "
MISMATCH
expected: "      + "
      got: "      ?"
      got: "
MISMATCH
expected: "      ?"
      got: "
MISMATCH
expected: "      6"
      got: "
MISMATCH
expected: "      2"
      got: "
MISMATCH
expected: "      *"
      got: "
MISMATCH
expected: "      *"
      got: "      4a c - a b"
      got: "
MISMATCH
expected: "      64a c - 48a b c + 12a b c - a b"
      got: "
MISMATCH
expected: "      4      3 2"
      got: "
MISMATCH
expected: "      10 3      9 2 2      8 4      7 6"
      got: "
MISMATCH
expected: "      /"
      got: "
MISMATCH
expected: "      /"
      got: "      1008a b - 336a"
      got: "
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 |returnStLFfromKey| ...) 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 nrlib 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 nrlib 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 nrlib 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 nrlib 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 nrllib 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 nrllib LWORD
--->/research2/test0819/mnt/fedora5/../../src/algebra/LWORD.spad--->LyndonWord(): Spurious comments: \spad{=>} ri
```

15.0.1317 section

```
finalizing nrllib 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 nrllib 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] fmeeg: 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] resultantEuclideanif: a has no value
[3] semiResultantEuclideanif: 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] e01sbef: 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 (SparseUnivariatePol
[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 nrlib 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 nrlib 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 nrlib 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| (SIGNATURE

15.0.1643 section

(|DirectProductCategory| |#2| |#1|) finalizing nrlib 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 F) (F F)
[3] matchdilog: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record (F F) (F F)
[4] matchdilog0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record (F F) (F F)
[5] matchdilog0: not known that (OrderedSet) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record (F F) (F F)
[6] matchli0: not known that (Ring) is of mode (CATEGORY domain (SIGNATURE pmintegrate ((Union (Record (F F) (F 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) (Exp
  [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) (Exp
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((String) (Exp
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((Void) (OpenM
--->/research2/test0819/mnt/fedora5/../../src/algebra/OMEXPR.spad-->ExpressionToOpenMath((OMwrite ((Void) (OpenM

-----non extending category-----
.. MachineComplex of cat
(|Join| (|FortranMachineTypeCategory|) (|ComplexCategory| (|MachineFloat|)) (CATEGORY |domain| (SIGNATURE |coerc

```

15.0.1706 section

```

(IF (|has| (|MachineFloat|) (|OpenMath|)) (ATTRIBUTE (|OpenMath|)) |noBranch|)      finalizing nrlib MCMPLX

```

15.0.1707 section

```
finalizing nrllib MULTFACT
```

```
Warnings:
```

```
[1] factor: not known that (OrderedSet) is of mode (CATEGORY OV (SIGNATURE convert ((Symbol) $)))
```

15.0.1708 section

```
finalizing nrllib 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 nrllib 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 nrllib 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 FS2EXPXP

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 HELLDIV
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))):
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 nrlib PI
```

15.0.1835 section

```
finalizing nrlib 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 nrlib 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 nrlib 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 round (S S)))

```

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.
```

