

Pensieve header: Optimization for the NOE1 program, base D with  $\mu$  consolidated at NfeDP.

## Initialization

```
SetDirectory["C:\\drorbn\\AcademicPensieve\\2017-01"];
<< "NOE-Utilities.m"
```

Loading KnotTheory` version of September 6, 2014, 13:37:37.2841.

Read more at <http://katlas.org/wiki/KnotTheory>.

This is Profile.m. This version: January 2017. Original version: July 1994.

## NOE-It

```
R_{i,j}^+ := E[1, Log[t_i] l_j, e_i f_j, e_i l_i f_j + l_i l_j + e_i^2 f_j^2 / 4];
R_{i,j}^- := E[1, -Log[t_i] l_j, -t_i^{-1} e_i f_j, -l_i l_j + t_i^{-1} e_i l_j f_j - t_i^{-2} e_i^2 f_j^2 / 4];
(ur_{i-} := E[t_i^{-1/2}, 0, 0, l_i t_i^2]; nr_{i-} := E[t_i^{1/2}, 0, 0, -l_i t_i^2];)
```

```
DP_{x→Dα,y→Dβ}[P_][f_] := (* means P[∂α,∂β][f] *)
PPDP@Total[CoefficientRules[P, {x, y}] /. ({m_, n_} → c_) ⇒ c D[f, {α, m}, {β, n}]]
```

```
CF[E[ω_, L_, Q_, P_]] := PPF@E[Expand@ω, Expand@L, Expand@Q, Expand@P];
```

```
E /: E[ω1_, L1_, Q1_, P1_] E[ω2_, L2_, Q2_, P2_] := CF@E[ω1 ω2, L1 + L2, ω2 Q1 + ω1 Q2, ω2^4 P1 + ω1^4 P2];
```

```
Δ[k_] := ((t_k - 1) (2 (α β + δ μ)^2 - α^2 β^2) - 4 e_k l_k f_k δ^2 μ^2 -
δ (1 + μ) (f_k^2 α^2 + e_k^2 β^2) - e_k^2 f_k^2 δ^3 (1 + 3 μ) -
2 (α β + 2 δ μ + e_k f_k δ^2 (1 + 2 μ) + 2 l_k δ μ^2) (f_k α + e_k β) - 4 (l_k μ^2 + e_k f_k δ (1 + μ)) (α β + δ μ)) (1 + t_k) / 4;
```

```
N_{f_i e_j → k}[E[ω_, L_, Q_, P_]] := PPNfe@With[{q = ((1 - t_k) α β + β e_k + δ e_k f_k + α f_k) / μ}, E[
PPNfω@Expand@Together[μ ω / μ → 1 + (t_k - 1) δ / δ → ω^{-1} ∂_{f_i, e_j} Q],
L,
PPNfeQ@Expand@Together[μ ω q + μ (Q / f_i | e_j → 0) / μ → 1 + (t_k - 1) δ /
{α → ω^{-1} (∂_{f_i} Q / e_j → 0), β → ω^{-1} (∂_{e_j} Q / f_i → 0), δ → ω^{-1} ∂_{f_i, e_j} Q}],
Plus[
PPNfeDP@Expand@Together[μ^4 (DP_{f_i→Dα, e_j→Dβ}[P][e^q] / e → 1) / {
α → ω^{-1} (∂_{f_i} Q / e_j → 0), β → ω^{-1} (∂_{e_j} Q / f_i → 0), δ → ω^{-1} ∂_{f_i, e_j} Q, μ → ω^{-1} Expand[ω + (t_k - 1) ∂_{f_i, e_j} Q]
}],
PPNfeΔ@Expand@Together[
ω^4 Δ[k] / μ → 1 + (t_k - 1) δ / {α → ω^{-1} (∂_{f_i} Q / e_j → 0), β → ω^{-1} (∂_{e_j} Q / f_i → 0), δ → ω^{-1} ∂_{f_i, e_j} Q}
]
]];
```

```
N_{l_j (x:e|f)_{i→k}}[E[ω_, L_, Q_, P_]] := PPNlx@With[{q = e^y β x_k + γ l_k}, E[
ω,
PPNlxL@Expand@Together[γ l_k + (L / l_j → 0) / γ → ∂_{l_j} L],
PPNlxQ@Expand@Together[ω e^y β x_k + (Q / x_i → 0) / {γ → ∂_{l_j} L, β → ω^{-1} ∂_{x_i} Q}],
PPNlxP@Expand@Together[e^{-q} DP_{l_j→Dγ, x_i→Dβ}[P][e^q] / {γ → ∂_{l_j} L, β → ω^{-1} ∂_{x_i} Q}
]
]];
```

```

mi,j→k[Z_E] := PP@Module[{x, z},
  CF[(Z // Nfiej→x // N1ex→x // Nfx1j→x) /. z-i|j|x → zk]]

```

## Testing 3<sub>1</sub>...

```

BeginProfile[];
Timing[Z[Knot[3, 1]]]
EndProfile[];
PrintProfile[]

```

KnotTheory: Loading precomputed data in PD4Knots`.

$$\left\{ 0.6875, \mathbb{E} \left[ -1 + \frac{1}{t} + t, 0, 0, -16 + 2ef - \frac{2}{t^4} - \frac{2ef}{t^4} + \frac{21}{t^4} + \frac{7}{t^3} + \frac{4ef}{t^3} - \frac{61}{t^3} - \frac{14}{t^2} - \frac{6ef}{t^2} + \frac{101}{t^2} + \frac{18}{t} + \frac{2ef}{t} - \frac{81}{t} + 10t - 6eft + 81t - 4t^2 + 4eft^2 - 101t^2 + t^3 - 2eft^3 + 61t^3 - 21t^4 \right] \right\}$$

NlxP: called 60 times, time in 0.235/0.282

Parents:

( 60) 0.235/ 0.282 under Nlx

Children:

( 60) 0.047/ 0.047 above DP

NfeDP: called 30 times, time in 0.171/0.217

Parents:

( 30) 0.171/ 0.217 under Nfe

Children:

( 30) 0.046/ 0.046 above DP

DP: called 90 times, time in 0.093/0.093

Parents:

( 30) 0.046/ 0.046 under NfeDP

( 60) 0.047/ 0.047 under NlxP

Nfe $\Delta$ : called 30 times, time in 0.062/0.062

Parents:

( 30) 0.062/ 0.062 under Nfe

NfeQ: called 30 times, time in 0.048/0.048

Parents:

( 30) 0.048/ 0.048 under Nfe

NlxQ: called 60 times, time in 0.016/0.016

Parents:

( 60) 0.016/ 0.016 under Nlx

m: called 30 times, time in 0.016/0.656

Parents:

( 30) 0.016/ 0.656 under z

Children:

( 30) 0.000/ 0.000 above CF

( 30) 0.000/ 0.342 above Nfe

( 60) 0.000/ 0.298 above Nlx

Nfe $\omega$ : called 30 times, time in 0.015/0.015

Parents:

( 30) 0.015/ 0.015 under Nfe

z: called 1 times, time in 0./0.656

Parents:

( 1) 0.000/ 0.656 under ProfileRoot

Children:

( 24) 0.000/ 0.000 above CF

( 30) 0.016/ 0.656 above m

ProfileRoot: called 0 times, time in 0./0.

Children:

( 1) 0.000/ 0.656 above z

NlxL: called 60 times, time in 0./0.

Parents:

( 60) 0.000/ 0.000 under Nlx

Nlx: called 60 times, time in 0./0.298

Parents:

( 60) 0.000/ 0.298 under m

Children:

( 60) 0.000/ 0.000 above NlxL

( 60) 0.235/ 0.282 above NlxP

( 60) 0.016/ 0.016 above NlxQ

Nfe: called 30 times, time in 0./0.342

Parents:

( 30) 0.000/ 0.342 under m

Children:

( 30) 0.171/ 0.217 above NfeDP

( 30) 0.048/ 0.048 above NfeQ

( 30) 0.062/ 0.062 above Nfe $\Delta$

( 30) 0.015/ 0.015 above Nfe $\omega$

CF: called 54 times, time in 0./0.

Parents:

( 30) 0.000/ 0.000 under m

( 24) 0.000/ 0.000 under z

## Testing $10_{100}$ ...

**BeginProfile** [];

**Timing**[**Z**[**Knot**[10, 100]]]

**EndProfile** [];

**PrintProfile** []

$$\left\{ 10.4688, \mathbb{E} \left[ 13 + \frac{1}{t^4} - \frac{4}{t^3} + \frac{9}{t^2} - \frac{12}{t} - 12t + 9t^2 - 4t^3 + t^4, 0, 0, \right. \right. \\ \left. - 2563146 + 253564ef - \frac{6}{t^{16}} - \frac{8ef}{t^{16}} + \frac{81}{t^{16}} + \frac{92}{t^{15}} + \frac{112ef}{t^{15}} - \frac{1201}{t^{15}} - \frac{723}{t^{14}} - \frac{812ef}{t^{14}} + \frac{9241}{t^{14}} + \frac{3818}{t^{13}} + \right. \\ \left. \frac{3972ef}{t^{13}} - \frac{47841}{t^{13}} - \frac{15133}{t^{12}} - \frac{14616ef}{t^{12}} + \frac{185881}{t^{12}} + \frac{47848}{t^{11}} + \frac{42936ef}{t^{11}} - \frac{575521}{t^{11}} - \frac{125539}{t^{10}} - \frac{104604ef}{t^{10}} + \right. \\ \left. \frac{1475401}{t^{10}} + \frac{281054}{t^9} + \frac{216948ef}{t^9} - \frac{3215521}{t^9} - \frac{548129}{t^8} - \frac{390040ef}{t^8} + \frac{6069881}{t^8} + \frac{945756}{t^7} + \frac{614936ef}{t^7} - \right. \\ \left. \frac{10049761}{t^7} - \frac{1460263}{t^6} - \frac{854884ef}{t^6} + \frac{14698201}{t^6} + \frac{2034106}{t^5} + \frac{1046676ef}{t^5} - \frac{19015601}{t^5} - \frac{2570432}{t^4} - \right. \\ \left. \frac{1116500ef}{t^4} + \frac{21631761}{t^4} + \frac{2956518}{t^3} + \frac{1007020ef}{t^3} - \frac{21235201}{t^3} - \frac{3099338}{t^2} - \frac{704708ef}{t^2} + \frac{17117281}{t^2} + \right. \\ \left. \frac{2958726}{t} + \frac{253564ef}{t} - \frac{9582721}{t} + 2000454t - 704708eft + 9582721t - 1387610t^2 + 1007020eft^2 - \right. \\ \left. 17117281t^2 + 832998t^3 - 1116500eft^3 + 21235201t^3 - 407256t^4 + 1046676eft^4 - 21631761t^4 + \right. \\ \left. 132546t^5 - 854884eft^5 + 19015601t^5 + 9557t^6 + 614936eft^6 - 14698201t^6 - 59220t^7 - 390040eft^7 + \right. \\ \left. 10049761t^7 + 58859t^8 + 216948eft^8 - 6069881t^8 - 40498t^9 - 104604eft^9 + 3215521t^9 + 22001t^{10} + \right. \\ \left. 42936eft^{10} - 1475401t^{10} - 9704t^{11} - 14616eft^{11} + 575521t^{11} + 3455t^{12} + 3972eft^{12} - 185881t^{12} - \right. \\ \left. 966t^{13} - 812eft^{13} + 47841t^{13} + 201t^{14} + 112eft^{14} - 9241t^{14} - 28t^{15} - 8eft^{15} + 1201t^{15} + 2t^{16} - 81t^{16} \right\}$$

NfeDP: called 100 times, time in 4.42/4.638

Parents:

( 100) 4.420/ 4.638 under Nfe

Children:

( 100) 0.218/ 0.218 above DP

NlxP: called 200 times, time in 3.902/4.719

Parents:

( 200) 3.902/ 4.719 under Nlx

Children:

( 200) 0.817/ 0.817 above DP

```

DP: called 300 times, time in 1.035/1.035
  Parents:
    ( 100) 0.218/ 0.218 under NfeDP
    ( 200) 0.817/ 0.817 under NlxP
Nfe $\Delta$ : called 100 times, time in 0.457/0.457
  Parents:
    ( 100) 0.457/ 0.457 under Nfe
m: called 100 times, time in 0.171/10.39
  Parents:
    ( 100) 0.171/ 10.390 under z
  Children:
    ( 100) 0.016/ 0.016 above CF
    ( 100) 0.076/ 5.233 above Nfe
    ( 200) 0.125/ 4.970 above Nlx
NlxQ: called 200 times, time in 0.126/0.126
  Parents:
    ( 200) 0.126/ 0.126 under Nlx
Nlx: called 200 times, time in 0.125/4.97
  Parents:
    ( 200) 0.125/ 4.970 under m
  Children:
    ( 200) 0.000/ 0.000 above NlxL
    ( 200) 3.902/ 4.719 above NlxP
    ( 200) 0.126/ 0.126 above NlxQ
CF: called 180 times, time in 0.079/0.079
  Parents:
    ( 100) 0.016/ 0.016 under m
    ( 80) 0.063/ 0.063 under z
Nfe: called 100 times, time in 0.076/5.233
  Parents:
    ( 100) 0.076/ 5.233 under m
  Children:
    ( 100) 4.420/ 4.638 above NfeDP
    ( 100) 0.062/ 0.062 above NfeQ
    ( 100) 0.457/ 0.457 above Nfe $\Delta$ 
    ( 100) 0.000/ 0.000 above Nfe $\omega$ 
NfeQ: called 100 times, time in 0.062/0.062
  Parents:
    ( 100) 0.062/ 0.062 under Nfe
z: called 1 times, time in 0.016/10.469
  Parents:
    ( 1) 0.016/ 10.470 under ProfileRoot
  Children:
    ( 80) 0.063/ 0.063 above CF
    ( 100) 0.171/ 10.390 above m
ProfileRoot: called 0 times, time in 0./0.
  Children:
    ( 1) 0.016/ 10.470 above z
NlxL: called 200 times, time in 0./0.
  Parents:
    ( 200) 0.000/ 0.000 under Nlx
Nfe $\omega$ : called 100 times, time in 0./0.
  Parents:
    ( 100) 0.000/ 0.000 under Nfe

```

Testing  $T_{9,5}$ ...

```

BeginProfile[];
Timing[Z[TorusKnot[9, 5]]]
EndProfile[];
PrintProfile[]

```

$$\left\{ 709.953, \mathbb{E} \left[ -1 + \frac{1}{t^{16}} - \frac{1}{t^{15}} + \frac{1}{t^{11}} - \frac{1}{t^{10}} + \frac{1}{t^7} - \frac{1}{t^5} + \frac{1}{t^2} + t^2 - t^5 + t^7 - t^{10} + t^{11} - t^{15} + t^{16}, 0, 0, \right. \right.$$

$$7580 + 280 e f - \frac{32 e f}{t^{64}} + \frac{32 l}{t^{64}} - \frac{1}{t^{63}} + \frac{94 e f}{t^{63}} - \frac{126 l}{t^{63}} + \frac{3}{t^{62}} - \frac{92 e f}{t^{62}} + \frac{186 l}{t^{62}} - \frac{3}{t^{61}} + \frac{30 e f}{t^{61}} - \frac{122 l}{t^{61}} + \frac{1}{t^{60}} + \frac{30 l}{t^{60}} +$$

$$\frac{1}{t^{59}} - \frac{118 e f}{t^{59}} + \frac{118 l}{t^{59}} - \frac{8}{t^{58}} + \frac{346 e f}{t^{58}} - \frac{464 l}{t^{58}} + \frac{18}{t^{57}} - \frac{338 e f}{t^{57}} + \frac{684 l}{t^{57}} - \frac{16}{t^{56}} + \frac{110 e f}{t^{56}} - \frac{448 l}{t^{56}} + \frac{6}{t^{55}} - \frac{110 e f}{t^{55}} +$$

$$\frac{220 l}{t^{55}} - \frac{3}{t^{54}} + \frac{52 e f}{t^{54}} - \frac{162 l}{t^{54}} - \frac{12}{t^{53}} + \frac{476 e f}{t^{53}} - \frac{424 l}{t^{53}} + \frac{44}{t^{52}} - \frac{668 e f}{t^{52}} + \frac{1144 l}{t^{52}} - \frac{45}{t^{51}} + \frac{250 e f}{t^{51}} - \frac{918 l}{t^{51}} + \frac{25}{t^{50}} -$$

$$\frac{400 e f}{t^{50}} + \frac{650 l}{t^{50}} - \frac{41}{t^{49}} + \frac{678 e f}{t^{49}} - \frac{1078 l}{t^{49}} + \frac{28}{t^{48}} + \frac{294 e f}{t^{48}} + \frac{384 l}{t^{48}} + \frac{62}{t^{47}} - \frac{1022 e f}{t^{47}} + \frac{1316 l}{t^{47}} - \frac{89}{t^{46}} + \frac{220 e f}{t^{46}} -$$

$$\frac{1242 l}{t^{46}} + \frac{45}{t^{45}} - \frac{230 e f}{t^{45}} + \frac{450 l}{t^{45}} - \frac{105}{t^{44}} + \frac{1200 e f}{t^{44}} - \frac{1430 l}{t^{44}} + \frac{135}{t^{43}} - \frac{90 e f}{t^{43}} + \frac{1290 l}{t^{43}} + \frac{50}{t^{42}} - \frac{1350 e f}{t^{42}} + \frac{1260 l}{t^{42}} -$$

$$\frac{125}{t^{41}} - \frac{120 e f}{t^{41}} - \frac{1230 l}{t^{41}} - \frac{20}{t^{40}} + \frac{780 e f}{t^{40}} - \frac{900 l}{t^{40}} - \frac{90}{t^{39}} + \frac{1248 e f}{t^{39}} - \frac{468 l}{t^{39}} + \frac{284}{t^{38}} - \frac{576 e f}{t^{38}} + \frac{1824 l}{t^{38}} + \frac{3}{t^{37}} -$$

$$\frac{1982 e f}{t^{37}} + \frac{1406 l}{t^{37}} - \frac{188}{t^{36}} + \frac{250 e f}{t^{36}} - \frac{2232 l}{t^{36}} - \frac{179}{t^{35}} + \frac{1720 e f}{t^{35}} - \frac{1470 l}{t^{35}} + \frac{86}{t^{34}} + \frac{972 e f}{t^{34}} + \frac{748 l}{t^{34}} + \frac{437}{t^{33}} - \frac{1074 e f}{t^{33}} +$$

$$\frac{2046 l}{t^{33}} - \frac{32}{t^{32}} - \frac{3058 e f}{t^{32}} + \frac{1984 l}{t^{32}} - \frac{491}{t^{31}} + \frac{1840 e f}{t^{31}} - \frac{4898 l}{t^{31}} - \frac{214}{t^{30}} + \frac{2020 e f}{t^{30}} - \frac{180 l}{t^{30}} + \frac{402}{t^{29}} + \frac{512 e f}{t^{29}} + \frac{1508 l}{t^{29}} +$$

$$\frac{593}{t^{28}} - \frac{1994 e f}{t^{28}} + \frac{2506 l}{t^{28}} - \frac{131}{t^{27}} - \frac{3128 e f}{t^{27}} + \frac{1134 l}{t^{27}} - \frac{1110}{t^{26}} + \frac{3320 e f}{t^{26}} - \frac{6448 l}{t^{26}} + \frac{75}{t^{25}} + \frac{1870 e f}{t^{25}} + \frac{1450 l}{t^{25}} +$$

$$\frac{804}{t^{24}} - \frac{2 e f}{t^{24}} + \frac{1872 l}{t^{24}} + \frac{858}{t^{23}} - \frac{3406 e f}{t^{23}} + \frac{3404 l}{t^{23}} - \frac{738}{t^{22}} - \frac{1602 e f}{t^{22}} - \frac{1804 l}{t^{22}} - \frac{1669}{t^{21}} + \frac{3900 e f}{t^{21}} - \frac{5502 l}{t^{21}} + \frac{695}{t^{20}} +$$

$$\frac{1450 e f}{t^{20}} + \frac{2450 l}{t^{20}} + \frac{1341}{t^{19}} - \frac{944 e f}{t^{19}} + \frac{2394 l}{t^{19}} + \frac{989}{t^{18}} - \frac{3662 e f}{t^{18}} + \frac{2718 l}{t^{18}} - \frac{1903}{t^{17}} - \frac{24 e f}{t^{17}} - \frac{3638 l}{t^{17}} - \frac{1900}{t^{16}} +$$

$$\frac{3720 e f}{t^{16}} - \frac{3744 l}{t^{16}} + \frac{1613}{t^{15}} + \frac{930 e f}{t^{15}} + \frac{2790 l}{t^{15}} + \frac{2246}{t^{14}} - \frac{2178 e f}{t^{14}} + \frac{3108 l}{t^{14}} + \frac{122}{t^{13}} - \frac{2334 e f}{t^{13}} + \frac{156 l}{t^{13}} - \frac{2952}{t^{12}} +$$

$$\frac{762 e f}{t^{12}} - \frac{3096 l}{t^{12}} - \frac{1811}{t^{11}} + \frac{2940 e f}{t^{11}} - \frac{2178 l}{t^{11}} + \frac{3013}{t^{10}} + \frac{130 e f}{t^{10}} + \frac{2810 l}{t^{10}} + \frac{2956}{t^9} - \frac{2174 e f}{t^9} + \frac{2304 l}{t^9} - \frac{1656}{t^8} -$$

$$\frac{962 e f}{t^8} - \frac{1212 l}{t^8} - \frac{3603}{t^7} + \frac{816 e f}{t^7} - \frac{1778 l}{t^7} - \frac{1390}{t^6} + \frac{1740 e f}{t^6} - \frac{924 l}{t^6} + \frac{5340}{t^5} - \frac{460 e f}{t^5} + \frac{2200 l}{t^5} + \frac{2004}{t^4} -$$

$$\frac{932 e f}{t^4} + \frac{472 l}{t^4} - \frac{3247}{t^3} - \frac{266 e f}{t^3} - \frac{666 l}{t^3} - \frac{3938}{t^2} + \frac{218 e f}{t^2} - \frac{484 l}{t^2} - \frac{219}{t} + \frac{280 e f}{t} - \frac{62 l}{t} - 281 t + 218 e f t +$$

$$62 l t - 4422 t^2 - 266 e f t^2 + 484 l t^2 - 3913 t^3 - 932 e f t^3 + 666 l t^3 + 2476 t^4 - 460 e f t^4 - 472 l t^4 + 7540 t^5 +$$

$$1740 e f t^5 - 2200 l t^5 - 2314 t^6 + 816 e f t^6 + 924 l t^6 - 5381 t^7 - 962 e f t^7 + 1778 l t^7 - 2868 t^8 - 2174 e f t^8 +$$

$$1212 l t^8 + 5260 t^9 + 130 e f t^9 - 2304 l t^9 + 5823 t^{10} + 2940 e f t^{10} - 2810 l t^{10} - 3989 t^{11} + 762 e f t^{11} + 2178 l t^{11} -$$

$$6048 t^{12} - 2334 e f t^{12} + 3096 l t^{12} + 278 t^{13} - 2178 e f t^{13} - 156 l t^{13} + 5354 t^{14} + 930 e f t^{14} - 3108 l t^{14} + 4403 t^{15} +$$

$$3720 e f t^{15} - 2790 l t^{15} - 5644 t^{16} - 24 e f t^{16} + 3744 l t^{16} - 5541 t^{17} - 3662 e f t^{17} + 3638 l t^{17} + 3707 t^{18} - 944 e f t^{18} -$$

$$2718 l t^{18} + 3735 t^{19} + 1450 e f t^{19} - 2394 l t^{19} + 3145 t^{20} + 3900 e f t^{20} - 2450 l t^{20} - 7171 t^{21} - 1602 e f t^{21} +$$

$$5502 l t^{21} - 2542 t^{22} - 3406 e f t^{22} + 1804 l t^{22} + 4262 t^{23} - 2 e f t^{23} - 3404 l t^{23} + 2676 t^{24} + 1870 e f t^{24} - 1872 l t^{24} +$$

$$1525 t^{25} + 3320 e f t^{25} - 1450 l t^{25} - 7558 t^{26} - 3128 e f t^{26} + 6448 l t^{26} + 1003 t^{27} - 1994 e f t^{27} - 1134 l t^{27} +$$

$$3099 t^{28} + 512 e f t^{28} - 2506 l t^{28} + 1910 t^{29} + 2020 e f t^{29} - 1508 l t^{29} - 394 t^{30} + 1840 e f t^{30} + 180 l t^{30} - 5389 t^{31} -$$

$$3058 e f t^{31} + 4898 l t^{31} + 1952 t^{32} - 1074 e f t^{32} - 1984 l t^{32} + 2483 t^{33} + 972 e f t^{33} - 2046 l t^{33} + 834 t^{34} +$$

$$1720 e f t^{34} - 748 l t^{34} - 1649 t^{35} + 250 e f t^{35} + 1470 l t^{35} - 2420 t^{36} - 1982 e f t^{36} + 2232 l t^{36} + 1409 t^{37} -$$

$$576 e f t^{37} - 1406 l t^{37} + 2108 t^{38} + 1248 e f t^{38} - 1824 l t^{38} - 558 t^{39} + 780 e f t^{39} + 468 l t^{39} - 920 t^{40} - 120 e f t^{40} +$$

$$900 l t^{40} - 1355 t^{41} - 1350 e f t^{41} + 1230 l t^{41} + 1310 t^{42} - 90 e f t^{42} - 1260 l t^{42} + 1425 t^{43} + 1200 e f t^{43} -$$

$$1290 l t^{43} - 1535 t^{44} - 230 e f t^{44} + 1430 l t^{44} + 495 t^{45} + 220 e f t^{45} - 450 l t^{45} - 1331 t^{46} - 1022 e f t^{46} + 1242 l t^{46} +$$

$$1378 t^{47} + 294 e f t^{47} - 1316 l t^{47} + 412 t^{48} + 678 e f t^{48} - 384 l t^{48} - 1119 t^{49} - 400 e f t^{49} + 1078 l t^{49} + 675 t^{50} +$$

$$250 e f t^{50} - 650 l t^{50} - 963 t^{51} - 668 e f t^{51} + 918 l t^{51} + 1188 t^{52} + 476 e f t^{52} - 1144 l t^{52} - 436 t^{53} + 52 e f t^{53} +$$

$$424 l t^{53} - 165 t^{54} - 110 e f t^{54} + 162 l t^{54} + 226 t^{55} + 110 e f t^{55} - 220 l t^{55} - 464 t^{56} - 338 e f t^{56} + 448 l t^{56} +$$

$$702 t^{57} + 346 e f t^{57} - 684 l t^{57} - 472 t^{58} - 118 e f t^{58} + 464 l t^{58} + 119 t^{59} - 118 l t^{59} + 31 t^{60} + 30 e f t^{60} - 30 l t^{60} -$$

$$125 t^{61} - 92 e f t^{61} + 122 l t^{61} + 189 t^{62} + 94 e f t^{62} - 186 l t^{62} - 127 t^{63} - 32 e f t^{63} + 126 l t^{63} + 32 t^{64} - 32 l t^{64} \left. \right\}$$

NfeDP: called 360 times, time in 423.732/430.299

Parents:

( 360 ) 423.732/ 430.299 under Nfe

Children:

( 360 ) 6.567/ 6.567 above DP

NlxP: called 720 times, time in 232.8/252.49

Parents:

( 720 ) 232.800/ 252.490 under Nlx

Children:  
 ( 720) 19.690/ 19.690 above DP  
 DP: called 1080 times, time in 26.257/26.257  
 Parents:  
 ( 360) 6.567/ 6.567 under NfeDP  
 ( 720) 19.690/ 19.690 under NlxP  
 Nfe $\Delta$ : called 360 times, time in 17.999/17.999  
 Parents:  
 ( 360) 17.999/ 17.999 under Nfe  
 m: called 360 times, time in 2.777/708.085  
 Parents:  
 ( 360) 2.777/ 708.085 under z  
 Children:  
 ( 360) 0.455/ 0.455 above CF  
 ( 360) 0.966/ 450.875 above Nfe  
 ( 720) 0.189/ 253.978 above Nlx  
 CF: called 648 times, time in 1.999/1.999  
 Parents:  
 ( 360) 0.455/ 0.455 under m  
 ( 288) 1.544/ 1.544 under z  
 NfeQ: called 360 times, time in 1.487/1.487  
 Parents:  
 ( 360) 1.487/ 1.487 under Nfe  
 NlxQ: called 720 times, time in 1.221/1.221  
 Parents:  
 ( 720) 1.221/ 1.221 under Nlx  
 Nfe: called 360 times, time in 0.966/450.875  
 Parents:  
 ( 360) 0.966/ 450.875 under m  
 Children:  
 ( 360) 423.732/ 430.299 above NfeDP  
 ( 360) 1.487/ 1.487 above NfeQ  
 ( 360) 17.999/ 17.999 above Nfe $\Delta$   
 ( 360) 0.124/ 0.124 above Nfe $\omega$   
 z: called 1 times, time in 0.324/709.953  
 Parents:  
 ( 1) 0.324/ 709.953 under ProfileRoot  
 Children:  
 ( 288) 1.544/ 1.544 above CF  
 ( 360) 2.777/ 708.085 above m  
 Nlx: called 720 times, time in 0.189/253.978  
 Parents:  
 ( 720) 0.189/ 253.978 under m  
 Children:  
 ( 720) 0.078/ 0.078 above NlxL  
 ( 720) 232.800/ 252.490 above NlxP  
 ( 720) 1.221/ 1.221 above NlxQ  
 Nfe $\omega$ : called 360 times, time in 0.124/0.124  
 Parents:  
 ( 360) 0.124/ 0.124 under Nfe  
 NlxL: called 720 times, time in 0.078/0.078  
 Parents:  
 ( 720) 0.078/ 0.078 under Nlx  
 ProfileRoot: called 0 times, time in 0./0.  
 Children:  
 ( 1) 0.324/ 709.953 above z