Pensieve header: Games with the centre of the ybax algebra.

Startup

In[ ]:=
```
Date[]
SetDirectory["C:\\drorbn\\AcademicPensieve\\Projects\\FullDoPeGDO"];
Once[<< KnotTheory`];
Once[Get@"../Profile/Profile.m"];
BeginProfile[];
$k = 1;
<< Engine.m
<< Objects.m
<< KT.m
```

Out[ ]= {2021, 8, 3, 9, 44, 32.9501403}

Loading KnotTheory` version of February 2, 2020, 10:53:45.2097.
Read more at http://katlas.org/wiki/KnotTheory.

This is Profile.m of http://www.drorbn.net/AcademicPensieve/Projects/Profile/.

This version: April 2020. Original version: July 1994.

In[ ]:=
```
$k = 2; (*ℏ=γ=1;*)
```

In[ ]:=
```
HL[ℰ_] := Style[ℰ, Background → If[TrueQ@ℰ, ▮, ▮]];
```

Games

In[ ]:= $Kink_1$

Out[ ]= $\mathbb{E}_{\{\} \to \{1\}} \left[\dfrac{\hbar\, b_1}{2} + \hbar\, a_1\, b_1 + \hbar\, x_1\, y_1,\ \dfrac{\hbar\, a_1}{2} - \dfrac{1}{4}\, \hbar^3\, x_1^2\, y_1^2,\ \dfrac{1}{9}\, \hbar^5\, x_1^3\, y_1^3 \right]$

$In[\circ]:=$ **Z[Knot[7, 1]]**

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$Out[\circ]=$ $\mathbb{E}_{\{\}\to\{1\}}\left[-4\,t\,\hbar + Log\left[\dfrac{T^7}{1 - T + T^2 - T^3 + T^4 - T^5 + T^6} \right]\right.,$

$\dfrac{2\,a\,(-1 + T)\times(1 + T)\times\left(3 - 2\,T + 4\,T^2 - 2\,T^3 + 3\,T^4\right)\hbar}{1 - T + T^2 - T^3 + T^4 - T^5 + T^6} +$

$\dfrac{(-1 + T)\times\left(6 - 5\,T + 9\,T^2 - 7\,T^3 + 9\,T^4 - 6\,T^5 + 6\,T^6 - 3\,T^7 + 3\,T^8 - T^9 + T^{10}\right)\hbar}{\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^2} -$

$\dfrac{2\times(1 + T)\times\left(3 - 2\,T + 4\,T^2 - 2\,T^3 + 3\,T^4\right)x\,y\,\hbar^2}{1 - T + T^2 - T^3 + T^4 - T^5 + T^6},$

$\dfrac{2\,a^2\,T\left(1 - 3\,T + 6\,T^2 - 3\,T^3 + T^4\right)\times\left(1 - T + T^2 - 8\,T^3 + T^4 - T^5 + T^6\right)\hbar^2}{\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^2} +$

$\left(2\,a\,T\left(1 - 7\,T + 21\,T^2 - 51\,T^3 + 102\,T^4 - 186\,T^5 + 219\,T^6 - 214\,T^7 + \right.\right.$

$\left.\left.186\,T^8 - 146\,T^9 + 103\,T^{10} - 66\,T^{11} + 38\,T^{12} - 19\,T^{13} + 9\,T^{14} - 3\,T^{15} + T^{16}\right)\hbar^2\right)\Big/$

$\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^3 + \dfrac{1}{2\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^4}$

$(-1 + T)\,T\left(-1 + 10\,T - 31\,T^2 + 85\,T^3 - 181\,T^4 + 361\,T^5 - 472\,T^6 + 580\,T^7 - 581\,T^8 + 564\,T^9 - 460\,T^{10} +\right.$

$\left.380\,T^{11} - 276\,T^{12} + 205\,T^{13} - 132\,T^{14} + 88\,T^{15} - 49\,T^{16} + 29\,T^{17} - 13\,T^{18} + 7\,T^{19} - 2\,T^{20} + T^{21}\right)\hbar^2 -$

$\dfrac{4\,a\,T\left(-4 + 2\,T - 12\,T^2 + 10\,T^3 - 28\,T^4 + 28\,T^5 - 7\,T^6 + 10\,T^7 + 2\,T^8 + 2\,T^9 + 3\,T^{10}\right)x\,y\,\hbar^3}{\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^2} +$

$\dfrac{1}{\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^3}\,2\times(1 + T)\times\left(-9 + 21\,T - 42\,T^2 + 62\,T^3 - 88\,T^4 + 108\,T^5 - 134\,T^6 +\right.$

$\left.127\,T^7 - 112\,T^8 + 65\,T^9 - 22\,T^{10} - 32\,T^{11} + 52\,T^{12} - 50\,T^{13} + 38\,T^{14} - 21\,T^{15} + 9\,T^{16}\right)x\,y\,\hbar^3 +$

$\dfrac{\left(3 + 9\,T + 9\,T^2 + 31\,T^3 + 14\,T^4 + 70\,T^5 + 14\,T^6 + 31\,T^7 + 9\,T^8 + 9\,T^9 + 3\,T^{10}\right)x^2\,y^2\,\hbar^4}{\left(1 - T + T^2 - T^3 + T^4 - T^5 + T^6\right)^2}\Bigg]$

In[ ]:= **Z[Knot[8, 17]]**

KnotTheory: Loading precomputed data in PD4Knots`.

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Out[ ]= $\mathbb{E}_{\{\}\to\{1\}}\Big[-t\,\hbar + \mathrm{Log}\Big[-\dfrac{T^4}{1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6}\Big],$

$$\dfrac{(-1+T)\times(1+T)\times\left(1-T+T^2\right)\times\left(3-5\,T+3\,T^2\right)\hbar}{1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6} +$$

$$\dfrac{2\,a\,(-1+T)\times(1+T)\times\left(1-T+T^2\right)\times\left(3-5\,T+3\,T^2\right)\hbar}{1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6} -$$

$$\dfrac{2\times(1+T)\times\left(1-T+T^2\right)\times\left(3-5\,T+3\,T^2\right)x\,y\,\hbar^2}{1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6},$$

$$\dfrac{2\,a\,T\left(4 - 32\,T + 131\,T^2 - 304\,T^3 + 476\,T^4 - 548\,T^5 + 476\,T^6 - 304\,T^7 + 131\,T^8 - 32\,T^9 + 4\,T^{10}\right)\hbar^2}{\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^2} +$$

$$\dfrac{2\,a^2\,T\left(4 - 32\,T + 131\,T^2 - 304\,T^3 + 476\,T^4 - 548\,T^5 + 476\,T^6 - 304\,T^7 + 131\,T^8 - 32\,T^9 + 4\,T^{10}\right)\hbar^2}{\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^2} +$$

$$\Big(\big((-1+T)^2\,T\left(4 - 42\,T + 219\,T^2 - 680\,T^3 + 1483\,T^4 - 2481\,T^5 + 3315\,T^6 - 3643\,T^7 + 3315\,T^8 - 2481\,T^9 + \right.$$
$$\left.1483\,T^{10} - 680\,T^{11} + 219\,T^{12} - 42\,T^{13} + 4\,T^{14}\right)\hbar^2\big)\Big/\Big(2\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^3\Big) +$$

$$\dfrac{2\times(-1+T)\,(1+T)^2\left(1-T+T^2\right)^2\left(3-5\,T+3\,T^2\right)^2 x\,y\,\hbar^3}{\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^2} -$$

$$\dfrac{4\,a\,T\left(-7 + 42\,T - 136\,T^2 + 250\,T^3 - 312\,T^4 + 274\,T^5 - 164\,T^6 + 54\,T^7 + 5\,T^8 - 10\,T^9 + 3\,T^{10}\right)x\,y\,\hbar^3}{\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^2} +$$

$$\dfrac{\left(3 - 37\,T^2 + 153\,T^3 - 261\,T^4 + 325\,T^5 - 261\,T^6 + 153\,T^7 - 37\,T^8 + 3\,T^{10}\right)x^2\,y^2\,\hbar^4}{\left(1 - 4\,T + 8\,T^2 - 11\,T^3 + 8\,T^4 - 4\,T^5 + T^6\right)^2}\Big]$$