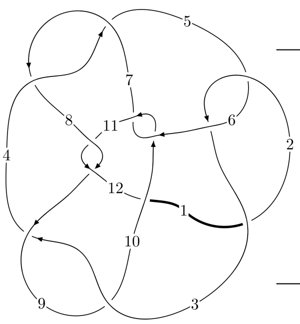
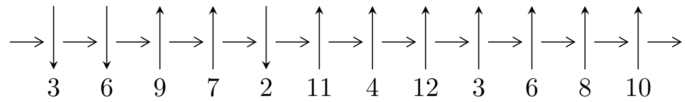
$12n_{0514}$ ($K12n_{0514}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$6,11 \xrightarrow[c_6]{} 3,7 \xrightarrow[c_2]{} 2 \xrightarrow[c_1]{} 1 \xrightarrow[c_5]{} 5 \xrightarrow[c_4]{} 4 \xrightarrow[c_7]{} 8 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_9]{} 9 \xrightarrow[c_{12}]{} 12 \twoheadrightarrow c_3, c_8, c_{11}$$

Ideals for irreducible components[2] of $X_{\textbf{par}}$

$$\begin{aligned}
I_1^u = \langle &-8.97013 \times 10^{55} u^{29} - 1.58329 \times 10^{56} u^{28} + \cdots + 4.35231 \times 10^{58} b + 6.55011 \times 10^{57}, \\
&3.18509 \times 10^{57} u^{29} - 1.03463 \times 10^{58} u^{28} + \cdots + 1.82362 \times 10^{61} a + 1.17215 \times 10^{61}, \\
&u^{30} + 2u^{29} + \cdots + 100u - 419 \rangle \\
I_2^u = \langle &-5u^{12} + 21u^{10} - 7u^9 - 18u^8 + 33u^7 - 17u^6 - 26u^5 + 26u^4 + 7u^3 - 15u^2 + 2b + 3u + 5, \\
&11u^{12} + 2u^{11} - 48u^{10} + 6u^9 + 49u^8 - 64u^7 + 21u^6 + 72u^5 - 53u^4 - 32u^3 + 37u^2 + 2a - u - 14, \\
&u^{13} + u^{12} - 4u^{11} - 3u^{10} + 4u^9 - 2u^8 - 2u^7 + 7u^6 + u^5 - 6u^4 + 2u^2 - u - 1 \rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 43 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle -8.97\times 10^{55}u^{29} - 1.58\times 10^{56}u^{28} + \cdots + 4.35\times 10^{58}b + 6.55\times 10^{57},\ 3.19\times 10^{57}u^{29} - 1.03\times 10^{58}u^{28} + \cdots + 1.82\times 10^{61}a + 1.17\times 10^{61},\ u^{30} + 2u^{29} + \cdots + 100u - 419\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.000174658u^{29} + 0.000567352u^{28} + \cdots + 1.47843u - 0.642763 \\ 0.00206100u^{29} + 0.00363781u^{28} + \cdots - 0.596168u - 0.150497 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.00188635u^{29} + 0.00420517u^{28} + \cdots + 0.882267u - 0.793260 \\ 0.00206100u^{29} + 0.00363781u^{28} + \cdots - 0.596168u - 0.150497 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.00358201u^{29} + 0.00533243u^{28} + \cdots - 0.845448u + 0.146579 \\ -0.00430260u^{29} - 0.00434093u^{28} + \cdots + 2.70318u - 1.08487 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0000550185u^{29} + 0.00136950u^{28} + \cdots + 0.855142u - 0.322525 \\ -0.000908531u^{29} + 0.0000579815u^{28} + \cdots + 0.0808855u - 1.03300 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.000107308u^{29} + 0.000594620u^{28} + \cdots + 0.877150u + 0.182757 \\ 0.0000965840u^{29} + 0.00130720u^{28} + \cdots - 0.0289697u - 0.664503 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0000748679u^{29} + 0.000914934u^{28} + \cdots + 0.654950u + 0.759505 \\ -0.00255893u^{29} - 0.00377164u^{28} + \cdots + 0.375116u - 0.944810 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0000732909u^{29} - 0.00133981u^{28} + \cdots - 1.16207u - 0.158293 \\ 0.00125946u^{29} + 0.00337516u^{28} + \cdots - 0.328027u + 0.0230528 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00156530u^{29} + 0.00377669u^{28} + \cdots - 0.300258u - 0.872709 \\ -0.00228589u^{29} - 0.00278519u^{28} + \cdots + 2.15799u - 0.0655795 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.000964221u^{29} + 0.00738326u^{28} + \cdots + 11.2158u + 0.582373$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30}+54u^{29}+\cdots+35644u+961$
c_2, c_5	$u^{30}+2u^{29}+\cdots+274u+31$
c_3, c_9	$u^{30}-u^{29}+\cdots-18u-9$
c_4, c_7	$u^{30}+7u^{29}+\cdots-58u+7$
c_6, c_{10}	$u^{30}+2u^{29}+\cdots+100u-419$
c_8, c_{11}	$u^{30}-u^{29}+\cdots-u-1$
c_{12}	$u^{30}+3u^{29}+\cdots+276288u-31624$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} - 166y^{29} + \cdots + 2665988060y + 923521$
c_2, c_5	$y^{30} - 54y^{29} + \cdots - 35644y + 961$
c_3, c_9	$y^{30} + 47y^{29} + \cdots + 972y + 81$
c_4, c_7	$y^{30} + 23y^{29} + \cdots - 1614y + 49$
c_6, c_{10}	$y^{30} + 10y^{29} + \cdots + 590846y + 175561$
c_8, c_{11}	$y^{30} - 21y^{29} + \cdots - 19y + 1$
c_{12}	$y^{30} + 121y^{29} + \cdots + 1307553376y + 1000077376$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.642590 + 0.700606I$ $a = 0.106716 - 1.072760I$ $b = -0.347246 + 1.044670I$	$0.82927 + 4.60566I$	$7.38656 - 8.01596I$
$u = 0.642590 - 0.700606I$ $a = 0.106716 + 1.072760I$ $b = -0.347246 - 1.044670I$	$0.82927 - 4.60566I$	$7.38656 + 8.01596I$
$u = -0.814116 + 0.677327I$ $a = 0.504066 + 1.067370I$ $b = -0.549219 - 0.145896I$	$-0.77900 - 2.06540I$	$3.22171 + 2.38317I$
$u = -0.814116 - 0.677327I$ $a = 0.504066 - 1.067370I$ $b = -0.549219 + 0.145896I$	$-0.77900 + 2.06540I$	$3.22171 - 2.38317I$
$u = 0.560922 + 0.747663I$ $a = 0.472626 - 0.864157I$ $b = -0.104866 + 0.109501I$	$0.327633 - 0.843648I$	$6.72873 + 1.86017I$
$u = 0.560922 - 0.747663I$ $a = 0.472626 + 0.864157I$ $b = -0.104866 - 0.109501I$	$0.327633 + 0.843648I$	$6.72873 - 1.86017I$
$u = -0.055990 + 1.128490I$ $a = -0.924318 + 0.178825I$ $b = 2.41962 - 0.23089I$	$-10.40080 + 1.46441I$	$-1.99581 - 5.01569I$
$u = -0.055990 - 1.128490I$ $a = -0.924318 - 0.178825I$ $b = 2.41962 + 0.23089I$	$-10.40080 - 1.46441I$	$-1.99581 + 5.01569I$
$u = -0.586638 + 0.553835I$ $a = 0.155793 + 1.119640I$ $b = -0.651578 - 0.537140I$	$-1.29989 - 1.54235I$	$1.52237 + 4.53495I$
$u = -0.586638 - 0.553835I$ $a = 0.155793 - 1.119640I$ $b = -0.651578 + 0.537140I$	$-1.29989 + 1.54235I$	$1.52237 - 4.53495I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.307100 + 0.036349I$ $a = 0.71975 + 1.63357I$ $b = -0.798397 - 0.708430I$	$3.26183 - 2.73720I$	$10.18982 + 2.92398I$
$u = 1.307100 - 0.036349I$ $a = 0.71975 - 1.63357I$ $b = -0.798397 + 0.708430I$	$3.26183 + 2.73720I$	$10.18982 - 2.92398I$
$u = -0.049314 + 1.329620I$ $a = -0.356304 + 0.123824I$ $b = 1.85890 - 0.07524I$	$-11.24640 - 1.91319I$	$0.75047 + 3.50106I$
$u = -0.049314 - 1.329620I$ $a = -0.356304 - 0.123824I$ $b = 1.85890 + 0.07524I$	$-11.24640 + 1.91319I$	$0.75047 - 3.50106I$
$u = 0.403283 + 1.277970I$ $a = -0.507314 - 0.949307I$ $b = 1.40638 + 0.97678I$	$-3.40270 - 3.64668I$	$2.86245 + 2.46962I$
$u = 0.403283 - 1.277970I$ $a = -0.507314 + 0.949307I$ $b = 1.40638 - 0.97678I$	$-3.40270 + 3.64668I$	$2.86245 - 2.46962I$
$u = -0.276632 + 1.333170I$ $a = -0.334409 + 0.791751I$ $b = 1.39749 - 0.61314I$	$-7.55076 - 1.32763I$	$-0.010757 + 0.862501I$
$u = -0.276632 - 1.333170I$ $a = -0.334409 - 0.791751I$ $b = 1.39749 + 0.61314I$	$-7.55076 + 1.32763I$	$-0.010757 - 0.862501I$
$u = -0.309884 + 0.543530I$ $a = -0.220039 + 0.852834I$ $b = -0.933653 - 0.345827I$	$-1.56864 - 1.53975I$	$1.10369 + 4.69285I$
$u = -0.309884 - 0.543530I$ $a = -0.220039 - 0.852834I$ $b = -0.933653 + 0.345827I$	$-1.56864 + 1.53975I$	$1.10369 - 4.69285I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.242225 + 1.368910I$ $a = -0.111633 - 0.819227I$ $b = 1.153510 + 0.418732I$	$-4.09460 + 6.61711I$	$2.97271 - 4.66549I$
$u = 0.242225 - 1.368910I$ $a = -0.111633 + 0.819227I$ $b = 1.153510 - 0.418732I$	$-4.09460 - 6.61711I$	$2.97271 + 4.66549I$
$u = 0.531314$ $a = 0.442861$ $b = 0.183744$	0.719441	14.3760
$u = -1.55692$ $a = -0.621196$ $b = 0.986893$	7.16181	20.2020
$u = -1.34575 + 1.55021I$ $a = 1.43706 + 0.93333I$ $b = -2.22516 - 0.41486I$	$-15.4447 - 11.8067I$	$3.77024 + 5.11220I$
$u = -1.34575 - 1.55021I$ $a = 1.43706 - 0.93333I$ $b = -2.22516 + 0.41486I$	$-15.4447 + 11.8067I$	$3.77024 - 5.11220I$
$u = 1.48358 + 1.48152I$ $a = 1.42930 - 1.02156I$ $b = -2.15106 + 0.44424I$	$-19.4159 + 5.5271I$	$1.12565 - 2.12056I$
$u = 1.48358 - 1.48152I$ $a = 1.42930 + 1.02156I$ $b = -2.15106 - 0.44424I$	$-19.4159 - 5.5271I$	$1.12565 + 2.12056I$
$u = -1.68857 + 1.42229I$ $a = 1.44579 + 1.14500I$ $b = -2.06005 - 0.54414I$	$-14.5803 + 0.6531I$	$6.00000 + 0.I$
$u = -1.68857 - 1.42229I$ $a = 1.44579 - 1.14500I$ $b = -2.06005 + 0.54414I$	$-14.5803 - 0.6531I$	$6.00000 + 0.I$

II. $I_2^u =$
$\langle -5u^{12}+21u^{10}+\cdots+2b+5,\ 11u^{12}+2u^{11}+\cdots+2a-14,\ u^{13}+u^{12}+\cdots-u-1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-\frac{11}{2}u^{12}-u^{11}+\cdots+\frac{1}{2}u+7\\ \frac{5}{2}u^{12}-\frac{21}{2}u^{10}+\cdots-\frac{3}{2}u-\frac{5}{2}\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-3u^{12}-u^{11}+\cdots-u+\frac{9}{2}\\ \frac{5}{2}u^{12}-\frac{21}{2}u^{10}+\cdots-\frac{3}{2}u-\frac{5}{2}\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-\frac{3}{2}u^{12}-2u^{11}+\cdots-\frac{3}{2}u+5\\ \frac{3}{2}u^{12}+\frac{1}{2}u^{11}+\cdots-2u-\frac{3}{2}\end{pmatrix}$$
$$a_5 = \begin{pmatrix}2u^{12}+u^{11}+\cdots-u-\frac{3}{2}\\ \frac{5}{2}u^{12}+\frac{1}{2}u^{11}+\cdots+\frac{17}{2}u^2-\frac{7}{2}\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^{12}+5u^{10}-u^9-7u^8+6u^7-9u^5+6u^4+7u^3-6u^2-2u+3\\ 3u^{12}+u^{11}+\cdots+u-\frac{11}{2}\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{11}{2}u^{12}-u^{11}+\cdots+\frac{3}{2}u+\frac{9}{2}\\ 3u^{12}-\frac{1}{2}u^{11}+\cdots+6u^2-\frac{5}{2}u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{1}{2}u^{12}+\frac{3}{2}u^{11}+\cdots+4u-2\\ -u^{12}-\frac{1}{2}u^{11}+\cdots+\frac{1}{2}u+2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-4u^{12}-2u^{11}+\cdots-14u^2+\frac{13}{2}\\ 4u^{12}+\frac{1}{2}u^{11}+\cdots-\frac{7}{2}u-3\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 3u^{12}-4u^{11}-\frac{21}{2}u^{10}+\frac{39}{2}u^9-\frac{7}{2}u^8-\frac{51}{2}u^7+42u^6-15u^5-\frac{41}{2}u^4+\frac{41}{2}u^3-3u^2-12u+\frac{21}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{13} - 13u^{12} + \cdots + 7u - 1$
c_2	$u^{13} + 3u^{12} + \cdots - 3u - 1$
c_3	$u^{13} + 8u^{11} + \cdots + 3u + 1$
c_4	$u^{13} + 2u^{11} + \cdots + 3u + 1$
c_5	$u^{13} - 3u^{12} + \cdots - 3u + 1$
c_6	$u^{13} + u^{12} + \cdots - u - 1$
c_7	$u^{13} + 2u^{11} + \cdots + 3u - 1$
c_8	$u^{13} - 6u^{11} + \cdots - 2u - 3$
c_9	$u^{13} + 8u^{11} + \cdots + 3u - 1$
c_{10}	$u^{13} - u^{12} + \cdots - u + 1$
c_{11}	$u^{13} - 6u^{11} + \cdots - 2u + 3$
c_{12}	$u^{13} - 2u^{12} + \cdots - 13u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{13} - 37y^{12} + \cdots + 11y - 1$
c_2, c_5	$y^{13} - 13y^{12} + \cdots + 7y - 1$
c_3, c_9	$y^{13} + 16y^{12} + \cdots - 5y - 1$
c_4, c_7	$y^{13} + 4y^{12} + \cdots + y - 1$
c_6, c_{10}	$y^{13} - 9y^{12} + \cdots + 5y - 1$
c_8, c_{11}	$y^{13} - 12y^{12} + \cdots + 46y - 9$
c_{12}	$y^{13} + 30y^{12} + \cdots + 25y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.954573 + 0.260088I$ $a = -0.92363 - 1.20575I$ $b = 0.582097 - 0.018888I$	$-3.98060 + 1.00568I$	$1.162112 - 0.615451I$
$u = 0.954573 - 0.260088I$ $a = -0.92363 + 1.20575I$ $b = 0.582097 + 0.018888I$	$-3.98060 - 1.00568I$	$1.162112 + 0.615451I$
$u = 0.266976 + 1.054200I$ $a = -0.532456 + 0.412592I$ $b = 2.10432 - 0.01987I$	$-9.61091 - 1.01135I$	$7.06702 - 0.15470I$
$u = 0.266976 - 1.054200I$ $a = -0.532456 - 0.412592I$ $b = 2.10432 + 0.01987I$	$-9.61091 + 1.01135I$	$7.06702 + 0.15470I$
$u = -0.752928 + 0.297393I$ $a = 1.030040 + 0.709707I$ $b = -0.921610 - 0.177058I$	$-0.796848 - 0.470467I$	$2.94539 - 1.34493I$
$u = -0.752928 - 0.297393I$ $a = 1.030040 - 0.709707I$ $b = -0.921610 + 0.177058I$	$-0.796848 + 0.470467I$	$2.94539 + 1.34493I$
$u = -0.684151 + 0.344382I$ $a = -1.27505 + 0.67741I$ $b = 0.314319 + 0.549467I$	$-1.36517 - 5.98644I$	$4.94299 + 5.64527I$
$u = -0.684151 - 0.344382I$ $a = -1.27505 - 0.67741I$ $b = 0.314319 - 0.549467I$	$-1.36517 + 5.98644I$	$4.94299 - 5.64527I$
$u = 0.460968 + 0.533555I$ $a = 0.56985 - 1.90658I$ $b = -0.813036 + 0.713273I$	$0.43653 + 3.26322I$	$5.30243 - 3.80898I$
$u = 0.460968 - 0.533555I$ $a = 0.56985 + 1.90658I$ $b = -0.813036 - 0.713273I$	$0.43653 - 3.26322I$	$5.30243 + 3.80898I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.60034 + 0.28645I$ $a = -0.84754 + 1.61343I$ $b = \quad 0.858896 - 0.743211I$	$2.06490 + 2.83942I$	$2.96766 - 2.65257I$
$u = -1.60034 - 0.28645I$ $a = -0.84754 - 1.61343I$ $b = \quad 0.858896 + 0.743211I$	$2.06490 - 2.83942I$	$2.96766 + 2.65257I$
$u = \quad 1.70981$ $a = \quad 0.957563$ $b = -1.24998$	6.76499	-0.775210

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{13} - 13u^{12} + \cdots + 7u - 1)(u^{30} + 54u^{29} + \cdots + 35644u + 961)$
c_2	$(u^{13} + 3u^{12} + \cdots - 3u - 1)(u^{30} + 2u^{29} + \cdots + 274u + 31)$
c_3	$(u^{13} + 8u^{11} + \cdots + 3u + 1)(u^{30} - u^{29} + \cdots - 18u - 9)$
c_4	$(u^{13} + 2u^{11} + \cdots + 3u + 1)(u^{30} + 7u^{29} + \cdots - 58u + 7)$
c_5	$(u^{13} - 3u^{12} + \cdots - 3u + 1)(u^{30} + 2u^{29} + \cdots + 274u + 31)$
c_6	$(u^{13} + u^{12} + \cdots - u - 1)(u^{30} + 2u^{29} + \cdots + 100u - 419)$
c_7	$(u^{13} + 2u^{11} + \cdots + 3u - 1)(u^{30} + 7u^{29} + \cdots - 58u + 7)$
c_8	$(u^{13} - 6u^{11} + \cdots - 2u - 3)(u^{30} - u^{29} + \cdots - u - 1)$
c_9	$(u^{13} + 8u^{11} + \cdots + 3u - 1)(u^{30} - u^{29} + \cdots - 18u - 9)$
c_{10}	$(u^{13} - u^{12} + \cdots - u + 1)(u^{30} + 2u^{29} + \cdots + 100u - 419)$
c_{11}	$(u^{13} - 6u^{11} + \cdots - 2u + 3)(u^{30} - u^{29} + \cdots - u - 1)$
c_{12}	$(u^{13} - 2u^{12} + \cdots - 13u + 1)(u^{30} + 3u^{29} + \cdots + 276288u - 31624)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{13} - 37y^{12} + \cdots + 11y - 1)$ $\cdot\,(y^{30} - 166y^{29} + \cdots + 2665988060y + 923521)$
c_2, c_5	$(y^{13} - 13y^{12} + \cdots + 7y - 1)(y^{30} - 54y^{29} + \cdots - 35644y + 961)$
c_3, c_9	$(y^{13} + 16y^{12} + \cdots - 5y - 1)(y^{30} + 47y^{29} + \cdots + 972y + 81)$
c_4, c_7	$(y^{13} + 4y^{12} + \cdots + y - 1)(y^{30} + 23y^{29} + \cdots - 1614y + 49)$
c_6, c_{10}	$(y^{13} - 9y^{12} + \cdots + 5y - 1)(y^{30} + 10y^{29} + \cdots + 590846y + 175561)$
c_8, c_{11}	$(y^{13} - 12y^{12} + \cdots + 46y - 9)(y^{30} - 21y^{29} + \cdots - 19y + 1)$
c_{12}	$(y^{13} + 30y^{12} + \cdots + 25y - 1)$ $\cdot\,(y^{30} + 121y^{29} + \cdots + 1307553376y + 1000077376)$