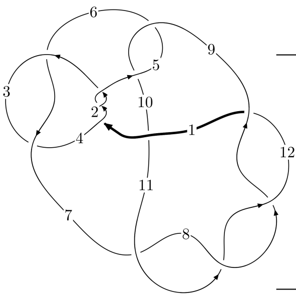
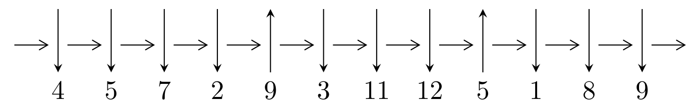
$12n_{0674}$ ($K12n_{0674}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-8.95545 \times 10^{24} u^{41} - 2.72305 \times 10^{25} u^{40} + \cdots + 2.32080 \times 10^{24} b + 1.04846 \times 10^{24},\\
&- 2.76332 \times 10^{24} u^{41} - 4.41119 \times 10^{24} u^{40} + \cdots + 2.32080 \times 10^{24} a + 2.12642 \times 10^{25},\\
&u^{42} + 4u^{41} + \cdots + 14u - 1\rangle
\end{aligned}$$

$$I_2^u = \langle b+1,\ a,\ u^2 + u - 1\rangle$$

$$I_3^u = \langle b-u-2,\ a,\ u^2 + u - 1\rangle$$

$$I_4^u = \langle b,\ a+1,\ u-1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 47 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. $\boldsymbol{I_1^u = \langle -8.96 \times 10^{24}u^{41} - 2.72 \times 10^{25}u^{40} + \cdots + 2.32 \times 10^{24}b + 1.05 \times 10^{24},\ -2.76 \times 10^{24}u^{41} - 4.41 \times 10^{24}u^{40} + \cdots + 2.32 \times 10^{24}a + 2.13 \times 10^{25},\ u^{42} + 4u^{41} + \cdots + 14u - 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.19067u^{41} + 1.90072u^{40} + \cdots + 60.6010u - 9.16243 \\ 3.85878u^{41} + 11.7332u^{40} + \cdots + 22.3744u - 0.451767 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.105132u^{41} - 0.0128494u^{40} + \cdots - 34.8388u + 4.84834 \\ -0.848783u^{41} - 2.84893u^{40} + \cdots - 15.2500u + 0.685419 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.978378u^{41} + 2.65739u^{40} + \cdots - 25.4014u + 4.57060 \\ 1.25612u^{41} + 2.68484u^{40} + \cdots + 9.12669u - 0.978378 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.19067u^{41} + 1.90072u^{40} + \cdots + 60.6010u - 9.16243 \\ 0.716340u^{41} + 3.10175u^{40} + \cdots - 18.8840u + 2.41021 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2.55115u^{41} + 4.97020u^{40} + \cdots + 92.6692u - 12.2894 \\ 5.70141u^{41} + 16.8545u^{40} + \cdots + 38.1516u - 1.40486 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.546898u^{41} - 1.27331u^{40} + \cdots - 34.6001u + 6.91046 \\ -1.81884u^{41} - 4.93743u^{40} + \cdots - 37.5544u + 2.14072 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0791429u^{41} + 0.265882u^{40} + \cdots - 13.4298u - 0.240862 \\ -0.00645021u^{41} - 0.654296u^{40} + \cdots + 17.6519u - 1.13841 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{8061029839060072009079083}{2320801929915461688487812}u^{41} + \frac{4209450828705721840877893}{5802004824788654221219533}u^{40} + \cdots + \frac{5574207907315173490380254 8}{5802004824788654221219533}u - \frac{3196721872669770882706446 1}{2320801929915461688487812}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{42} - 4u^{41} + \cdots - 14u - 1$
c_3, c_6	$u^{42} + 3u^{41} + \cdots - 15u^2 + 2$
c_5, c_9	$u^{42} - 2u^{41} + \cdots - 32u - 16$
c_7, c_8, c_{11} c_{12}	$u^{42} + 4u^{41} + \cdots - 10u + 1$
c_{10}	$u^{42} - 8u^{41} + \cdots - 11932u - 167$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{42} - 36y^{41} + \cdots - 78y + 1$
c_3, c_6	$y^{42} - 15y^{41} + \cdots - 60y + 4$
c_5, c_9	$y^{42} - 26y^{41} + \cdots - 7296y + 256$
c_7, c_8, c_{11} c_{12}	$y^{42} - 48y^{41} + \cdots - 154y + 1$
c_{10}	$y^{42} + 12y^{41} + \cdots - 132872662y + 27889$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.238287 + 0.993330I$ $a = -0.256688 - 1.363750I$ $b = 0.448503 - 0.389957I$	$-3.87928 - 8.09823I$	$-11.51544 + 5.48666I$
$u = 0.238287 - 0.993330I$ $a = -0.256688 + 1.363750I$ $b = 0.448503 + 0.389957I$	$-3.87928 + 8.09823I$	$-11.51544 - 5.48666I$
$u = 1.060390 + 0.045339I$ $a = 0.258751 + 0.376269I$ $b = -0.47464 + 2.91568I$	$-2.71639 - 0.33816I$	$-4.0081 - 13.7250I$
$u = 1.060390 - 0.045339I$ $a = 0.258751 - 0.376269I$ $b = -0.47464 - 2.91568I$	$-2.71639 + 0.33816I$	$-4.0081 + 13.7250I$
$u = 0.106704 + 0.918803I$ $a = 0.26496 + 1.45259I$ $b = -0.086830 + 0.297294I$	$3.36143 - 5.24537I$	$-7.74689 + 6.20199I$
$u = 0.106704 - 0.918803I$ $a = 0.26496 - 1.45259I$ $b = -0.086830 - 0.297294I$	$3.36143 + 5.24537I$	$-7.74689 - 6.20199I$
$u = 1.147150 + 0.210471I$ $a = -0.302824 - 0.583834I$ $b = -0.04054 - 3.07018I$	$-10.17350 - 0.96398I$	$-18.1472 - 3.3317I$
$u = 1.147150 - 0.210471I$ $a = -0.302824 + 0.583834I$ $b = -0.04054 + 3.07018I$	$-10.17350 + 0.96398I$	$-18.1472 + 3.3317I$
$u = -0.049648 + 0.825086I$ $a = -0.32016 - 1.57337I$ $b = -0.281826 - 0.254570I$	$4.07908 - 1.05002I$	$-5.39403 - 0.20283I$
$u = -0.049648 - 0.825086I$ $a = -0.32016 + 1.57337I$ $b = -0.281826 + 0.254570I$	$4.07908 + 1.05002I$	$-5.39403 + 0.20283I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.168990 + 0.199735I$ $a = 1.249760 + 0.642269I$ $b = 1.006910 + 0.970924I$	$-3.90037 + 1.20976I$	$-15.7241 - 4.9251I$
$u = -1.168990 - 0.199735I$ $a = 1.249760 - 0.642269I$ $b = 1.006910 - 0.970924I$	$-3.90037 - 1.20976I$	$-15.7241 + 4.9251I$
$u = -0.314243 + 0.696899I$ $a = 0.56188 + 1.69109I$ $b = 0.733268 + 0.302512I$	$-1.53621 + 1.78916I$	$-8.56962 - 1.59900I$
$u = -0.314243 - 0.696899I$ $a = 0.56188 - 1.69109I$ $b = 0.733268 - 0.302512I$	$-1.53621 - 1.78916I$	$-8.56962 + 1.59900I$
$u = -1.244640 + 0.090513I$ $a = 0.277107 - 1.196450I$ $b = 0.18513 - 2.18299I$	$-4.74961 + 2.33690I$	$-17.2595 - 5.0904I$
$u = -1.244640 - 0.090513I$ $a = 0.277107 + 1.196450I$ $b = 0.18513 + 2.18299I$	$-4.74961 - 2.33690I$	$-17.2595 + 5.0904I$
$u = 1.157940 + 0.481959I$ $a = -0.776705 + 0.303294I$ $b = -0.979087 + 0.599725I$	$0.121226 + 0.269727I$	$-8.00000 - 3.11579I$
$u = 1.157940 - 0.481959I$ $a = -0.776705 - 0.303294I$ $b = -0.979087 - 0.599725I$	$0.121226 - 0.269727I$	$-8.00000 + 3.11579I$
$u = 1.057900 + 0.692054I$ $a = 0.907159 - 0.280920I$ $b = 0.898757 + 0.137083I$	$-6.34245 + 2.32209I$	$-13.28779 + 0.I$
$u = 1.057900 - 0.692054I$ $a = 0.907159 + 0.280920I$ $b = 0.898757 - 0.137083I$	$-6.34245 - 2.32209I$	$-13.28779 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.722474$ $a = -0.399724$ $b = 0.258120$	-1.09552	-8.48520
$u = -1.245000 + 0.375694I$ $a = -0.928202 - 0.816670I$ $b = -1.17456 - 1.47199I$	$0.37946 + 5.36737I$	0
$u = -1.245000 - 0.375694I$ $a = -0.928202 + 0.816670I$ $b = -1.17456 + 1.47199I$	$0.37946 - 5.36737I$	0
$u = -1.31935$ $a = -1.01441$ $b = -0.0413566$	-14.8036	-18.1030
$u = -1.308760 + 0.256721I$ $a = -0.597154 + 0.929246I$ $b = -0.45147 + 2.20887I$	$-11.72140 + 5.51488I$	0
$u = -1.308760 - 0.256721I$ $a = -0.597154 - 0.929246I$ $b = -0.45147 - 2.20887I$	$-11.72140 - 5.51488I$	0
$u = 0.126480 + 0.653902I$ $a = 1.60072 - 0.06394I$ $b = -0.579441 - 0.327004I$	$-7.23822 - 2.23215I$	$-12.66894 + 2.87063I$
$u = 0.126480 - 0.653902I$ $a = 1.60072 + 0.06394I$ $b = -0.579441 + 0.327004I$	$-7.23822 + 2.23215I$	$-12.66894 - 2.87063I$
$u = 1.329240 + 0.371704I$ $a = 0.714985 - 0.404132I$ $b = 1.36849 - 1.26529I$	$-0.24891 - 3.25176I$	0
$u = 1.329240 - 0.371704I$ $a = 0.714985 + 0.404132I$ $b = 1.36849 + 1.26529I$	$-0.24891 + 3.25176I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.35150+0.42227I$ $a=\ \ 0.777238+0.800492I$ $b=\ \ 1.23840+1.87181I$	$-1.20516+10.04620I$	0
$u=-1.35150-0.42227I$ $a=\ \ 0.777238-0.800492I$ $b=\ \ 1.23840-1.87181I$	$-1.20516-10.04620I$	0
$u=\ \ 1.46265+0.31490I$ $a=-0.703570+0.478725I$ $b=-1.75849+1.73373I$	$-7.27437-5.59691I$	0
$u=\ \ 1.46265-0.31490I$ $a=-0.703570-0.478725I$ $b=-1.75849-1.73373I$	$-7.27437+5.59691I$	0
$u=-1.43580+0.43130I$ $a=-0.682703-0.780467I$ $b=-1.24611-2.24244I$	$-9.1607+13.1986I$	0
$u=-1.43580-0.43130I$ $a=-0.682703+0.780467I$ $b=-1.24611+2.24244I$	$-9.1607-13.1986I$	0
$u=\ \ 0.403841$ $a=\ \ 1.04866$ $b=-2.15536$	-9.66299	4.31750
$u=-1.64023$ $a=\ \ 0.220147$ $b=\ \ 0.661174$	-9.70143	0
$u=\ \ 0.152045+0.289588I$ $a=-1.95648-0.86091I$ $b=\ \ 0.166595+0.401559I$	$-0.703904-0.992275I$	$-8.59202+6.89400I$
$u=\ \ 0.152045-0.289588I$ $a=-1.95648+0.86091I$ $b=\ \ 0.166595-0.401559I$	$-0.703904+0.992275I$	$-8.59202-6.89400I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.71883$ $a = -0.450881$ $b = -1.47918$	-16.8863	0
$u = 0.111686$ $a = -4.57994$ $b = 0.810470$	-1.32929	-5.96870

II. $I_2^u = \langle b+1,\ a,\ u^2+u-1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u+1 \\ -2u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u-1 \\ u-1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -21$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_{10}	$u^2 + u - 1$
c_4, c_6, c_{11} c_{12}	$u^2 - u - 1$
c_5, c_9	u^2

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$y^2 - 3y + 1$
c_5, c_9	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0$ $b = -1.00000$	-1.97392	-21.0000
$u = -1.61803$ $a = 0$ $b = -1.00000$	-17.7653	-21.0000

III. $I_3^u = \langle b - u - 2,\ a,\ u^2 + u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u+2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u+2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ 2u+2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u-4 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -3u-3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -36$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_{10}	$u^2 + u - 1$
c_4, c_6, c_{11} c_{12}	$u^2 - u - 1$
c_5, c_9	u^2

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_7 c_8, c_{10}, c_{11} c_{12}	$y^2 - 3y + 1$
c_5, c_9	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0$ $b = 2.61803$	-9.86960	-36.0000
$u = -1.61803$ $a = 0$ $b = 0.381966$	-9.86960	-36.0000

IV. $I_4^u = \langle b,\ a+1,\ u-1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5 c_7, c_8, c_{10}	$u - 1$
c_3, c_6	u
c_4, c_9, c_{11} c_{12}	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$y - 1$
c_3, c_6	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)(u^2+u-1)^2(u^{42}-4u^{41}+\cdots-14u-1)$
c_3	$u(u^2+u-1)^2(u^{42}+3u^{41}+\cdots-15u^2+2)$
c_4	$(u+1)(u^2-u-1)^2(u^{42}-4u^{41}+\cdots-14u-1)$
c_5	$u^4(u-1)(u^{42}-2u^{41}+\cdots-32u-16)$
c_6	$u(u^2-u-1)^2(u^{42}+3u^{41}+\cdots-15u^2+2)$
c_7, c_8	$(u-1)(u^2+u-1)^2(u^{42}+4u^{41}+\cdots-10u+1)$
c_9	$u^4(u+1)(u^{42}-2u^{41}+\cdots-32u-16)$
c_{10}	$(u-1)(u^2+u-1)^2(u^{42}-8u^{41}+\cdots-11932u-167)$
c_{11}, c_{12}	$(u+1)(u^2-u-1)^2(u^{42}+4u^{41}+\cdots-10u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)(y^2-3y+1)^2(y^{42}-36y^{41}+\cdots-78y+1)$
c_3, c_6	$y(y^2-3y+1)^2(y^{42}-15y^{41}+\cdots-60y+4)$
c_5, c_9	$y^4(y-1)(y^{42}-26y^{41}+\cdots-7296y+256)$
c_7, c_8, c_{11} c_{12}	$(y-1)(y^2-3y+1)^2(y^{42}-48y^{41}+\cdots-154y+1)$
c_{10}	$(y-1)(y^2-3y+1)^2(y^{42}+12y^{41}+\cdots-1.32873\times10^8y+27889)$