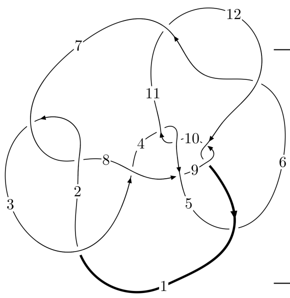
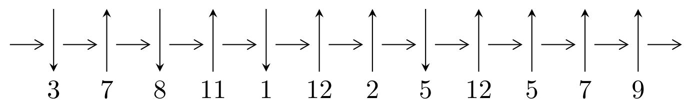
$12n_{0552}$ ($K12n_{0552}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5u^{20} + 56u^{19} + \cdots + 4b - 116,\ 9u^{20} + 75u^{19} + \cdots + 16a + 72,\ u^{21} + 11u^{20} + \cdots - 80u - 16\rangle$$
$$I_2^u = \langle -u^{16} + u^{15} + \cdots + b + 5,\ -3u^{16} - 9u^{15} + \cdots + 2a - 4,\ u^{17} + u^{16} + \cdots + 2u + 2\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 38 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. $\boldsymbol{I_1^u = \langle 5u^{20} + 56u^{19} + \cdots + 4b - 116,\ 9u^{20} + 75u^{19} + \cdots + 16a + 72,\ u^{21} + 11u^{20} + \cdots - 80u - 16\rangle}$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.562500u^{20} - 4.68750u^{19} + \cdots - 16.7500u - 4.50000 \\ -\frac{5}{4}u^{20} - 14u^{19} + \cdots + \frac{241}{2}u + 29 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{3}{16}u^{20} + \frac{31}{16}u^{19} + \cdots - \frac{85}{8}u^2 - \frac{7}{2}u \\ -\frac{5}{8}u^{20} - \frac{49}{8}u^{19} + \cdots + 29u + 7 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{3}{8}u^{20} + 3u^{19} + \cdots + \frac{159}{4}u + \frac{23}{2} \\ \frac{11}{8}u^{20} + \frac{121}{8}u^{19} + \cdots - \frac{275}{2}u - 34 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.562500u^{20} - 4.43750u^{19} + \cdots - 7.25000u + 0.500000 \\ -\frac{7}{4}u^{20} - \frac{39}{2}u^{19} + \cdots + \frac{281}{2}u + 33 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{3}{16}u^{20} + \frac{31}{16}u^{19} + \cdots - \frac{63}{2}u - 8 \\ \frac{9}{8}u^{20} + \frac{85}{8}u^{19} + \cdots - 42u - 11 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{11}{16}u^{20} - \frac{85}{16}u^{19} + \cdots - \frac{213}{4}u - 14 \\ -\frac{5}{2}u^{20} - 27u^{19} + \cdots + 225u + 55 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{21}{2}u^{20} + \frac{225}{2}u^{19} + \frac{1289}{2}u^{18} + 2524u^{17} + \frac{14905}{2}u^{16} + \frac{34975}{2}u^{15} + \frac{67375}{2}u^{14} + 54537u^{13} + \frac{151085}{2}u^{12} + \frac{181727}{2}u^{11} + \frac{191943}{2}u^{10} + \frac{179037}{2}u^9 + 73543u^8 + 52381u^7 + 31237u^6 + \frac{28777}{2}u^5 + 3949u^4 - 589u^3 - 1353u^2 - 726u - 166$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} + 9u^{20} + \cdots + 896u - 256$
c_2, c_7	$u^{21} + 11u^{20} + \cdots - 80u - 16$
c_3	$u^{21} - 11u^{20} + \cdots - 8656u - 2512$
c_4, c_6, c_{10} c_{11}	$u^{21} + 27u^{19} + \cdots + u - 1$
c_5, c_8	$u^{21} + 2u^{20} + \cdots + 28u^2 - 1$
c_9, c_{12}	$u^{21} + 4u^{20} + \cdots - 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} + 5y^{20} + \cdots + 2367488y - 65536$
c_2, c_7	$y^{21} + 9y^{20} + \cdots + 896y - 256$
c_3	$y^{21} - 107y^{20} + \cdots - 395058816y - 6310144$
c_4, c_6, c_{10} c_{11}	$y^{21} + 54y^{20} + \cdots - 9y - 1$
c_5, c_8	$y^{21} - 46y^{20} + \cdots + 56y - 1$
c_9, c_{12}	$y^{21} + 2y^{20} + \cdots - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.472469 + 0.828155I$ $a = -0.488123 - 0.166277I$ $b = 0.188036 + 0.222130I$	$0.20225 + 1.98003I$	$2.28798 - 3.26174I$
$u = 0.472469 - 0.828155I$ $a = -0.488123 + 0.166277I$ $b = 0.188036 - 0.222130I$	$0.20225 - 1.98003I$	$2.28798 + 3.26174I$
$u = -0.771804 + 0.719603I$ $a = -1.319550 - 0.250548I$ $b = 0.47482 + 1.81639I$	$3.69054 + 0.94413I$	$3.84004 + 4.58061I$
$u = -0.771804 - 0.719603I$ $a = -1.319550 + 0.250548I$ $b = 0.47482 - 1.81639I$	$3.69054 - 0.94413I$	$3.84004 - 4.58061I$
$u = 0.036593 + 0.936717I$ $a = 0.078038 - 0.908614I$ $b = -0.472625 + 0.388644I$	$-1.84690 + 1.45685I$	$-2.25321 - 5.17450I$
$u = 0.036593 - 0.936717I$ $a = 0.078038 + 0.908614I$ $b = -0.472625 - 0.388644I$	$-1.84690 - 1.45685I$	$-2.25321 + 5.17450I$
$u = -0.710005 + 0.988627I$ $a = 1.54173 + 0.94297I$ $b = -0.24228 - 2.12126I$	$2.87016 - 6.56510I$	$-1.92301 + 3.76598I$
$u = -0.710005 - 0.988627I$ $a = 1.54173 - 0.94297I$ $b = -0.24228 + 2.12126I$	$2.87016 + 6.56510I$	$-1.92301 - 3.76598I$
$u = -0.769484 + 0.051011I$ $a = -0.141173 + 0.103619I$ $b = -0.347832 + 0.454102I$	$-2.61653 + 1.28499I$	$0.15587 - 3.07961I$
$u = -0.769484 - 0.051011I$ $a = -0.141173 - 0.103619I$ $b = -0.347832 - 0.454102I$	$-2.61653 - 1.28499I$	$0.15587 + 3.07961I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.435565 + 1.195780I$ $a = -0.004901 - 0.689508I$ $b = -0.468235 + 0.470276I$	$-6.21856 - 2.94897I$	$-0.504582 + 0.049416I$
$u = -0.435565 - 1.195780I$ $a = -0.004901 + 0.689508I$ $b = -0.468235 - 0.470276I$	$-6.21856 + 2.94897I$	$-0.504582 - 0.049416I$
$u = -0.472104 + 1.199130I$ $a = 0.644752 + 0.145048I$ $b = -0.345148 - 0.550837I$	$-5.96069 - 5.81849I$	$-5.01229 + 8.57270I$
$u = -0.472104 - 1.199130I$ $a = 0.644752 - 0.145048I$ $b = -0.345148 + 0.550837I$	$-5.96069 + 5.81849I$	$-5.01229 - 8.57270I$
$u = -1.49061 + 0.03728I$ $a = 0.034735 + 0.714146I$ $b = 0.00483 - 2.16677I$	$-15.8145 - 3.8268I$	$1.96641 + 1.96096I$
$u = -1.49061 - 0.03728I$ $a = 0.034735 - 0.714146I$ $b = 0.00483 + 2.16677I$	$-15.8145 + 3.8268I$	$1.96641 - 1.96096I$
$u = 0.423148$ $a = -1.20478$ $b = 0.358221$	0.913214	11.0410
$u = -0.76209 + 1.50016I$ $a = 1.21983 + 1.44613I$ $b = -0.15370 - 2.09019I$	$19.0348 - 11.6307I$	$0. + 4.72402I$
$u = -0.76209 - 1.50016I$ $a = 1.21983 - 1.44613I$ $b = -0.15370 + 2.09019I$	$19.0348 + 11.6307I$	$0. - 4.72402I$
$u = -0.80898 + 1.48155I$ $a = -1.21294 - 1.39486I$ $b = 0.18302 + 2.08076I$	$19.3623 - 4.1247I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.80898 - 1.48155I$ $a = -1.21294 + 1.39486I$ $b = 0.18302 - 2.08076I$	$19.3623 + 4.1247I$	0

II.
$\boldsymbol{I_2^u = \langle -u^{16}+u^{15}+\cdots+b+5,\ -3u^{16}-9u^{15}+\cdots+2a-4,\ u^{17}+u^{16}+\cdots+2u+2\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^3\\u^3+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{3}{2}u^{16}+\frac{9}{2}u^{15}+\cdots+\frac{19}{2}u+2\\u^{16}-u^{15}+\cdots-8u-5\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-\frac{1}{2}u^{16}-\frac{3}{2}u^{15}+\cdots+\frac{3}{2}u-1\\u^{15}+u^{14}+\cdots+2u+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}\frac{5}{2}u^{16}+\frac{11}{2}u^{15}+\cdots+\frac{21}{2}u+8\\u^{16}-u^{15}+\cdots-4u-5\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{5}{2}u^{16}+\frac{13}{2}u^{15}+\cdots+\frac{21}{2}u+3\\-3u^{15}-5u^{14}+\cdots-12u-7\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^3\\u^5+u^3+u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-\frac{3}{2}u^{16}-\frac{5}{2}u^{15}+\cdots-\frac{1}{2}u-1\\u^{16}+2u^{15}+\cdots+3u+1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}5u^{16}+9u^{15}+\cdots+20u+6\\u^{16}-3u^{15}+\cdots-13u-10\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^{16}-2u^{15}-3u^{14}-13u^{13}-16u^{12}-34u^{11}-48u^{10}-74u^9-85u^8-100u^7-105u^6-105u^5-96u^4-75u^3-56u^2-30u-16$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} - 9u^{16} + \cdots - 32u + 4$
c_2	$u^{17} - u^{16} + \cdots + 2u - 2$
c_3	$u^{17} + u^{16} + \cdots + 6u - 2$
c_4, c_{11}	$u^{17} + u^{16} + \cdots - u - 1$
c_5, c_8	$u^{17} - u^{16} + \cdots + 2u + 1$
c_6, c_{10}	$u^{17} - u^{16} + \cdots - u + 1$
c_7	$u^{17} + u^{16} + \cdots + 2u + 2$
c_9	$u^{17} + 7u^{16} + \cdots + 5u + 1$
c_{12}	$u^{17} - 7u^{16} + \cdots + 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 5y^{16} + \cdots - 8y - 16$
c_2, c_7	$y^{17} + 9y^{16} + \cdots - 32y - 4$
c_3	$y^{17} + y^{16} + \cdots - 24y - 4$
c_4, c_6, c_{10} c_{11}	$y^{17} + 5y^{16} + \cdots + 9y - 1$
c_5, c_8	$y^{17} - 3y^{16} + \cdots - 6y - 1$
c_9, c_{12}	$y^{17} + y^{16} + \cdots + y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.281134 + 0.946456I$ $a = 1.24113 - 1.45623I$ $b = 0.36623 + 1.54673I$	$0.52851 - 1.83462I$	$0.29796 + 3.58847I$
$u = 0.281134 - 0.946456I$ $a = 1.24113 + 1.45623I$ $b = 0.36623 - 1.54673I$	$0.52851 + 1.83462I$	$0.29796 - 3.58847I$
$u = -0.969290$ $a = 0.776451$ $b = -0.382171$	-1.53916	3.39910
$u = 0.728050 + 0.766886I$ $a = 1.70484 - 0.42800I$ $b = -0.50880 + 2.22693I$	$3.93432 - 1.40561I$	$11.9334 + 8.1612I$
$u = 0.728050 - 0.766886I$ $a = 1.70484 + 0.42800I$ $b = -0.50880 - 2.22693I$	$3.93432 + 1.40561I$	$11.9334 - 8.1612I$
$u = 0.224277 + 0.858763I$ $a = -1.56206 + 0.82631I$ $b = 0.127397 - 1.349340I$	$0.93314 + 4.06440I$	$0.37552 - 3.75729I$
$u = 0.224277 - 0.858763I$ $a = -1.56206 - 0.82631I$ $b = 0.127397 + 1.349340I$	$0.93314 - 4.06440I$	$0.37552 + 3.75729I$
$u = -0.737443 + 0.842981I$ $a = 1.105660 - 0.250731I$ $b = -0.533874 + 0.383844I$	$-3.11346 - 2.81675I$	$2.33737 + 2.85701I$
$u = -0.737443 - 0.842981I$ $a = 1.105660 + 0.250731I$ $b = -0.533874 - 0.383844I$	$-3.11346 + 2.81675I$	$2.33737 - 2.85701I$
$u = -0.382757 + 1.099770I$ $a = -0.682974 - 0.515143I$ $b = 0.561927 + 0.046321I$	$-7.10806 - 3.64002I$	$-7.66149 + 4.40489I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.382757 - 1.099770I$ $a = -0.682974 + 0.515143I$ $b = 0.561927 - 0.046321I$	$-7.10806 + 3.64002I$	$-7.66149 - 4.40489I$
$u = 0.676951 + 0.964759I$ $a = -1.78717 + 1.20472I$ $b = 0.10658 - 2.49443I$	$3.30875 + 6.79114I$	$13.3760 - 11.7173I$
$u = 0.676951 - 0.964759I$ $a = -1.78717 - 1.20472I$ $b = 0.10658 + 2.49443I$	$3.30875 - 6.79114I$	$13.3760 + 11.7173I$
$u = -0.306582 + 0.677700I$ $a = -1.79619 + 0.12408I$ $b = 0.674089 - 0.611126I$	$-5.45769 + 0.67304I$	$-4.27931 - 3.12764I$
$u = -0.306582 - 0.677700I$ $a = -1.79619 - 0.12408I$ $b = 0.674089 + 0.611126I$	$-5.45769 - 0.67304I$	$-4.27931 + 3.12764I$
$u = -0.498985 + 1.260640I$ $a = 0.388541 - 0.408565I$ $b = -0.102456 + 0.376600I$	$-5.41541 - 5.16567I$	$1.42099 + 1.44225I$
$u = -0.498985 - 1.260640I$ $a = 0.388541 + 0.408565I$ $b = -0.102456 - 0.376600I$	$-5.41541 + 5.16567I$	$1.42099 - 1.44225I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{17} - 9u^{16} + \cdots - 32u + 4)(u^{21} + 9u^{20} + \cdots + 896u - 256)$
c_2	$(u^{17} - u^{16} + \cdots + 2u - 2)(u^{21} + 11u^{20} + \cdots - 80u - 16)$
c_3	$(u^{17} + u^{16} + \cdots + 6u - 2)(u^{21} - 11u^{20} + \cdots - 8656u - 2512)$
c_4, c_{11}	$(u^{17} + u^{16} + \cdots - u - 1)(u^{21} + 27u^{19} + \cdots + u - 1)$
c_5, c_8	$(u^{17} - u^{16} + \cdots + 2u + 1)(u^{21} + 2u^{20} + \cdots + 28u^2 - 1)$
c_6, c_{10}	$(u^{17} - u^{16} + \cdots - u + 1)(u^{21} + 27u^{19} + \cdots + u - 1)$
c_7	$(u^{17} + u^{16} + \cdots + 2u + 2)(u^{21} + 11u^{20} + \cdots - 80u - 16)$
c_9	$(u^{17} + 7u^{16} + \cdots + 5u + 1)(u^{21} + 4u^{20} + \cdots - 5u - 1)$
c_{12}	$(u^{17} - 7u^{16} + \cdots + 5u - 1)(u^{21} + 4u^{20} + \cdots - 5u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{17}+5y^{16}+\cdots-8y-16)(y^{21}+5y^{20}+\cdots+2367488y-65536)$
c_2, c_7	$(y^{17}+9y^{16}+\cdots-32y-4)(y^{21}+9y^{20}+\cdots+896y-256)$
c_3	$(y^{17}+y^{16}+\cdots-24y-4)$ $\cdot(y^{21}-107y^{20}+\cdots-395058816y-6310144)$
c_4, c_6, c_{10} c_{11}	$(y^{17}+5y^{16}+\cdots+9y-1)(y^{21}+54y^{20}+\cdots-9y-1)$
c_5, c_8	$(y^{17}-3y^{16}+\cdots-6y-1)(y^{21}-46y^{20}+\cdots+56y-1)$
c_9, c_{12}	$(y^{17}+y^{16}+\cdots+y-1)(y^{21}+2y^{20}+\cdots-y-1)$