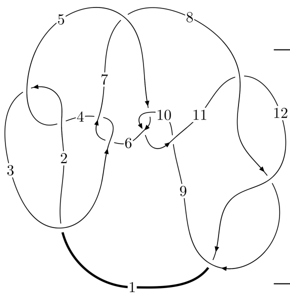
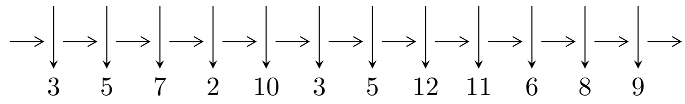
$12n_{0074}$ $(K12n_{0074})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.18522 \times 10^{30} u^{33} + 1.61395 \times 10^{30} u^{32} + \cdots + 1.16116 \times 10^{30} b + 7.98061 \times 10^{30},$$
$$- 5.04287 \times 10^{30} u^{33} + 7.56763 \times 10^{30} u^{32} + \cdots + 2.32232 \times 10^{30} a + 4.15748 \times 10^{31},\ u^{34} - 2u^{33} + \cdots - 4u -$$
$$I_2^u = \langle b + 1,\ 2u^7 - u^6 - 3u^5 + 3u^4 + 4u^3 - 3u^2 + a - 2u + 4,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle$$

$$I_1^v = \langle a,\ b - v - 2,\ v^2 + 3v + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 44 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.

$\boldsymbol{I_1^u = \langle -1.19\times10^{30}u^{33}+1.61\times10^{30}u^{32}+\cdots+1.16\times10^{30}b+7.98\times10^{30},\ -5.04\times10^{30}u^{33}+7.57\times10^{30}u^{32}+\cdots+2.32\times10^{30}a+4.16\times10^{31},\ u^{34}-2u^{33}+\cdots-4u+4\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}2.17148u^{33}-3.25864u^{32}+\cdots-25.8226u-17.9022\\1.02072u^{33}-1.38995u^{32}+\cdots-3.99583u-6.87295\end{pmatrix}$$

$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_7 = \begin{pmatrix}0.786569u^{33}-1.29705u^{32}+\cdots-10.0199u-7.25363\\1.01950u^{33}-1.41535u^{32}+\cdots-4.86444u-6.48780\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.232929u^{33}+0.118296u^{32}+\cdots-5.15543u-0.765831\\1.01950u^{33}-1.41535u^{32}+\cdots-4.86444u-6.48780\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$

$$a_2 = \begin{pmatrix}3.19220u^{33}-4.64859u^{32}+\cdots-29.8184u-24.7752\\1.02072u^{33}-1.38995u^{32}+\cdots-3.99583u-6.87295\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.786569u^{33}-1.29705u^{32}+\cdots-10.0199u-7.25363\\-0.993896u^{33}+1.24550u^{32}+\cdots+2.82252u+5.38345\end{pmatrix}$$

$$a_4 = \begin{pmatrix}1.87456u^{33}-2.58881u^{32}+\cdots-20.2529u-13.7149\\-0.223584u^{33}+0.407500u^{32}+\cdots+1.27178u+1.68791\end{pmatrix}$$

$$a_9 = \begin{pmatrix}u^3\\u^5-u^3+u\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}0.727454u^{33}-1.16382u^{32}+\cdots-9.34126u-6.62619\\-1.18647u^{33}+1.58097u^{32}+\cdots+4.53188u+7.13652\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3.10285u^{33}-5.09978u^{32}+\cdots-82.2128u-54.4223$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34}+50u^{33}+\cdots+87u+1$
c_2, c_4	$u^{34}-10u^{33}+\cdots-5u+1$
c_3, c_6	$u^{34}+2u^{33}+\cdots+384u+256$
c_5, c_{10}	$u^{34}-2u^{33}+\cdots-4u+4$
c_7	$u^{34}-3u^{33}+\cdots-u+1$
c_8, c_{11}, c_{12}	$u^{34}-4u^{33}+\cdots+6u+1$
c_9	$u^{34}+18u^{33}+\cdots+296u+16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34} - 122y^{33} + \cdots - 1571y + 1$
c_2, c_4	$y^{34} - 50y^{33} + \cdots - 87y + 1$
c_3, c_6	$y^{34} - 54y^{33} + \cdots - 180224y + 65536$
c_5, c_{10}	$y^{34} - 18y^{33} + \cdots - 296y + 16$
c_7	$y^{34} - 73y^{33} + \cdots - 31y + 1$
c_8, c_{11}, c_{12}	$y^{34} - 32y^{33} + \cdots + 14y + 1$
c_9	$y^{34} - 6y^{33} + \cdots - 10016y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.139041 + 0.996326I$ $a = 0.360961 - 1.003900I$ $b = -1.074190 + 0.513433I$	$-4.82572 + 1.38301I$	$-18.1207 - 1.1111I$
$u = 0.139041 - 0.996326I$ $a = 0.360961 + 1.003900I$ $b = -1.074190 - 0.513433I$	$-4.82572 - 1.38301I$	$-18.1207 + 1.1111I$
$u = 0.846811 + 0.603750I$ $a = 0.520143 - 0.229520I$ $b = 0.349636 - 0.120804I$	$1.61097 - 2.38936I$	$-5.75420 + 3.71568I$
$u = 0.846811 - 0.603750I$ $a = 0.520143 + 0.229520I$ $b = 0.349636 + 0.120804I$	$1.61097 + 2.38936I$	$-5.75420 - 3.71568I$
$u = -0.313184 + 0.904707I$ $a = 0.189711 - 0.001623I$ $b = 1.74055 + 0.09238I$	$-9.54918 - 1.79841I$	$-12.64013 + 1.31530I$
$u = -0.313184 - 0.904707I$ $a = 0.189711 + 0.001623I$ $b = 1.74055 - 0.09238I$	$-9.54918 + 1.79841I$	$-12.64013 - 1.31530I$
$u = -1.012230 + 0.360027I$ $a = -1.57931 - 1.00055I$ $b = -0.967802 + 0.636002I$	$-2.47504 + 3.42527I$	$-16.2179 - 5.3814I$
$u = -1.012230 - 0.360027I$ $a = -1.57931 + 1.00055I$ $b = -0.967802 - 0.636002I$	$-2.47504 - 3.42527I$	$-16.2179 + 5.3814I$
$u = 0.907518 + 0.139774I$ $a = -2.26049 + 0.21695I$ $b = -1.177150 + 0.335656I$	$-3.12471 - 0.68486I$	$-18.0072 + 4.2019I$
$u = 0.907518 - 0.139774I$ $a = -2.26049 - 0.21695I$ $b = -1.177150 - 0.335656I$	$-3.12471 + 0.68486I$	$-18.0072 - 4.2019I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.458841 + 0.698407I$ $a = 0.693491 + 0.460745I$ $b = 0.206160 - 0.108226I$	$-1.37113 - 0.97857I$	$-8.59119 + 0.62851I$
$u = -0.458841 - 0.698407I$ $a = 0.693491 - 0.460745I$ $b = 0.206160 + 0.108226I$	$-1.37113 + 0.97857I$	$-8.59119 - 0.62851I$
$u = 1.146220 + 0.258629I$ $a = 0.503836 - 0.193451I$ $b = -0.083519 + 0.738317I$	$-5.80767 - 1.31553I$	$-17.1266 + 0.5643I$
$u = 1.146220 - 0.258629I$ $a = 0.503836 + 0.193451I$ $b = -0.083519 - 0.738317I$	$-5.80767 + 1.31553I$	$-17.1266 - 0.5643I$
$u = -1.070790 + 0.618271I$ $a = 0.424627 + 0.163086I$ $b = 0.475020 + 0.232702I$	$-3.12059 + 6.06465I$	$-11.22553 - 4.07804I$
$u = -1.070790 - 0.618271I$ $a = 0.424627 - 0.163086I$ $b = 0.475020 - 0.232702I$	$-3.12059 - 6.06465I$	$-11.22553 + 4.07804I$
$u = 1.227580 + 0.349898I$ $a = 2.20138 - 1.06162I$ $b = 1.84876 + 0.13216I$	$-14.2607 - 1.8383I$	$-18.3062 + 0.2212I$
$u = 1.227580 - 0.349898I$ $a = 2.20138 + 1.06162I$ $b = 1.84876 - 0.13216I$	$-14.2607 + 1.8383I$	$-18.3062 - 0.2212I$
$u = 0.483199 + 1.264780I$ $a = 0.187861 + 0.004451I$ $b = 1.85129 - 0.18823I$	$-15.4223 + 4.8894I$	$-17.8975 - 2.1066I$
$u = 0.483199 - 1.264780I$ $a = 0.187861 - 0.004451I$ $b = 1.85129 + 0.18823I$	$-15.4223 - 4.8894I$	$-17.8975 + 2.1066I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.223680 + 0.599287I$ $a = 1.58779 + 1.40253I$ $b = 1.82074 - 0.23062I$	$-12.3596 + 7.3883I$	$-15.8290 - 4.5743I$
$u = -1.223680 - 0.599287I$ $a = 1.58779 - 1.40253I$ $b = 1.82074 + 0.23062I$	$-12.3596 - 7.3883I$	$-15.8290 + 4.5743I$
$u = 0.630505$ $a = 0.191177$ $b = 1.54963$	-11.0078	-27.9960
$u = -1.309280 + 0.403177I$ $a = -1.301460 - 0.293466I$ $b = -1.48699 - 0.40924I$	$-9.47153 + 3.34355I$	$-19.5923 - 2.7256I$
$u = -1.309280 - 0.403177I$ $a = -1.301460 + 0.293466I$ $b = -1.48699 + 0.40924I$	$-9.47153 - 3.34355I$	$-19.5923 + 2.7256I$
$u = 1.289360 + 0.542054I$ $a = -1.100180 + 0.775050I$ $b = -1.028070 - 0.871053I$	$-8.44002 - 6.93222I$	$-18.8371 + 4.8980I$
$u = 1.289360 - 0.542054I$ $a = -1.100180 - 0.775050I$ $b = -1.028070 + 0.871053I$	$-8.44002 + 6.93222I$	$-18.8371 - 4.8980I$
$u = -0.409062 + 0.343592I$ $a = 0.980395 + 0.383479I$ $b = -0.564127 - 0.280914I$	$-0.776347 - 0.147146I$	$-11.28597 - 0.15308I$
$u = -0.409062 - 0.343592I$ $a = 0.980395 - 0.383479I$ $b = -0.564127 + 0.280914I$	$-0.776347 + 0.147146I$	$-11.28597 + 0.15308I$
$u = -0.525591$ $a = 0.845977$ $b = -0.153754$	-0.701231	-14.2280

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.30395 + 0.77485I$ $a = 1.19284 - 1.27254I$ $b = 1.82957 + 0.31820I$	$-18.1002 - 12.1264I$	$-18.5384 + 5.5936I$
$u = 1.30395 - 0.77485I$ $a = 1.19284 + 1.27254I$ $b = 1.82957 - 0.31820I$	$-18.1002 + 12.1264I$	$-18.5384 - 5.5936I$
$u = -1.59217$ $a = 1.77050$ $b = 2.01193$	15.7961	-20.7060
$u = 0.394058$ $a = -8.51085$ $b = -0.887561$	-2.94114	-50.1300

II. $I_2^u = \langle b+1,\ 2u^7 - u^6 - 3u^5 + 3u^4 + 4u^3 - 3u^2 + a - 2u + 4,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^7 - 2u^6 + 4u^4 + 3u^3 - u^2 - 13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^8$
c_3, c_6	u^8
c_4	$(u+1)^8$
c_5	$u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1$
c_7	$u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1$
c_8	$u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1$
c_9	$u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1$
c_{10}	$u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1$
c_{11}, c_{12}	$u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_6	y^8
c_5, c_{10}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_7, c_9	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_8, c_{11}, c_{12}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.570868 + 0.730671I$ $a = \quad 0.281371 + 1.128550I$ $b = -1.00000$	$-2.68559 + 1.13123I$	$-17.2624 - 0.2227I$
$u = \quad 0.570868 - 0.730671I$ $a = \quad 0.281371 - 1.128550I$ $b = -1.00000$	$-2.68559 - 1.13123I$	$-17.2624 + 0.2227I$
$u = -0.855237 + 0.665892I$ $a = -0.208670 - 0.825203I$ $b = -1.00000$	$0.51448 + 2.57849I$	$-14.1288 - 3.8797I$
$u = -0.855237 - 0.665892I$ $a = -0.208670 + 0.825203I$ $b = -1.00000$	$0.51448 - 2.57849I$	$-14.1288 + 3.8797I$
$u = -1.09818$ $a = -0.829189$ $b = -1.00000$	-8.14766	-19.7220
$u = \quad 1.031810 + 0.655470I$ $a = -0.284386 + 0.605794I$ $b = -1.00000$	$-4.02461 - 6.44354I$	$-19.1410 + 6.6674I$
$u = \quad 1.031810 - 0.655470I$ $a = -0.284386 - 0.605794I$ $b = -1.00000$	$-4.02461 + 6.44354I$	$-19.1410 - 6.6674I$
$u = \quad 0.603304$ $a = -2.74744$ $b = -1.00000$	-2.48997	-12.2140

III. $I_1^v = \langle a,\ b - v - 2,\ v^2 + 3v + 1\rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ v+2 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ v+3 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -v-2 \\ v+3 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} v+2 \\ v+2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} v+2 \\ -v-3 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -v-2 \\ -v-3 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2v+2 \\ -v-3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^2 - 7y + 1$
c_2, c_3, c_4 c_6	$y^2 - 3y + 1$
c_5, c_9, c_{10}	y^2
c_8, c_{11}, c_{12}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.381966$ $a = 0$ $b = 1.61803$	-10.5276	-11.0000
$v = -2.61803$ $a = 0$ $b = -0.618034$	-2.63189	-11.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^2-3u+1)(u^{34}+50u^{33}+\cdots+87u+1)$
c_2	$((u-1)^8)(u^2+u-1)(u^{34}-10u^{33}+\cdots-5u+1)$
c_3	$u^8(u^2+u-1)(u^{34}+2u^{33}+\cdots+384u+256)$
c_4	$((u+1)^8)(u^2-u-1)(u^{34}-10u^{33}+\cdots-5u+1)$
c_5	$u^2(u^8-u^7+\cdots+2u-1)(u^{34}-2u^{33}+\cdots-4u+4)$
c_6	$u^8(u^2-u-1)(u^{34}+2u^{33}+\cdots+384u+256)$
c_7	$(u^2+3u+1)(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{34}-3u^{33}+\cdots-u+1)$
c_8	$((u-1)^2)(u^8+u^7+\cdots+2u-1)(u^{34}-4u^{33}+\cdots+6u+1)$
c_9	$u^2(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{34}+18u^{33}+\cdots+296u+16)$
c_{10}	$u^2(u^8+u^7+\cdots-2u-1)(u^{34}-2u^{33}+\cdots-4u+4)$
c_{11}, c_{12}	$((u+1)^2)(u^8-u^7+\cdots-2u-1)(u^{34}-4u^{33}+\cdots+6u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^2-7y+1)(y^{34}-122y^{33}+\cdots-1571y+1)$
c_2, c_4	$((y-1)^8)(y^2-3y+1)(y^{34}-50y^{33}+\cdots-87y+1)$
c_3, c_6	$y^8(y^2-3y+1)(y^{34}-54y^{33}+\cdots-180224y+65536)$
c_5, c_{10}	$y^2(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{34}-18y^{33}+\cdots-296y+16)$
c_7	$(y^2-7y+1)(y^8+5y^7+\cdots-4y+1)$ $\cdot(y^{34}-73y^{33}+\cdots-31y+1)$
c_8, c_{11}, c_{12}	$(y-1)^2(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{34}-32y^{33}+\cdots+14y+1)$
c_9	$y^2(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{34}-6y^{33}+\cdots-10016y+256)$