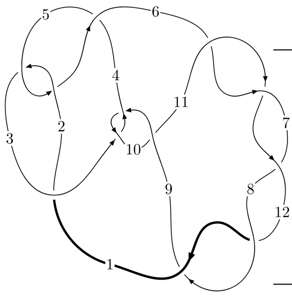
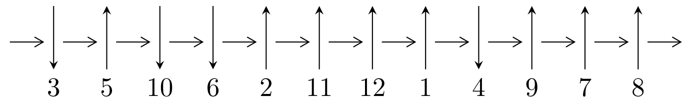
$12a_{0193}$ $(K12a_{0193})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.76155 \times 10^{30} u^{55} + 2.38665 \times 10^{30} u^{54} + \cdots + 1.86805 \times 10^{31} b - 5.18520 \times 10^{31},$$
$$7.54734 \times 10^{30} u^{55} - 1.06356 \times 10^{31} u^{54} + \cdots + 1.86805 \times 10^{31} a + 8.01489 \times 10^{31},\ u^{56} - u^{55} + \cdots - 44u^2 -$$

$$I_1^v = \langle a,\ v^3 + 2v^2 + 2b + 2v + 1,\ v^4 + v^3 + 2v^2 - v + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 60 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 1.76\times10^{30}u^{55}+2.39\times10^{30}u^{54}+\cdots+1.87\times10^{31}b-5.19\times10^{31},\ 7.55\times10^{30}u^{55}-1.06\times10^{31}u^{54}+\cdots+1.87\times10^{31}a+8.01\times10^{31},\ u^{56}-u^{55}+\cdots-44u^2-16\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.404023u^{55}+0.569343u^{54}+\cdots+4.15487u-4.29052\\-0.0942991u^{55}-0.127762u^{54}+\cdots+0.441391u+2.77573\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.124417u^{55}-0.0227610u^{54}+\cdots+3.42223u+3.91486\\0.197532u^{55}-0.245618u^{54}+\cdots+1.00380u+1.74945\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.124417u^{55}-0.0227610u^{54}+\cdots+3.42223u+3.91486\\-0.148908u^{55}+0.254056u^{54}+\cdots-2.99446u-4.10429\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0731156u^{55}-0.268379u^{54}+\cdots+4.42602u+5.66431\\0.197532u^{55}-0.245618u^{54}+\cdots+1.00380u+1.74945\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^3\\u^5+u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.113306u^{55}+0.203193u^{54}+\cdots-3.36863u-1.54199\\-0.262328u^{55}+0.0564765u^{54}+\cdots+0.999404u+0.529453\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.516553u^{55}+0.486410u^{54}+\cdots+8.01784u-2.62530\\-0.254069u^{55}+0.475756u^{54}+\cdots+2.22140u-6.56977\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.330162u^{55}+0.368862u^{54}+\cdots-9.49132u-8.58801\\-0.363570u^{55}+0.132323u^{54}+\cdots+7.63673u+0.248734\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0743933u^{55}-0.650973u^{54}+\cdots-12.4637u+17.4604$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{56} + 19u^{55} + \cdots - 20u + 1$
c_2, c_5	$u^{56} + 3u^{55} + \cdots + 2u + 1$
c_3, c_9	$u^{56} - u^{55} + \cdots - 44u^2 - 16$
c_6, c_7, c_8 c_{11}, c_{12}	$u^{56} - 3u^{55} + \cdots + 2u - 1$
c_{10}	$u^{56} - 25u^{55} + \cdots - 1408u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{56} + 39y^{55} + \cdots - 388y + 1$
c_2, c_5	$y^{56} + 19y^{55} + \cdots - 20y + 1$
c_3, c_9	$y^{56} + 25y^{55} + \cdots + 1408y + 256$
c_6, c_7, c_8 c_{11}, c_{12}	$y^{56} - 73y^{55} + \cdots + 16y + 1$
c_{10}	$y^{56} + 5y^{55} + \cdots - 925696y + 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.945963 + 0.329000I$ $a = 0.700162 + 0.301248I$ $b = -0.710485 + 0.729480I$	$3.41470 + 0.08627I$	$10.40732 - 0.41249I$
$u = 0.945963 - 0.329000I$ $a = 0.700162 - 0.301248I$ $b = -0.710485 - 0.729480I$	$3.41470 - 0.08627I$	$10.40732 + 0.41249I$
$u = 0.625712 + 0.814457I$ $a = 0.889757 + 0.875058I$ $b = -0.083216 + 1.022700I$	$-3.46331 - 2.44033I$	$-1.79100 + 4.21493I$
$u = 0.625712 - 0.814457I$ $a = 0.889757 - 0.875058I$ $b = -0.083216 - 1.022700I$	$-3.46331 + 2.44033I$	$-1.79100 - 4.21493I$
$u = 0.323104 + 1.005060I$ $a = 0.642445 - 0.528510I$ $b = -0.489124 - 1.083120I$	$10.64430 + 0.45572I$	$9.98152 - 0.50436I$
$u = 0.323104 - 1.005060I$ $a = 0.642445 + 0.528510I$ $b = -0.489124 + 1.083120I$	$10.64430 - 0.45572I$	$9.98152 + 0.50436I$
$u = 0.371261 + 0.991405I$ $a = 0.781690 + 0.096007I$ $b = -0.675087 + 0.237892I$	$3.78611 - 2.97347I$	$12.77186 + 5.12067I$
$u = 0.371261 - 0.991405I$ $a = 0.781690 - 0.096007I$ $b = -0.675087 - 0.237892I$	$3.78611 + 2.97347I$	$12.77186 - 5.12067I$
$u = 0.284163 + 1.021260I$ $a = -1.11146 - 1.51595I$ $b = 0.733335 + 0.752099I$	$3.44212 + 1.17546I$	$10.25427 - 3.27090I$
$u = 0.284163 - 1.021260I$ $a = -1.11146 + 1.51595I$ $b = 0.733335 - 0.752099I$	$3.44212 - 1.17546I$	$10.25427 + 3.27090I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.661266+0.661352I$ $a=\ \ 1.09003-0.94478I$ $b=-0.000047-0.953461I$	$-1.41938-0.49911I$	$2.60701+1.40158I$
$u=-0.661266-0.661352I$ $a=\ \ 1.09003+0.94478I$ $b=-0.000047+0.953461I$	$-1.41938+0.49911I$	$2.60701-1.40158I$
$u=-0.978145+0.449475I$ $a=\ \ 0.635866+0.398468I$ $b=-0.681700+0.964218I$	$2.70209-5.44166I$	$8.56320+6.09737I$
$u=-0.978145-0.449475I$ $a=\ \ 0.635866-0.398468I$ $b=-0.681700-0.964218I$	$2.70209+5.44166I$	$8.56320-6.09737I$
$u=\ \ 0.739636+0.543266I$ $a=\ \ 1.27278+1.20579I$ $b=\ \ 0.109646+0.952563I$	$6.95218+1.78242I$	$3.71796-0.00626I$
$u=\ \ 0.739636-0.543266I$ $a=\ \ 1.27278-1.20579I$ $b=\ \ 0.109646-0.952563I$	$6.95218-1.78242I$	$3.71796+0.00626I$
$u=-0.423575+1.030690I$ $a=-2.51731+0.08098I$ $b=\ \ 0.696401+0.959847I$	$2.80455+4.29067I$	$8.68297-2.64204I$
$u=-0.423575-1.030690I$ $a=-2.51731-0.08098I$ $b=\ \ 0.696401-0.959847I$	$2.80455-4.29067I$	$8.68297+2.64204I$
$u=\ \ 0.144714+0.863875I$ $a=-3.05379+1.22740I$ $b=\ \ 0.662709-0.878637I$	$9.78220-2.56986I$	$13.5531+4.3615I$
$u=\ \ 0.144714-0.863875I$ $a=-3.05379-1.22740I$ $b=\ \ 0.662709+0.878637I$	$9.78220+2.56986I$	$13.5531-4.3615I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.588153 + 0.958301I$ $a = 0.773912 - 0.833223I$ $b = -0.137469 - 1.083360I$	$-0.51184 + 5.35586I$	$4.95676 - 7.14944I$
$u = -0.588153 - 0.958301I$ $a = 0.773912 + 0.833223I$ $b = -0.137469 + 1.083360I$	$-0.51184 - 5.35586I$	$4.95676 + 7.14944I$
$u = -0.473668 + 1.064350I$ $a = -0.68920 + 1.25309I$ $b = 0.770337 - 0.690812I$	$2.37111 + 2.38012I$	$7.11781 - 3.12902I$
$u = -0.473668 - 1.064350I$ $a = -0.68920 - 1.25309I$ $b = 0.770337 + 0.690812I$	$2.37111 - 2.38012I$	$7.11781 + 3.12902I$
$u = -0.306607 + 0.768934I$ $a = 0.677930 + 0.501746I$ $b = -0.495582 + 1.016170I$	$1.59907 - 1.22012I$	$10.24669 - 1.76763I$
$u = -0.306607 - 0.768934I$ $a = 0.677930 - 0.501746I$ $b = -0.495582 - 1.016170I$	$1.59907 + 1.22012I$	$10.24669 + 1.76763I$
$u = 0.691853 + 0.442021I$ $a = 0.666356 - 0.423245I$ $b = -0.608819 - 0.951542I$	$-0.47690 + 3.08931I$	$0.47513 - 3.63327I$
$u = 0.691853 - 0.442021I$ $a = 0.666356 + 0.423245I$ $b = -0.608819 + 0.951542I$	$-0.47690 - 3.08931I$	$0.47513 + 3.63327I$
$u = -1.123100 + 0.376086I$ $a = 0.673422 - 0.285619I$ $b = -0.777518 - 0.731848I$	$12.79390 - 1.04374I$	$11.13568 + 0.I$
$u = -1.123100 - 0.376086I$ $a = 0.673422 + 0.285619I$ $b = -0.777518 + 0.731848I$	$12.79390 + 1.04374I$	$11.13568 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.031496 + 1.220130I$ $a = -1.73190 + 0.77105I$ $b = 0.769526 - 0.864952I$	$9.36102 - 2.89044I$	$13.8461 + 3.0592I$
$u = 0.031496 - 1.220130I$ $a = -1.73190 - 0.77105I$ $b = 0.769526 + 0.864952I$	$9.36102 + 2.89044I$	$13.8461 - 3.0592I$
$u = 0.568066 + 1.084730I$ $a = -2.24565 - 0.41344I$ $b = 0.703592 - 0.999172I$	$1.44085 - 7.97313I$	$0. + 7.82699I$
$u = 0.568066 - 1.084730I$ $a = -2.24565 + 0.41344I$ $b = 0.703592 + 0.999172I$	$1.44085 + 7.97313I$	$0. - 7.82699I$
$u = 0.591719 + 1.074220I$ $a = 0.704304 + 0.824413I$ $b = -0.157829 + 1.132950I$	$8.62037 - 6.88650I$	0
$u = 0.591719 - 1.074220I$ $a = 0.704304 - 0.824413I$ $b = -0.157829 - 1.132950I$	$8.62037 + 6.88650I$	0
$u = -0.422992 + 1.152020I$ $a = 0.742663 - 0.089155I$ $b = -0.772781 - 0.231893I$	$13.22670 + 4.07484I$	$13.16985 + 0.I$
$u = -0.422992 - 1.152020I$ $a = 0.742663 + 0.089155I$ $b = -0.772781 + 0.231893I$	$13.22670 - 4.07484I$	$13.16985 + 0.I$
$u = 1.127950 + 0.485672I$ $a = 0.618155 - 0.389809I$ $b = -0.718412 - 0.980360I$	$12.03690 + 6.70540I$	0
$u = 1.127950 - 0.485672I$ $a = 0.618155 + 0.389809I$ $b = -0.718412 + 0.980360I$	$12.03690 - 6.70540I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.754125$ $a = 0.724705$ $b = 0.455004$	9.83456	8.53390
$u = -0.256062 + 0.665128I$ $a = 0.904103 - 0.096717I$ $b = -0.397261 - 0.233187I$	$0.338686 + 0.999830I$	$6.13657 - 6.36197I$
$u = -0.256062 - 0.665128I$ $a = 0.904103 + 0.096717I$ $b = -0.397261 + 0.233187I$	$0.338686 - 0.999830I$	$6.13657 + 6.36197I$
$u = 0.588126 + 1.170640I$ $a = -0.617779 - 0.984152I$ $b = 0.824403 + 0.669190I$	$6.05580 - 5.59891I$	0
$u = 0.588126 - 1.170640I$ $a = -0.617779 + 0.984152I$ $b = 0.824403 - 0.669190I$	$6.05580 + 5.59891I$	0
$u = -0.658056 + 1.167570I$ $a = -1.99266 + 0.49709I$ $b = 0.720138 + 1.025440I$	$4.97425 + 11.38970I$	0
$u = -0.658056 - 1.167570I$ $a = -1.99266 - 0.49709I$ $b = 0.720138 - 1.025440I$	$4.97425 - 11.38970I$	0
$u = -0.66401 + 1.25051I$ $a = -0.594793 + 0.840724I$ $b = 0.862806 - 0.659902I$	$15.6301 + 7.4127I$	0
$u = -0.66401 - 1.25051I$ $a = -0.594793 - 0.840724I$ $b = 0.862806 + 0.659902I$	$15.6301 - 7.4127I$	0
$u = 0.72488 + 1.23003I$ $a = -1.83482 - 0.53507I$ $b = 0.732388 - 1.044730I$	$14.4517 - 13.3499I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.72488 - 1.23003I$ $a = -1.83482 + 0.53507I$ $b = 0.732388 + 1.044730I$	$14.4517 + 13.3499I$	0
$u = -0.520003 + 0.233894I$ $a = 0.762531 - 0.369226I$ $b = -0.544789 - 0.773570I$	$0.16754 + 1.55102I$	$-0.50728 - 2.39456I$
$u = -0.520003 - 0.233894I$ $a = 0.762531 + 0.369226I$ $b = -0.544789 + 0.773570I$	$0.16754 - 1.55102I$	$-0.50728 + 2.39456I$
$u = -0.04885 + 1.43050I$ $a = -1.47868 - 0.48254I$ $b = 0.825254 + 0.886448I$	$-19.6229 + 3.0661I$	0
$u = -0.04885 - 1.43050I$ $a = -1.47868 + 0.48254I$ $b = 0.825254 - 0.886448I$	$-19.6229 - 3.0661I$	0
$u =$ 0.485800 $a =$ 0.939168 $b =$ 0.224170	1.28164	7.41160

II. $I_1^v = \langle a,\ v^3 + 2v^2 + 2b + 2v + 1,\ v^4 + v^3 + 2v^2 - v + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3v^3 - 5v^2 - 7v + 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.309017 + 0.535233I$ $a = 0$ $b = -0.500000 - 0.866025I$	$0.98696 + 2.02988I$	$6.50000 - 5.40059I$
$v = 0.309017 - 0.535233I$ $a = 0$ $b = -0.500000 + 0.866025I$	$0.98696 - 2.02988I$	$6.50000 + 5.40059I$
$v = -0.80902 + 1.40126I$ $a = 0$ $b = -0.500000 + 0.866025I$	$8.88264 - 2.02988I$	$6.50000 + 1.52761I$
$v = -0.80902 - 1.40126I$ $a = 0$ $b = -0.500000 - 0.866025I$	$8.88264 + 2.02988I$	$6.50000 - 1.52761I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$((u^2-u+1)^2)(u^{56}+19u^{55}+\cdots-20u+1)$
c_2	$((u^2+u+1)^2)(u^{56}+3u^{55}+\cdots+2u+1)$
c_3, c_9	$u^4(u^{56}-u^{55}+\cdots-44u^2-16)$
c_5	$((u^2-u+1)^2)(u^{56}+3u^{55}+\cdots+2u+1)$
c_6, c_7, c_8	$((u^2-u-1)^2)(u^{56}-3u^{55}+\cdots+2u-1)$
c_{10}	$u^4(u^{56}-25u^{55}+\cdots-1408u+256)$
c_{11}, c_{12}	$((u^2+u-1)^2)(u^{56}-3u^{55}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^2)(y^{56}+39y^{55}+\cdots-388y+1)$
c_2, c_5	$((y^2+y+1)^2)(y^{56}+19y^{55}+\cdots-20y+1)$
c_3, c_9	$y^4(y^{56}+25y^{55}+\cdots+1408y+256)$
c_6, c_7, c_8 c_{11}, c_{12}	$((y^2-3y+1)^2)(y^{56}-73y^{55}+\cdots+16y+1)$
c_{10}	$y^4(y^{56}+5y^{55}+\cdots-925696y+65536)$