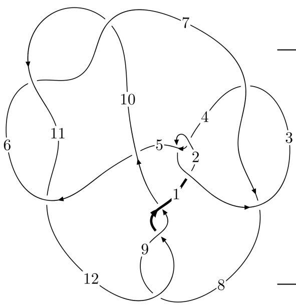
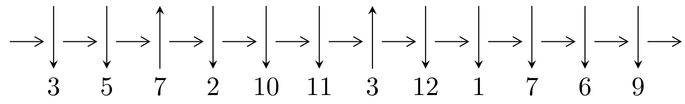
$12n_{0194}$ ($K12n_{0194}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I^u_1 = \langle & 1.49466 \times 10^{24}u^{47} - 6.85289 \times 10^{24}u^{46} + \cdots + 3.04521 \times 10^{25}b + 1.76125 \times 10^{25}, \\ & -7.26110 \times 10^{24}u^{47} - 1.15653 \times 10^{25}u^{46} + \cdots + 1.01507 \times 10^{25}a - 1.84956 \times 10^{25},\ u^{48} + 2u^{47} + \cdots + 2u - \end{aligned}$$

$$I^u_2 = \langle u^5 - 2u^4 + 5u^3 - 4u^2 + 3b + 3u - 1,\ a,\ u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 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.

$$\boldsymbol{I_1^u = \langle 1.49\times10^{24}u^{47}-6.85\times10^{24}u^{46}+\cdots+3.05\times10^{25}b+1.76\times10^{25},\ -7.26\times10^{24}u^{47}-1.16\times10^{25}u^{46}+\cdots+1.02\times10^{25}a-1.85\times10^{25},\ u^{48}+2u^{47}+\cdots+2u+1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.715331u^{47} + 1.13936u^{46} + \cdots + 3.21104u + 1.82211 \\ -0.0490826u^{47} + 0.225039u^{46} + \cdots - 0.120857u - 0.578369 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.715331u^{47} + 1.13936u^{46} + \cdots + 3.21104u + 1.82211 \\ 0.101581u^{47} + 0.453744u^{46} + \cdots - 0.253590u - 0.287070 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1.02410u^{47} + 1.70903u^{46} + \cdots - 0.663879u + 2.04259 \\ -0.142572u^{47} - 0.142410u^{46} + \cdots - 0.481991u - 0.617041 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^3 + 2u \\ -0.298901u^{47} - 0.182262u^{46} + \cdots - 0.828027u - 1.26129 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.47597u^{47} - 2.15015u^{46} + \cdots + 0.591045u - 4.37391 \\ -0.438563u^{47} - 0.494226u^{46} + \cdots + 0.0633886u - 1.37511 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1.86762u^{47} + 3.01187u^{46} + \cdots - 0.400029u + 3.80060 \\ 0.297398u^{47} + 0.622443u^{46} + \cdots - 0.229865u + 0.150066 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2418003266029548970534580 2}{30452057674032287811487569}u^{47} + \frac{40784802453743783652603914}{30452057674032287811487569}u^{46} + \cdots + \frac{46151167804623789010238493 2}{30452057674032287811487569}u - \frac{26098327831195073160469130 0}{30452057674032287811487569}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{48} + 17u^{47} + \cdots + 7933u + 81$
c_2, c_4	$u^{48} - 7u^{47} + \cdots - 133u + 9$
c_3, c_7	$u^{48} - 3u^{47} + \cdots - 1344u + 576$
c_5	$u^{48} - 2u^{47} + \cdots - 4494u + 1721$
c_6, c_{10}, c_{11}	$u^{48} + 2u^{47} + \cdots + 2u + 1$
c_8, c_9, c_{12}	$u^{48} + 2u^{47} + \cdots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{48} + 35y^{47} + \cdots - 36429289y + 6561$
c_2, c_4	$y^{48} - 17y^{47} + \cdots - 7933y + 81$
c_3, c_7	$y^{48} - 39y^{47} + \cdots - 8331264y + 331776$
c_5	$y^{48} + 22y^{47} + \cdots + 1757040y + 2961841$
c_6, c_{10}, c_{11}	$y^{48} + 46y^{47} + \cdots - 16y + 1$
c_8, c_9, c_{12}	$y^{48} - 38y^{47} + \cdots - 16y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.690041 + 0.629311I$ $a = 1.34542 + 0.54858I$ $b = 0.393714 + 0.635247I$	$-0.39368 - 5.38356I$	$-9.68744 + 3.01224I$
$u = -0.690041 - 0.629311I$ $a = 1.34542 - 0.54858I$ $b = 0.393714 - 0.635247I$	$-0.39368 + 5.38356I$	$-9.68744 - 3.01224I$
$u = 0.920254$ $a = 0.610728$ $b = 0.171718$	-8.80254	-4.25000
$u = -0.782668 + 0.456230I$ $a = -0.93137 - 1.43141I$ $b = 0.071750 - 1.022760I$	$-0.95064 + 10.34180I$	$-10.86039 - 7.63801I$
$u = -0.782668 - 0.456230I$ $a = -0.93137 + 1.43141I$ $b = 0.071750 + 1.022760I$	$-0.95064 - 10.34180I$	$-10.86039 + 7.63801I$
$u = 0.752519 + 0.427199I$ $a = 1.20108 - 1.15434I$ $b = 0.232758 - 0.968603I$	$3.81939 - 5.33756I$	$-6.88950 + 5.69391I$
$u = 0.752519 - 0.427199I$ $a = 1.20108 + 1.15434I$ $b = 0.232758 + 0.968603I$	$3.81939 + 5.33756I$	$-6.88950 - 5.69391I$
$u = 0.628454 + 0.590544I$ $a = -1.21299 + 1.06633I$ $b = -0.215800 + 0.693349I$	$4.41535 + 0.69519I$	$-5.16048 + 0.01684I$
$u = 0.628454 - 0.590544I$ $a = -1.21299 - 1.06633I$ $b = -0.215800 - 0.693349I$	$4.41535 - 0.69519I$	$-5.16048 - 0.01684I$
$u = -0.173421 + 1.158010I$ $a = 0.104728 + 0.511624I$ $b = 0.326208 + 0.117818I$	$2.41934 + 2.18121I$	$-2.04928 - 4.16619I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.173421 - 1.158010I$ $a = 0.104728 - 0.511624I$ $b = 0.326208 - 0.117818I$	$2.41934 - 2.18121I$	$-2.04928 + 4.16619I$
$u = -0.700574 + 0.375620I$ $a = -1.38109 - 0.68287I$ $b = -0.565990 - 0.710333I$	$0.679050 + 0.119673I$	$-8.77552 - 2.21849I$
$u = -0.700574 - 0.375620I$ $a = -1.38109 + 0.68287I$ $b = -0.565990 + 0.710333I$	$0.679050 - 0.119673I$	$-8.77552 + 2.21849I$
$u = -0.582865 + 0.514097I$ $a = 0.93465 + 1.68545I$ $b = 0.017056 + 0.699009I$	$1.22382 + 4.04218I$	$-8.14910 - 5.14084I$
$u = -0.582865 - 0.514097I$ $a = 0.93465 - 1.68545I$ $b = 0.017056 - 0.699009I$	$1.22382 - 4.04218I$	$-8.14910 + 5.14084I$
$u = -0.073726 + 1.279840I$ $a = 0.763442 + 1.165900I$ $b = 0.95067 + 2.94188I$	$-2.23973 + 2.01164I$	0
$u = -0.073726 - 1.279840I$ $a = 0.763442 - 1.165900I$ $b = 0.95067 - 2.94188I$	$-2.23973 - 2.01164I$	0
$u = 0.454285 + 1.267740I$ $a = -0.084057 + 0.439948I$ $b = -0.212998 + 0.558035I$	$-4.87446 - 4.89245I$	0
$u = 0.454285 - 1.267740I$ $a = -0.084057 - 0.439948I$ $b = -0.212998 - 0.558035I$	$-4.87446 + 4.89245I$	0
$u = 0.039248 + 1.349580I$ $a = -0.345427 + 0.509536I$ $b = 0.63799 + 2.52080I$	$2.14165 - 1.06169I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.039248 - 1.349580I$ $a = -0.345427 - 0.509536I$ $b = 0.63799 - 2.52080I$	$2.14165 + 1.06169I$	0
$u = 0.155366 + 1.377490I$ $a = -1.307130 - 0.198976I$ $b = -2.06559 - 0.51195I$	$0.76215 - 5.52514I$	0
$u = 0.155366 - 1.377490I$ $a = -1.307130 + 0.198976I$ $b = -2.06559 + 0.51195I$	$0.76215 + 5.52514I$	0
$u = -0.116249 + 1.408890I$ $a = 0.761077 - 0.196541I$ $b = 0.629505 - 0.923500I$	$4.62872 + 2.83878I$	0
$u = -0.116249 - 1.408890I$ $a = 0.761077 + 0.196541I$ $b = 0.629505 + 0.923500I$	$4.62872 - 2.83878I$	0
$u = 0.062207 + 1.412420I$ $a = -0.430089 + 0.015361I$ $b = 1.62377 - 1.63866I$	$2.19914 - 0.22626I$	0
$u = 0.062207 - 1.412420I$ $a = -0.430089 - 0.015361I$ $b = 1.62377 + 1.63866I$	$2.19914 + 0.22626I$	0
$u = 0.502435 + 0.225000I$ $a = 1.62411 + 2.01656I$ $b = -0.083166 + 0.268273I$	$-4.30776 - 3.16023I$	$-15.4533 + 7.2289I$
$u = 0.502435 - 0.225000I$ $a = 1.62411 - 2.01656I$ $b = -0.083166 - 0.268273I$	$-4.30776 + 3.16023I$	$-15.4533 - 7.2289I$
$u = -0.27530 + 1.46413I$ $a = -0.012438 + 0.946406I$ $b = 1.06530 + 2.28274I$	$6.60020 + 3.71986I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.27530-1.46413I$ $a=-0.012438-0.946406I$ $b=1.06530-2.28274I$	$6.60020-3.71986I$	0
$u=-0.497658$ $a=-2.81262$ $b=0.489265$	-5.97931	-18.9670
$u=-0.20208+1.49219I$ $a=0.230181-1.263210I$ $b=0.03507-3.40945I$	$7.72797+6.91935I$	0
$u=-0.20208-1.49219I$ $a=0.230181+1.263210I$ $b=0.03507+3.40945I$	$7.72797-6.91935I$	0
$u=0.27968+1.48874I$ $a=0.168905+1.066710I$ $b=-0.65284+2.93812I$	$10.01550-9.11070I$	0
$u=0.27968-1.48874I$ $a=0.168905-1.066710I$ $b=-0.65284-2.93812I$	$10.01550+9.11070I$	0
$u=-0.28574+1.50317I$ $a=-0.330652+1.097020I$ $b=0.10316+3.23436I$	$5.3958+14.2406I$	0
$u=-0.28574-1.50317I$ $a=-0.330652-1.097020I$ $b=0.10316-3.23436I$	$5.3958-14.2406I$	0
$u=0.19752+1.51758I$ $a=0.024863-1.091200I$ $b=0.57543-3.00555I$	$11.29460-2.26941I$	0
$u=0.19752-1.51758I$ $a=0.024863+1.091200I$ $b=0.57543+3.00555I$	$11.29460+2.26941I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.374037+0.273421I$ $a=-0.98022+1.25843I$ $b=\ \ 0.051210+0.628665I$	$-0.755503+1.062600I$	$-8.41291-6.25143I$
$u=-0.374037-0.273421I$ $a=-0.98022-1.25843I$ $b=\ \ 0.051210-0.628665I$	$-0.755503-1.062600I$	$-8.41291+6.25143I$
$u=-0.19300+1.54906I$ $a=-0.209237-0.861034I$ $b=-0.98283-2.41559I$	$6.83914-2.22391I$	0
$u=-0.19300-1.54906I$ $a=-0.209237+0.861034I$ $b=-0.98283+2.41559I$	$6.83914+2.22391I$	0
$u=\ \ 0.220939+0.378134I$ $a=\ \ 0.89297+1.37411I$ $b=\ \ 0.48463+1.82610I$	$-3.36304+0.79471I$	$-10.44549+7.25850I$
$u=\ \ 0.220939-0.378134I$ $a=\ \ 0.89297-1.37411I$ $b=\ \ 0.48463-1.82610I$	$-3.36304-0.79471I$	$-10.44549-7.25850I$
$u=-0.419380$ $a=-0.806662$ $b=-0.421185$	-0.865778	-11.4160
$u=\ \ 0.310865$ $a=\ \ 1.35509$ $b=-1.07781$	-2.07975	2.78660

II.

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - u + \frac{1}{3} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - u + \frac{1}{3} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3 - 2u \\ -\frac{1}{3}u^5 + \frac{2}{3}u^4 + \cdots - 2u + \frac{1}{3} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ -u^3 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^5 + u^4 - 2u^3 + u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{7}{9}u^5 - \frac{41}{9}u^4 + \frac{62}{9}u^3 - \frac{103}{9}u^2 + 6u - \frac{178}{9}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_7	y^6
c_5, c_8, c_9 c_{12}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$
c_6, c_{10}, c_{11}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.873214$ $a = 0$ $b = -0.414549$	-9.30502	-20.9320
$u = -0.138835 + 1.234450I$ $a = 0$ $b = -0.632705 + 1.176960I$	$1.31531 + 1.97241I$	$-10.03735 - 3.88708I$
$u = -0.138835 - 1.234450I$ $a = 0$ $b = -0.632705 - 1.176960I$	$1.31531 - 1.97241I$	$-10.03735 + 3.88708I$
$u = 0.408802 + 1.276380I$ $a = 0$ $b = 0.449122 + 0.449614I$	$-5.34051 - 4.59213I$	$-15.2999 - 0.2296I$
$u = 0.408802 - 1.276380I$ $a = 0$ $b = 0.449122 - 0.449614I$	$-5.34051 + 4.59213I$	$-15.2999 + 0.2296I$
$u = -0.413150$ $a = 0$ $b = 1.11505$	-2.38379	-24.8380

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{48}+17u^{47}+\cdots+7933u+81)$
c_2	$((u-1)^6)(u^{48}-7u^{47}+\cdots-133u+9)$
c_3, c_7	$u^6(u^{48}-3u^{47}+\cdots-1344u+576)$
c_4	$((u+1)^6)(u^{48}-7u^{47}+\cdots-133u+9)$
c_5	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{48}-2u^{47}+\cdots-4494u+1721)$
c_6	$(u^6+u^5+3u^4+2u^3+2u^2+u-1)(u^{48}+2u^{47}+\cdots+2u+1)$
c_8, c_9	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{48}+2u^{47}+\cdots+2u+1)$
c_{10}, c_{11}	$(u^6-u^5+3u^4-2u^3+2u^2-u-1)(u^{48}+2u^{47}+\cdots+2u+1)$
c_{12}	$(u^6+u^5-3u^4-2u^3+2u^2-u-1)(u^{48}+2u^{47}+\cdots+2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{48}+35y^{47}+\cdots-36429289y+6561)$
c_2, c_4	$((y-1)^6)(y^{48}-17y^{47}+\cdots-7933y+81)$
c_3, c_7	$y^6(y^{48}-39y^{47}+\cdots-8331264y+331776)$
c_5	$(y^6-7y^5+17y^4-16y^3+6y^2-5y+1)$ $\cdot(y^{48}+22y^{47}+\cdots+1757040y+2961841)$
c_6, c_{10}, c_{11}	$(y^6+5y^5+\cdots-5y+1)(y^{48}+46y^{47}+\cdots-16y+1)$
c_8, c_9, c_{12}	$(y^6-7y^5+\cdots-5y+1)(y^{48}-38y^{47}+\cdots-16y+1)$