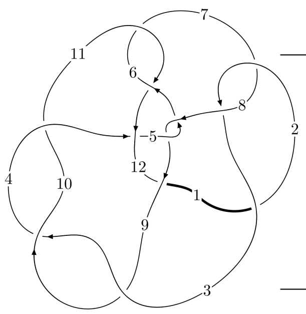
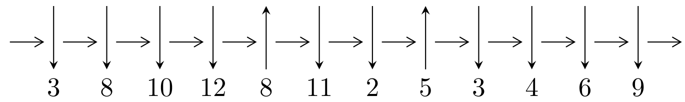
$12n_{0648}$ ($K12n_{0648}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle &-6.95358 \times 10^{37} u^{23} - 4.07407 \times 10^{36} u^{22} + \cdots + 1.61095 \times 10^{39} b - 9.52256 \times 10^{39}, \\ &- 7.06431 \times 10^{39} u^{23} + 8.51893 \times 10^{38} u^{22} + \cdots + 2.30366 \times 10^{41} a - 7.64291 \times 10^{41}, \\ &u^{24} + u^{23} + \cdots + 289u + 143 \rangle \\ I_2^u = \langle &-u^{18} - u^{17} + \cdots + b - 1,\ -2u^{16} - u^{15} + \cdots + a - 1,\ u^{19} - 12u^{17} + \cdots + 4u - 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 43 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. $\boldsymbol{I_1^u = \langle -6.95 \times 10^{37} u^{23} - 4.07 \times 10^{36} u^{22} + \cdots + 1.61 \times 10^{39} b - 9.52 \times 10^{39},\ -7.06 \times 10^{39} u^{23} + 8.52 \times 10^{38} u^{22} + \cdots + 2.30 \times 10^{41} a - 7.64 \times 10^{41},\ u^{24} + u^{23} + \cdots + 289u + 143 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.0306656u^{23} - 0.00369799u^{22} + \cdots + 2.32158u + 3.31772 \\ 0.0431644u^{23} + 0.00252898u^{22} + \cdots + 7.19118u + 5.91114 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0142787u^{23} - 0.00544253u^{22} + \cdots + 2.94433u + 2.42345 \\ 0.0139246u^{23} - 0.0131718u^{22} + \cdots + 1.01894u + 0.464061 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0251613u^{23} - 0.000730907u^{22} + \cdots + 1.76692u + 2.55543 \\ -0.0181599u^{23} + 0.00533470u^{22} + \cdots - 1.56432u - 1.98558 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0497304u^{23} + 0.00323432u^{22} + \cdots - 6.95114u - 7.14443 \\ -0.0419268u^{23} - 0.00473941u^{22} + \cdots - 4.93122u - 6.22408 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0497304u^{23} + 0.00323432u^{22} + \cdots - 6.95114u - 7.14443 \\ 0.0148906u^{23} - 0.00607853u^{22} + \cdots + 3.26414u + 1.34988 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0265932u^{23} - 0.00297561u^{22} + \cdots - 2.70453u - 3.73203 \\ 0.00559528u^{23} - 0.00695287u^{22} + \cdots + 0.504854u + 0.119250 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0348398u^{23} - 0.00284421u^{22} + \cdots - 3.68700u - 5.79455 \\ 0.0148906u^{23} - 0.00607853u^{22} + \cdots + 3.26414u + 1.34988 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0449908u^{23} + 0.00298260u^{22} + \cdots - 19.5117u - 16.1952$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24}+60u^{23}+\cdots+3708160u+295936$
c_2, c_7	$u^{24}-10u^{23}+\cdots+16u+544$
c_3, c_9, c_{10}	$u^{24}-u^{23}+\cdots-289u+143$
c_4	$u^{24}+3u^{23}+\cdots-327u-41$
c_5, c_8	$u^{24}+2u^{23}+\cdots+13u-1$
c_6, c_{11}	$u^{24}-u^{23}+\cdots-288u-69$
c_{12}	$u^{24}-36u^{22}+\cdots-47638u-14543$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} - 296y^{23} + \cdots - 4939910283264y + 87578116096$
c_2, c_7	$y^{24} - 60y^{23} + \cdots - 3708160y + 295936$
c_3, c_9, c_{10}	$y^{24} - 45y^{23} + \cdots - 70079y + 20449$
c_4	$y^{24} - 11y^{23} + \cdots - 33785y + 1681$
c_5, c_8	$y^{24} + 26y^{23} + \cdots - 575y + 1$
c_6, c_{11}	$y^{24} - 9y^{23} + \cdots - 35058y + 4761$
c_{12}	$y^{24} - 72y^{23} + \cdots - 2969653580y + 211498849$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.998180 + 0.182421I$ $a = -0.371865 + 0.963824I$ $b = -0.46248 + 1.36040I$	$-2.89773 - 4.47411I$	$-11.26620 + 4.32225I$
$u = -0.998180 - 0.182421I$ $a = -0.371865 - 0.963824I$ $b = -0.46248 - 1.36040I$	$-2.89773 + 4.47411I$	$-11.26620 - 4.32225I$
$u = -1.08785$ $a = 0.370138$ $b = 0.466022$	-5.81657	-15.7030
$u = -0.908883 + 0.696346I$ $a = 0.819047 - 0.748643I$ $b = -1.50457 - 0.48587I$	$2.29616 + 2.53148I$	$-13.0553 - 13.0894I$
$u = -0.908883 - 0.696346I$ $a = 0.819047 + 0.748643I$ $b = -1.50457 + 0.48587I$	$2.29616 - 2.53148I$	$-13.0553 + 13.0894I$
$u = -0.369638 + 0.655856I$ $a = 0.163913 + 0.088570I$ $b = -0.483150 + 1.254690I$	$-1.35028 - 2.85129I$	$-8.82275 - 0.17568I$
$u = -0.369638 - 0.655856I$ $a = 0.163913 - 0.088570I$ $b = -0.483150 - 1.254690I$	$-1.35028 + 2.85129I$	$-8.82275 + 0.17568I$
$u = 0.351833 + 0.653611I$ $a = -1.42495 - 0.28417I$ $b = 0.440762 - 1.267520I$	$-3.72902 - 2.23669I$	$-11.06844 + 3.08943I$
$u = 0.351833 - 0.653611I$ $a = -1.42495 + 0.28417I$ $b = 0.440762 + 1.267520I$	$-3.72902 + 2.23669I$	$-11.06844 - 3.08943I$
$u = 1.312160 + 0.113933I$ $a = -0.648596 + 1.219050I$ $b = 0.265262 + 0.114333I$	$-2.00982 - 3.68666I$	$-7.35603 + 5.27682I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.312160 - 0.113933I$ $a = -0.648596 - 1.219050I$ $b = 0.265262 - 0.114333I$	$-2.00982 + 3.68666I$	$-7.35603 - 5.27682I$
$u = -1.42954 + 0.07398I$ $a = -0.35156 - 1.37276I$ $b = 0.443663 - 1.115380I$	$-9.16253 - 3.52152I$	$-17.4723 + 4.9311I$
$u = -1.42954 - 0.07398I$ $a = -0.35156 + 1.37276I$ $b = 0.443663 + 1.115380I$	$-9.16253 + 3.52152I$	$-17.4723 - 4.9311I$
$u = -0.172334 + 0.521929I$ $a = 0.57148 - 1.66997I$ $b = -0.572916 + 0.049432I$	$2.32011 + 1.43982I$	$-3.19830 - 4.08238I$
$u = -0.172334 - 0.521929I$ $a = 0.57148 + 1.66997I$ $b = -0.572916 - 0.049432I$	$2.32011 - 1.43982I$	$-3.19830 + 4.08238I$
$u = 0.406773$ $a = -0.663948$ $b = 0.198801$	-0.603529	-16.4560
$u = 1.77917$ $a = 0.251024$ $b = -0.0435926$	-16.2026	-29.6210
$u = -2.04114 + 0.56230I$ $a = -0.502493 + 0.953370I$ $b = 1.10365 + 1.70631I$	$14.2564 + 11.7505I$	$-11.51618 - 4.21495I$
$u = -2.04114 - 0.56230I$ $a = -0.502493 - 0.953370I$ $b = 1.10365 - 1.70631I$	$14.2564 - 11.7505I$	$-11.51618 + 4.21495I$
$u = 2.37547 + 0.30331I$ $a = 0.174548 + 1.000270I$ $b = -0.11023 + 2.21127I$	$14.5489 - 0.5683I$	$-8.00000 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 2.37547 - 0.30331I$ $a = 0.174548 - 1.000270I$ $b = -0.11023 - 2.21127I$	$14.5489 + 0.5683I$	$-8.00000 + 0.I$
$u = 2.14046 + 1.17450I$ $a = -0.469141 - 0.647096I$ $b = 0.27079 - 2.64157I$	$-13.27670 - 2.35671I$	0
$u = 2.14046 - 1.17450I$ $a = -0.469141 + 0.647096I$ $b = 0.27079 + 2.64157I$	$-13.27670 + 2.35671I$	0
$u = -2.61851$ $a = 0.128998$ $b = 2.59719$	18.9868	-8.00000

II. $\boldsymbol{I_2^u = \langle -u^{18} - u^{17} + \cdots + b - 1,\ -2u^{16} - u^{15} + \cdots + a - 1,\ u^{19} - 12u^{17} + \cdots + 4u - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 2u^{16} + u^{15} + \cdots + 6u + 1 \\ u^{18} + u^{17} + \cdots - u + 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{18} - u^{17} + \cdots + 17u^3 - 7u^2 \\ u^{17} + u^{16} + \cdots + u - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{17} + 2u^{16} + \cdots - 10u^2 + 2u \\ u^{16} - 10u^{14} + \cdots + u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{18} - 12u^{16} + \cdots - 8u + 2 \\ u^{18} + 2u^{17} + \cdots - 7u + 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{18} - 12u^{16} + \cdots - 8u + 2 \\ u^{18} + 2u^{17} + \cdots - 8u + 2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{18} + 12u^{16} + \cdots + 5u - 1 \\ u^{18} + u^{17} + \cdots + 2u^2 - 2u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2u^{18} + 2u^{17} + \cdots - 16u + 4 \\ u^{18} + 2u^{17} + \cdots - 8u + 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^{18} - 7u^{17} + 4u^{16} + 70u^{15} + 15u^{14} - 288u^{13} - 116u^{12} + 648u^{11} + 286u^{10} - 880u^9 - 387u^8 + 725u^7 + 321u^6 - 320u^5 - 125u^4 + 53u^3 - 15u^2 - 11u - 7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 16u^{18} + \cdots + 9u - 1$
c_2	$u^{19} - 8u^{17} + \cdots + u + 1$
c_3	$u^{19} - 12u^{17} + \cdots + 4u + 1$
c_4	$u^{19} - 2u^{18} + \cdots + 5u^2 + 1$
c_5	$u^{19} + 3u^{18} + \cdots - 6u^2 - 1$
c_6	$u^{19} + 2u^{17} + \cdots - u - 1$
c_7	$u^{19} - 8u^{17} + \cdots + u - 1$
c_8	$u^{19} - 3u^{18} + \cdots + 6u^2 + 1$
c_9, c_{10}	$u^{19} - 12u^{17} + \cdots + 4u - 1$
c_{11}	$u^{19} + 2u^{17} + \cdots - u + 1$
c_{12}	$u^{19} - u^{18} + \cdots - 39u - 169$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - 32y^{18} + \cdots - 19y - 1$
c_2, c_7	$y^{19} - 16y^{18} + \cdots + 9y - 1$
c_3, c_9, c_{10}	$y^{19} - 24y^{18} + \cdots - 4y^2 - 1$
c_4	$y^{19} + 6y^{18} + \cdots - 10y - 1$
c_5, c_8	$y^{19} + 7y^{18} + \cdots - 12y - 1$
c_6, c_{11}	$y^{19} + 4y^{18} + \cdots - 13y - 1$
c_{12}	$y^{19} - 7y^{18} + \cdots - 20111y - 28561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.980950 + 0.604076I$ $a = -0.798772 - 0.755373I$ $b = 1.49647 - 0.52355I$	$2.48141 - 2.27470I$	$1.66056 - 6.57716I$
$u = 0.980950 - 0.604076I$ $a = -0.798772 + 0.755373I$ $b = 1.49647 + 0.52355I$	$2.48141 + 2.27470I$	$1.66056 + 6.57716I$
$u = -0.737628 + 0.359811I$ $a = 0.067452 - 0.920420I$ $b = -0.762089 + 0.832433I$	$-5.41374 - 1.59276I$	$-15.0492 + 2.8168I$
$u = -0.737628 - 0.359811I$ $a = 0.067452 + 0.920420I$ $b = -0.762089 - 0.832433I$	$-5.41374 + 1.59276I$	$-15.0492 - 2.8168I$
$u = -1.179440 + 0.170240I$ $a = 0.90264 - 1.49402I$ $b = -0.490604 - 1.115980I$	$-7.08654 + 3.52788I$	$-12.56931 - 3.15212I$
$u = -1.179440 - 0.170240I$ $a = 0.90264 + 1.49402I$ $b = -0.490604 + 1.115980I$	$-7.08654 - 3.52788I$	$-12.56931 + 3.15212I$
$u = 1.277010 + 0.114842I$ $a = -0.193294 - 0.314119I$ $b = 0.305041 - 1.145700I$	$-4.51476 - 5.17759I$	$-14.4043 + 6.7554I$
$u = 1.277010 - 0.114842I$ $a = -0.193294 + 0.314119I$ $b = 0.305041 + 1.145700I$	$-4.51476 + 5.17759I$	$-14.4043 - 6.7554I$
$u = 1.340980 + 0.147089I$ $a = -0.55132 + 2.05499I$ $b = 0.135134 + 0.767547I$	$-2.81013 - 3.35015I$	$-16.3799 + 1.5970I$
$u = 1.340980 - 0.147089I$ $a = -0.55132 - 2.05499I$ $b = 0.135134 - 0.767547I$	$-2.81013 + 3.35015I$	$-16.3799 - 1.5970I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.42878 + 0.22236I$ $a = 0.635513 + 0.360503I$ $b = -0.044798 + 0.642597I$	$-3.93872 + 0.69346I$	$-13.16284 + 0.10930I$
$u = -1.42878 - 0.22236I$ $a = 0.635513 - 0.360503I$ $b = -0.044798 - 0.642597I$	$-3.93872 - 0.69346I$	$-13.16284 - 0.10930I$
$u = 0.353961 + 0.248880I$ $a = 0.60428 + 1.70616I$ $b = 0.444558 + 1.167630I$	$-1.30454 + 3.85459I$	$-7.72386 - 6.55740I$
$u = 0.353961 - 0.248880I$ $a = 0.60428 - 1.70616I$ $b = 0.444558 - 1.167630I$	$-1.30454 - 3.85459I$	$-7.72386 + 6.55740I$
$u = 0.112509 + 0.356697I$ $a = 3.67512 - 2.27930I$ $b = 0.086415 - 0.687232I$	$1.35323 + 1.56259I$	$-12.20805 - 3.14313I$
$u = 0.112509 - 0.356697I$ $a = 3.67512 + 2.27930I$ $b = 0.086415 + 0.687232I$	$1.35323 - 1.56259I$	$-12.20805 + 3.14313I$
$u = -1.62694 + 0.05058I$ $a = -0.334359 - 0.989140I$ $b = 0.609573 - 1.022040I$	$-8.63988 - 2.65005I$	$-12.70208 - 1.23601I$
$u = -1.62694 - 0.05058I$ $a = -0.334359 + 0.989140I$ $b = 0.609573 + 1.022040I$	$-8.63988 + 2.65005I$	$-12.70208 + 1.23601I$
$u = 1.81475$ $a = -0.0145195$ $b = -0.559404$	-15.9196	-0.921900

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{19}-16u^{18}+\cdots+9u-1)(u^{24}+60u^{23}+\cdots+3708160u+295936)$
c_2	$(u^{19}-8u^{17}+\cdots+u+1)(u^{24}-10u^{23}+\cdots+16u+544)$
c_3	$(u^{19}-12u^{17}+\cdots+4u+1)(u^{24}-u^{23}+\cdots-289u+143)$
c_4	$(u^{19}-2u^{18}+\cdots+5u^2+1)(u^{24}+3u^{23}+\cdots-327u-41)$
c_5	$(u^{19}+3u^{18}+\cdots-6u^2-1)(u^{24}+2u^{23}+\cdots+13u-1)$
c_6	$(u^{19}+2u^{17}+\cdots-u-1)(u^{24}-u^{23}+\cdots-288u-69)$
c_7	$(u^{19}-8u^{17}+\cdots+u-1)(u^{24}-10u^{23}+\cdots+16u+544)$
c_8	$(u^{19}-3u^{18}+\cdots+6u^2+1)(u^{24}+2u^{23}+\cdots+13u-1)$
c_9, c_{10}	$(u^{19}-12u^{17}+\cdots+4u-1)(u^{24}-u^{23}+\cdots-289u+143)$
c_{11}	$(u^{19}+2u^{17}+\cdots-u+1)(u^{24}-u^{23}+\cdots-288u-69)$
c_{12}	$(u^{19}-u^{18}+\cdots-39u-169)(u^{24}-36u^{22}+\cdots-47638u-14543)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{19} - 32y^{18} + \cdots - 19y - 1)$ $\cdot (y^{24} - 296y^{23} + \cdots - 4939910283264y + 87578116096)$
c_2, c_7	$(y^{19} - 16y^{18} + \cdots + 9y - 1)(y^{24} - 60y^{23} + \cdots - 3708160y + 295936)$
c_3, c_9, c_{10}	$(y^{19} - 24y^{18} + \cdots - 4y^2 - 1)(y^{24} - 45y^{23} + \cdots - 70079y + 20449)$
c_4	$(y^{19} + 6y^{18} + \cdots - 10y - 1)(y^{24} - 11y^{23} + \cdots - 33785y + 1681)$
c_5, c_8	$(y^{19} + 7y^{18} + \cdots - 12y - 1)(y^{24} + 26y^{23} + \cdots - 575y + 1)$
c_6, c_{11}	$(y^{19} + 4y^{18} + \cdots - 13y - 1)(y^{24} - 9y^{23} + \cdots - 35058y + 4761)$
c_{12}	$(y^{19} - 7y^{18} + \cdots - 20111y - 28561)$ $\cdot (y^{24} - 72y^{23} + \cdots - 2969653580y + 211498849)$