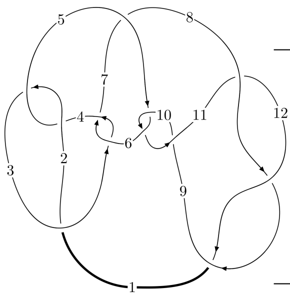
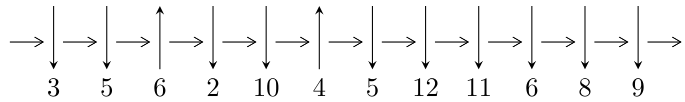
$12n_{0076}$ ($K12n_{0076}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.99559 \times 10^{15} u^{33} + 5.12786 \times 10^{15} u^{32} + \cdots + 3.29400 \times 10^{15} b + 2.31961 \times 10^{14},$$
$$-6.21494 \times 10^{15} u^{33} + 1.10612 \times 10^{16} u^{32} + \cdots + 3.29400 \times 10^{15} a + 8.86419 \times 10^{15},\ u^{34} - 2u^{33} + \cdots - u +$$
$$I_2^u = \langle b + 1,\ 2u^7 - u^6 - 3u^5 + 3u^4 + 4u^3 - 3u^2 + a - 2u + 4,\ u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 representations.

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[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.
$\boldsymbol{I_1^u = \langle -2.00\times10^{15}u^{33}+5.13\times10^{15}u^{32}+\cdots+3.29\times10^{15}b+2.32\times10^{14},\ -6.21\times10^{15}u^{33}+1.11\times10^{16}u^{32}+\cdots+3.29\times10^{15}a+8.86\times10^{15},\ u^{34}-2u^{33}+\cdots-u+1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1.88675u^{33} - 3.35800u^{32} + \cdots - 0.414433u - 2.69102\\0.605825u^{33} - 1.55673u^{32} + \cdots - 2.42216u - 0.0704193\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\-u^3 + u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}2.49257u^{33} - 4.91473u^{32} + \cdots - 2.83659u - 2.76144\\0.605825u^{33} - 1.55673u^{32} + \cdots - 2.42216u - 0.0704193\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.684721u^{33} - 1.85986u^{32} + \cdots - 3.17571u + 0.213786\\-0.0613225u^{33} + 0.190476u^{32} + \cdots + 0.906554u - 0.351909\end{pmatrix}$$
$$a_4 = \begin{pmatrix}2.09274u^{33} - 3.89228u^{32} + \cdots - 1.36534u - 2.34594\\0.572218u^{33} - 1.57386u^{32} + \cdots - 2.75044u + 0.0518727\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.684721u^{33} - 1.85986u^{32} + \cdots - 3.17571u + 0.213786\\0.395472u^{33} - 0.984131u^{32} + \cdots - 2.08170u + 0.842330\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.289249u^{33} - 0.875732u^{32} + \cdots - 1.09401u - 0.628544\\0.395472u^{33} - 0.984131u^{32} + \cdots - 2.08170u + 0.842330\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^3\\u^5 - u^3 + u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.466506u^{33} - 1.30241u^{32} + \cdots - 2.66126u + 0.0407295\\-0.269323u^{33} + 0.553369u^{32} + \cdots + 1.71300u - 0.617147\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= -\frac{7661808169491132}{3293995579890413}u^{33} + \frac{6218879522456028}{3293995579890413}u^{32} + \cdots + \frac{2597755654869228 3}{3293995579890413}u - \frac{231261126888430199}{3293995579890413}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34} + 3u^{33} + \cdots + 71u + 1$
c_2, c_4	$u^{34} - 9u^{33} + \cdots - 15u + 1$
c_3, c_6	$u^{34} + 3u^{33} + \cdots + 2176u + 256$
c_5, c_{10}	$u^{34} - 2u^{33} + \cdots - u + 1$
c_7	$u^{34} - 6u^{33} + \cdots + 1795665u + 338425$
c_8, c_{11}, c_{12}	$u^{34} - 2u^{33} + \cdots + 7u + 1$
c_9	$u^{34} + 6u^{33} + \cdots + 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34} + 65y^{33} + \cdots - 5331y + 1$
c_2, c_4	$y^{34} - 3y^{33} + \cdots - 71y + 1$
c_3, c_6	$y^{34} - 51y^{33} + \cdots - 1228800y + 65536$
c_5, c_{10}	$y^{34} - 6y^{33} + \cdots - 11y + 1$
c_7	$y^{34} + 106y^{33} + \cdots + 912331286925y + 114531480625$
c_8, c_{11}, c_{12}	$y^{34} - 26y^{33} + \cdots - 11y + 1$
c_9	$y^{34} + 46y^{33} + \cdots + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.635489 + 0.765565I$ $a = 0.023523 + 0.819812I$ $b = 0.143823 - 0.811670I$	$3.05379 - 1.22135I$	$-2.44643 + 1.78317I$
$u = 0.635489 - 0.765565I$ $a = 0.023523 - 0.819812I$ $b = 0.143823 + 0.811670I$	$3.05379 + 1.22135I$	$-2.44643 - 1.78317I$
$u = -0.729595 + 0.661430I$ $a = 0.034703 - 1.094050I$ $b = -0.136834 + 1.060550I$	$-0.23851 + 4.87038I$	$-8.16084 - 6.79059I$
$u = -0.729595 - 0.661430I$ $a = 0.034703 + 1.094050I$ $b = -0.136834 - 1.060550I$	$-0.23851 - 4.87038I$	$-8.16084 + 6.79059I$
$u = -0.479562 + 0.911974I$ $a = 0.046982 - 0.468540I$ $b = 0.371651 + 0.493500I$	$-1.11923 - 1.98539I$	$-6.62012 + 2.37959I$
$u = -0.479562 - 0.911974I$ $a = 0.046982 + 0.468540I$ $b = 0.371651 - 0.493500I$	$-1.11923 + 1.98539I$	$-6.62012 - 2.37959I$
$u = -0.766682 + 0.495753I$ $a = 1.50878 + 0.43111I$ $b = 0.146629 - 0.533111I$	$-0.524122 - 0.409066I$	$-7.28048 - 0.84766I$
$u = -0.766682 - 0.495753I$ $a = 1.50878 - 0.43111I$ $b = 0.146629 + 0.533111I$	$-0.524122 + 0.409066I$	$-7.28048 + 0.84766I$
$u = 0.971312 + 0.567163I$ $a = 1.103300 - 0.703542I$ $b = 0.496724 + 0.591318I$	$1.85693 - 3.80699I$	$-4.56903 + 5.73620I$
$u = 0.971312 - 0.567163I$ $a = 1.103300 + 0.703542I$ $b = 0.496724 - 0.591318I$	$1.85693 + 3.80699I$	$-4.56903 - 5.73620I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.17100$ $a = 0.851526$ $b = 0.548404$	-7.23479	-9.88000
$u = 0.718624 + 0.314023I$ $a = 0.116591 + 1.245780I$ $b = -1.100530 - 0.643963I$	$-4.65847 - 3.05078I$	$-14.9930 + 6.5224I$
$u = 0.718624 - 0.314023I$ $a = 0.116591 - 1.245780I$ $b = -1.100530 + 0.643963I$	$-4.65847 + 3.05078I$	$-14.9930 - 6.5224I$
$u = -1.123410 + 0.599536I$ $a = 0.797874 + 0.695393I$ $b = 0.704883 - 0.508995I$	$-3.27432 + 7.58793I$	$-9.23689 - 7.74257I$
$u = -1.123410 - 0.599536I$ $a = 0.797874 - 0.695393I$ $b = 0.704883 + 0.508995I$	$-3.27432 - 7.58793I$	$-9.23689 + 7.74257I$
$u = -0.721712$ $a = -0.340670$ $b = -1.45745$	-6.03886	-17.6920
$u = 0.900311 + 0.952119I$ $a = -0.732531 + 0.736305I$ $b = 0.96904 - 1.25880I$	$9.10120 - 4.37771I$	$-7.49633 + 3.28771I$
$u = 0.900311 - 0.952119I$ $a = -0.732531 - 0.736305I$ $b = 0.96904 + 1.25880I$	$9.10120 + 4.37771I$	$-7.49633 - 3.28771I$
$u = -0.905172 + 0.980418I$ $a = -0.763195 - 0.646287I$ $b = 1.05364 + 1.18320I$	$12.90170 - 0.67521I$	$-4.51148 - 0.04928I$
$u = -0.905172 - 0.980418I$ $a = -0.763195 + 0.646287I$ $b = 1.05364 - 1.18320I$	$12.90170 + 0.67521I$	$-4.51148 + 0.04928I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.995190 + 0.896687I$ $a = 0.62305 - 1.64005I$ $b = 1.05804 + 1.11835I$	$8.78395 - 2.42502I$	$-7.89113 + 1.48359I$
$u = 0.995190 - 0.896687I$ $a = 0.62305 + 1.64005I$ $b = 1.05804 - 1.11835I$	$8.78395 + 2.42502I$	$-7.89113 - 1.48359I$
$u = 0.901655 + 1.007390I$ $a = -0.755401 + 0.558173I$ $b = 1.09702 - 1.08890I$	$8.64740 + 5.63592I$	$-8.00000 - 2.80908I$
$u = 0.901655 - 1.007390I$ $a = -0.755401 - 0.558173I$ $b = 1.09702 + 1.08890I$	$8.64740 - 5.63592I$	$-8.00000 + 2.80908I$
$u = -0.530883 + 0.364299I$ $a = 0.43019 - 1.79437I$ $b = -0.779658 + 0.298976I$	$-1.01260 + 1.22984I$	$-7.99935 - 4.73307I$
$u = -0.530883 - 0.364299I$ $a = 0.43019 + 1.79437I$ $b = -0.779658 - 0.298976I$	$-1.01260 - 1.22984I$	$-7.99935 + 4.73307I$
$u = -1.012560 + 0.914952I$ $a = 0.49655 + 1.65048I$ $b = 1.15087 - 1.09510I$	$12.5409 + 7.6268I$	$-5.13159 - 4.40800I$
$u = -1.012560 - 0.914952I$ $a = 0.49655 - 1.65048I$ $b = 1.15087 + 1.09510I$	$12.5409 - 7.6268I$	$-5.13159 + 4.40800I$
$u = -0.620369$ $a = 1.18712$ $b = 0.117070$	-0.969949	-9.86690
$u = 1.031790 + 0.924118I$ $a = 0.39495 - 1.60999I$ $b = 1.21367 + 1.04076I$	$8.2072 - 12.7003I$	$-8.60420 + 6.93082I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031790 - 0.924118I$ $a = 0.39495 + 1.60999I$ $b = 1.21367 - 1.04076I$	$8.2072 + 12.7003I$	$-8.60420 - 6.93082I$
$u = 0.246676 + 0.443752I$ $a = 4.30323 + 2.74241I$ $b = -0.948262 + 0.125356I$	$-3.28757 + 0.51694I$	$-12.3807 + 13.4722I$
$u = 0.246676 - 0.443752I$ $a = 4.30323 - 2.74241I$ $b = -0.948262 - 0.125356I$	$-3.28757 - 0.51694I$	$-12.3807 - 13.4722I$
$u = 0.464719$ $a = -2.95516$ $b = -1.08945$	-2.17611	3.01310

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -10u^7 + 2u^6 + 16u^5 - 12u^4 - 19u^3 + 9u^2 + 8u - 27$

(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	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.570868 + 0.730671I$ $a = 0.281371 + 1.128550I$ $b = -1.00000$	$-2.68559 + 1.13123I$	$-9.56807 - 0.79885I$
$u = 0.570868 - 0.730671I$ $a = 0.281371 - 1.128550I$ $b = -1.00000$	$-2.68559 - 1.13123I$	$-9.56807 + 0.79885I$
$u = -0.855237 + 0.665892I$ $a = -0.208670 - 0.825203I$ $b = -1.00000$	$0.51448 + 2.57849I$	$-6.42531 - 3.25625I$
$u = -0.855237 - 0.665892I$ $a = -0.208670 + 0.825203I$ $b = -1.00000$	$0.51448 - 2.57849I$	$-6.42531 + 3.25625I$
$u = -1.09818$ $a = -0.829189$ $b = -1.00000$	-8.14766	-20.0060
$u = 1.031810 + 0.655470I$ $a = -0.284386 + 0.605794I$ $b = -1.00000$	$-4.02461 - 6.44354I$	$-11.71592 + 3.92092I$
$u = 1.031810 - 0.655470I$ $a = -0.284386 - 0.605794I$ $b = -1.00000$	$-4.02461 + 6.44354I$	$-11.71592 - 3.92092I$
$u = 0.603304$ $a = -2.74744$ $b = -1.00000$	-2.48997	-23.5750

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{34}+3u^{33}+\cdots+71u+1)$
c_2	$((u-1)^8)(u^{34}-9u^{33}+\cdots-15u+1)$
c_3, c_6	$u^8(u^{34}+3u^{33}+\cdots+2176u+256)$
c_4	$((u+1)^8)(u^{34}-9u^{33}+\cdots-15u+1)$
c_5	$(u^8-u^7+\cdots+2u-1)(u^{34}-2u^{33}+\cdots-u+1)$
c_7	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{34}-6u^{33}+\cdots+1795665u+338425)$
c_8	$(u^8+u^7-3u^6-2u^5+3u^4+2u-1)(u^{34}-2u^{33}+\cdots+7u+1)$
c_9	$(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{34}+6u^{33}+\cdots+11u+1)$
c_{10}	$(u^8+u^7+\cdots-2u-1)(u^{34}-2u^{33}+\cdots-u+1)$
c_{11}, c_{12}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)(u^{34}-2u^{33}+\cdots+7u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{34}+65y^{33}+\cdots-5331y+1)$
c_2, c_4	$((y-1)^8)(y^{34}-3y^{33}+\cdots-71y+1)$
c_3, c_6	$y^8(y^{34}-51y^{33}+\cdots-1228800y+65536)$
c_5, c_{10}	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{34}-6y^{33}+\cdots-11y+1)$
c_7	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{34}+106y^{33}+\cdots+912331286925y+114531480625)$
c_8, c_{11}, c_{12}	$(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{34}-26y^{33}+\cdots-11y+1)$
c_9	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{34}+46y^{33}+\cdots+y+1)$