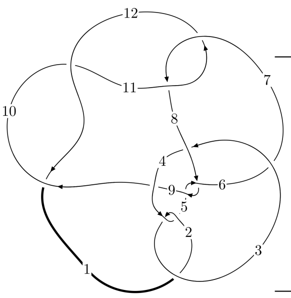
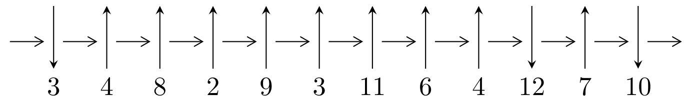
$12n_{0146}$ ($K12n_{0146}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 318706249249855u^{34} + 343308076594525u^{33} + \cdots + 3604943524787742b + 533442792596781, \\ & -521798240647102u^{34} - 367409641787037u^{33} + \cdots + 3604943524787742a - 422040157543549, \\ & u^{35} + u^{34} + \cdots + 4u + 1\rangle \\ I_2^u = \langle & u^5a + u^4a + 2u^5 + 2u^3a + 2u^4 + 2u^2a - u^3 + 4au - u^2 + 5b - a + 3u + 3, \\ & -2u^5a + u^4a + u^4 + u^2a + u^3 + a^2 - 3au + u^2 + 2a + 1,\ u^6 + u^4 + 2u^2 + 1\rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 47 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.

$\boldsymbol{I^u_1 = \langle 3.19\times10^{14}u^{34}+3.43\times10^{14}u^{33}+\cdots+3.60\times10^{14}b+5.33\times10^{14},\ -5.22\times10^{14}u^{34}-3.67\times10^{14}u^{33}+\cdots+3.60\times10^{14}a-4.22\times10^{14},\ u^{35}+u^{34}+\cdots+4u+1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_3 = \begin{pmatrix}1.44745u^{34} + 1.01918u^{33} + \cdots + 9.69915u + 1.17073\\-0.884081u^{34} - 0.952326u^{33} + \cdots - 6.17817u - 1.47975\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.273502u^{34} + 0.0909247u^{33} + \cdots + 3.78660u + 0.119242\\-1.34188u^{34} - 0.869552u^{33} + \cdots - 6.36935u - 1.23406\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$

$$a_2 = \begin{pmatrix}3.67262u^{34} + 2.12177u^{33} + \cdots + 15.5688u + 1.41759\\0.828682u^{34} - 0.457894u^{33} + \cdots + 0.578662u - 0.0976132\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-2.45523u^{34} - 2.34388u^{33} + \cdots - 16.0439u - 5.00942\\-1.14001u^{34} + 0.184464u^{33} + \cdots - 1.00983u + 0.111350\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-1.71137u^{34} - 0.579700u^{33} + \cdots - 0.908428u + 1.59802\\-1.58640u^{34} - 0.248141u^{33} + \cdots - 3.92323u - 0.309741\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}u^3\\u^3 + u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}u^5 + u\\u^5 + u^3 + u\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1.44922u^{34} - 0.334990u^{33} + \cdots + 3.36424u + 0.0154970\\-1.05881u^{34} - 1.67916u^{33} + \cdots - 7.41997u - 2.22848\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{684142960707262}{180247176239371}u^{34} + \frac{484025290669977}{180247176239371}u^{33} + \cdots + \frac{5236709331027379}{180247176239371}u + \frac{2961609232527520}{180247176239371}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} + 49u^{34} + \cdots - 74u - 1$
c_2, c_4	$u^{35} - 7u^{34} + \cdots + 10u - 1$
c_3	$u^{35} + u^{34} + \cdots - 4u - 1$
c_5, c_8	$u^{35} + u^{34} + \cdots - 20u - 25$
c_6	$u^{35} + u^{34} + \cdots - 6812u - 1859$
c_7, c_{11}	$u^{35} - u^{34} + \cdots + 4u - 1$
c_9	$u^{35} + u^{34} + \cdots + 18028u - 13207$
c_{10}, c_{12}	$u^{35} + 15u^{34} + \cdots - 4u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35} - 119y^{34} + \cdots - 5290y - 1$
c_2, c_4	$y^{35} + 49y^{34} + \cdots - 74y - 1$
c_3	$y^{35} - 7y^{34} + \cdots + 10y - 1$
c_5, c_8	$y^{35} + 51y^{34} + \cdots + 1100y - 625$
c_6	$y^{35} + 31y^{34} + \cdots - 14003002y - 3455881$
c_7, c_{11}	$y^{35} + 15y^{34} + \cdots - 4y - 1$
c_9	$y^{35} + 87y^{34} + \cdots + 3505280798y - 174424849$
c_{10}, c_{12}	$y^{35} + 15y^{34} + \cdots + 52y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.198898 + 0.912281I$ $a = -0.21214 + 1.53304I$ $b = -0.221795 + 0.558249I$	$-1.69730 - 1.70582I$	$2.23067 + 4.51797I$
$u = -0.198898 - 0.912281I$ $a = -0.21214 - 1.53304I$ $b = -0.221795 - 0.558249I$	$-1.69730 + 1.70582I$	$2.23067 - 4.51797I$
$u = 0.706440 + 0.807195I$ $a = -0.819135 + 0.009162I$ $b = -1.02181 + 1.22008I$	$3.47975 + 0.18002I$	$12.74797 + 1.67339I$
$u = 0.706440 - 0.807195I$ $a = -0.819135 - 0.009162I$ $b = -1.02181 - 1.22008I$	$3.47975 - 0.18002I$	$12.74797 - 1.67339I$
$u = 0.987560 + 0.453130I$ $a = -0.479255 + 0.468522I$ $b = -0.105454 - 0.947398I$	$-11.79900 + 0.75958I$	$4.27228 - 1.73468I$
$u = 0.987560 - 0.453130I$ $a = -0.479255 - 0.468522I$ $b = -0.105454 + 0.947398I$	$-11.79900 - 0.75958I$	$4.27228 + 1.73468I$
$u = -0.419414 + 1.027600I$ $a = 0.988734 + 0.871634I$ $b = -0.885142 + 0.876577I$	$-3.34462 - 0.85949I$	$2.28344 + 2.34599I$
$u = -0.419414 - 1.027600I$ $a = 0.988734 - 0.871634I$ $b = -0.885142 - 0.876577I$	$-3.34462 + 0.85949I$	$2.28344 - 2.34599I$
$u = -0.980550 + 0.531852I$ $a = -0.521288 + 0.398754I$ $b = -1.11162 - 1.73230I$	$-11.27240 + 6.32601I$	$4.80195 - 2.51177I$
$u = -0.980550 - 0.531852I$ $a = -0.521288 - 0.398754I$ $b = -1.11162 + 1.73230I$	$-11.27240 - 6.32601I$	$4.80195 + 2.51177I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.736027 + 0.839562I$ $a = 0.102548 - 0.713671I$ $b = 1.199180 + 0.185153I$	$1.37968 - 2.70140I$	$5.99641 + 3.98735I$
$u = -0.736027 - 0.839562I$ $a = 0.102548 + 0.713671I$ $b = 1.199180 - 0.185153I$	$1.37968 + 2.70140I$	$5.99641 - 3.98735I$
$u = 0.315075 + 1.089710I$ $a = 1.26686 - 0.81863I$ $b = 0.367656 - 0.856256I$	$-5.45958 + 0.17425I$	$-0.394097 - 0.771153I$
$u = 0.315075 - 1.089710I$ $a = 1.26686 + 0.81863I$ $b = 0.367656 + 0.856256I$	$-5.45958 - 0.17425I$	$-0.394097 + 0.771153I$
$u = -0.497697 + 1.028650I$ $a = -0.97579 - 1.97047I$ $b = 0.04867 - 2.11164I$	$-2.82734 - 5.45471I$	$3.55595 + 5.75230I$
$u = -0.497697 - 1.028650I$ $a = -0.97579 + 1.97047I$ $b = 0.04867 + 2.11164I$	$-2.82734 + 5.45471I$	$3.55595 - 5.75230I$
$u = 0.709383 + 0.907946I$ $a = 1.10452 - 1.42282I$ $b = -0.57945 - 1.52300I$	$3.18411 + 5.24743I$	$11.9368 - 7.8147I$
$u = 0.709383 - 0.907946I$ $a = 1.10452 + 1.42282I$ $b = -0.57945 + 1.52300I$	$3.18411 - 5.24743I$	$11.9368 + 7.8147I$
$u = -0.699352 + 0.916434I$ $a = -0.482223 - 0.911197I$ $b = 0.814763 - 0.513730I$	$1.15135 - 2.78726I$	$4.50130 + 1.74578I$
$u = -0.699352 - 0.916434I$ $a = -0.482223 + 0.911197I$ $b = 0.814763 + 0.513730I$	$1.15135 + 2.78726I$	$4.50130 - 1.74578I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.530985 + 1.088540I$ $a = -0.22183 + 1.99595I$ $b = 1.28242 + 1.15849I$	$-4.02551 + 7.04503I$	$2.61668 - 6.73357I$
$u = 0.530985 - 1.088540I$ $a = -0.22183 - 1.99595I$ $b = 1.28242 - 1.15849I$	$-4.02551 - 7.04503I$	$2.61668 + 6.73357I$
$u = -0.423966 + 0.601689I$ $a = 1.84029 + 1.10036I$ $b = 0.76833 + 1.48875I$	$-1.39115 + 1.47351I$	$7.00418 - 0.38394I$
$u = -0.423966 - 0.601689I$ $a = 1.84029 - 1.10036I$ $b = 0.76833 - 1.48875I$	$-1.39115 - 1.47351I$	$7.00418 + 0.38394I$
$u = 0.039193 + 1.312350I$ $a = -0.63914 - 1.68853I$ $b = -0.25205 - 1.80126I$	$-18.4544 + 3.7875I$	$0.15008 - 2.18954I$
$u = 0.039193 - 1.312350I$ $a = -0.63914 + 1.68853I$ $b = -0.25205 + 1.80126I$	$-18.4544 - 3.7875I$	$0.15008 + 2.18954I$
$u = 0.571745 + 0.303555I$ $a = -0.423437 + 0.372340I$ $b = 0.988498 - 0.658097I$	$-1.87714 - 2.57774I$	$5.81524 + 3.28141I$
$u = 0.571745 - 0.303555I$ $a = -0.423437 - 0.372340I$ $b = 0.988498 + 0.658097I$	$-1.87714 + 2.57774I$	$5.81524 - 3.28141I$
$u = -0.719484 + 1.148000I$ $a = 0.88560 + 1.88560I$ $b = -1.30329 + 2.06739I$	$-13.1891 - 12.5329I$	$3.21529 + 6.50684I$
$u = -0.719484 - 1.148000I$ $a = 0.88560 - 1.88560I$ $b = -1.30329 - 2.06739I$	$-13.1891 + 12.5329I$	$3.21529 - 6.50684I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.679877 + 1.180490I$ $a = -1.009050 + 0.279744I$ $b = 0.353942 + 0.804369I$	$-14.0684 + 5.3198I$	$2.14370 - 2.29588I$
$u = 0.679877 - 1.180490I$ $a = -1.009050 - 0.279744I$ $b = 0.353942 - 0.804369I$	$-14.0684 - 5.3198I$	$2.14370 + 2.29588I$
$u = -0.191898 + 0.428395I$ $a = -0.57700 + 2.20593I$ $b = 0.393176 - 0.360559I$	$-1.57284 - 2.29524I$	$6.98932 + 5.13879I$
$u = -0.191898 - 0.428395I$ $a = -0.57700 - 2.20593I$ $b = 0.393176 + 0.360559I$	$-1.57284 + 2.29524I$	$6.98932 - 5.13879I$
$u = -0.345944$ $a = -0.656543$ $b = -0.472048$	0.719348	14.2660

II.

$$\boldsymbol{I_2^u = \langle u^5a + 2u^5 + \cdots - a + 3,\ -2u^5a + u^4a + \cdots + 2a + 1,\ u^6 + u^4 + 2u^2 + 1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{5}u^5a - \frac{2}{5}u^5 + \cdots + \frac{6}{5}a - \frac{3}{5} \\ -u^4a - u^5 - u^4 - u^2a - au - u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{4}{5}u^5a + \frac{8}{5}u^5 + \cdots + \frac{1}{5}a - \frac{3}{5} \\ 2u^5 + 2u^3 + 2u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^5 - u \\ -u^5 - u^3 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{7}{5}u^5a + \frac{4}{5}u^5 + \cdots - \frac{2}{5}a + \frac{1}{5} \\ \frac{3}{5}u^5a + \frac{11}{5}u^5 + \cdots + \frac{2}{5}a - \frac{1}{5} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{5}u^5a - \frac{8}{5}u^5 + \cdots + \frac{4}{5}a + \frac{8}{5} \\ \frac{4}{5}u^5a - \frac{2}{5}u^5 + \cdots + \frac{1}{5}a + \frac{2}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{8}{5}u^5a + \frac{12}{5}u^4a - \frac{16}{5}u^5 - \frac{16}{5}u^3a - \frac{16}{5}u^4 + \frac{4}{5}u^2a - \frac{12}{5}u^3 - \frac{12}{5}au - \frac{12}{5}u^2 + \frac{8}{5}a - \frac{24}{5}u - \frac{4}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.744862 + 0.877439I$ $a = -1.093800 - 0.182501I$ $b = -1.33984 + 1.89050I$	$1.37919 - 4.85801I$	$5.50976 + 0.48465I$
$u = 0.744862 + 0.877439I$ $a = 1.71610 - 1.68492I$ $b = -0.96731 - 2.10558I$	$1.37919 - 0.79824I$	$5.50976 - 6.44355I$
$u = 0.744862 - 0.877439I$ $a = -1.093800 + 0.182501I$ $b = -1.33984 - 1.89050I$	$1.37919 + 4.85801I$	$5.50976 - 0.48465I$
$u = 0.744862 - 0.877439I$ $a = 1.71610 + 1.68492I$ $b = -0.96731 + 2.10558I$	$1.37919 + 0.79824I$	$5.50976 + 6.44355I$
$u = -0.744862 + 0.877439I$ $a = -0.548527 - 0.727778I$ $b = -0.032694 - 0.373532I$	$1.37919 + 0.79824I$	$5.50976 + 6.44355I$
$u = -0.744862 + 0.877439I$ $a = -0.318896 + 0.350078I$ $b = 0.339835 + 0.158452I$	$1.37919 + 4.85801I$	$5.50976 - 0.48465I$
$u = -0.744862 - 0.877439I$ $a = -0.548527 + 0.727778I$ $b = -0.032694 + 0.373532I$	$1.37919 - 0.79824I$	$5.50976 - 6.44355I$
$u = -0.744862 - 0.877439I$ $a = -0.318896 - 0.350078I$ $b = 0.339835 - 0.158452I$	$1.37919 - 4.85801I$	$5.50976 + 0.48465I$
$u = 0.754878I$ $a = -0.223696 - 0.142330I$ $b = -0.993496 - 0.581105I$	$-2.75839 + 2.02988I$	$-1.01951 - 3.46410I$
$u = 0.754878I$ $a = -1.53118 + 2.89721I$ $b = -0.006504 + 1.150950I$	$-2.75839 - 2.02988I$	$-1.01951 + 3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad - 0.754878I$ $a = -0.223696 + 0.142330I$ $b = -0.993496 + 0.581105I$	$-2.75839 - 2.02988I$	$-1.01951 + 3.46410I$
$u = \quad - 0.754878I$ $a = -1.53118 - 2.89721I$ $b = -0.006504 - 1.150950I$	$-2.75839 + 2.02988I$	$-1.01951 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^6)(u^{35}+49u^{34}+\cdots-74u-1)$
c_2	$((u^2+u+1)^6)(u^{35}-7u^{34}+\cdots+10u-1)$
c_3	$((u^4-u^2+1)^3)(u^{35}+u^{34}+\cdots-4u-1)$
c_4	$((u^2-u+1)^6)(u^{35}-7u^{34}+\cdots+10u-1)$
c_5, c_8	$((u^2+1)^6)(u^{35}+u^{34}+\cdots-20u-25)$
c_6	$(u^{12}+6u^{11}+\cdots-2u+1)(u^{35}+u^{34}+\cdots-6812u-1859)$
c_7, c_{11}	$((u^6+u^4+2u^2+1)^2)(u^{35}-u^{34}+\cdots+4u-1)$
c_9	$(u^{12}-2u^{11}+\cdots-4u+1)(u^{35}+u^{34}+\cdots+18028u-13207)$
c_{10}	$((u^3-u^2+2u-1)^4)(u^{35}+15u^{34}+\cdots-4u-1)$
c_{12}	$((u^3+u^2+2u+1)^4)(u^{35}+15u^{34}+\cdots-4u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^{35}-119y^{34}+\cdots-5290y-1)$
c_2, c_4	$((y^2+y+1)^6)(y^{35}+49y^{34}+\cdots-74y-1)$
c_3	$((y^2-y+1)^6)(y^{35}-7y^{34}+\cdots+10y-1)$
c_5, c_8	$((y+1)^{12})(y^{35}+51y^{34}+\cdots+1100y-625)$
c_6	$(y^{12}+12y^{11}+\cdots+6y+1)$ $\cdot(y^{35}+31y^{34}+\cdots-14003002y-3455881)$
c_7, c_{11}	$((y^3+y^2+2y+1)^4)(y^{35}+15y^{34}+\cdots-4y-1)$
c_9	$(y^{12}-12y^{11}+\cdots-6y+1)$ $\cdot(y^{35}+87y^{34}+\cdots+3505280798y-174424849)$
c_{10}, c_{12}	$((y^3+3y^2+2y-1)^4)(y^{35}+15y^{34}+\cdots+52y-1)$