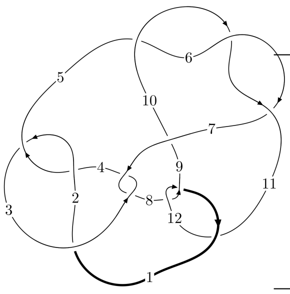
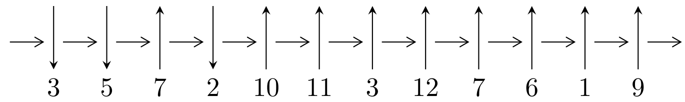
$12n_{0186}$ ($K12n_{0186}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.22078 \times 10^{25} u^{51} - 8.93113 \times 10^{25} u^{50} + \cdots + 5.70770 \times 10^{25} b + 5.96223 \times 10^{25},$$
$$5.22434 \times 10^{25} u^{51} - 2.15422 \times 10^{25} u^{50} + \cdots + 5.70770 \times 10^{25} a - 1.21095 \times 10^{26},\ u^{52} - 2u^{51} + \cdots - u^2 + 1\rangle$$
$$I_2^u = \langle b + 1,\ 2u^7 - u^6 - 5u^5 + 2u^4 + 3u^3 + a + 2u - 1,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle$$

* 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.

$$I^u_1 = \langle 3.22\times10^{25}u^{51} - 8.93\times10^{25}u^{50} + \cdots + 5.71\times10^{25}b + 5.96\times10^{25},\ 5.22\times10^{25}u^{51} - 2.15\times10^{25}u^{50} + \cdots + 5.71\times10^{25}a - 1.21\times10^{26},\ u^{52} - 2u^{51} + \cdots - u^2 + 1\rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.915316u^{51} + 0.377424u^{50} + \cdots - 0.305015u + 2.12160 \\ -0.564287u^{51} + 1.56475u^{50} + \cdots + 0.657034u - 1.04459 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.47960u^{51} + 1.94218u^{50} + \cdots + 0.352020u + 1.07701 \\ -0.564287u^{51} + 1.56475u^{50} + \cdots + 0.657034u - 1.04459 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.18721u^{51} + 3.15641u^{50} + \cdots + 2.25837u - 0.599223 \\ 0.268382u^{51} - 0.928704u^{50} + \cdots - 0.481556u + 0.106979 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.04390u^{51} + 0.780635u^{50} + \cdots - 0.415024u + 1.93894 \\ -0.616840u^{51} + 1.83391u^{50} + \cdots + 0.779891u - 1.08938 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.594106u^{51} + 1.79472u^{50} + \cdots + 1.62921u - 0.588090 \\ -0.276947u^{51} + 0.473102u^{50} + \cdots + 0.517256u + 0.0584887 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.285029u^{51} - 0.390403u^{50} + \cdots - 1.33955u + 0.209160 \\ -0.492416u^{51} + 1.54733u^{50} + \cdots + 0.722296u - 0.103429 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1240657506593977463220736159}{570769658573563386412023335}u^{51} - \frac{507731546315019686665244629}{570769658573563386412023335}u^{50} + \cdots - \frac{1047474987399803989773483394}{570769658573563386412023335}u - \frac{421248860824180893040358514}{570769658573563386412023335}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{52} + 15u^{51} + \cdots + 154u + 1$
c_2, c_4	$u^{52} - 9u^{51} + \cdots - 18u + 1$
c_3, c_7	$u^{52} - 3u^{51} + \cdots - 4480u + 256$
c_5, c_6, c_{10}	$u^{52} - 2u^{51} + \cdots - u^2 + 1$
c_8, c_{12}	$u^{52} - 2u^{51} + \cdots - 4u + 1$
c_9	$u^{52} + 6u^{51} + \cdots + 880u + 4025$
c_{11}	$u^{52} - 30u^{51} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{52} + 53y^{51} + \cdots - 8978y + 1$
c_2, c_4	$y^{52} - 15y^{51} + \cdots - 154y + 1$
c_3, c_7	$y^{52} - 51y^{51} + \cdots - 6209536y + 65536$
c_5, c_6, c_{10}	$y^{52} - 50y^{51} + \cdots - 2y + 1$
c_8, c_{12}	$y^{52} - 30y^{51} + \cdots - 2y + 1$
c_9	$y^{52} - 26y^{51} + \cdots - 386280850y + 16200625$
c_{11}	$y^{52} - 14y^{51} + \cdots - 22y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.596040 + 0.685350I$ $a = -0.303738 - 0.109363I$ $b = 1.035020 - 0.836655I$	$6.06449 + 5.90411I$	$8.42870 - 2.86873I$
$u = -0.596040 - 0.685350I$ $a = -0.303738 + 0.109363I$ $b = 1.035020 + 0.836655I$	$6.06449 - 5.90411I$	$8.42870 + 2.86873I$
$u = -0.461943 + 0.763402I$ $a = 0.92002 - 1.14323I$ $b = 1.15749 + 0.84016I$	$5.61921 - 10.76330I$	$7.42388 + 7.81134I$
$u = -0.461943 - 0.763402I$ $a = 0.92002 + 1.14323I$ $b = 1.15749 - 0.84016I$	$5.61921 + 10.76330I$	$7.42388 - 7.81134I$
$u = 0.600467 + 0.630929I$ $a = -0.194035 - 0.006330I$ $b = 0.804140 + 0.798246I$	$2.75283 - 0.63628I$	$6.47155 - 0.50182I$
$u = 0.600467 - 0.630929I$ $a = -0.194035 + 0.006330I$ $b = 0.804140 - 0.798246I$	$2.75283 + 0.63628I$	$6.47155 + 0.50182I$
$u = 0.429595 + 0.756706I$ $a = 1.011620 + 0.980800I$ $b = 1.000840 - 0.771858I$	$2.14152 + 5.31582I$	$4.93660 - 5.12952I$
$u = 0.429595 - 0.756706I$ $a = 1.011620 - 0.980800I$ $b = 1.000840 + 0.771858I$	$2.14152 - 5.31582I$	$4.93660 + 5.12952I$
$u = -0.428853 + 0.704754I$ $a = 1.28272 - 0.99964I$ $b = 0.810880 + 0.929645I$	$6.77557 - 0.63032I$	$9.03919 + 2.39060I$
$u = -0.428853 - 0.704754I$ $a = 1.28272 + 0.99964I$ $b = 0.810880 - 0.929645I$	$6.77557 + 0.63032I$	$9.03919 - 2.39060I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.529637 + 0.629472I$ $a = -0.312532 + 0.180815I$ $b = 0.675424 - 1.090410I$	$7.14701 - 3.78883I$	$9.80206 + 4.18447I$
$u = -0.529637 - 0.629472I$ $a = -0.312532 - 0.180815I$ $b = 0.675424 + 1.090410I$	$7.14701 + 3.78883I$	$9.80206 - 4.18447I$
$u = 0.089818 + 0.804779I$ $a = 0.976159 + 0.124090I$ $b = 0.652722 - 0.112944I$	$-3.05621 + 2.81915I$	$8.84773 - 4.69108I$
$u = 0.089818 - 0.804779I$ $a = 0.976159 - 0.124090I$ $b = 0.652722 + 0.112944I$	$-3.05621 - 2.81915I$	$8.84773 + 4.69108I$
$u = 1.160150 + 0.341361I$ $a = 0.444553 + 0.408247I$ $b = 0.621048 - 0.094499I$	$0.200968 + 1.333880I$	0
$u = 1.160150 - 0.341361I$ $a = 0.444553 - 0.408247I$ $b = 0.621048 + 0.094499I$	$0.200968 - 1.333880I$	0
$u = -1.305710 + 0.022937I$ $a = 0.482228 + 0.442327I$ $b = -1.42955 - 0.12934I$	$1.369850 - 0.105601I$	0
$u = -1.305710 - 0.022937I$ $a = 0.482228 - 0.442327I$ $b = -1.42955 + 0.12934I$	$1.369850 + 0.105601I$	0
$u = -1.31861$ $a = 1.09514$ $b = 0.151920$	6.40470	0
$u = 1.317970 + 0.092549I$ $a = 0.81132 - 1.44084I$ $b = -1.34968 + 0.57134I$	$2.18752 + 3.25685I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.317970 - 0.092549I$ $a = 0.81132 + 1.44084I$ $b = -1.34968 - 0.57134I$	$2.18752 - 3.25685I$	0
$u = -1.311760 + 0.358837I$ $a = 0.394809 - 0.696031I$ $b = 0.728756 + 0.259803I$	$1.32923 - 7.01296I$	0
$u = -1.311760 - 0.358837I$ $a = 0.394809 + 0.696031I$ $b = 0.728756 - 0.259803I$	$1.32923 + 7.01296I$	0
$u = 1.390960 + 0.114127I$ $a = 0.57698 - 1.72339I$ $b = -0.723456 + 0.697653I$	$3.42681 + 2.63296I$	0
$u = 1.390960 - 0.114127I$ $a = 0.57698 + 1.72339I$ $b = -0.723456 - 0.697653I$	$3.42681 - 2.63296I$	0
$u = 1.40302$ $a = -13.7171$ $b = -1.00767$	4.91335	0
$u = -1.404190 + 0.159019I$ $a = 0.27827 + 1.88427I$ $b = -0.535802 - 1.135950I$	$5.89367 - 6.10396I$	0
$u = -1.404190 - 0.159019I$ $a = 0.27827 - 1.88427I$ $b = -0.535802 + 1.135950I$	$5.89367 + 6.10396I$	0
$u = 0.289349 + 0.491612I$ $a = -0.104933 - 0.935937I$ $b = -0.665776 + 0.817316I$	$0.49136 + 3.75076I$	$5.76906 - 8.97851I$
$u = 0.289349 - 0.491612I$ $a = -0.104933 + 0.935937I$ $b = -0.665776 - 0.817316I$	$0.49136 - 3.75076I$	$5.76906 + 8.97851I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.43138 + 0.07294I$ $a = 1.036390 + 0.944754I$ $b = -0.270270 - 0.184770I$	$6.54809 - 0.25945I$	0
$u = -1.43138 - 0.07294I$ $a = 1.036390 - 0.944754I$ $b = -0.270270 + 0.184770I$	$6.54809 + 0.25945I$	0
$u = 1.47938 + 0.26376I$ $a = 0.37431 + 1.88780I$ $b = 0.977064 - 0.921748I$	$12.93400 + 4.17895I$	0
$u = 1.47938 - 0.26376I$ $a = 0.37431 - 1.88780I$ $b = 0.977064 + 0.921748I$	$12.93400 - 4.17895I$	0
$u = 0.355651 + 0.332212I$ $a = 2.25163 - 0.94682I$ $b = -0.586013 - 0.340416I$	$0.96467 - 1.11364I$	$8.10661 - 2.28473I$
$u = 0.355651 - 0.332212I$ $a = 2.25163 + 0.94682I$ $b = -0.586013 + 0.340416I$	$0.96467 + 1.11364I$	$8.10661 + 2.28473I$
$u = -1.48991 + 0.28027I$ $a = 0.08758 - 1.83114I$ $b = 1.125690 + 0.835388I$	$8.35025 - 9.10360I$	0
$u = -1.48991 - 0.28027I$ $a = 0.08758 + 1.83114I$ $b = 1.125690 - 0.835388I$	$8.35025 + 9.10360I$	0
$u = 1.50299 + 0.21204I$ $a = -1.01775 - 1.30127I$ $b = 0.71828 + 1.28058I$	$13.7566 + 6.8511I$	0
$u = 1.50299 - 0.21204I$ $a = -1.01775 + 1.30127I$ $b = 0.71828 - 1.28058I$	$13.7566 - 6.8511I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50262 + 0.27770I$ $a = -0.05829 + 1.98831I$ $b = 1.23801 - 0.89513I$	$11.9860 + 14.5665I$	0
$u = 1.50262 - 0.27770I$ $a = -0.05829 - 1.98831I$ $b = 1.23801 + 0.89513I$	$11.9860 - 14.5665I$	0
$u = -1.51858 + 0.19470I$ $a = -0.846488 + 1.031250I$ $b = 0.703551 - 1.024970I$	$9.67287 - 2.30932I$	0
$u = -1.51858 - 0.19470I$ $a = -0.846488 - 1.031250I$ $b = 0.703551 + 1.024970I$	$9.67287 + 2.30932I$	0
$u = -0.076509 + 0.456871I$ $a = -1.054590 + 0.666345I$ $b = -1.310420 - 0.236305I$	$-2.05132 - 1.32678I$	$-0.14980 + 4.04076I$
$u = -0.076509 - 0.456871I$ $a = -1.054590 - 0.666345I$ $b = -1.310420 + 0.236305I$	$-2.05132 + 1.32678I$	$-0.14980 - 4.04076I$
$u = 0.452272$ $a = 0.656563$ $b = 0.108480$	0.718769	13.9480
$u = 1.53851 + 0.20821I$ $a = -1.040950 - 0.804099I$ $b = 0.925560 + 0.944868I$	$13.09740 - 2.67801I$	0
$u = 1.53851 - 0.20821I$ $a = -1.040950 + 0.804099I$ $b = 0.925560 - 0.944868I$	$13.09740 + 2.67801I$	0
$u = -0.202886 + 0.379947I$ $a = -0.30999 + 1.78499I$ $b = -0.885931 - 0.291667I$	$-1.66844 - 0.85066I$	$-1.89079 + 2.59214I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.202886 - 0.379947I$ $a = -0.30999 - 1.78499I$ $b = -0.885931 + 0.291667I$	$-1.66844 + 0.85066I$	$-1.89079 - 2.59214I$
$u = -0.336802$ $a = 6.59478$ $b = -1.08789$	-0.454350	34.0590

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle b+1,\ 2u^7-u^6-5u^5+2u^4+3u^3+a+2u-1,\ u^8-u^7-3u^6+2u^5+3u^4-2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^7-u^6+10u^5+3u^4-6u^3-2u^2-4u-1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^8$
c_3, c_7	u^8
c_4	$(u+1)^8$
c_5, c_6	$u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1$
c_8	$u^8 + u^7 - u^6 - 2u^5 + u^4 + 2u^3 - 2u - 1$
c_9	$u^8 - 3u^7 + 7u^6 - 10u^5 + 11u^4 - 10u^3 + 6u^2 - 4u + 1$
c_{10}	$u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1$
c_{11}	$u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1$
c_{12}	$u^8 - u^7 - u^6 + 2u^5 + u^4 - 2u^3 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_7	y^8
c_5, c_6, c_{10}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$
c_8, c_{12}	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_9, c_{11}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -0.085690 + 0.514779I$ $b = -1.00000$	$-0.604279 - 1.131230I$	$1.44913 - 0.23763I$
$u = -1.180120 - 0.268597I$ $a = -0.085690 - 0.514779I$ $b = -1.00000$	$-0.604279 + 1.131230I$	$1.44913 + 0.23763I$
$u = -0.108090 + 0.747508I$ $a = -1.036110 + 0.260696I$ $b = -1.00000$	$-3.80435 - 2.57849I$	$-1.70307 + 2.50491I$
$u = -0.108090 - 0.747508I$ $a = -1.036110 - 0.260696I$ $b = -1.00000$	$-3.80435 + 2.57849I$	$-1.70307 - 2.50491I$
$u = 1.37100$ $a = -3.88842$ $b = -1.00000$	4.85780	-9.72740
$u = 1.334530 + 0.318930I$ $a = 0.043072 - 0.634428I$ $b = -1.00000$	$0.73474 + 6.44354I$	$5.13991 - 2.71216I$
$u = 1.334530 - 0.318930I$ $a = 0.043072 + 0.634428I$ $b = -1.00000$	$0.73474 - 6.44354I$	$5.13991 + 2.71216I$
$u = -0.463640$ $a = 2.04588$ $b = -1.00000$	-0.799899	0.955500

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{52}+15u^{51}+\cdots+154u+1)$
c_2	$((u-1)^8)(u^{52}-9u^{51}+\cdots-18u+1)$
c_3, c_7	$u^8(u^{52}-3u^{51}+\cdots-4480u+256)$
c_4	$((u+1)^8)(u^{52}-9u^{51}+\cdots-18u+1)$
c_5, c_6	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)(u^{52}-2u^{51}+\cdots-u^2+1)$
c_8	$(u^8+u^7+\cdots-2u-1)(u^{52}-2u^{51}+\cdots-4u+1)$
c_9	$(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{52}+6u^{51}+\cdots+880u+4025)$
c_{10}	$(u^8+u^7-3u^6-2u^5+3u^4+2u-1)(u^{52}-2u^{51}+\cdots-u^2+1)$
c_{11}	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{52}-30u^{51}+\cdots-2u+1)$
c_{12}	$(u^8-u^7+\cdots+2u-1)(u^{52}-2u^{51}+\cdots-4u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{52}+53y^{51}+\cdots-8978y+1)$
c_2, c_4	$((y-1)^8)(y^{52}-15y^{51}+\cdots-154y+1)$
c_3, c_7	$y^8(y^{52}-51y^{51}+\cdots-6209536y+65536)$
c_5, c_6, c_{10}	$(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{52}-50y^{51}+\cdots-2y+1)$
c_8, c_{12}	$(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{52}-30y^{51}+\cdots-2y+1)$
c_9	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{52}-26y^{51}+\cdots-386280850y+16200625)$
c_{11}	$(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{52}-14y^{51}+\cdots-22y+1)$