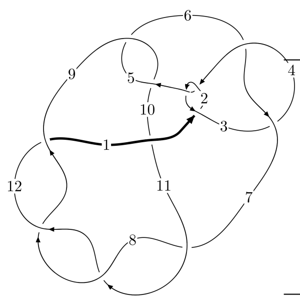
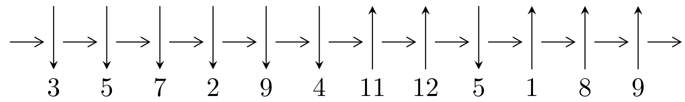
$12n_{0106}$ $(K12n_{0106})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.95001 \times 10^{28} u^{46} + 1.02756 \times 10^{29} u^{45} + \cdots + 4.89243 \times 10^{27} b - 4.24094 \times 10^{28},$$
$$5.28780 \times 10^{28} u^{46} + 1.85724 \times 10^{29} u^{45} + \cdots + 2.44621 \times 10^{27} a - 1.24073 \times 10^{29},\ u^{47} + 4u^{46} + \cdots - 11u -$$
$$I_2^u = \langle u^2 b + b^2 + bu - 2u^2 + b - 3u - 2,\ a,\ u^3 + u^2 - 1 \rangle$$
$$I_3^u = \langle b - 2,\ a - 1,\ u - 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 54 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 2.95\times10^{28}u^{46}+1.03\times10^{29}u^{45}+\cdots+4.89\times10^{27}b-4.24\times10^{28},\ 5.29\times10^{28}u^{46}+ 1.86\times10^{29}u^{45}+\cdots+2.45\times10^{27}a-1.24\times10^{29},\ u^{47}+4u^{46}+\cdots-11u-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-21.6162u^{46}-75.9230u^{45}+\cdots+433.914u+50.7202\\-6.02975u^{46}-21.0031u^{45}+\cdots+76.8942u+8.66836\end{pmatrix}$$
$$a_6 = \begin{pmatrix}29.5086u^{46}+104.599u^{45}+\cdots-601.499u-73.1793\\11.4583u^{46}+40.3975u^{45}+\cdots-214.814u-25.2675\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-21.6162u^{46}-75.9230u^{45}+\cdots+433.914u+50.7202\\-12.4237u^{46}-42.3264u^{45}+\cdots+171.240u+19.2103\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^4\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-26.2116u^{46}-91.6779u^{45}+\cdots+523.253u+61.1104\\-10.1373u^{46}-34.3085u^{45}+\cdots+141.882u+16.1328\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}33.2674u^{46}+117.852u^{45}+\cdots-671.448u-81.1792\\15.2170u^{46}+53.6510u^{45}+\cdots-284.762u-33.2674\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}23.3159u^{46}+82.6280u^{45}+\cdots-479.630u-56.3099\\5.89371u^{46}+20.0339u^{45}+\cdots-139.693u-15.9659\end{pmatrix}$$
$$a_8 = \begin{pmatrix}2.05202u^{46}+7.02641u^{45}+\cdots-34.0094u-5.57078\\5.07530u^{46}+18.0511u^{45}+\cdots-64.3990u-8.02822\end{pmatrix}$$

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $=-19.4717u^{46}-66.4148u^{45}+\cdots+400.531u+54.1723$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{47} + 26u^{46} + \cdots + 33u + 1$
c_2, c_4	$u^{47} - 4u^{46} + \cdots - 11u + 1$
c_3, c_6	$u^{47} - 3u^{46} + \cdots - 6u + 2$
c_5, c_9	$u^{47} + 2u^{46} + \cdots - 32u - 64$
c_7, c_8, c_{11} c_{12}	$u^{47} - 5u^{46} + \cdots - 8u - 1$
c_{10}	$u^{47} + 7u^{46} + \cdots - 5444u + 89$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{47} - 6y^{46} + \cdots + 193y - 1$
c_2, c_4	$y^{47} - 26y^{46} + \cdots + 33y - 1$
c_3, c_6	$y^{47} + 15y^{46} + \cdots + 315y^2 - 4$
c_5, c_9	$y^{47} - 36y^{46} + \cdots + 168960y - 4096$
c_7, c_8, c_{11} c_{12}	$y^{47} - 53y^{46} + \cdots + 138y - 1$
c_{10}	$y^{47} + 31y^{46} + \cdots + 25436870y - 7921$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.989960 + 0.148170I$ $a = 0.086218 + 0.547482I$ $b = 1.057400 - 0.538353I$	$-1.149640 - 0.628552I$	$-5.94054 - 2.36276I$
$u = 0.989960 - 0.148170I$ $a = 0.086218 - 0.547482I$ $b = 1.057400 + 0.538353I$	$-1.149640 + 0.628552I$	$-5.94054 + 2.36276I$
$u = -0.931667 + 0.360435I$ $a = 0.650552 - 1.137680I$ $b = 0.506455 - 0.859521I$	$0.10041 + 3.44087I$	$0.17183 - 8.28941I$
$u = -0.931667 - 0.360435I$ $a = 0.650552 + 1.137680I$ $b = 0.506455 + 0.859521I$	$0.10041 - 3.44087I$	$0.17183 + 8.28941I$
$u = -0.223147 + 1.003930I$ $a = -0.312504 + 1.368880I$ $b = -0.143382 - 0.236139I$	$5.63196 - 8.09738I$	$3.35253 + 4.54237I$
$u = -0.223147 - 1.003930I$ $a = -0.312504 - 1.368880I$ $b = -0.143382 + 0.236139I$	$5.63196 + 8.09738I$	$3.35253 - 4.54237I$
$u = 0.951382$ $a = -0.361021$ $b = -4.05034$	-0.451802	-56.4450
$u = -0.108798 + 0.923471I$ $a = 0.29912 - 1.44151I$ $b = -0.019834 + 0.147643I$	$-1.70582 - 5.21126I$	$0.15580 + 5.73446I$
$u = -0.108798 - 0.923471I$ $a = 0.29912 + 1.44151I$ $b = -0.019834 - 0.147643I$	$-1.70582 + 5.21126I$	$0.15580 - 5.73446I$
$u = 0.375825 + 0.801282I$ $a = 0.38215 - 1.40610I$ $b = -0.312468 - 0.166120I$	$3.28905 + 1.41624I$	$1.285372 - 0.077907I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.375825 - 0.801282I$ $a = 0.38215 + 1.40610I$ $b = -0.312468 + 0.166120I$	$3.28905 - 1.41624I$	$1.285372 + 0.077907I$
$u = -0.754499 + 0.439436I$ $a = 0.787718 + 0.900721I$ $b = 1.67009 - 0.64753I$	$10.33830 + 1.89063I$	$3.79886 - 2.45073I$
$u = -0.754499 - 0.439436I$ $a = 0.787718 - 0.900721I$ $b = 1.67009 + 0.64753I$	$10.33830 - 1.89063I$	$3.79886 + 2.45073I$
$u = 0.848625$ $a = 0.348245$ $b = 5.16287$	7.65141	-49.4120
$u = -0.874869 + 0.786950I$ $a = -0.309968 - 0.224071I$ $b = -0.262520 - 0.143001I$	$3.72699 + 2.94871I$	$-12.2330 - 7.8683I$
$u = -0.874869 - 0.786950I$ $a = -0.309968 + 0.224071I$ $b = -0.262520 + 0.143001I$	$3.72699 - 2.94871I$	$-12.2330 + 7.8683I$
$u = 1.126180 + 0.347504I$ $a = -0.188549 - 0.855543I$ $b = -1.147560 - 0.094454I$	$5.11792 - 1.20868I$	0
$u = 1.126180 - 0.347504I$ $a = -0.188549 + 0.855543I$ $b = -1.147560 + 0.094454I$	$5.11792 + 1.20868I$	0
$u = 0.059234 + 0.812807I$ $a = -0.34521 + 1.50868I$ $b = 0.186918 - 0.028378I$	$-2.49343 - 1.08855I$	$-2.03214 + 0.04750I$
$u = 0.059234 - 0.812807I$ $a = -0.34521 - 1.50868I$ $b = 0.186918 + 0.028378I$	$-2.49343 + 1.08855I$	$-2.03214 - 0.04750I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.144920+0.321301I$ $a=-1.39264-0.30017I$ $b=-2.50504+0.05350I$	$-1.09956+1.43032I$	0
$u=-1.144920-0.321301I$ $a=-1.39264+0.30017I$ $b=-2.50504-0.05350I$	$-1.09956-1.43032I$	0
$u=-1.109420+0.477918I$ $a=-0.225844+1.135400I$ $b=-0.151788+0.912718I$	$6.07282+6.30143I$	0
$u=-1.109420-0.477918I$ $a=-0.225844-1.135400I$ $b=-0.151788-0.912718I$	$6.07282-6.30143I$	0
$u=-0.889179+0.911068I$ $a=0.567632+0.472874I$ $b=0.506073+0.310758I$	$10.50090+3.30217I$	0
$u=-0.889179-0.911068I$ $a=0.567632-0.472874I$ $b=0.506073-0.310758I$	$10.50090-3.30217I$	0
$u=1.157290+0.591284I$ $a=1.109010-0.155564I$ $b=2.14720-0.71964I$	$0.92342-6.68779I$	0
$u=1.157290-0.591284I$ $a=1.109010+0.155564I$ $b=2.14720+0.71964I$	$0.92342+6.68779I$	0
$u=-1.230280+0.438166I$ $a=1.292840+0.114739I$ $b=2.59516-0.07060I$	$-6.29518+5.50452I$	0
$u=-1.230280-0.438166I$ $a=1.292840-0.114739I$ $b=2.59516+0.07060I$	$-6.29518-5.50452I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.221460 + 0.493956I$ $a = -1.035260 + 0.239047I$ $b = -2.17910 + 0.67973I$	$-5.89684 - 3.67490I$	0
$u = 1.221460 - 0.493956I$ $a = -1.035260 - 0.239047I$ $b = -2.17910 - 0.67973I$	$-5.89684 + 3.67490I$	0
$u = 0.669427$ $a = -0.452367$ $b = 0.335316$	-1.01372	-10.3930
$u = -0.178892 + 0.636081I$ $a = 1.61229 + 0.11889I$ $b = 0.969029 - 0.433870I$	$8.67414 - 2.02923I$	$6.38070 + 1.31837I$
$u = -0.178892 - 0.636081I$ $a = 1.61229 - 0.11889I$ $b = 0.969029 + 0.433870I$	$8.67414 + 2.02923I$	$6.38070 - 1.31837I$
$u = 1.286390 + 0.397327I$ $a = 0.966983 - 0.333762I$ $b = 2.17649 - 0.61779I$	$-6.10647 + 0.63964I$	0
$u = 1.286390 - 0.397327I$ $a = 0.966983 + 0.333762I$ $b = 2.17649 + 0.61779I$	$-6.10647 - 0.63964I$	0
$u = -1.251910 + 0.523865I$ $a = -1.226570 - 0.021764I$ $b = -2.63642 + 0.05168I$	$-5.19394 + 10.42330I$	0
$u = -1.251910 - 0.523865I$ $a = -1.226570 + 0.021764I$ $b = -2.63642 - 0.05168I$	$-5.19394 - 10.42330I$	0
$u = -1.252930 + 0.595086I$ $a = 1.168960 - 0.050135I$ $b = 2.66504 - 0.01710I$	$2.45160 + 13.84790I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.252930 - 0.595086I$ $a = 1.168960 + 0.050135I$ $b = 2.66504 + 0.01710I$	$2.45160 - 13.84790I$	0
$u = 1.366130 + 0.294990I$ $a = -0.908758 + 0.454189I$ $b = -2.11656 + 0.55334I$	$0.27703 + 3.60334I$	0
$u = 1.366130 - 0.294990I$ $a = -0.908758 - 0.454189I$ $b = -2.11656 - 0.55334I$	$0.27703 - 3.60334I$	0
$u = -0.591311 + 0.089878I$ $a = -1.40817 + 1.26783I$ $b = -0.997142 + 0.442455I$	$1.303350 - 0.477077I$	$6.44413 + 0.83351I$
$u = -0.591311 - 0.089878I$ $a = -1.40817 - 1.26783I$ $b = -0.997142 - 0.442455I$	$1.303350 + 0.477077I$	$6.44413 - 0.83351I$
$u = -0.275356 + 0.071579I$ $a = -2.33744 + 1.67178I$ $b = -0.731969 + 0.318628I$	$1.33872 - 0.48836I$	$6.23098 + 1.53144I$
$u = -0.275356 - 0.071579I$ $a = -2.33744 - 1.67178I$ $b = -0.731969 - 0.318628I$	$1.33872 + 0.48836I$	$6.23098 - 1.53144I$

II. $\boldsymbol{I_2^u = \langle u^2b + b^2 + bu - 2u^2 + b - 3u - 2,\ a,\ u^3 + u^2 - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2b - bu - u^2 - b - u + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=0$ $b=-0.546315+0.909787I$	$11.90680+2.82812I$	$7.12010-2.78145I$
$u=-0.877439+0.744862I$ $a=0$ $b=0.208674-0.347508I$	$4.01109+2.82812I$	$12.01538+1.83947I$
$u=-0.877439-0.744862I$ $a=0$ $b=-0.546315-0.909787I$	$11.90680-2.82812I$	$7.12010+2.78145I$
$u=-0.877439-0.744862I$ $a=0$ $b=0.208674+0.347508I$	$4.01109-2.82812I$	$12.01538-1.83947I$
$u=0.754878$ $a=0$ $b=1.43675$	-0.126494	2.87910
$u=0.754878$ $a=0$ $b=-3.76147$	7.76919	23.8500

III. $I_3^u = \langle b-2,\ a-1,\ u-1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_9 c_{11}, c_{12}	$u - 1$
c_3, c_6	u
c_4, c_5, c_7 c_8, c_{10}	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$y - 1$
c_3, c_6	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	1.00000	0	0
$b =$	2.00000		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^3-u^2+2u-1)^2(u^{47}+26u^{46}+\cdots+33u+1)$
c_2	$(u-1)(u^3+u^2-1)^2(u^{47}-4u^{46}+\cdots-11u+1)$
c_3	$u(u^3-u^2+2u-1)^2(u^{47}-3u^{46}+\cdots-6u+2)$
c_4	$(u+1)(u^3-u^2+1)^2(u^{47}-4u^{46}+\cdots-11u+1)$
c_5	$u^6(u+1)(u^{47}+2u^{46}+\cdots-32u-64)$
c_6	$u(u^3+u^2+2u+1)^2(u^{47}-3u^{46}+\cdots-6u+2)$
c_7, c_8	$(u+1)(u^2-u-1)^3(u^{47}-5u^{46}+\cdots-8u-1)$
c_9	$u^6(u-1)(u^{47}+2u^{46}+\cdots-32u-64)$
c_{10}	$(u+1)(u^2-u-1)^3(u^{47}+7u^{46}+\cdots-5444u+89)$
c_{11}, c_{12}	$(u-1)(u^2+u-1)^3(u^{47}-5u^{46}+\cdots-8u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^3+3y^2+2y-1)^2(y^{47}-6y^{46}+\cdots+193y-1)$
c_2, c_4	$(y-1)(y^3-y^2+2y-1)^2(y^{47}-26y^{46}+\cdots+33y-1)$
c_3, c_6	$y(y^3+3y^2+2y-1)^2(y^{47}+15y^{46}+\cdots+315y^2-4)$
c_5, c_9	$y^6(y-1)(y^{47}-36y^{46}+\cdots+168960y-4096)$
c_7, c_8, c_{11} c_{12}	$(y-1)(y^2-3y+1)^3(y^{47}-53y^{46}+\cdots+138y-1)$
c_{10}	$(y-1)(y^2-3y+1)^3(y^{47}+31y^{46}+\cdots+2.54369\times 10^7y-7921)$