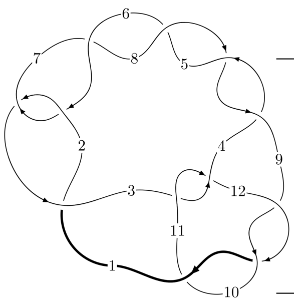
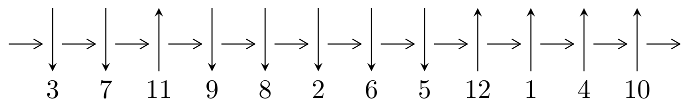
$12a_{0669}$ ($K12a_{0669}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle &-25220615118u^{37} - 125516232099u^{36} + \cdots + 42034358527b - 24647116036,\\
&60529476279u^{37} + 353049488728u^{36} + \cdots + 42034358527a + 595728741584,\\
&u^{38} + 6u^{37} + \cdots + 16u + 1\rangle\\
I^u_2 = \langle &b,\ -u^4 + u^3 - 4u^2 + a + 3u - 3,\ u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1\rangle
\end{aligned}$$

* 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. $I_1^u = \langle -2.52 \times 10^{10}u^{37} - 1.26 \times 10^{11}u^{36} + \cdots + 4.20 \times 10^{10}b - 2.46 \times 10^{10},\ 6.05 \times 10^{10}u^{37} + 3.53 \times 10^{11}u^{36} + \cdots + 4.20 \times 10^{10}a + 5.96 \times 10^{11},\ u^{38} + 6u^{37} + \cdots + 16u + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.44000u^{37} - 8.39907u^{36} + \cdots - 114.524u - 14.1724 \\ 0.600000u^{37} + 2.98604u^{36} + \cdots + 1.86170u + 0.586356 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.24000u^{37} - 7.40372u^{36} + \cdots - 102.904u - 12.3103 \\ 0.400000u^{37} + 2.01396u^{36} + \cdots + 2.13830u + 0.413644 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.600000u^{37} - 3.00931u^{36} + \cdots - 19.7589u - 3.27576 \\ 0.400000u^{37} + 2.01396u^{36} + \cdots + 2.13830u + 0.413644 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2.04000u^{37} - 11.3851u^{36} + \cdots - 116.386u - 14.7588 \\ 0.600000u^{37} + 2.98604u^{36} + \cdots + 1.86170u + 0.586356 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1.00434u^{37} - 5.62602u^{36} + \cdots - 39.9468u - 5.08000 \\ 0.590693u^{37} + 3.54416u^{36} + \cdots + 6.32424u + 0.600000 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.00000u^{37} - 5.60444u^{36} + \cdots - 30.7482u - 4.28010 \\ 0.400000u^{37} + 2.59513u^{36} + \cdots + 10.9894u + 1.00434 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{323207095835}{42034358527}u^{37} + \frac{1803051253389}{42034358527}u^{36} + \cdots + \frac{12006740049581}{42034358527}u + \frac{1316852383934}{42034358527}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8	$u^{38} + 6u^{37} + \cdots + 16u + 1$
c_2, c_6	$u^{38} - 2u^{37} + \cdots + 4u - 1$
c_3, c_{11}	$u^{38} - u^{37} + \cdots - 32u + 32$
c_9, c_{10}, c_{12}	$u^{38} + 6u^{37} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8	$y^{38} + 54y^{37} + \cdots - 12y + 1$
c_2, c_6	$y^{38} - 6y^{37} + \cdots - 16y + 1$
c_3, c_{11}	$y^{38} - 33y^{37} + \cdots - 3584y + 1024$
c_9, c_{10}, c_{12}	$y^{38} - 42y^{37} + \cdots + 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.713718 + 0.696674I$ $a = 0.98664 + 1.13350I$ $b = 1.355910 + 0.254773I$	$6.26346 + 5.04642I$	$0. - 6.40435I$
$u = -0.713718 - 0.696674I$ $a = 0.98664 - 1.13350I$ $b = 1.355910 - 0.254773I$	$6.26346 - 5.04642I$	$0. + 6.40435I$
$u = -0.205081 + 0.964197I$ $a = -0.002810 + 0.336869I$ $b = -0.045418 + 0.545182I$	$2.26768 + 2.34844I$	$0. - 4.01424I$
$u = -0.205081 - 0.964197I$ $a = -0.002810 - 0.336869I$ $b = -0.045418 - 0.545182I$	$2.26768 - 2.34844I$	$0. + 4.01424I$
$u = -0.861163$ $a = 1.70659$ $b = 1.30561$	4.20147	-0.424720
$u = -0.032507 + 1.171160I$ $a = -0.645677 - 0.518349I$ $b = 1.192870 - 0.112572I$	$6.07449 + 0.14915I$	0
$u = -0.032507 - 1.171160I$ $a = -0.645677 + 0.518349I$ $b = 1.192870 + 0.112572I$	$6.07449 - 0.14915I$	0
$u = 0.190395 + 1.187080I$ $a = -0.038520 + 1.334050I$ $b = -1.55601 + 0.43836I$	$13.51030 - 3.29880I$	0
$u = 0.190395 - 1.187080I$ $a = -0.038520 - 1.334050I$ $b = -1.55601 - 0.43836I$	$13.51030 + 3.29880I$	0
$u = -0.119477 + 1.235160I$ $a = -0.083865 - 1.148000I$ $b = 0.070500 - 1.218200I$	$8.02065 + 2.76566I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.119477 - 1.235160I$ $a = -0.083865 + 1.148000I$ $b = 0.070500 + 1.218200I$	$8.02065 - 2.76566I$	0
$u = -0.223356 + 1.231840I$ $a = 0.531548 - 0.533329I$ $b = -1.185810 - 0.238140I$	$5.79827 + 5.29458I$	0
$u = -0.223356 - 1.231840I$ $a = 0.531548 + 0.533329I$ $b = -1.185810 + 0.238140I$	$5.79827 - 5.29458I$	0
$u = -0.454460 + 0.526349I$ $a = 0.225842 - 0.858062I$ $b = -0.810125 - 0.280595I$	$0.14659 + 2.93637I$	$-1.27878 - 9.48259I$
$u = -0.454460 - 0.526349I$ $a = 0.225842 + 0.858062I$ $b = -0.810125 + 0.280595I$	$0.14659 - 2.93637I$	$-1.27878 + 9.48259I$
$u = -0.383220 + 1.338060I$ $a = 0.143279 + 1.122790I$ $b = 1.48427 + 0.49972I$	$12.7262 + 8.9717I$	0
$u = -0.383220 - 1.338060I$ $a = 0.143279 - 1.122790I$ $b = 1.48427 - 0.49972I$	$12.7262 - 8.9717I$	0
$u = -0.242924 + 0.500540I$ $a = -0.77914 - 2.00057I$ $b = 0.217646 - 0.715322I$	$2.34679 + 1.50207I$	$1.29303 - 3.53914I$
$u = -0.242924 - 0.500540I$ $a = -0.77914 + 2.00057I$ $b = 0.217646 + 0.715322I$	$2.34679 - 1.50207I$	$1.29303 + 3.53914I$
$u = 0.390857 + 0.382528I$ $a = -1.94196 + 2.07024I$ $b = -1.47608 + 0.13954I$	$8.43405 - 1.32281I$	$8.28038 + 0.36190I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.390857 - 0.382528I$ $a = -1.94196 - 2.07024I$ $b = -1.47608 - 0.13954I$	$8.43405 + 1.32281I$	$8.28038 - 0.36190I$
$u = -0.468337 + 0.127698I$ $a = -0.182428 + 0.431853I$ $b = -0.370032 + 0.319434I$	$-1.073810 + 0.172026I$	$-9.19796 - 0.41861I$
$u = -0.468337 - 0.127698I$ $a = -0.182428 - 0.431853I$ $b = -0.370032 - 0.319434I$	$-1.073810 - 0.172026I$	$-9.19796 + 0.41861I$
$u = -0.05162 + 1.71260I$ $a = 0.001886 + 0.320518I$ $b = -0.001031 + 0.619536I$	$11.82160 + 3.35648I$	0
$u = -0.05162 - 1.71260I$ $a = 0.001886 - 0.320518I$ $b = -0.001031 - 0.619536I$	$11.82160 - 3.35648I$	0
$u = -0.031423 + 0.280285I$ $a = -1.24282 - 2.10298I$ $b = 0.728609 + 0.020401I$	$1.222660 - 0.148523I$	$6.95502 - 0.36222I$
$u = -0.031423 - 0.280285I$ $a = -1.24282 + 2.10298I$ $b = 0.728609 - 0.020401I$	$1.222660 + 0.148523I$	$6.95502 + 0.36222I$
$u = -0.00837 + 1.78126I$ $a = -0.528064 - 0.356522I$ $b = 1.45222 - 0.21060I$	$16.9093 + 0.3307I$	0
$u = -0.00837 - 1.78126I$ $a = -0.528064 + 0.356522I$ $b = 1.45222 + 0.21060I$	$16.9093 - 0.3307I$	0
$u = 0.04878 + 1.78515I$ $a = 0.151260 + 0.916668I$ $b = -1.62783 + 0.66338I$	$-15.0990 - 4.3588I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.04878 - 1.78515I$ $a = 0.151260 - 0.916668I$ $b = -1.62783 - 0.66338I$	$-15.0990 + 4.3588I$	0
$u = -0.05643 + 1.79298I$ $a = 0.514785 - 0.362719I$ $b = -1.44825 - 0.23847I$	$16.8561 + 6.5503I$	0
$u = -0.05643 - 1.79298I$ $a = 0.514785 + 0.362719I$ $b = -1.44825 + 0.23847I$	$16.8561 - 6.5503I$	0
$u = -0.03067 + 1.79505I$ $a = -0.010921 - 0.875007I$ $b = 0.01525 - 1.51868I$	$19.1652 + 3.4491I$	0
$u = -0.03067 - 1.79505I$ $a = -0.010921 + 0.875007I$ $b = 0.01525 + 1.51868I$	$19.1652 - 3.4491I$	0
$u = -0.10251 + 1.82008I$ $a = -0.126790 + 0.897308I$ $b = 1.60864 + 0.67923I$	$-15.2648 + 11.2768I$	0
$u = -0.10251 - 1.82008I$ $a = -0.126790 - 0.897308I$ $b = 1.60864 - 0.67923I$	$-15.2648 - 11.2768I$	0
$u = -0.150697$ $a = -5.65109$ $b = 0.483736$	1.16378	11.6280

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

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^4 - u^3 + 4u^2 - 3u + 3 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 - u^3 + 4u^2 - 3u + 3 \\ u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 + 2u \\ u^4 - u^3 + 3u^2 - 2u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^4 - u^3 + 4u^2 - 3u + 3 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^4 + 6u^3 - 28u^2 + 17u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$
c_2, c_6	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_3, c_{11}	y^5
c_9, c_{10}, c_{12}	$(y-1)^5$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.233677 + 0.885557I$		
$a =$	$0.278580 - 1.055720I$	$3.46474 - 2.21397I$	$6.65223 + 4.39723I$
$b =$	0		
$u =$	$0.233677 - 0.885557I$		
$a =$	$0.278580 + 1.055720I$	$3.46474 + 2.21397I$	$6.65223 - 4.39723I$
$b =$	0		
$u =$	0.416284		
$a =$	2.40221	0.762751	-9.55270
$b =$	0		
$u =$	$0.05818 + 1.69128I$		
$a =$	$0.020316 - 0.590570I$	$12.60320 - 3.33174I$	$9.12414 + 2.18947I$
$b =$	0		
$u =$	$0.05818 - 1.69128I$		
$a =$	$0.020316 + 0.590570I$	$12.60320 + 3.33174I$	$9.12414 - 2.18947I$
$b =$	0		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5	$(u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1)(u^{38} + 6u^{37} + \cdots + 16u + 1)$
c_2	$(u^5 - u^4 + u^2 + u - 1)(u^{38} - 2u^{37} + \cdots + 4u - 1)$
c_3, c_{11}	$u^5(u^{38} - u^{37} + \cdots - 32u + 32)$
c_6	$(u^5 + u^4 - u^2 + u + 1)(u^{38} - 2u^{37} + \cdots + 4u - 1)$
c_7, c_8	$(u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1)(u^{38} + 6u^{37} + \cdots + 16u + 1)$
c_9, c_{10}	$((u+1)^5)(u^{38} + 6u^{37} + \cdots - 2u - 1)$
c_{12}	$((u-1)^5)(u^{38} + 6u^{37} + \cdots - 2u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_7, c_8	$(y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1)(y^{38} + 54y^{37} + \cdots - 12y + 1)$
c_2, c_6	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{38} - 6y^{37} + \cdots - 16y + 1)$
c_3, c_{11}	$y^5(y^{38} - 33y^{37} + \cdots - 3584y + 1024)$
c_9, c_{10}, c_{12}	$((y-1)^5)(y^{38} - 42y^{37} + \cdots + 6y + 1)$