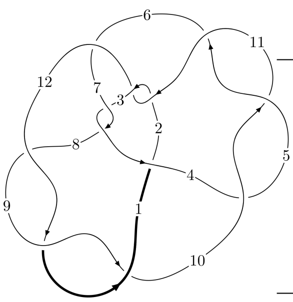
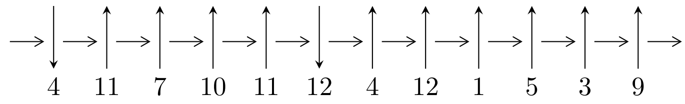
$12n_{0882}$ ($K12n_{0882}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 4u^{12} - 8u^{11} - 26u^{10} + 41u^9 + 59u^8 - 69u^7 - 42u^6 + 9u^5 - 10u^4 + 56u^3 + u^2 + 13b - 5u + 10, \\
& -4u^{12} + 8u^{11} + 26u^{10} - 41u^9 - 59u^8 + 69u^7 + 42u^6 - 9u^5 + 10u^4 - 69u^3 - u^2 + 13a + 31u - 10, \\
& u^{13} + u^{12} - 6u^{11} - 6u^{10} + 13u^9 + 14u^8 - 7u^7 - 13u^6 - 12u^5 + 13u^3 + 6u^2 + 2u + 1\rangle \\
I_2^u = \langle & -5.18174 \times 10^{46} u^{47} - 1.01683 \times 10^{47} u^{46} + \cdots + 3.77343 \times 10^{47} b - 4.53377 \times 10^{47}, \\
& 2.81502 \times 10^{47} u^{47} + 3.21473 \times 10^{47} u^{46} + \cdots + 1.25781 \times 10^{47} a + 4.62967 \times 10^{48},\ u^{48} + u^{47} + \cdots + 20u + 1 \\
I_3^u = \langle & -u^2 + b + 1,\ -u^3 + u^2 + a + 2u - 1,\ u^5 - 3u^3 + 2u + 1\rangle \\
I_4^u = \langle & -u^2 + b + 1,\ -2u^7 - u^6 + 11u^5 + 3u^4 - 18u^3 + 3u^2 + a + 8u - 9, \\
& u^8 - 5u^6 + u^5 + 7u^4 - 4u^3 - 2u^2 + 4u - 1\rangle \\
I_5^u = \langle & b + 1,\ a,\ u - 1\rangle
\end{aligned}
$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 75 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. $I^u_1 = \langle 4u^{12}-8u^{11}+\cdots+13b+10,\ -4u^{12}+8u^{11}+\cdots+13a-10,\ u^{13}+u^{12}+\cdots+2u+1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.307692u^{12} - 0.615385u^{11} + \cdots - 2.38462u + 0.769231\\-0.307692u^{12} + 0.615385u^{11} + \cdots + 0.384615u - 0.769231\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^3 - 2u\\-0.307692u^{12} + 0.615385u^{11} + \cdots + 0.384615u - 0.769231\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\-u^3 + u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.538462u^{12} - 0.0769231u^{11} + \cdots + 3.07692u + 1.84615\\-1.07692u^{12} + 0.153846u^{11} + \cdots - 2.15385u - 0.692308\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u^2 - 1\\-0.692308u^{12} + 0.384615u^{11} + \cdots + 1.61538u - 0.230769\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.46154u^{12} + 0.0769231u^{11} + \cdots + 2.92308u + 2.15385\\-1.46154u^{12} - 0.0769231u^{11} + \cdots - 2.92308u - 1.15385\end{pmatrix}$$
$$a_1 = \begin{pmatrix}1\\-1.46154u^{12} - 0.0769231u^{11} + \cdots - 2.92308u - 1.15385\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^2 + 1\\u^4 - 2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u\\-1.38462u^{12} + 0.769231u^{11} + \cdots - 0.769231u - 1.46154\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{42}{13}u^{12} + \frac{20}{13}u^{11} - 18u^{10} - \frac{122}{13}u^9 + \frac{483}{13}u^8 + \frac{309}{13}u^7 - \frac{285}{13}u^6 - \frac{367}{13}u^5 - \frac{300}{13}u^4 + \frac{94}{13}u^3 + \frac{394}{13}u^2 + \frac{162}{13}u + \frac{157}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{13} - 12u^{12} + \cdots + 352u - 32$
c_2, c_3, c_7 c_{11}	$u^{13} - 3u^{11} + 9u^9 + u^8 - 12u^7 + u^6 + 16u^5 - u^4 - 11u^3 + 3u^2 + 4u - 1$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$u^{13} - u^{12} + \cdots + 2u - 1$
c_6	$u^{13} + 11u^{12} + \cdots - 208u - 56$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{13} + 8y^{12} + \cdots + 42496y - 1024$
c_2, c_3, c_7 c_{11}	$y^{13} - 6y^{12} + \cdots + 22y - 1$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$y^{13} - 13y^{12} + \cdots - 8y - 1$
c_6	$y^{13} + y^{12} + \cdots + 5408y - 3136$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.171620 + 0.859681I$ $a = -0.34697 - 1.56070I$ $b = 1.065670 - 0.718049I$	$-2.17962 - 5.84511I$	$7.45794 + 6.04290I$
$u = -0.171620 - 0.859681I$ $a = -0.34697 + 1.56070I$ $b = 1.065670 + 0.718049I$	$-2.17962 + 5.84511I$	$7.45794 - 6.04290I$
$u = -1.309140 + 0.064534I$ $a = -0.581299 - 0.674191I$ $b = 0.972284 + 0.876654I$	$8.82263 + 2.58229I$	$16.9820 - 3.0015I$
$u = -1.309140 - 0.064534I$ $a = -0.581299 + 0.674191I$ $b = 0.972284 - 0.876654I$	$8.82263 - 2.58229I$	$16.9820 + 3.0015I$
$u = 1.356440 + 0.275517I$ $a = 0.256447 + 0.156488I$ $b = -0.782477 + 0.792358I$	$5.13873 + 2.17385I$	$13.57691 - 0.52106I$
$u = 1.356440 - 0.275517I$ $a = 0.256447 - 0.156488I$ $b = -0.782477 - 0.792358I$	$5.13873 - 2.17385I$	$13.57691 + 0.52106I$
$u = 1.356860 + 0.395151I$ $a = -1.72651 + 1.21374I$ $b = 0.875267 + 0.116755I$	$9.39305 + 5.41911I$	$19.2364 - 4.1129I$
$u = 1.356860 - 0.395151I$ $a = -1.72651 - 1.21374I$ $b = 0.875267 - 0.116755I$	$9.39305 - 5.41911I$	$19.2364 + 4.1129I$
$u = -0.537178$ $a = 1.16207$ $b = -0.242725$	0.805138	11.7720
$u = -1.48836 + 0.39264I$ $a = 1.67676 + 0.98279I$ $b = -1.30871 + 0.78070I$	$8.6054 - 15.1865I$	$15.2811 + 7.9689I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.48836 - 0.39264I$ $a = 1.67676 - 0.98279I$ $b = -1.30871 - 0.78070I$	$8.6054 + 15.1865I$	$15.2811 - 7.9689I$
$u = 0.024401 + 0.393610I$ $a = 0.640545 - 1.244220I$ $b = -0.700673 + 0.396722I$	$1.07099 - 1.38837I$	$7.07977 + 4.85651I$
$u = 0.024401 - 0.393610I$ $a = 0.640545 + 1.244220I$ $b = -0.700673 - 0.396722I$	$1.07099 + 1.38837I$	$7.07977 - 4.85651I$

II.

$\boldsymbol{I_2^u = \langle -5.18\times 10^{46}u^{47} - 1.02\times 10^{47}u^{46} + \cdots + 3.77\times 10^{47}b - 4.53\times 10^{47},\ 2.82\times 10^{47}u^{47} + 3.21\times 10^{47}u^{46} + \cdots + 1.26\times 10^{47}a + 4.63\times 10^{48},\ u^{48} + u^{47} + \cdots + 20u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2.23803u^{47} - 2.55582u^{46} + \cdots - 95.9559u - 36.8074 \\ 0.137322u^{47} + 0.269470u^{46} + \cdots + 10.2860u + 1.20150 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2.10071u^{47} - 2.28635u^{46} + \cdots - 85.6699u - 35.6059 \\ 0.137322u^{47} + 0.269470u^{46} + \cdots + 10.2860u + 1.20150 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1.66504u^{47} - 1.59037u^{46} + \cdots - 127.758u - 32.3177 \\ 0.0330654u^{47} + 0.122014u^{46} + \cdots - 10.8225u + 0.0377011 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2.91125u^{47} - 2.61233u^{46} + \cdots - 182.706u - 53.5737 \\ 0.168578u^{47} + 0.0577104u^{46} + \cdots - 0.407278u + 0.897363 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.68717u^{47} - 1.75245u^{46} + \cdots - 125.467u - 32.2876 \\ 0.0461378u^{47} + 0.188914u^{46} + \cdots - 11.3519u - 0.0721935 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.64103u^{47} - 1.56354u^{46} + \cdots - 136.819u - 32.3598 \\ 0.0461378u^{47} + 0.188914u^{46} + \cdots - 11.3519u - 0.0721935 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.76666u^{47} + 2.69855u^{46} + \cdots + 205.087u + 52.5080 \\ -0.111644u^{47} + 0.153944u^{46} + \cdots + 8.10592u - 0.451941 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.00373u^{47} - 2.03203u^{46} + \cdots - 42.9306u - 8.93702$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{24} + 2u^{23} + \cdots - 20u - 1)^2$
c_2, c_3, c_7 c_{11}	$u^{48} - u^{47} + \cdots - 197u + 73$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$u^{48} - u^{47} + \cdots - 20u + 1$
c_6	$(u^{24} - 5u^{23} + \cdots + 15u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{24} + 4y^{23} + \cdots - 522y + 1)^2$
c_2, c_3, c_7 c_{11}	$y^{48} - 23y^{47} + \cdots - 76039y + 5329$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$y^{48} - 43y^{47} + \cdots - 216y + 1$
c_6	$(y^{24} - 3y^{23} + \cdots - 135y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.379137 + 0.976493I$ $a = -0.471549 + 1.157640I$ $b = 1.29469 + 0.67005I$	$2.67292 + 10.25690I$	$12.1975 - 7.6788I$
$u = 0.379137 - 0.976493I$ $a = -0.471549 - 1.157640I$ $b = 1.29469 - 0.67005I$	$2.67292 - 10.25690I$	$12.1975 + 7.6788I$
$u = -0.021423 + 0.948358I$ $a = 0.401732 + 0.737665I$ $b = -0.856499 + 0.135005I$	$4.94291 - 0.58720I$	$16.0412 - 0.8168I$
$u = -0.021423 - 0.948358I$ $a = 0.401732 - 0.737665I$ $b = -0.856499 - 0.135005I$	$4.94291 + 0.58720I$	$16.0412 + 0.8168I$
$u = -1.023260 + 0.490646I$ $a = 0.476231 + 0.027830I$ $b = -1.044720 - 0.584882I$	$0.464120 + 1.081590I$	$8.00000 - 2.00672I$
$u = -1.023260 - 0.490646I$ $a = 0.476231 - 0.027830I$ $b = -1.044720 + 0.584882I$	$0.464120 - 1.081590I$	$8.00000 + 2.00672I$
$u = -0.379291 + 0.739173I$ $a = 0.316811 + 0.748267I$ $b = 0.248462 + 1.064600I$	$-0.51929 - 4.00862I$	$8.65058 + 5.80685I$
$u = -0.379291 - 0.739173I$ $a = 0.316811 - 0.748267I$ $b = 0.248462 - 1.064600I$	$-0.51929 + 4.00862I$	$8.65058 - 5.80685I$
$u = 1.135680 + 0.336882I$ $a = 0.864140 - 0.699527I$ $b = -0.713544 - 0.730081I$	$-0.51929 + 4.00862I$	$8.00000 - 5.80685I$
$u = 1.135680 - 0.336882I$ $a = 0.864140 + 0.699527I$ $b = -0.713544 + 0.730081I$	$-0.51929 - 4.00862I$	$8.00000 + 5.80685I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.750478 + 0.292577I$ $a = 1.176600 + 0.468222I$ $b = -0.319389 + 0.477318I$	0.664158	$9.39053 + 0.I$
$u = -0.750478 - 0.292577I$ $a = 1.176600 - 0.468222I$ $b = -0.319389 - 0.477318I$	0.664158	$9.39053 + 0.I$
$u = 1.163220 + 0.303346I$ $a = -0.223618 - 0.467491I$ $b = -1.004700 + 0.471049I$	4.64466	$15.0647 + 0.I$
$u = 1.163220 - 0.303346I$ $a = -0.223618 + 0.467491I$ $b = -1.004700 - 0.471049I$	4.64466	$15.0647 + 0.I$
$u = 0.141459 + 0.765036I$ $a = 0.561104 - 0.769052I$ $b = 0.623240 - 0.846147I$	-3.53422	$4.26168 + 0.I$
$u = 0.141459 - 0.765036I$ $a = 0.561104 + 0.769052I$ $b = 0.623240 + 0.846147I$	-3.53422	$4.26168 + 0.I$
$u = 0.068175 + 0.762824I$ $a = 0.696604 + 1.029800I$ $b = 0.970507 + 0.650047I$	$1.27885 + 3.92180I$	$9.29302 - 3.73808I$
$u = 0.068175 - 0.762824I$ $a = 0.696604 - 1.029800I$ $b = 0.970507 - 0.650047I$	$1.27885 - 3.92180I$	$9.29302 + 3.73808I$
$u = 1.235930 + 0.167013I$ $a = -0.657445 - 0.412560I$ $b = 0.705420 + 0.391760I$	$4.65694 + 3.47868I$	0
$u = 1.235930 - 0.167013I$ $a = -0.657445 + 0.412560I$ $b = 0.705420 - 0.391760I$	$4.65694 - 3.47868I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.916403 + 0.885493I$ $a = 0.391708 - 0.248635I$ $b = -1.329710 + 0.460814I$	$4.14619 - 4.10761I$	0
$u = 0.916403 - 0.885493I$ $a = 0.391708 + 0.248635I$ $b = -1.329710 - 0.460814I$	$4.14619 + 4.10761I$	0
$u = -1.265470 + 0.153865I$ $a = -2.80490 - 0.73050I$ $b = 0.791562 + 0.363762I$	$4.94291 - 0.58720I$	0
$u = -1.265470 - 0.153865I$ $a = -2.80490 + 0.73050I$ $b = 0.791562 - 0.363762I$	$4.94291 + 0.58720I$	0
$u = -1.263720 + 0.231617I$ $a = 2.48042 + 2.19572I$ $b = -0.811085 + 0.535687I$	$4.14619 - 4.10761I$	0
$u = -1.263720 - 0.231617I$ $a = 2.48042 - 2.19572I$ $b = -0.811085 - 0.535687I$	$4.14619 + 4.10761I$	0
$u = -1.28856$ $a = -0.869778$ $b = -0.755603$	14.0810	25.5770
$u = 1.32785$ $a = 4.15788$ $b = -0.885530$	14.6478	0
$u = 1.330000 + 0.048649I$ $a = -2.39749 + 0.12309I$ $b = 1.065850 + 0.841425I$	$9.08685 + 4.24572I$	0
$u = 1.330000 - 0.048649I$ $a = -2.39749 - 0.12309I$ $b = 1.065850 - 0.841425I$	$9.08685 - 4.24572I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.309300+0.318007I$ $a=\ 0.889440+0.821935I$ $b=-0.928244+0.711653I$	$5.58448-7.81589I$	0
$u=-1.309300-0.318007I$ $a=\ 0.889440-0.821935I$ $b=-0.928244-0.711653I$	$5.58448+7.81589I$	0
$u=-1.316980+0.405826I$ $a=-0.548637+0.081279I$ $b=\ 0.803853+0.148006I$	$9.08685-4.24572I$	0
$u=-1.316980-0.405826I$ $a=-0.548637-0.081279I$ $b=\ 0.803853-0.148006I$	$9.08685+4.24572I$	0
$u=-0.087131+0.611347I$ $a=\ 0.35264+2.45893I$ $b=\ 0.721176+0.611639I$	$0.464120+1.081590I$	$8.16075-2.00672I$
$u=-0.087131-0.611347I$ $a=\ 0.35264-2.45893I$ $b=\ 0.721176-0.611639I$	$0.464120-1.081590I$	$8.16075+2.00672I$
$u=-1.373810+0.321857I$ $a=-0.344264+0.528075I$ $b=-0.621802-0.993232I$	$1.27885-3.92180I$	0
$u=-1.373810-0.321857I$ $a=-0.344264-0.528075I$ $b=-0.621802+0.993232I$	$1.27885+3.92180I$	0
$u=\ 1.36990+0.36882I$ $a=\ 1.75795-1.37725I$ $b=-1.073560-0.763448I$	$2.67292+10.25690I$	0
$u=\ 1.36990-0.36882I$ $a=\ 1.75795+1.37725I$ $b=-1.073560+0.763448I$	$2.67292-10.25690I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.49633 + 0.29266I$ $a = -0.376487 - 0.561865I$ $b = -0.34302 + 1.38502I$	$5.58448 + 7.81589I$	0
$u = 1.49633 - 0.29266I$ $a = -0.376487 + 0.561865I$ $b = -0.34302 - 1.38502I$	$5.58448 - 7.81589I$	0
$u = 1.65947$ $a = -1.72670$ $b = 1.72233$	10.1445	0
$u = -1.66105$ $a = -1.80640$ $b = 2.14588$	14.0810	0
$u = -1.81988$ $a = -1.44716$ $b = 1.67660$	14.6478	0
$u = -0.024167 + 0.177554I$ $a = -0.54655 + 4.54825I$ $b = -1.041510 + 0.853951I$	$4.65694 - 3.47868I$	$16.3031 + 8.4838I$
$u = -0.024167 - 0.177554I$ $a = -0.54655 - 4.54825I$ $b = -1.041510 - 0.853951I$	$4.65694 + 3.47868I$	$16.3031 - 8.4838I$
$u = -0.0602179$ $a = -35.2967$ $b = 0.822371$	10.1445	-9.41450

III. $\boldsymbol{I_3^u = \langle -u^2 + b + 1,\ -u^3 + u^2 + a + 2u - 1,\ u^5 - 3u^3 + 2u + 1 \rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^4 - 3u^3 + 3u^2 + 2u + 17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^5 + 6y^4 + 9y^3 - 20y^2 - 8y - 1$
c_2, c_3, c_7 c_{11}	$y^5 - 3y^4 + 3y^3 - 3y^2 + 2y - 1$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$y^5 - 6y^4 + 13y^3 - 12y^2 + 4y - 1$
c_6	$y^5 + 2y^4 + 3y^3 + 5y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.297630 + 0.272489I$ $a = -1.308900 + 0.104091I$ $b = 0.609585 + 0.707177I$	$7.56155 + 5.69445I$	$14.5549 - 5.9553I$
$u = 1.297630 - 0.272489I$ $a = -1.308900 - 0.104091I$ $b = 0.609585 - 0.707177I$	$7.56155 - 5.69445I$	$14.5549 + 5.9553I$
$u = -0.516079 + 0.312340I$ $a = 1.87697 - 0.08320I$ $b = -0.831219 - 0.322384I$	$2.00050 + 0.85728I$	$16.5843 - 0.7821I$
$u = -0.516079 - 0.312340I$ $a = 1.87697 + 0.08320I$ $b = -0.831219 + 0.322384I$	$2.00050 - 0.85728I$	$16.5843 + 0.7821I$
$u = -1.56310$ $a = -2.13614$ $b = 1.44327$	17.0644	20.7220

IV.

$\boldsymbol{I_4^u = \langle -u^2+b+1,\ -2u^7-u^6+\cdots+a-9,\ u^8-5u^6+u^5+7u^4-4u^3-2u^2+4u-1 \rangle}$

(i) Arc colorings

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

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

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

$$a_7 = \begin{pmatrix} 2u^7 + u^6 - 11u^5 - 3u^4 + 18u^3 - 3u^2 - 8u + 9 \\ u^2 - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2u^7 + u^6 - 11u^5 - 3u^4 + 18u^3 - 2u^2 - 8u + 8 \\ u^2 - 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -3u^7 - u^6 + 14u^5 + u^4 - 18u^3 + 6u^2 + 6u - 7 \\ u^4 - 2u^2 + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 4u^7 + 2u^6 - 19u^5 - 5u^4 + 26u^3 - 5u^2 - 11u + 12 \\ u^5 - 4u^3 + u^2 + 3u - 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3u^7 + 14u^5 - 2u^4 - 17u^3 + 7u^2 + 4u - 7 \\ -u^6 + 4u^4 - u^3 - 3u^2 + 2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3u^7 - u^6 + 14u^5 + 2u^4 - 18u^3 + 4u^2 + 6u - 7 \\ -u^6 + 4u^4 - u^3 - 3u^2 + 2u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -3u^7 + 15u^5 - 2u^4 - 21u^3 + 9u^2 + 7u - 11 \\ u^7 + u^6 - 4u^5 - 3u^4 + 4u^3 + u^2 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 10u^7 + 5u^6 - 45u^5 - 10u^4 + 60u^3 - 15u^2 - 25u + 42$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4 - y^3 - 6y^2 - 8y + 1)^2$
c_2, c_3, c_7 c_{11}	$y^8 - 10y^7 + 39y^6 - 81y^5 + 101y^4 - 70y^3 + 27y^2 - 7y + 1$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$y^8 - 10y^7 + 39y^6 - 75y^5 + 75y^4 - 42y^3 + 22y^2 - 12y + 1$
c_6	$(y^4 + y^3 + y^2 - 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.220530 + 0.143929I$ $a = -0.57045 + 1.41533I$ $b = 0.468985 - 0.351339I$	$4.50609 - 2.52742I$	$14.9376 + 0.3938I$
$u = -1.220530 - 0.143929I$ $a = -0.57045 - 1.41533I$ $b = 0.468985 + 0.351339I$	$4.50609 + 2.52742I$	$14.9376 - 0.3938I$
$u = 0.475131 + 0.605600I$ $a = 0.0796516 + 0.0837240I$ $b = -1.141000 + 0.575478I$	$4.50609 - 2.52742I$	$14.9376 + 0.3938I$
$u = 0.475131 - 0.605600I$ $a = 0.0796516 - 0.0837240I$ $b = -1.141000 - 0.575478I$	$4.50609 + 2.52742I$	$14.9376 - 0.3938I$
$u = 1.26429$ $a = 1.67924$ $b = 0.598434$	13.5577	8.81150
$u = 1.63636$ $a = -1.79185$ $b = 1.67768$	10.3288	34.3130
$u = 0.313425$ $a = 6.69143$ $b = -0.901765$	10.3288	34.3130
$u = -1.72328$ $a = -1.59721$ $b = 1.96968$	13.5577	8.81150

V. $I_5^u = \langle b+1,\ a,\ u-1 \rangle$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -1.00000$	4.93480	18.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^4+3u^3+4u^2+4u+1)^2(u^5-2u^4+5u^3-4u^2-1)$ $\cdot(u^{13}-12u^{12}+\cdots+352u-32)(u^{24}+2u^{23}+\cdots-20u-1)^2$
c_2, c_7	$(u-1)(u^5+u^4-u^3-u^2+1)$ $\cdot(u^8+2u^7-3u^6-5u^5+5u^4+6u^3-u^2-3u-1)$ $\cdot(u^{13}-3u^{11}+9u^9+u^8-12u^7+u^6+16u^5-u^4-11u^3+3u^2+4u-1)$ $\cdot(u^{48}-u^{47}+\cdots-197u+73)$
c_3, c_{11}	$(u-1)(u^5-u^4-u^3+u^2-1)$ $\cdot(u^8-2u^7-3u^6+5u^5+5u^4-6u^3-u^2+3u-1)$ $\cdot(u^{13}-3u^{11}+9u^9+u^8-12u^7+u^6+16u^5-u^4-11u^3+3u^2+4u-1)$ $\cdot(u^{48}-u^{47}+\cdots-197u+73)$
c_4, c_5, c_8 c_9	$(u+1)(u^5-3u^3+2u+1)(u^8-5u^6+\cdots+4u-1)$ $\cdot(u^{13}-u^{12}+\cdots+2u-1)(u^{48}-u^{47}+\cdots-20u+1)$
c_6	$u(u^4-u^3+u^2+u-1)^2(u^5+2u^4+3u^3+3u^2+3u+1)$ $\cdot(u^{13}+11u^{12}+\cdots-208u-56)(u^{24}-5u^{23}+\cdots+15u-1)^2$
c_{10}, c_{12}	$(u+1)(u^5-3u^3+2u-1)(u^8-5u^6+\cdots-4u-1)$ $\cdot(u^{13}-u^{12}+\cdots+2u-1)(u^{48}-u^{47}+\cdots-20u+1)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^4-y^3-6y^2-8y+1)^2(y^5+6y^4+9y^3-20y^2-8y-1)$ $\cdot(y^{13}+8y^{12}+\cdots+42496y-1024)(y^{24}+4y^{23}+\cdots-522y+1)^2$
c_2, c_3, c_7 c_{11}	$(y-1)(y^5-3y^4+3y^3-3y^2+2y-1)$ $\cdot(y^8-10y^7+39y^6-81y^5+101y^4-70y^3+27y^2-7y+1)$ $\cdot(y^{13}-6y^{12}+\cdots+22y-1)(y^{48}-23y^{47}+\cdots-76039y+5329)$
c_4, c_5, c_8 c_9, c_{10}, c_{12}	$(y-1)(y^5-6y^4+13y^3-12y^2+4y-1)$ $\cdot(y^8-10y^7+39y^6-75y^5+75y^4-42y^3+22y^2-12y+1)$ $\cdot(y^{13}-13y^{12}+\cdots-8y-1)(y^{48}-43y^{47}+\cdots-216y+1)$
c_6	$y(y^4+y^3+y^2-3y+1)^2(y^5+2y^4+3y^3+5y^2+3y-1)$ $\cdot(y^{13}+y^{12}+\cdots+5408y-3136)(y^{24}-3y^{23}+\cdots-135y+1)^2$