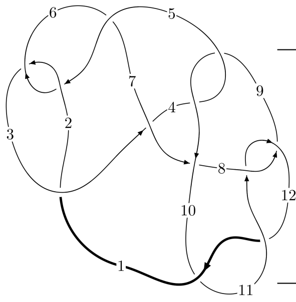
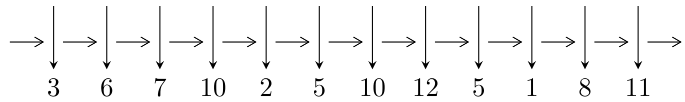
$12n_{0289}$ ($K12n_{0289}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle u^8 - 2u^6 + u^5 + 2u^4 - u^3 - u^2 + b + u,\ -u^{11} + 2u^9 - 4u^7 + 4u^5 - 2u^4 - 3u^3 + 2u^2 + a + 2u - 2, \\
&\quad u^{12} - u^{11} - 2u^{10} + 3u^9 + 3u^8 - 5u^7 - 2u^6 + 6u^5 - 4u^3 + 3u - 1\rangle \\
I_2^u &= \langle -3u^{41} + 7u^{40} + \cdots + 2b + 7,\ 3u^{41} - 5u^{40} + \cdots + 2a + 5,\ u^{42} - 3u^{41} + \cdots - 2u + 1\rangle \\
I_3^u &= \langle b + u,\ a + u,\ u^3 + u^2 - 1\rangle \\
I_4^u &= \langle b - a,\ u^2 a + a^2 + u^2 + 2u + 1,\ u^3 + u^2 - 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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. $I^u_1 = \langle u^8 - 2u^6 + u^5 + 2u^4 - u^3 - u^2 + b + u,\ -u^{11} + 2u^9 + \cdots + a - 2,\ u^{12} - u^{11} + \cdots + 3u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^4\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^{11} - 2u^9 + 4u^7 - 4u^5 + 2u^4 + 3u^3 - 2u^2 - 2u + 2\\-u^8 + 2u^6 - u^5 - 2u^4 + u^3 + u^2 - u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^{11} - 2u^9 + 4u^7 - 4u^5 + u^4 + 3u^3 - u^2 - 2u + 2\\-u^8 + u^6 - u^5 - 2u^4 + u^3 + u^2 - u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^3\\-u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^9 + 2u^7 - u^6 - 3u^5 + u^4 + 2u^3 - u^2 - u\\-u^9 + 2u^7 - u^6 - 3u^5 + 2u^4 + 2u^3 - 2u^2 - u + 1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^8 + u^6 - u^4 + 1\\-u^8 + 2u^6 - 2u^4 + 2u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u^{11} - u^{10} - 2u^9 + 2u^8 + 3u^7 - 3u^6 - 3u^5 + 3u^4 + 2u^3 - 2u^2 - 2u + 2\\-u^{10} + u^8 - u^7 - 2u^6 + u^5 - u^3\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^4 + u^2 - 1\\u^{11} - 2u^9 + u^8 + 4u^7 - 2u^6 - 3u^5 + 3u^4 + 2u^3 - 2u^2 - u + 1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{11} - 6u^9 + 12u^7 + 2u^6 - 8u^5 + 2u^4 + 8u^3 + 2u^2 - 8u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_{10} c_{12}	$y^{12} + 7y^{11} + \cdots - 33y + 1$
c_2, c_5, c_8 c_{11}	$y^{12} - 5y^{11} + \cdots - 9y + 1$
c_3, c_7	$y^{12} - 17y^{11} + \cdots - 9y + 1$
c_4, c_9	$y^{12} - 7y^{11} + \cdots - 192y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.921925 + 0.343588I$ $a = -0.611717 + 0.476706I$ $b = 0.056760 - 0.351806I$	$-2.36994 - 2.76031I$	$-17.1687 + 5.8086I$
$u = 0.921925 - 0.343588I$ $a = -0.611717 - 0.476706I$ $b = 0.056760 + 0.351806I$	$-2.36994 + 2.76031I$	$-17.1687 - 5.8086I$
$u = 0.588705 + 0.829892I$ $a = 1.69413 - 0.79218I$ $b = 1.295740 + 0.564858I$	$-0.17368 + 3.06646I$	$-8.92631 - 0.43083I$
$u = 0.588705 - 0.829892I$ $a = 1.69413 + 0.79218I$ $b = 1.295740 - 0.564858I$	$-0.17368 - 3.06646I$	$-8.92631 + 0.43083I$
$u = -0.700347 + 0.661080I$ $a = 0.49057 + 1.67492I$ $b = 1.37850 + 1.19320I$	$3.36282 + 2.18981I$	$-7.17700 - 3.81343I$
$u = -0.700347 - 0.661080I$ $a = 0.49057 - 1.67492I$ $b = 1.37850 - 1.19320I$	$3.36282 - 2.18981I$	$-7.17700 + 3.81343I$
$u = -0.993915 + 0.611197I$ $a = -1.53521 - 1.43733I$ $b = -2.02283 - 0.51409I$	$1.49384 + 7.77925I$	$-11.7273 - 7.9652I$
$u = -0.993915 - 0.611197I$ $a = -1.53521 + 1.43733I$ $b = -2.02283 + 0.51409I$	$1.49384 - 7.77925I$	$-11.7273 + 7.9652I$
$u = -1.18481$ $a = -0.513967$ $b = 0.968302$	-12.5188	-20.4260
$u = 1.073430 + 0.702670I$ $a = -0.31962 + 2.22050I$ $b = -1.57673 + 2.45459I$	$-3.0728 - 14.5878I$	$-12.5949 + 9.1386I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.073430 - 0.702670I$ $a = -0.31962 - 2.22050I$ $b = -1.57673 - 2.45459I$	$-3.0728 + 14.5878I$	$-12.5949 - 9.1386I$
$u = \quad 0.405199$ $a = \quad 1.07767$ $b = -0.231197$	-0.765991	-12.3860

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle -3u^{41}+7u^{40}+\cdots+2b+7,\ 3u^{41}-5u^{40}+\cdots+2a+5,\ u^{42}-3u^{41}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^4\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{3}{2}u^{41}+\frac{5}{2}u^{40}+\cdots+\frac{21}{2}u-\frac{5}{2}\\ \frac{3}{2}u^{41}-\frac{7}{2}u^{40}+\cdots+\frac{15}{2}u-\frac{7}{2}\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{11}{2}u^{41}-15u^{40}+\cdots+17u-\frac{17}{2}\\ 7u^{41}-\frac{35}{2}u^{40}+\cdots+\frac{31}{2}u-\frac{21}{2}\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^3\\-u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{1}{2}u^{39}-u^{38}+\cdots+u-\frac{1}{2}\\ \frac{1}{2}u^{39}-u^{38}+\cdots+u+\frac{1}{2}\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^8+u^6-u^4+1\\-u^8+2u^6-2u^4+2u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{1}{2}u^{41}-\frac{3}{2}u^{40}+\cdots-\frac{1}{2}u+1\\ -\frac{1}{2}u^{40}+\frac{9}{2}u^{38}+\cdots+\frac{1}{2}u-1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{3}{2}u^{41}+\frac{9}{2}u^{40}+\cdots-\frac{27}{2}u+\frac{11}{2}\\ -\frac{9}{2}u^{41}+\frac{21}{2}u^{40}+\cdots-\frac{21}{2}u+\frac{13}{2}\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{41}-\frac{9}{2}u^{40}+\cdots-\frac{45}{2}u-\frac{21}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_{10} c_{12}	$u^{42} + 15u^{41} + \cdots + 20u + 1$
c_2, c_5, c_8 c_{11}	$u^{42} + 3u^{41} + \cdots + 2u + 1$
c_3, c_7	$u^{42} - 3u^{41} + \cdots + 24u + 1$
c_4, c_9	$(u^{21} - 3u^{20} + \cdots - 4u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_{10} c_{12}	$y^{42} + 25y^{41} + \cdots - 12y + 1$
c_2, c_5, c_8 c_{11}	$y^{42} - 15y^{41} + \cdots - 20y + 1$
c_3, c_7	$y^{42} - 35y^{41} + \cdots - 372y + 1$
c_4, c_9	$(y^{21} - 21y^{20} + \cdots + 80y - 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.001590 + 0.071446I$ $a = -0.247034 + 0.982841I$ $b = -0.0703049 - 0.0213694I$	$-1.68246 + 2.02701I$	$-16.1395 - 3.2075I$
$u = \ \ 1.001590 - 0.071446I$ $a = -0.247034 - 0.982841I$ $b = -0.0703049 + 0.0213694I$	$-1.68246 - 2.02701I$	$-16.1395 + 3.2075I$
$u = -0.884746 + 0.507709I$ $a = -1.00430 - 1.65860I$ $b = -1.70041 - 0.93550I$	$-1.68246 + 2.02701I$	$-16.1395 - 3.2075I$
$u = -0.884746 - 0.507709I$ $a = -1.00430 + 1.65860I$ $b = -1.70041 + 0.93550I$	$-1.68246 - 2.02701I$	$-16.1395 + 3.2075I$
$u = \ \ 0.498112 + 0.843586I$ $a = -1.51048 + 0.33957I$ $b = -0.92205 - 1.13548I$	$-6.44569 + 1.90498I$	$-15.1767 - 0.6933I$
$u = \ \ 0.498112 - 0.843586I$ $a = -1.51048 - 0.33957I$ $b = -0.92205 + 1.13548I$	$-6.44569 - 1.90498I$	$-15.1767 + 0.6933I$
$u = \ \ 0.833041 + 0.624453I$ $a = -0.244467 - 1.048030I$ $b = -0.795422 - 0.433395I$	$4.76367 + 0.56948I$	$-11.53430 - 0.71170I$
$u = \ \ 0.833041 - 0.624453I$ $a = -0.244467 + 1.048030I$ $b = -0.795422 + 0.433395I$	$4.76367 - 0.56948I$	$-11.53430 + 0.71170I$
$u = \ \ 0.589823 + 0.864603I$ $a = -1.89138 + 0.71030I$ $b = -1.53680 - 0.72844I$	$-1.59942 + 8.75882I$	$-10.82911 - 4.89320I$
$u = \ \ 0.589823 - 0.864603I$ $a = -1.89138 - 0.71030I$ $b = -1.53680 + 0.72844I$	$-1.59942 - 8.75882I$	$-10.82911 + 4.89320I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.865106 + 0.622456I$ $a = 0.478460 + 0.785204I$ $b = 1.077610 + 0.227526I$	$4.66319 - 5.46111I$	$-12.12408 + 5.29794I$
$u = 0.865106 - 0.622456I$ $a = 0.478460 - 0.785204I$ $b = 1.077610 - 0.227526I$	$4.66319 + 5.46111I$	$-12.12408 - 5.29794I$
$u = 0.370195 + 0.797477I$ $a = -0.975137 + 0.163149I$ $b = -0.109542 - 1.285730I$	$-2.89368 - 5.09092I$	$-11.85705 + 4.85512I$
$u = 0.370195 - 0.797477I$ $a = -0.975137 - 0.163149I$ $b = -0.109542 + 1.285730I$	$-2.89368 + 5.09092I$	$-11.85705 - 4.85512I$
$u = -0.877054 + 0.709305I$ $a = 0.621738 + 0.723259I$ $b = 0.924556 + 0.344996I$	$2.39962 + 2.72155I$	$-2.38517 - 1.80674I$
$u = -0.877054 - 0.709305I$ $a = 0.621738 - 0.723259I$ $b = 0.924556 - 0.344996I$	$2.39962 - 2.72155I$	$-2.38517 + 1.80674I$
$u = -1.140080 + 0.053957I$ $a = 0.121069 - 0.443029I$ $b = -1.234320 - 0.298114I$	$-6.44569 + 1.90498I$	$-15.1767 - 0.6933I$
$u = -1.140080 - 0.053957I$ $a = 0.121069 + 0.443029I$ $b = -1.234320 + 0.298114I$	$-6.44569 - 1.90498I$	$-15.1767 + 0.6933I$
$u = -0.948500 + 0.657394I$ $a = 1.35145 + 1.05024I$ $b = 1.70425 + 0.27722I$	$2.62978 + 2.94639I$	$-8.38979 - 1.94831I$
$u = -0.948500 - 0.657394I$ $a = 1.35145 - 1.05024I$ $b = 1.70425 - 0.27722I$	$2.62978 - 2.94639I$	$-8.38979 + 1.94831I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.440380 + 0.720566I$ $a = 1.022170 - 0.478261I$ $b = 0.238333 + 0.804288I$	-1.18994	$-9.46820 + 0.I$
$u = 0.440380 - 0.720566I$ $a = 1.022170 + 0.478261I$ $b = 0.238333 - 0.804288I$	-1.18994	$-9.46820 + 0.I$
$u = -0.602886 + 0.586036I$ $a = -0.56399 - 1.78814I$ $b = -1.51211 - 1.10890I$	$2.62978 - 2.94639I$	$-8.38979 + 1.94831I$
$u = -0.602886 - 0.586036I$ $a = -0.56399 + 1.78814I$ $b = -1.51211 + 1.10890I$	$2.62978 + 2.94639I$	$-8.38979 - 1.94831I$
$u = -1.169360 + 0.079358I$ $a = -0.342452 + 0.671662I$ $b = 1.087440 + 0.452577I$	$-8.23029 + 7.48200I$	$-17.0704 - 5.2473I$
$u = -1.169360 - 0.079358I$ $a = -0.342452 - 0.671662I$ $b = 1.087440 - 0.452577I$	$-8.23029 - 7.48200I$	$-17.0704 + 5.2473I$
$u = -0.869430 + 0.810182I$ $a = -0.90284 + 1.14540I$ $b = -0.28767 + 1.52547I$	$4.76367 + 0.56948I$	$-11.53430 - 0.71170I$
$u = -0.869430 - 0.810182I$ $a = -0.90284 - 1.14540I$ $b = -0.28767 - 1.52547I$	$4.76367 - 0.56948I$	$-11.53430 + 0.71170I$
$u = -0.903021 + 0.803753I$ $a = 1.23931 - 0.82374I$ $b = 0.76478 - 1.36737I$	$4.66319 + 5.46111I$	$-12.00000 - 5.29794I$
$u = -0.903021 - 0.803753I$ $a = 1.23931 + 0.82374I$ $b = 0.76478 + 1.36737I$	$4.66319 - 5.46111I$	$-12.00000 + 5.29794I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.054680 + 0.618331I$ $a = -0.151148 - 1.199150I$ $b = 0.95395 - 1.70109I$	$-2.89368 - 5.09092I$	$-12.00000 + 4.85512I$
$u = 1.054680 - 0.618331I$ $a = -0.151148 + 1.199150I$ $b = 0.95395 + 1.70109I$	$-2.89368 + 5.09092I$	$-12.00000 - 4.85512I$
$u = 1.086360 + 0.586494I$ $a = 0.636112 + 1.121460I$ $b = -0.52511 + 1.74837I$	-5.00675	$-15.0273 + 0.I$
$u = 1.086360 - 0.586494I$ $a = 0.636112 - 1.121460I$ $b = -0.52511 - 1.74837I$	-5.00675	$-15.0273 + 0.I$
$u = 1.060980 + 0.690081I$ $a = 0.35900 - 1.97361I$ $b = 1.55493 - 2.24059I$	$-1.59942 - 8.75882I$	$-10.82911 + 4.89320I$
$u = 1.060980 - 0.690081I$ $a = 0.35900 + 1.97361I$ $b = 1.55493 + 2.24059I$	$-1.59942 + 8.75882I$	$-10.82911 - 4.89320I$
$u = 1.091260 + 0.656406I$ $a = 0.23548 + 1.83960I$ $b = -1.02758 + 2.26060I$	$-8.23029 - 7.48200I$	$-17.0704 + 5.2473I$
$u = 1.091260 - 0.656406I$ $a = 0.23548 - 1.83960I$ $b = -1.02758 - 2.26060I$	$-8.23029 + 7.48200I$	$-17.0704 - 5.2473I$
$u = 0.448134 + 0.218946I$ $a = 0.896777 - 0.436761I$ $b = -0.220693 + 0.109203I$	-0.751959	$-11.49246 + 0.I$
$u = 0.448134 - 0.218946I$ $a = 0.896777 + 0.436761I$ $b = -0.220693 - 0.109203I$	-0.751959	$-11.49246 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.444576 + 0.086145I$ $a = -0.12834 - 2.59332I$ $b = -0.36382 - 1.40958I$	$2.39962 - 2.72155I$	$-2.38517 + 1.80674I$
$u = -0.444576 - 0.086145I$ $a = -0.12834 + 2.59332I$ $b = -0.36382 + 1.40958I$	$2.39962 + 2.72155I$	$-2.38517 - 1.80674I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u-12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=\quad 0.877439-0.744862I$ $b=\quad 0.877439-0.744862I$	$6.04826+5.65624I$	$-4.98049-5.95889I$
$u=-0.877439-0.744862I$ $a=\quad 0.877439+0.744862I$ $b=\quad 0.877439+0.744862I$	$6.04826-5.65624I$	$-4.98049+5.95889I$
$u=\quad 0.754878$ $a=-0.754878$ $b=-0.754878$	-2.22691	-18.0390

IV. $I_4^u = \langle b - a,\ u^2a + a^2 + u^2 + 2u + 1,\ u^3 + u^2 - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^2a + au - u^2 - 8a - 19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-0.592519+0.986732I$ $b=-0.592519+0.986732I$	6.04826	$-5.39114+0.I$
$u=-0.877439+0.744862I$ $a=\ \ 0.377439+0.320410I$ $b=\ \ 0.377439+0.320410I$	$1.91067+2.82812I$	$-18.8044-4.6518I$
$u=-0.877439-0.744862I$ $a=-0.592519-0.986732I$ $b=-0.592519-0.986732I$	6.04826	$-5.39114+0.I$
$u=-0.877439-0.744862I$ $a=\ \ 0.377439-0.320410I$ $b=\ \ 0.377439-0.320410I$	$1.91067-2.82812I$	$-18.8044+4.6518I$
$u=\ \ 0.754878$ $a=-0.28492+1.73159I$ $b=-0.28492+1.73159I$	$1.91067+2.82812I$	$-18.8044-4.6518I$
$u=\ \ 0.754878$ $a=-0.28492-1.73159I$ $b=-0.28492-1.73159I$	$1.91067-2.82812I$	$-18.8044+4.6518I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$((u^3 - u^2 + 2u - 1)^3)(u^{12} + 5u^{11} + \cdots + 9u + 1)$ $\cdot (u^{42} + 15u^{41} + \cdots + 20u + 1)$
c_2, c_8	$(u^3 + u^2 - 1)^3$ $\cdot (u^{12} + u^{11} - 2u^{10} - 3u^9 + 3u^8 + 5u^7 - 2u^6 - 6u^5 + 4u^3 - 3u - 1)$ $\cdot (u^{42} + 3u^{41} + \cdots + 2u + 1)$
c_3, c_7	$((u^3 - u^2 + 2u - 1)^3)(u^{12} - u^{11} + \cdots - 5u - 1)$ $\cdot (u^{42} - 3u^{41} + \cdots + 24u + 1)$
c_4, c_9	$u^9(u^{12} + 7u^{11} + \cdots + 32u + 8)(u^{21} - 3u^{20} + \cdots - 4u + 8)^2$
c_5, c_{11}	$(u^3 - u^2 + 1)^3$ $\cdot (u^{12} + u^{11} - 2u^{10} - 3u^9 + 3u^8 + 5u^7 - 2u^6 - 6u^5 + 4u^3 - 3u - 1)$ $\cdot (u^{42} + 3u^{41} + \cdots + 2u + 1)$
c_6, c_{12}	$((u^3 + u^2 + 2u + 1)^3)(u^{12} + 5u^{11} + \cdots + 9u + 1)$ $\cdot (u^{42} + 15u^{41} + \cdots + 20u + 1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_{10} c_{12}	$((y^3+3y^2+2y-1)^3)(y^{12}+7y^{11}+\cdots-33y+1)$ $\cdot(y^{42}+25y^{41}+\cdots-12y+1)$
c_2, c_5, c_8 c_{11}	$((y^3-y^2+2y-1)^3)(y^{12}-5y^{11}+\cdots-9y+1)$ $\cdot(y^{42}-15y^{41}+\cdots-20y+1)$
c_3, c_7	$((y^3+3y^2+2y-1)^3)(y^{12}-17y^{11}+\cdots-9y+1)$ $\cdot(y^{42}-35y^{41}+\cdots-372y+1)$
c_4, c_9	$y^9(y^{12}-7y^{11}+\cdots-192y+64)(y^{21}-21y^{20}+\cdots+80y-64)^2$