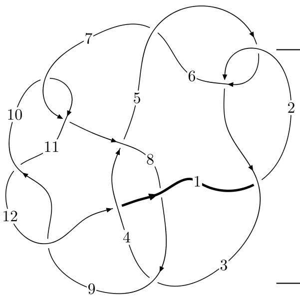
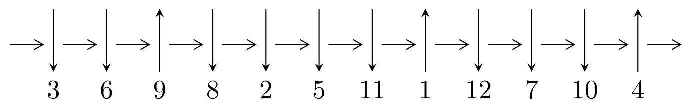
$12a_{0353}$ ($K12a_{0353}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 2u^{12} + 3u^{11} - 2u^{10} - 7u^9 + 3u^8 + 11u^7 - 13u^5 - 3u^4 + 6u^3 + 3u^2 + b + 3, \\
& u^{12} + u^{11} - u^{10} - 3u^9 + u^8 + 4u^7 + u^6 - 5u^5 - 2u^4 + 2u^3 + 2u^2 + a + 1, \\
& u^{13} + 2u^{12} - 4u^{10} - u^9 + 6u^8 + 4u^7 - 6u^6 - 6u^5 + 2u^4 + 4u^3 + u^2 + u + 1\rangle \\
I_2^u = \langle & -1.50748 \times 10^{77} u^{85} - 3.49171 \times 10^{77} u^{84} + \cdots + 4.87932 \times 10^{75} b + 2.17543 \times 10^{77}, \\
& -5.24953 \times 10^{76} u^{85} - 1.15851 \times 10^{77} u^{84} + \cdots + 2.43966 \times 10^{75} a + 6.61885 \times 10^{76},\ u^{86} + 3u^{85} + \cdots - 9u - \\
I_3^u = \langle & -2u^2 + b,\ 2u^2 + a - u - 1,\ u^3 - u^2 + 1\rangle \\
I_4^u = \langle & b^3 - b^2 + 2b - 1,\ a,\ u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 105 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.

$$\boldsymbol{I^u_1 = \langle 2u^{12}+3u^{11}+\cdots+b+3,\ u^{12}+u^{11}+\cdots+a+1,\ u^{13}+2u^{12}+\cdots+u+1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-u^{12}-u^{11}+u^{10}+3u^9-u^8-4u^7-u^6+5u^5+2u^4-2u^3-2u^2-1\\-2u^{12}-3u^{11}+2u^{10}+7u^9-3u^8-11u^7+13u^5+3u^4-6u^3-3u^2-3\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}-u\\-2u^{12}-3u^{11}+\cdots+u-3\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-u^6+u^4-2u^2+1\\-u^{12}-u^{11}+u^{10}+3u^9-2u^8-4u^7+u^6+5u^5-2u^3-u-1\end{pmatrix}$$

$$a_6 = \begin{pmatrix}u^3\\u^{12}+u^{11}-u^{10}-3u^9+u^8+4u^7+u^6-4u^5-2u^4+u^3+2u^2+1\end{pmatrix}$$

$$a_9 = \begin{pmatrix}u^4-u^2+1\\-u^4\end{pmatrix}$$

$$a_3 = \begin{pmatrix}u^4-u^2+1\\-3u^{12}-4u^{11}+\cdots-4u^2-4\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-u^2+1\\-2u^{12}-3u^{11}+\cdots-3u^2-3\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 32u^{12}+36u^{11}-28u^{10}-96u^9+52u^8+136u^7+8u^6-180u^5-24u^4+76u^3+48u^2-12u+38$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_9 c_{11}	$u^{13} + 4u^{12} + \cdots - u + 1$
c_2, c_5, c_7 c_{10}	$u^{13} + 2u^{12} - 4u^{10} - u^9 + 6u^8 + 4u^7 - 6u^6 - 6u^5 + 2u^4 + 4u^3 + u^2 + u + 1$
c_3	$u^{13} - 19u^{12} + \cdots + 208u - 32$
c_4	$u^{13} - 19u^{12} + \cdots + 1920u - 256$
c_8, c_{12}	$u^{13} - 2u^{10} + 7u^9 + 8u^7 - 10u^6 + 8u^5 - 10u^4 + 14u^3 - 7u^2 + 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9 c_{11}	$y^{13} + 12y^{12} + \cdots + 7y - 1$
c_2, c_5, c_7 c_{10}	$y^{13} - 4y^{12} + \cdots - y - 1$
c_3	$y^{13} - 39y^{12} + \cdots - 17664y - 1024$
c_4	$y^{13} - 33y^{12} + \cdots + 49152y - 65536$
c_8, c_{12}	$y^{13} + 14y^{11} + \cdots + 11y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.904846 + 0.518485I$ $a = -0.096373 - 0.132562I$ $b = -0.852642 - 0.464727I$	$-1.81047 + 4.05578I$	$-10.11630 - 6.00928I$
$u = -0.904846 - 0.518485I$ $a = -0.096373 + 0.132562I$ $b = -0.852642 + 0.464727I$	$-1.81047 - 4.05578I$	$-10.11630 + 6.00928I$
$u = 1.036990 + 0.250355I$ $a = -0.283354 + 0.764990I$ $b = 0.595552 + 0.354344I$	$-4.27978 - 7.04225I$	$-12.2400 + 9.0192I$
$u = 1.036990 - 0.250355I$ $a = -0.283354 - 0.764990I$ $b = 0.595552 - 0.354344I$	$-4.27978 + 7.04225I$	$-12.2400 - 9.0192I$
$u = 0.893443 + 0.777704I$ $a = 2.38786 + 1.96721I$ $b = -2.39968 - 0.31504I$	$6.69849 - 5.87553I$	$-15.0059 + 0.9974I$
$u = 0.893443 - 0.777704I$ $a = 2.38786 - 1.96721I$ $b = -2.39968 + 0.31504I$	$6.69849 + 5.87553I$	$-15.0059 - 0.9974I$
$u = -0.772869 + 0.915587I$ $a = -1.36740 - 1.45596I$ $b = 0.25765 + 2.33554I$	$11.49150 - 5.30654I$	$0.126296 + 1.125513I$
$u = -0.772869 - 0.915587I$ $a = -1.36740 + 1.45596I$ $b = 0.25765 - 2.33554I$	$11.49150 + 5.30654I$	$0.126296 - 1.125513I$
$u = -0.782810$ $a = -1.86558$ $b = -3.59947$	-2.34512	76.3620
$u = -1.031240 + 0.801398I$ $a = 1.18484 + 1.74923I$ $b = 0.77868 - 2.51426I$	$9.8415 + 18.0172I$	$-2.44507 - 10.27984I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.031240-0.801398I$ $a=\ 1.18484-1.74923I$ $b=\ 0.77868+2.51426I$	$9.8415-18.0172I$	$-2.44507+10.27984I$
$u=\ 0.169926+0.521088I$ $a=\ 0.107226-0.405489I$ $b=-0.579822-0.331833I$	$1.43793+1.09121I$	$2.49987-1.33623I$
$u=\ 0.169926-0.521088I$ $a=\ 0.107226+0.405489I$ $b=-0.579822+0.331833I$	$1.43793-1.09121I$	$2.49987+1.33623I$

II.

$$\boldsymbol{I^u_2 = \langle -1.51\times10^{77}u^{85} - 3.49\times10^{77}u^{84} + \cdots + 4.88\times10^{75}b + 2.18\times10^{77},\ -5.25\times10^{76}u^{85} - 1.16\times10^{77}u^{84} + \cdots + 2.44\times10^{75}a + 6.62\times10^{76},\ u^{86} + 3u^{85} + \cdots - 9u - 1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}21.5175u^{85} + 47.4865u^{84} + \cdots - 223.630u - 27.1302\\30.8953u^{85} + 71.5614u^{84} + \cdots - 332.611u - 44.5847\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u\\-u^3 + u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.251807u^{85} - 1.22232u^{84} + \cdots - 2.59267u + 1.81135\\42.1634u^{85} + 96.0188u^{84} + \cdots - 439.121u - 58.4380\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u^2 + 1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-1.20192u^{85} - 4.20915u^{84} + \cdots + 41.1638u + 11.5038\\4.01802u^{85} + 8.63943u^{84} + \cdots - 34.0326u - 2.81610\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-5.13993u^{85} - 10.2842u^{84} + \cdots + 45.1346u + 7.41626\\-16.5884u^{85} - 40.3873u^{84} + \cdots + 197.046u + 27.1217\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^4 - u^2 + 1\\-u^4\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.405126u^{85} - 2.91912u^{84} + \cdots + 7.79562u + 4.06769\\37.1638u^{85} + 86.1844u^{84} + \cdots - 402.124u - 53.8512\end{pmatrix}$$
$$a_2 = \begin{pmatrix}2.39134u^{85} + 2.75645u^{84} + \cdots + 9.79591u + 6.65558\\15.1058u^{85} + 36.6780u^{84} + \cdots - 177.568u - 23.1796\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -58.8881u^{85} - 125.536u^{84} + \cdots + 540.615u + 58.9944$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_9 c_{11}	$u^{86} + 25u^{85} + \cdots + 77u + 1$
c_2, c_5, c_7 c_{10}	$u^{86} + 3u^{85} + \cdots - 9u - 1$
c_3	$(u^{43} + 8u^{42} + \cdots + 168u + 17)^2$
c_4	$(u^{43} + 7u^{42} + \cdots + 736u - 47)^2$
c_8, c_{12}	$u^{86} + 10u^{85} + \cdots - 12u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9 c_{11}	$y^{86} + 75y^{85} + \cdots - 1501y + 1$
c_2, c_5, c_7 c_{10}	$y^{86} - 25y^{85} + \cdots - 77y + 1$
c_3	$(y^{43} - 48y^{42} + \cdots + 9150y - 289)^2$
c_4	$(y^{43} - 9y^{42} + \cdots + 645754y - 2209)^2$
c_8, c_{12}	$y^{86} - 24y^{85} + \cdots - 1872y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.917621 + 0.295314I$ $a = -0.040621 - 1.079690I$ $b = -0.333482 - 0.208136I$	$-0.79965 - 4.04123I$	0
$u = 0.917621 - 0.295314I$ $a = -0.040621 + 1.079690I$ $b = -0.333482 + 0.208136I$	$-0.79965 + 4.04123I$	0
$u = 0.717623 + 0.768123I$ $a = -0.054307 + 1.203790I$ $b = -0.77615 - 1.18911I$	$3.47079 + 0.34806I$	0
$u = 0.717623 - 0.768123I$ $a = -0.054307 - 1.203790I$ $b = -0.77615 + 1.18911I$	$3.47079 - 0.34806I$	0
$u = 0.876794 + 0.142275I$ $a = -0.48167 + 1.45763I$ $b = 0.571323 - 0.108452I$	$-3.83371 - 0.47604I$	$-14.5101 + 6.2522I$
$u = 0.876794 - 0.142275I$ $a = -0.48167 - 1.45763I$ $b = 0.571323 + 0.108452I$	$-3.83371 + 0.47604I$	$-14.5101 - 6.2522I$
$u = -1.060200 + 0.334825I$ $a = -0.274900 + 0.163237I$ $b = -0.332050 - 0.365366I$	$-3.83371 - 0.47604I$	0
$u = -1.060200 - 0.334825I$ $a = -0.274900 - 0.163237I$ $b = -0.332050 + 0.365366I$	$-3.83371 + 0.47604I$	0
$u = 0.048645 + 0.881375I$ $a = 0.613415 + 0.147896I$ $b = 0.246733 + 0.301746I$	$5.86063 + 7.97916I$	$0. - 7.01416I$
$u = 0.048645 - 0.881375I$ $a = 0.613415 - 0.147896I$ $b = 0.246733 - 0.301746I$	$5.86063 - 7.97916I$	$0. + 7.01416I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.821986 + 0.314452I$ $a = -1.25468 - 0.84044I$ $b = 1.235000 + 0.353410I$	$2.64548 - 6.03975I$	$-6.00000 + 8.80568I$
$u = 0.821986 - 0.314452I$ $a = -1.25468 + 0.84044I$ $b = 1.235000 - 0.353410I$	$2.64548 + 6.03975I$	$-6.00000 - 8.80568I$
$u = 0.094579 + 0.867631I$ $a = -0.556786 - 0.095510I$ $b = -0.266643 - 0.351424I$	$6.29916 + 1.89386I$	0
$u = 0.094579 - 0.867631I$ $a = -0.556786 + 0.095510I$ $b = -0.266643 + 0.351424I$	$6.29916 - 1.89386I$	0
$u = -1.12880$ $a = 0.312114$ $b = 0.0354189$	-2.43233	0
$u = 0.866972 + 0.726106I$ $a = -2.76658 - 0.35303I$ $b = 1.62157 - 1.38197I$	$1.75351 - 2.44365I$	0
$u = 0.866972 - 0.726106I$ $a = -2.76658 + 0.35303I$ $b = 1.62157 + 1.38197I$	$1.75351 + 2.44365I$	0
$u = -0.762384 + 0.840513I$ $a = 1.51688 + 1.40891I$ $b = -0.17717 - 2.46303I$	$2.89716 - 6.12343I$	0
$u = -0.762384 - 0.840513I$ $a = 1.51688 - 1.40891I$ $b = -0.17717 + 2.46303I$	$2.89716 + 6.12343I$	0
$u = 0.880885 + 0.729604I$ $a = 1.16854 + 2.90880I$ $b = -2.36887 - 1.57171I$	$1.71280 - 3.10788I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.880885 - 0.729604I$ $a = 1.16854 - 2.90880I$ $b = -2.36887 + 1.57171I$	$1.71280 + 3.10788I$	0
$u = 0.750808 + 0.405787I$ $a = 1.063390 + 0.813737I$ $b = -1.177760 - 0.479406I$	$3.47079 - 0.34806I$	$0. + 2.44010I$
$u = 0.750808 - 0.405787I$ $a = 1.063390 - 0.813737I$ $b = -1.177760 + 0.479406I$	$3.47079 + 0.34806I$	$0. - 2.44010I$
$u = -0.846576 + 0.783100I$ $a = 1.76856 + 1.13808I$ $b = -0.49787 - 2.92558I$	$1.70345 + 1.79198I$	0
$u = -0.846576 - 0.783100I$ $a = 1.76856 - 1.13808I$ $b = -0.49787 + 2.92558I$	$1.70345 - 1.79198I$	0
$u = 1.105160 + 0.366027I$ $a = 0.072699 - 0.394651I$ $b = -0.515812 - 0.642478I$	$2.89716 - 6.12343I$	0
$u = 1.105160 - 0.366027I$ $a = 0.072699 + 0.394651I$ $b = -0.515812 + 0.642478I$	$2.89716 + 6.12343I$	0
$u = -0.818643 + 0.838124I$ $a = -1.49455 - 1.26439I$ $b = 0.34626 + 2.52990I$	$6.29916 - 1.89386I$	0
$u = -0.818643 - 0.838124I$ $a = -1.49455 + 1.26439I$ $b = 0.34626 - 2.52990I$	$6.29916 + 1.89386I$	0
$u = -0.686110 + 0.456826I$ $a = 0.541999 + 0.343912I$ $b = 0.844191 + 0.091293I$	-1.05881	$-7.04899 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.686110 - 0.456826I$ $a = 0.541999 - 0.343912I$ $b = 0.844191 - 0.091293I$	-1.05881	$-7.04899 + 0.I$
$u = 0.879564 + 0.782202I$ $a = -2.48262 - 1.84244I$ $b = 2.33766 + 0.15453I$	6.74222	0
$u = 0.879564 - 0.782202I$ $a = -2.48262 + 1.84244I$ $b = 2.33766 - 0.15453I$	6.74222	0
$u = 1.128620 + 0.339818I$ $a = -0.179591 + 0.381211I$ $b = 0.592065 + 0.635114I$	$2.19501 - 12.13950I$	0
$u = 1.128620 - 0.339818I$ $a = -0.179591 - 0.381211I$ $b = 0.592065 - 0.635114I$	$2.19501 + 12.13950I$	0
$u = 0.846457 + 0.825135I$ $a = 0.65254 - 1.45537I$ $b = 0.50726 + 1.67242I$	$4.38253 - 2.76075I$	0
$u = 0.846457 - 0.825135I$ $a = 0.65254 + 1.45537I$ $b = 0.50726 - 1.67242I$	$4.38253 + 2.76075I$	0
$u = -0.802208 + 0.140973I$ $a = 0.557150 - 0.373276I$ $b = 0.628483 - 0.240632I$	$-1.40474 + 0.34878I$	$-7.38819 - 0.48879I$
$u = -0.802208 - 0.140973I$ $a = 0.557150 + 0.373276I$ $b = 0.628483 + 0.240632I$	$-1.40474 - 0.34878I$	$-7.38819 + 0.48879I$
$u = -0.852796 + 0.826238I$ $a = 0.72480 + 1.58821I$ $b = 1.37042 - 1.46910I$	$9.40416 - 3.01245I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.852796 - 0.826238I$ $a = 0.72480 - 1.58821I$ $b = 1.37042 + 1.46910I$	$9.40416 + 3.01245I$	0
$u = -0.756346 + 0.920914I$ $a = 1.37912 + 1.48912I$ $b = -0.23915 - 2.32246I$	$10.7083 - 11.6657I$	0
$u = -0.756346 - 0.920914I$ $a = 1.37912 - 1.48912I$ $b = -0.23915 + 2.32246I$	$10.7083 + 11.6657I$	0
$u = -0.921144 + 0.766234I$ $a = 1.08970 + 1.99177I$ $b = 1.49532 - 2.56248I$	$1.47289 + 4.05110I$	0
$u = -0.921144 - 0.766234I$ $a = 1.08970 - 1.99177I$ $b = 1.49532 + 2.56248I$	$1.47289 - 4.05110I$	0
$u = -0.786752 + 0.107835I$ $a = -1.44543 - 0.59084I$ $b = -2.95462 + 1.12027I$	$1.71280 + 3.10788I$	$15.5620 + 5.8107I$
$u = -0.786752 - 0.107835I$ $a = -1.44543 + 0.59084I$ $b = -2.95462 - 1.12027I$	$1.71280 - 3.10788I$	$15.5620 - 5.8107I$
$u = -0.878782 + 0.827666I$ $a = -0.82029 - 1.67464I$ $b = -1.33935 + 1.71105I$	$10.31220 + 3.55575I$	0
$u = -0.878782 - 0.827666I$ $a = -0.82029 + 1.67464I$ $b = -1.33935 - 1.71105I$	$10.31220 - 3.55575I$	0
$u = 0.730111 + 0.963083I$ $a = -0.536660 + 1.024380I$ $b = -0.317022 - 1.266980I$	$10.20200 + 2.57833I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.730111 - 0.963083I$ $a = -0.536660 - 1.024380I$ $b = -0.317022 + 1.266980I$	$10.20200 - 2.57833I$	0
$u = 0.928153 + 0.792251I$ $a = 1.14740 - 1.16199I$ $b = 0.09332 + 1.78424I$	$4.12750 - 3.28305I$	0
$u = 0.928153 - 0.792251I$ $a = 1.14740 + 1.16199I$ $b = 0.09332 - 1.78424I$	$4.12750 + 3.28305I$	0
$u = -0.914373 + 0.816465I$ $a = -1.28901 - 0.79743I$ $b = 0.80994 + 2.29058I$	$10.20200 + 2.57833I$	0
$u = -0.914373 - 0.816465I$ $a = -1.28901 + 0.79743I$ $b = 0.80994 - 2.29058I$	$10.20200 - 2.57833I$	0
$u = 0.759578 + 0.962546I$ $a = 0.559992 - 1.061620I$ $b = 0.311745 + 1.317460I$	$10.31220 - 3.55575I$	0
$u = 0.759578 - 0.962546I$ $a = 0.559992 + 1.061620I$ $b = 0.311745 - 1.317460I$	$10.31220 + 3.55575I$	0
$u = -0.932557 + 0.800894I$ $a = 1.199860 + 0.650051I$ $b = -0.91908 - 2.15138I$	$9.15662 + 9.09299I$	0
$u = -0.932557 - 0.800894I$ $a = 1.199860 - 0.650051I$ $b = -0.91908 + 2.15138I$	$9.15662 - 9.09299I$	0
$u = 0.995053 + 0.728678I$ $a = -1.055620 + 0.564454I$ $b = 0.05946 - 1.44187I$	$2.64548 - 6.03975I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.995053 - 0.728678I$ $a = -1.055620 - 0.564454I$ $b = 0.05946 + 1.44187I$	$2.64548 + 6.03975I$	0
$u = -0.753137 + 0.142943I$ $a = 1.48723 + 0.69495I$ $b = 2.46674 - 1.23724I$	$1.75351 - 2.44365I$	$7.89478 + 9.66086I$
$u = -0.753137 - 0.142943I$ $a = 1.48723 - 0.69495I$ $b = 2.46674 + 1.23724I$	$1.75351 + 2.44365I$	$7.89478 - 9.66086I$
$u = -1.225610 + 0.208224I$ $a = 0.391824 - 0.174448I$ $b = -0.013628 + 0.275145I$	$1.70345 + 1.79198I$	0
$u = -1.225610 - 0.208224I$ $a = 0.391824 + 0.174448I$ $b = -0.013628 - 0.275145I$	$1.70345 - 1.79198I$	0
$u = -0.960073 + 0.791715I$ $a = -1.11430 - 1.81231I$ $b = -1.11043 + 2.41682I$	$5.86063 + 7.97916I$	0
$u = -0.960073 - 0.791715I$ $a = -1.11430 + 1.81231I$ $b = -1.11043 - 2.41682I$	$5.86063 - 7.97916I$	0
$u = -1.221170 + 0.248957I$ $a = -0.377952 + 0.202515I$ $b = -0.011493 - 0.335636I$	$1.47289 - 4.05110I$	0
$u = -1.221170 - 0.248957I$ $a = -0.377952 - 0.202515I$ $b = -0.011493 + 0.335636I$	$1.47289 + 4.05110I$	0
$u = -0.991388 + 0.769708I$ $a = 1.18009 + 1.79469I$ $b = 0.97907 - 2.57885I$	$2.19501 + 12.13950I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.991388 - 0.769708I$ $a = 1.18009 - 1.79469I$ $b = 0.97907 + 2.57885I$	$2.19501 - 12.13950I$	0
$u = -1.021020 + 0.807696I$ $a = -1.17604 - 1.74715I$ $b = -0.80186 + 2.47329I$	$10.7083 + 11.6657I$	0
$u = -1.021020 - 0.807696I$ $a = -1.17604 + 1.74715I$ $b = -0.80186 - 2.47329I$	$10.7083 - 11.6657I$	0
$u = -0.069448 + 0.675458I$ $a = 0.492940 + 0.490759I$ $b = 0.446685 + 0.191115I$	$-0.79965 + 4.04123I$	$-5.17521 - 7.54146I$
$u = -0.069448 - 0.675458I$ $a = 0.492940 - 0.490759I$ $b = 0.446685 - 0.191115I$	$-0.79965 - 4.04123I$	$-5.17521 + 7.54146I$
$u = 1.048440 + 0.831393I$ $a = 0.737106 - 0.872873I$ $b = 0.16449 + 1.52379I$	$9.40416 - 3.01245I$	0
$u = 1.048440 - 0.831393I$ $a = 0.737106 + 0.872873I$ $b = 0.16449 - 1.52379I$	$9.40416 + 3.01245I$	0
$u = 1.063500 + 0.815094I$ $a = -0.716411 + 0.821122I$ $b = -0.16567 - 1.50016I$	$9.15662 - 9.09299I$	0
$u = 1.063500 - 0.815094I$ $a = -0.716411 - 0.821122I$ $b = -0.16567 + 1.50016I$	$9.15662 + 9.09299I$	0
$u = 0.651510$ $a = -1.91887$ $b = 1.19129$	-2.43233	10.8950

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.425242 + 0.386203I$ $a = -1.28226 - 2.39252I$ $b = 0.230663 + 0.508900I$	$4.38253 - 2.76075I$	$-0.23115 + 5.66298I$
$u = 0.425242 - 0.386203I$ $a = -1.28226 + 2.39252I$ $b = 0.230663 - 0.508900I$	$4.38253 + 2.76075I$	$-0.23115 - 5.66298I$
$u = 0.291531 + 0.377070I$ $a = 1.62731 + 2.63950I$ $b = -0.180225 - 0.647686I$	$4.12750 + 3.28305I$	$-0.737032 - 0.421466I$
$u = 0.291531 - 0.377070I$ $a = 1.62731 - 2.63950I$ $b = -0.180225 + 0.647686I$	$4.12750 - 3.28305I$	$-0.737032 + 0.421466I$
$u = -0.177953 + 0.028058I$ $a = 3.73111 - 0.78030I$ $b = 0.526611 - 0.507482I$	$-1.40474 + 0.34878I$	$-7.38819 - 0.48879I$
$u = -0.177953 - 0.028058I$ $a = 3.73111 + 0.78030I$ $b = 0.526611 + 0.507482I$	$-1.40474 - 0.34878I$	$-7.38819 + 0.48879I$

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2u^2 + u + 1 \\ 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -u^2 + u + 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 - u \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u \\ -u^2 + u + 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^2 + u \\ u^2 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^2 + 7u - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = 1.44728 - 1.86942I$ $b = 0.43016 + 2.61428I$	$1.37919 - 2.82812I$	$-4.28809 + 2.59975I$
$u = 0.877439 - 0.744862I$ $a = 1.44728 + 1.86942I$ $b = 0.43016 - 2.61428I$	$1.37919 + 2.82812I$	$-4.28809 - 2.59975I$
$u = -0.754878$ $a = -0.894558$ $b = 1.13968$	-2.75839	-16.4240

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7b^2 + 5b - 17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0$ $b = 0.215080 + 1.307140I$	$1.37919 - 2.82812I$	$-4.28809 + 2.59975I$
$u = -1.00000$ $a = 0$ $b = 0.215080 - 1.307140I$	$1.37919 + 2.82812I$	$-4.28809 - 2.59975I$
$u = -1.00000$ $a = 0$ $b = 0.569840$	-2.75839	-16.4240

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9	$((u-1)^3)(u^3-u^2+2u-1)(u^{13}+4u^{12}+\cdots-u+1)$ $\cdot(u^{86}+25u^{85}+\cdots+77u+1)$
c_2, c_7	$(u-1)^3(u^3+u^2-1)$ $\cdot(u^{13}+2u^{12}-4u^{10}-u^9+6u^8+4u^7-6u^6-6u^5+2u^4+4u^3+u^2+u+1)$ $\cdot(u^{86}+3u^{85}+\cdots-9u-1)$
c_3	$((u^3+u^2+2u+1)^2)(u^{13}-19u^{12}+\cdots+208u-32)$ $\cdot(u^{43}+8u^{42}+\cdots+168u+17)^2$
c_4	$((u^3+u^2+2u+1)^2)(u^{13}-19u^{12}+\cdots+1920u-256)$ $\cdot(u^{43}+7u^{42}+\cdots+736u-47)^2$
c_5, c_{10}	$(u+1)^3(u^3-u^2+1)$ $\cdot(u^{13}+2u^{12}-4u^{10}-u^9+6u^8+4u^7-6u^6-6u^5+2u^4+4u^3+u^2+u+1)$ $\cdot(u^{86}+3u^{85}+\cdots-9u-1)$
c_6, c_{11}	$((u+1)^3)(u^3+u^2+2u+1)(u^{13}+4u^{12}+\cdots-u+1)$ $\cdot(u^{86}+25u^{85}+\cdots+77u+1)$
c_8, c_{12}	$u^3(u-1)^3$ $\cdot(u^{13}-2u^{10}+7u^9+8u^7-10u^6+8u^5-10u^4+14u^3-7u^2+5u-1)$ $\cdot(u^{86}+10u^{85}+\cdots-12u-8)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9 c_{11}	$((y-1)^3)(y^3+3y^2+2y-1)(y^{13}+12y^{12}+\cdots+7y-1)$ $\cdot\,(y^{86}+75y^{85}+\cdots-1501y+1)$
c_2, c_5, c_7 c_{10}	$((y-1)^3)(y^3-y^2+2y-1)(y^{13}-4y^{12}+\cdots-y-1)$ $\cdot\,(y^{86}-25y^{85}+\cdots-77y+1)$
c_3	$((y^3+3y^2+2y-1)^2)(y^{13}-39y^{12}+\cdots-17664y-1024)$ $\cdot\,(y^{43}-48y^{42}+\cdots+9150y-289)^2$
c_4	$((y^3+3y^2+2y-1)^2)(y^{13}-33y^{12}+\cdots+49152y-65536)$ $\cdot\,(y^{43}-9y^{42}+\cdots+645754y-2209)^2$
c_8, c_{12}	$y^3(y-1)^3(y^{13}+14y^{11}+\cdots+11y-1)$ $\cdot\,(y^{86}-24y^{85}+\cdots-1872y+64)$