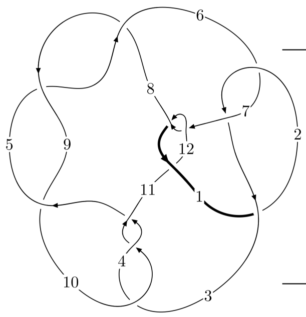
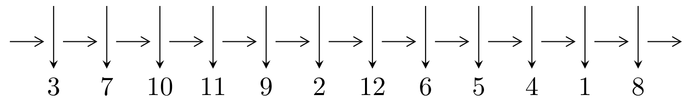
$12a_{0648}$ $(K12a_{0648})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle -u^{33} + u^{32} + \cdots + b - 1,\ u^{33} - u^{32} + \cdots + 2a + u,\ u^{34} - 3u^{33} + \cdots + 7u^2 - 2 \rangle$
$I_2^u = \langle 40u^{23}a + 70u^{23} + \cdots + 34a + 57,\ 2u^{23}a + u^{23} + \cdots + a^2 + 2,\ u^{24} + u^{23} + \cdots + 2u^2 + 1 \rangle$
$I_3^u = \langle b - 1,\ -2u^3 + 3u^2 + 3a + 3u - 6,\ u^4 - 3u^2 + 3 \rangle$
$I_4^u = \langle b + 1,\ u^2 + a - u,\ u^4 - u^2 - 1 \rangle$

$I_1^v = \langle a,\ b - 1,\ v + 1 \rangle$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 91 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.

$$I_1^u = \langle -u^{33}+u^{32}+\cdots+b-1,\ u^{33}-u^{32}+\cdots+2a+u,\ u^{34}-3u^{33}+\cdots+7u^2-2\rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-\frac{1}{2}u^{33}+\frac{1}{2}u^{32}+\cdots+2u^2-\frac{1}{2}u\\u^{33}-u^{32}+\cdots+u+1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}\frac{7}{2}u^{33}-\frac{13}{2}u^{32}+\cdots+\frac{7}{2}u+6\\u^{33}-2u^{32}+\cdots+2u+1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}\frac{9}{2}u^{33}-\frac{17}{2}u^{32}+\cdots+\frac{11}{2}u+7\\u^{33}-2u^{32}+\cdots+2u+1\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{7}{2}u^{33}-\frac{13}{2}u^{32}+\cdots+\frac{5}{2}u+5\\u^{33}-2u^{32}+\cdots+3u+1\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^8+3u^6-3u^4+1\\-u^{10}+4u^8-5u^6+3u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^5-2u^3+u\\u^7-3u^5+2u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^{11}-4u^9+6u^7-2u^5-3u^3+2u\\u^{13}-5u^{11}+9u^9-4u^7-6u^5+5u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 16u^{33}-30u^{32}-176u^{31}+310u^{30}+906u^{29}-1386u^{28}-2824u^{27}+3246u^{26}+5702u^{25}-3296u^{24}-7040u^{23}-2332u^{22}+3058u^{21}+10882u^{20}+6024u^{19}-10740u^{18}-12104u^{17}-2002u^{16}+6950u^{15}+11788u^{14}+4152u^{13}-6006u^{12}-7292u^{11}-3698u^{10}+1314u^9+3622u^8+2284u^7+444u^6-662u^5-734u^4-368u^3-88u^2+8u+12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{34} + 13u^{33} + \cdots + 18u + 1$
c_2, c_6, c_7 c_{12}	$u^{34} - u^{33} + \cdots - 2u - 1$
c_3, c_4, c_{10}	$u^{34} + 3u^{33} + \cdots + 7u^2 - 2$
c_5, c_8, c_9	$u^{34} - 9u^{33} + \cdots - 104u + 14$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{34} + 27y^{33} + \cdots - 46y + 1$
c_2, c_6, c_7 c_{12}	$y^{34} - 13y^{33} + \cdots - 18y + 1$
c_3, c_4, c_{10}	$y^{34} - 27y^{33} + \cdots - 28y + 4$
c_5, c_8, c_9	$y^{34} + 33y^{33} + \cdots - 540y + 196$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.013520 + 0.242521I$ $a = 0.355644 + 1.026690I$ $b = 0.890943 - 0.630816I$	$-0.60916 + 4.94810I$	$-11.40571 - 6.58430I$
$u = -1.013520 - 0.242521I$ $a = 0.355644 - 1.026690I$ $b = 0.890943 + 0.630816I$	$-0.60916 - 4.94810I$	$-11.40571 + 6.58430I$
$u = -0.019993 + 0.886536I$ $a = -0.99279 - 1.72000I$ $b = 0.620427 + 0.888173I$	$10.23300 - 0.57498I$	$-4.93221 + 2.01552I$
$u = -0.019993 - 0.886536I$ $a = -0.99279 + 1.72000I$ $b = 0.620427 - 0.888173I$	$10.23300 + 0.57498I$	$-4.93221 - 2.01552I$
$u = -0.068695 + 0.879558I$ $a = -0.61168 + 2.14998I$ $b = 1.162480 - 0.677594I$	$6.70898 + 11.31000I$	$-9.03751 - 7.13336I$
$u = -0.068695 - 0.879558I$ $a = -0.61168 - 2.14998I$ $b = 1.162480 + 0.677594I$	$6.70898 - 11.31000I$	$-9.03751 + 7.13336I$
$u = 1.207750 + 0.187996I$ $a = -0.308967 + 0.091247I$ $b = 0.324451 - 0.579872I$	$-1.55132 - 1.46622I$	$-9.64070 + 0.44653I$
$u = 1.207750 - 0.187996I$ $a = -0.308967 - 0.091247I$ $b = 0.324451 + 0.579872I$	$-1.55132 + 1.46622I$	$-9.64070 - 0.44653I$
$u = -1.211280 + 0.430207I$ $a = 0.282844 + 0.666214I$ $b = -1.145270 - 0.686416I$	$3.19057 - 6.62584I$	$-12.00000 + 3.79448I$
$u = -1.211280 - 0.430207I$ $a = 0.282844 - 0.666214I$ $b = -1.145270 + 0.686416I$	$3.19057 + 6.62584I$	$-12.00000 - 3.79448I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.086828 + 0.686695I$ $a = 0.675634 + 0.571144I$ $b = -0.750792 - 0.491169I$	$2.05021 - 1.49541I$	$-7.38318 + 3.42302I$
$u = -0.086828 - 0.686695I$ $a = 0.675634 - 0.571144I$ $b = -0.750792 + 0.491169I$	$2.05021 + 1.49541I$	$-7.38318 - 3.42302I$
$u = -1.31718$ $a = -1.28254$ $b = -0.594449$	-5.52603	-16.4440
$u = -1.281510 + 0.305200I$ $a = 0.845662 + 0.733598I$ $b = 0.682471 - 0.253099I$	$-1.94338 + 5.09853I$	$-12.0000 - 8.2909I$
$u = -1.281510 - 0.305200I$ $a = 0.845662 - 0.733598I$ $b = 0.682471 + 0.253099I$	$-1.94338 - 5.09853I$	$-12.0000 + 8.2909I$
$u = -1.260670 + 0.425063I$ $a = -0.21847 - 1.46519I$ $b = -0.653525 + 0.878185I$	$6.38980 + 5.26542I$	$-8.46055 - 5.30635I$
$u = -1.260670 - 0.425063I$ $a = -0.21847 + 1.46519I$ $b = -0.653525 - 0.878185I$	$6.38980 - 5.26542I$	$-8.46055 + 5.30635I$
$u = -0.007042 + 0.669070I$ $a = 0.407696 + 0.768480I$ $b = -0.636123 - 0.421028I$	$2.05008 - 1.46908I$	$-6.49670 + 4.60453I$
$u = -0.007042 - 0.669070I$ $a = 0.407696 - 0.768480I$ $b = -0.636123 + 0.421028I$	$2.05008 + 1.46908I$	$-6.49670 - 4.60453I$
$u = -0.584426 + 0.322111I$ $a = 0.0940661 - 0.0123771I$ $b = 0.998997 + 0.590488I$	$-1.17138 - 4.75212I$	$-13.33145 + 3.31691I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.584426 - 0.322111I$ $a = 0.0940661 + 0.0123771I$ $b = 0.998997 - 0.590488I$	$-1.17138 + 4.75212I$	$-13.33145 - 3.31691I$
$u = -0.331538 + 0.561990I$ $a = -0.42743 - 2.05569I$ $b = -1.071630 + 0.613723I$	$-0.24987 + 8.13095I$	$-11.3800 - 9.4182I$
$u = -0.331538 - 0.561990I$ $a = -0.42743 + 2.05569I$ $b = -1.071630 - 0.613723I$	$-0.24987 - 8.13095I$	$-11.3800 + 9.4182I$
$u = 1.312450 + 0.320860I$ $a = 0.246500 - 0.701851I$ $b = 0.854983 - 0.402484I$	$-2.29444 - 2.26511I$	$-13.59499 - 1.93125I$
$u = 1.312450 - 0.320860I$ $a = 0.246500 + 0.701851I$ $b = 0.854983 + 0.402484I$	$-2.29444 + 2.26511I$	$-13.59499 + 1.93125I$
$u = 1.292790 + 0.415380I$ $a = 1.050280 - 0.475483I$ $b = -0.587435 + 0.891176I$	$6.14677 - 4.08463I$	$-8.53251 + 0.I$
$u = 1.292790 - 0.415380I$ $a = 1.050280 + 0.475483I$ $b = -0.587435 - 0.891176I$	$6.14677 + 4.08463I$	$-8.53251 + 0.I$
$u = 1.365780 + 0.061291I$ $a = -1.52752 + 0.49479I$ $b = -1.016200 + 0.501862I$	$-7.06900 + 3.73055I$	$-18.8014 - 4.5700I$
$u = 1.365780 - 0.061291I$ $a = -1.52752 - 0.49479I$ $b = -1.016200 - 0.501862I$	$-7.06900 - 3.73055I$	$-18.8014 + 4.5700I$
$u = 1.356100 + 0.180668I$ $a = 1.87588 - 1.22676I$ $b = 1.113880 + 0.583314I$	$-5.54762 - 10.69250I$	$-17.2417 + 9.2859I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.356100 - 0.180668I$ $a = 1.87588 + 1.22676I$ $b = 1.113880 - 0.583314I$	$-5.54762 + 10.69250I$	$-17.2417 - 9.2859I$
$u = 1.325120 + 0.401209I$ $a = -0.95387 + 2.20135I$ $b = -1.173850 - 0.667200I$	$2.3480 - 15.9016I$	$-12.0000 + 9.6149I$
$u = 1.325120 - 0.401209I$ $a = -0.95387 - 2.20135I$ $b = -1.173850 + 0.667200I$	$2.3480 + 15.9016I$	$-12.0000 - 9.6149I$
$u = 0.328225$ $a = 0.695567$ $b = 0.366829$	-0.582542	-16.9630

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 40u^{23}a+70u^{23}+\cdots+34a+57,\ 2u^{23}a+u^{23}+\cdots+a^2+2,\ u^{24}+u^{23}+\cdots+2u^2+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a \\ -20u^{23}a-35u^{23}+\cdots-17a-\frac{57}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -35u^{23}a-\frac{121}{2}u^{23}+\cdots-\frac{57}{2}a-50 \\ -\frac{23}{2}u^{23}a-21u^{23}+\cdots-9a-18 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{93}{2}u^{23}a-\frac{163}{2}u^{23}+\cdots-\frac{75}{2}a-68 \\ -\frac{23}{2}u^{23}a-21u^{23}+\cdots-9a-18 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 35u^{23}a+\frac{121}{2}u^{23}+\cdots+\frac{57}{2}a+51 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^8+3u^6-3u^4+1 \\ -u^{10}+4u^8-5u^6+3u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^5-2u^3+u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{11}-4u^9+6u^7-2u^5-3u^3+2u \\ u^{13}-5u^{11}+9u^9-4u^7-6u^5+5u^3+u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 4u^{21}-32u^{19}+4u^{18}+108u^{17}-28u^{16}-180u^{15}+80u^{14}+104u^{13}-104u^{12}+120u^{11}+24u^{10}-216u^9+88u^8+56u^7-76u^6+80u^5-12u^4-36u^3+24u^2-8u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{48} + 25u^{47} + \cdots + 1100u + 49$
c_2, c_6, c_7 c_{12}	$u^{48} - u^{47} + \cdots + 20u - 7$
c_3, c_4, c_{10}	$(u^{24} - u^{23} + \cdots + 2u^2 + 1)^2$
c_5, c_8, c_9	$(u^{24} + 3u^{23} + \cdots + 8u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{48} - 5y^{47} + \cdots - 196288y + 2401$
c_2, c_6, c_7 c_{12}	$y^{48} - 25y^{47} + \cdots - 1100y + 49$
c_3, c_4, c_{10}	$(y^{24} - 19y^{23} + \cdots + 4y + 1)^2$
c_5, c_8, c_9	$(y^{24} + 25y^{23} + \cdots - 20y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.047552 + 0.882738I$ $a = -0.93385 + 1.58747I$ $b = 0.435071 - 0.953033I$	$8.92830 - 5.35992I$	$-6.31714 + 3.17670I$
$u = 0.047552 + 0.882738I$ $a = -0.77910 - 2.11672I$ $b = 1.047250 + 0.722390I$	$8.92830 - 5.35992I$	$-6.31714 + 3.17670I$
$u = 0.047552 - 0.882738I$ $a = -0.93385 - 1.58747I$ $b = 0.435071 + 0.953033I$	$8.92830 + 5.35992I$	$-6.31714 - 3.17670I$
$u = 0.047552 - 0.882738I$ $a = -0.77910 + 2.11672I$ $b = 1.047250 - 0.722390I$	$8.92830 + 5.35992I$	$-6.31714 - 3.17670I$
$u = -0.023946 + 0.850260I$ $a = 0.854901 + 0.065619I$ $b = -1.327570 - 0.116085I$	$2.61833 + 2.14805I$	$-9.50752 - 3.24690I$
$u = -0.023946 + 0.850260I$ $a = -1.26227 + 2.30944I$ $b = 0.859183 - 0.533480I$	$2.61833 + 2.14805I$	$-9.50752 - 3.24690I$
$u = -0.023946 - 0.850260I$ $a = 0.854901 - 0.065619I$ $b = -1.327570 + 0.116085I$	$2.61833 - 2.14805I$	$-9.50752 + 3.24690I$
$u = -0.023946 - 0.850260I$ $a = -1.26227 - 2.30944I$ $b = 0.859183 + 0.533480I$	$2.61833 - 2.14805I$	$-9.50752 + 3.24690I$
$u = 0.832524$ $a = 0.131221 + 0.555408I$ $b = 0.682430 - 0.630183I$	-0.0807297	-10.4750
$u = 0.832524$ $a = 0.131221 - 0.555408I$ $b = 0.682430 + 0.630183I$	-0.0807297	-10.4750

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.20293$ $a=-1.73587$ $b=-1.15462$	-5.82330	-13.8910
$u=-1.20293$ $a=-1.78357$ $b=\ \ 0.588840$	-5.82330	-13.8910
$u=\ \ 1.293390+0.128068I$ $a=-1.91095+0.30080I$ $b=-1.204290+0.245726I$	$-7.93370-2.66216I$	$-20.0752+4.8307I$
$u=\ \ 1.293390+0.128068I$ $a=\ \ 1.66650-2.23253I$ $b=\ \ 1.051290+0.371289I$	$-7.93370-2.66216I$	$-20.0752+4.8307I$
$u=\ \ 1.293390-0.128068I$ $a=-1.91095-0.30080I$ $b=-1.204290-0.245726I$	$-7.93370+2.66216I$	$-20.0752-4.8307I$
$u=\ \ 1.293390-0.128068I$ $a=\ \ 1.66650+2.23253I$ $b=\ \ 1.051290-0.371289I$	$-7.93370+2.66216I$	$-20.0752-4.8307I$
$u=\ \ 1.234200+0.427679I$ $a=\ \ 0.533072-0.692246I$ $b=-1.021630+0.732505I$	$5.26485+0.67393I$	$-9.45928+0.18139I$
$u=\ \ 1.234200+0.427679I$ $a=-0.175482+1.183140I$ $b=-0.464333-0.941817I$	$5.26485+0.67393I$	$-9.45928+0.18139I$
$u=\ \ 1.234200-0.427679I$ $a=\ \ 0.533072+0.692246I$ $b=-1.021630-0.732505I$	$5.26485-0.67393I$	$-9.45928-0.18139I$
$u=\ \ 1.234200-0.427679I$ $a=-0.175482-1.183140I$ $b=-0.464333+0.941817I$	$5.26485-0.67393I$	$-9.45928-0.18139I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.691969$ $a = 0.274874 + 0.414868I$ $b = 0.670746 - 0.591354I$	-0.0763260	-11.1940
$u = 0.691969$ $a = 0.274874 - 0.414868I$ $b = 0.670746 + 0.591354I$	-0.0763260	-11.1940
$u = -1.30821$ $a = -1.11879$ $b = -0.332716$	-5.51913	-16.7540
$u = -1.30821$ $a = -1.43447$ $b = -0.791230$	-5.51913	-16.7540
$u = -1.252440 + 0.391136I$ $a = 0.449607 + 1.024250I$ $b = 1.319610 - 0.087540I$	$-1.18429 + 2.30642I$	$-12.92509 - 0.09891I$
$u = -1.252440 + 0.391136I$ $a = 1.03328 + 1.08909I$ $b = -0.812135 - 0.524983I$	$-1.18429 + 2.30642I$	$-12.92509 - 0.09891I$
$u = -1.252440 - 0.391136I$ $a = 0.449607 - 1.024250I$ $b = 1.319610 + 0.087540I$	$-1.18429 - 2.30642I$	$-12.92509 + 0.09891I$
$u = -1.252440 - 0.391136I$ $a = 1.03328 - 1.08909I$ $b = -0.812135 + 0.524983I$	$-1.18429 - 2.30642I$	$-12.92509 + 0.09891I$
$u = -1.317160 + 0.196052I$ $a = -0.353419 + 0.369938I$ $b = 0.324849 + 0.740601I$	$-3.30467 + 5.67994I$	$-14.0544 - 5.8984I$
$u = -1.317160 + 0.196052I$ $a = 1.52240 + 1.35145I$ $b = 1.002150 - 0.525239I$	$-3.30467 + 5.67994I$	$-14.0544 - 5.8984I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.317160 - 0.196052I$ $a = -0.353419 - 0.369938I$ $b = 0.324849 - 0.740601I$	$-3.30467 - 5.67994I$	$-14.0544 + 5.8984I$
$u = -1.317160 - 0.196052I$ $a = 1.52240 - 1.35145I$ $b = 1.002150 + 0.525239I$	$-3.30467 - 5.67994I$	$-14.0544 + 5.8984I$
$u = 1.291330 + 0.388939I$ $a = 0.364047 - 0.995039I$ $b = 1.331980 - 0.141793I$	$-1.47874 - 6.59660I$	$-13.7438 + 6.1593I$
$u = 1.291330 + 0.388939I$ $a = -0.10197 + 2.46547I$ $b = -0.898920 - 0.537221I$	$-1.47874 - 6.59660I$	$-13.7438 + 6.1593I$
$u = 1.291330 - 0.388939I$ $a = 0.364047 + 0.995039I$ $b = 1.331980 + 0.141793I$	$-1.47874 + 6.59660I$	$-13.7438 - 6.1593I$
$u = 1.291330 - 0.388939I$ $a = -0.10197 - 2.46547I$ $b = -0.898920 + 0.537221I$	$-1.47874 + 6.59660I$	$-13.7438 - 6.1593I$
$u = -1.311950 + 0.407404I$ $a = 1.135480 + 0.399929I$ $b = -0.408439 - 0.956875I$	$4.68376 + 9.98187I$	$-10.26847 - 5.91019I$
$u = -1.311950 + 0.407404I$ $a = -0.71217 - 2.12659I$ $b = -1.066530 + 0.709104I$	$4.68376 + 9.98187I$	$-10.26847 - 5.91019I$
$u = -1.311950 - 0.407404I$ $a = 1.135480 - 0.399929I$ $b = -0.408439 + 0.956875I$	$4.68376 - 9.98187I$	$-10.26847 + 5.91019I$
$u = -1.311950 - 0.407404I$ $a = -0.71217 + 2.12659I$ $b = -1.066530 - 0.709104I$	$4.68376 - 9.98187I$	$-10.26847 + 5.91019I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.240904 + 0.566295I$ $a = 0.923905 - 0.605650I$ $b = -0.456331 + 0.723385I$	$1.52510 - 3.00632I$	$-7.78842 + 5.20782I$
$u = 0.240904 + 0.566295I$ $a = -0.07657 + 2.00277I$ $b = -0.904982 - 0.580179I$	$1.52510 - 3.00632I$	$-7.78842 + 5.20782I$
$u = 0.240904 - 0.566295I$ $a = 0.923905 + 0.605650I$ $b = -0.456331 - 0.723385I$	$1.52510 + 3.00632I$	$-7.78842 - 5.20782I$
$u = 0.240904 - 0.566295I$ $a = -0.07657 - 2.00277I$ $b = -0.904982 + 0.580179I$	$1.52510 + 3.00632I$	$-7.78842 - 5.20782I$
$u = -0.208545 + 0.356460I$ $a = 0.503731 + 0.170872I$ $b = 1.145940 + 0.154341I$	$-3.36920 + 0.91014I$	$-13.7041 - 7.5969I$
$u = -0.208545 + 0.356460I$ $a = 0.44912 - 3.83789I$ $b = -0.960477 + 0.265141I$	$-3.36920 + 0.91014I$	$-13.7041 - 7.5969I$
$u = -0.208545 - 0.356460I$ $a = 0.503731 - 0.170872I$ $b = 1.145940 - 0.154341I$	$-3.36920 - 0.91014I$	$-13.7041 + 7.5969I$
$u = -0.208545 - 0.356460I$ $a = 0.44912 + 3.83789I$ $b = -0.960477 - 0.265141I$	$-3.36920 - 0.91014I$	$-13.7041 + 7.5969I$

III. $I_3^u = \langle b-1,\ -2u^3+3u^2+3a+3u-6,\ u^4-3u^2+3\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2-24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.271230 + 0.340625I$ $a = 0.303340 - 0.132080I$ $b = 1.00000$	$-3.28987 - 4.05977I$	$-18.0000 + 3.4641I$
$u = 1.271230 - 0.340625I$ $a = 0.303340 + 0.132080I$ $b = 1.00000$	$-3.28987 + 4.05977I$	$-18.0000 - 3.4641I$
$u = -1.271230 + 0.340625I$ $a = 0.69666 + 1.59997I$ $b = 1.00000$	$-3.28987 + 4.05977I$	$-18.0000 - 3.4641I$
$u = -1.271230 - 0.340625I$ $a = 0.69666 - 1.59997I$ $b = 1.00000$	$-3.28987 - 4.05977I$	$-18.0000 + 3.4641I$

IV. $I^u_4 = \langle b+1,\ u^2+a-u,\ u^4-u^2-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2-16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.786151I$ $a = 0.618034 + 0.786151I$ $b = -1.00000$	0.657974	-13.5280
$u = -0.786151I$ $a = 0.618034 - 0.786151I$ $b = -1.00000$	0.657974	-13.5280
$u = 1.27202$ $a = -0.346014$ $b = -1.00000$	-7.23771	-22.4720
$u = -1.27202$ $a = -2.89005$ $b = -1.00000$	-7.23771	-22.4720

V. $I_1^v = \langle a,\ b-1,\ v+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$	-3.28987	-12.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$((u-1)^9)(u^{34}+13u^{33}+\cdots+18u+1)(u^{48}+25u^{47}+\cdots+1100u+49)$
c_2, c_7	$((u-1)^5)(u+1)^4(u^{34}-u^{33}+\cdots-2u-1)(u^{48}-u^{47}+\cdots+20u-7)$
c_3, c_4, c_{10}	$u(u^4-3u^2+3)(u^4-u^2-1)(u^{24}-u^{23}+\cdots+2u^2+1)^2$ $\cdot(u^{34}+3u^{33}+\cdots+7u^2-2)$
c_5, c_8, c_9	$u(u^4+u^2-1)(u^4+3u^2+3)(u^{24}+3u^{23}+\cdots+8u+1)^2$ $\cdot(u^{34}-9u^{33}+\cdots-104u+14)$
c_6, c_{12}	$((u-1)^4)(u+1)^5(u^{34}-u^{33}+\cdots-2u-1)(u^{48}-u^{47}+\cdots+20u-7)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$((y-1)^9)(y^{34}+27y^{33}+\cdots-46y+1)$ $\cdot(y^{48}-5y^{47}+\cdots-196288y+2401)$
c_2, c_6, c_7 c_{12}	$((y-1)^9)(y^{34}-13y^{33}+\cdots-18y+1)(y^{48}-25y^{47}+\cdots-1100y+49)$
c_3, c_4, c_{10}	$y(y^2-3y+3)^2(y^2-y-1)^2(y^{24}-19y^{23}+\cdots+4y+1)^2$ $\cdot(y^{34}-27y^{33}+\cdots-28y+4)$
c_5, c_8, c_9	$y(y^2+y-1)^2(y^2+3y+3)^2(y^{24}+25y^{23}+\cdots-20y+1)^2$ $\cdot(y^{34}+33y^{33}+\cdots-540y+196)$