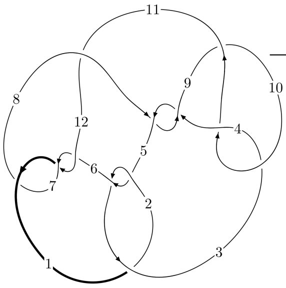
$12a_{0445}$ ($K12a_{0445}$)



A knot diagram[1]

Linearized knot diagam

$\rightarrow\downarrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\downarrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow\uparrow\rightarrow$

3 6 10 9 2 12 1 5 11 4 8 7

Solving Sequence

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

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

$$I_1^u = \langle -u^{60} + 16u^{58} + \cdots + 4b + 4,\ 2u^{64} - 34u^{62} + \cdots + 4a - 2,\ u^{65} - 2u^{64} + \cdots + 4u - 2\rangle$$
$$I_2^u = \langle -7u^8a^2 + 2u^8a + \cdots - 8a + 8,\ -3u^8a - u^8 + \cdots - a - 1,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1\rangle$$
$$I_3^u = \langle u^3 + b - u + 1,\ -u^3 - 2u^2 + 2a + 2u + 2,\ u^4 - 2u^2 + 2\rangle$$

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

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 97 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. $I^u_1 = \langle -u^{60}+16u^{58}+\cdots+4b+4,\ 2u^{64}-34u^{62}+\cdots+4a-2,\ u^{65}-2u^{64}+\cdots+4u-2\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{64} + \frac{17}{2}u^{62} + \cdots - 2u^2 + \frac{1}{2} \\ \frac{1}{4}u^{60} - 4u^{58} + \cdots + \frac{3}{2}u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{2}u^{64} + \frac{17}{2}u^{62} + \cdots + u + \frac{1}{2} \\ \frac{3}{4}u^{57} - \frac{45}{4}u^{55} + \cdots + \frac{1}{2}u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{2}u^{64} + u^{63} + \cdots - \frac{1}{2}u^2 - \frac{1}{2} \\ u^{64} - u^{63} + \cdots - \frac{3}{2}u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^8 + 3u^6 - 3u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{16} - 5u^{14} + 11u^{12} - 12u^{10} + 5u^8 + 2u^6 - 2u^4 + 1 \\ -u^{16} + 4u^{14} - 8u^{12} + 8u^{10} - 4u^8 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{4}u^{47} + 3u^{45} + \cdots - \frac{1}{2}u + 1 \\ -\frac{1}{4}u^{49} + \frac{13}{4}u^{47} + \cdots + \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^{64} - 34u^{62} + \cdots + 4u^2 + 2u$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{65} + 30u^{64} + \cdots + 341u + 25$
c_2, c_5	$u^{65} + 2u^{64} + \cdots - u - 5$
c_3, c_{10}	$u^{65} - 2u^{64} + \cdots + 4u - 2$
c_4, c_8	$u^{65} - 6u^{64} + \cdots + 800u - 128$
c_6, c_7, c_{12}	$u^{65} - 2u^{64} + \cdots - 29u - 5$
c_9	$u^{65} - 34u^{64} + \cdots + 8u - 4$
c_{11}	$u^{65} + 6u^{64} + \cdots - 38400u - 6400$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{65} + 18y^{64} + \cdots - 5119y - 625$
c_2, c_5	$y^{65} - 30y^{64} + \cdots + 341y - 25$
c_3, c_{10}	$y^{65} - 34y^{64} + \cdots + 8y - 4$
c_4, c_8	$y^{65} + 46y^{64} + \cdots - 449536y - 16384$
c_6, c_7, c_{12}	$y^{65} - 62y^{64} + \cdots + 101y - 25$
c_9	$y^{65} - 6y^{64} + \cdots - 96y - 16$
c_{11}	$y^{65} + 18y^{64} + \cdots + 928972800y - 40960000$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.817592 + 0.566504I$ $a = 1.001660 + 0.499146I$ $b = -0.803784 - 0.901222I$	$-4.82306 + 6.28510I$	$-3.32278 - 7.59393I$
$u = 0.817592 - 0.566504I$ $a = 1.001660 - 0.499146I$ $b = -0.803784 + 0.901222I$	$-4.82306 - 6.28510I$	$-3.32278 + 7.59393I$
$u = -0.953679 + 0.230396I$ $a = 0.530015 + 0.857835I$ $b = -0.234736 - 1.236490I$	$0.22966 - 3.35008I$	$3.44223 + 7.37445I$
$u = -0.953679 - 0.230396I$ $a = 0.530015 - 0.857835I$ $b = -0.234736 + 1.236490I$	$0.22966 + 3.35008I$	$3.44223 - 7.37445I$
$u = 0.867814 + 0.546058I$ $a = -1.086670 - 0.445288I$ $b = 0.772557 - 0.231724I$	$2.45054 + 5.49911I$	$5.13183 - 6.08008I$
$u = 0.867814 - 0.546058I$ $a = -1.086670 + 0.445288I$ $b = 0.772557 + 0.231724I$	$2.45054 - 5.49911I$	$5.13183 + 6.08008I$
$u = -0.851343 + 0.598329I$ $a = -0.993809 + 0.234050I$ $b = 0.744150 - 0.677275I$	$-0.19697 - 10.34520I$	$2.00000 + 9.33633I$
$u = -0.851343 - 0.598329I$ $a = -0.993809 - 0.234050I$ $b = 0.744150 + 0.677275I$	$-0.19697 + 10.34520I$	$2.00000 - 9.33633I$
$u = -1.063320 + 0.100601I$ $a = 0.569690 - 0.407670I$ $b = 0.152388 + 0.523402I$	$6.87892 - 1.28336I$	$11.91682 + 0.I$
$u = -1.063320 - 0.100601I$ $a = 0.569690 + 0.407670I$ $b = 0.152388 - 0.523402I$	$6.87892 + 1.28336I$	$11.91682 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.682675+0.625842I$ $a=-1.037510+0.885110I$ $b=\ \ 0.086909+0.270043I$	$-0.68166+5.57497I$	$0.67648-3.36542I$
$u=-0.682675-0.625842I$ $a=-1.037510-0.885110I$ $b=\ \ 0.086909-0.270043I$	$-0.68166-5.57497I$	$0.67648+3.36542I$
$u=\ \ 0.714787+0.573135I$ $a=\ \ 1.30327+0.78179I$ $b=-0.082774+0.462333I$	$-5.11709-1.75235I$	$-4.58587+0.58883I$
$u=\ \ 0.714787-0.573135I$ $a=\ \ 1.30327-0.78179I$ $b=-0.082774-0.462333I$	$-5.11709+1.75235I$	$-4.58587-0.58883I$
$u=\ \ 1.111470+0.181688I$ $a=-0.544169+0.744719I$ $b=\ \ 0.054698-1.212870I$	$5.34190+6.22052I$	0
$u=\ \ 1.111470-0.181688I$ $a=-0.544169-0.744719I$ $b=\ \ 0.054698+1.212870I$	$5.34190-6.22052I$	0
$u=-1.079780+0.393400I$ $a=\ \ 0.586713+0.500350I$ $b=-0.287866-1.175110I$	$0.29352-3.61296I$	0
$u=-1.079780-0.393400I$ $a=\ \ 0.586713-0.500350I$ $b=-0.287866+1.175110I$	$0.29352+3.61296I$	0
$u=\ \ 1.036050+0.514389I$ $a=-0.176619-0.238402I$ $b=\ \ 0.242683-0.667917I$	$4.33017+4.75138I$	0
$u=\ \ 1.036050-0.514389I$ $a=-0.176619+0.238402I$ $b=\ \ 0.242683+0.667917I$	$4.33017-4.75138I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.179248 + 0.820504I$ $a = -2.76924 - 0.28927I$ $b = 2.56160 + 0.44968I$	$3.24662 + 11.46570I$	$3.08775 - 7.01203I$
$u = -0.179248 - 0.820504I$ $a = -2.76924 + 0.28927I$ $b = 2.56160 - 0.44968I$	$3.24662 - 11.46570I$	$3.08775 + 7.01203I$
$u = 0.622403 + 0.560318I$ $a = -0.757931 - 0.804055I$ $b = 0.716714 + 0.206450I$	$1.76971 - 1.06987I$	$3.74931 - 0.57518I$
$u = 0.622403 - 0.560318I$ $a = -0.757931 + 0.804055I$ $b = 0.716714 - 0.206450I$	$1.76971 + 1.06987I$	$3.74931 + 0.57518I$
$u = 0.148042 + 0.807692I$ $a = -1.272480 + 0.105470I$ $b = 1.252900 + 0.245176I$	$5.88305 - 6.01895I$	$6.28213 + 3.41956I$
$u = 0.148042 - 0.807692I$ $a = -1.272480 - 0.105470I$ $b = 1.252900 - 0.245176I$	$5.88305 + 6.01895I$	$6.28213 - 3.41956I$
$u = 0.026559 + 0.816830I$ $a = 2.05792 - 0.30407I$ $b = -1.92568 + 0.54969I$	$8.97867 - 2.80576I$	$7.60406 + 2.92369I$
$u = 0.026559 - 0.816830I$ $a = 2.05792 + 0.30407I$ $b = -1.92568 - 0.54969I$	$8.97867 + 2.80576I$	$7.60406 - 2.92369I$
$u = 0.173965 + 0.785851I$ $a = 2.80856 - 0.43408I$ $b = -2.62242 + 0.58225I$	$-1.84850 - 7.14370I$	$-0.88487 + 6.10212I$
$u = 0.173965 - 0.785851I$ $a = 2.80856 + 0.43408I$ $b = -2.62242 - 0.58225I$	$-1.84850 + 7.14370I$	$-0.88487 - 6.10212I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.328214 + 0.717210I$ $a = 0.33358 - 1.68604I$ $b = -0.533884 + 0.706902I$	$0.88497 - 3.76157I$	$1.92305 + 4.45594I$
$u = -0.328214 - 0.717210I$ $a = 0.33358 + 1.68604I$ $b = -0.533884 - 0.706902I$	$0.88497 + 3.76157I$	$1.92305 - 4.45594I$
$u = -1.104700 + 0.540023I$ $a = 1.152340 + 0.185689I$ $b = -0.775860 - 1.007390I$	$3.14622 - 1.01880I$	0
$u = -1.104700 - 0.540023I$ $a = 1.152340 - 0.185689I$ $b = -0.775860 + 1.007390I$	$3.14622 + 1.01880I$	0
$u = -1.191410 + 0.358120I$ $a = -0.22902 - 2.04791I$ $b = -2.78366 + 0.30989I$	$2.23292 + 3.39189I$	0
$u = -1.191410 - 0.358120I$ $a = -0.22902 + 2.04791I$ $b = -2.78366 - 0.30989I$	$2.23292 - 3.39189I$	0
$u = 1.136920 + 0.509754I$ $a = -1.073520 + 0.346110I$ $b = 0.693931 - 1.151840I$	$-0.67611 + 3.99514I$	0
$u = 1.136920 - 0.509754I$ $a = -1.073520 - 0.346110I$ $b = 0.693931 + 1.151840I$	$-0.67611 - 3.99514I$	0
$u = 0.744579$ $a = -1.05480$ $b = 0.775268$	1.14707	9.24630
$u = -1.176550 + 0.440517I$ $a = 1.21001 + 1.35680I$ $b = 1.76452 - 1.56292I$	$5.27296 - 5.60632I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.176550 - 0.440517I$ $a = 1.21001 - 1.35680I$ $b = 1.76452 + 1.56292I$	$5.27296 + 5.60632I$	0
$u = 1.169190 + 0.459982I$ $a = -0.82847 - 1.76090I$ $b = 1.90826 - 0.72975I$	$5.13635 + 2.80309I$	0
$u = 1.169190 - 0.459982I$ $a = -0.82847 + 1.76090I$ $b = 1.90826 + 0.72975I$	$5.13635 - 2.80309I$	0
$u = 0.403097 + 0.615636I$ $a = 0.0208537 + 0.1192870I$ $b = 0.456874 + 0.195401I$	$2.53638 - 0.30236I$	$4.66642 + 1.23466I$
$u = 0.403097 - 0.615636I$ $a = 0.0208537 - 0.1192870I$ $b = 0.456874 - 0.195401I$	$2.53638 + 0.30236I$	$4.66642 - 1.23466I$
$u = 1.216740 + 0.346923I$ $a = 0.16322 - 1.82772I$ $b = 2.64947 + 0.36051I$	$7.52621 - 7.61146I$	0
$u = 1.216740 - 0.346923I$ $a = 0.16322 + 1.82772I$ $b = 2.64947 - 0.36051I$	$7.52621 + 7.61146I$	0
$u = -1.212450 + 0.371030I$ $a = 0.463224 + 0.616052I$ $b = 1.36963 - 0.52285I$	$9.98584 + 2.06282I$	0
$u = -1.212450 - 0.371030I$ $a = 0.463224 - 0.616052I$ $b = 1.36963 + 0.52285I$	$9.98584 - 2.06282I$	0
$u = 0.238477 + 0.691626I$ $a = -0.14363 - 1.82861I$ $b = 0.377761 + 0.729301I$	$-3.27706 + 0.59453I$	$-4.21283 - 0.89914I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.238477 - 0.691626I$ $a = -0.14363 + 1.82861I$ $b = 0.377761 - 0.729301I$	$-3.27706 - 0.59453I$	$-4.21283 + 0.89914I$
$u = 1.179570 + 0.519770I$ $a = 0.01991 + 2.86759I$ $b = -3.20110 - 0.82584I$	$1.10514 + 11.98050I$	0
$u = 1.179570 - 0.519770I$ $a = 0.01991 - 2.86759I$ $b = -3.20110 + 0.82584I$	$1.10514 - 11.98050I$	0
$u = 0.014596 + 0.706342I$ $a = -1.49992 - 0.84941I$ $b = 1.45112 + 1.05511I$	$1.90823 + 1.44788I$	$5.13064 - 4.21767I$
$u = 0.014596 - 0.706342I$ $a = -1.49992 + 0.84941I$ $b = 1.45112 - 1.05511I$	$1.90823 - 1.44788I$	$5.13064 + 4.21767I$
$u = -1.219250 + 0.439359I$ $a = 0.36557 - 1.86792I$ $b = -2.20444 - 0.03684I$	$12.68970 - 1.63450I$	0
$u = -1.219250 - 0.439359I$ $a = 0.36557 + 1.86792I$ $b = -2.20444 + 0.03684I$	$12.68970 + 1.63450I$	0
$u = 1.192660 + 0.515912I$ $a = -0.38726 - 1.49439I$ $b = 1.405220 - 0.098495I$	$8.96580 + 10.88390I$	0
$u = 1.192660 - 0.515912I$ $a = -0.38726 + 1.49439I$ $b = 1.405220 + 0.098495I$	$8.96580 - 10.88390I$	0
$u = 1.215800 + 0.464785I$ $a = -0.38312 + 1.70536I$ $b = -2.30596 - 0.95072I$	$12.5099 + 7.4058I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.215800 - 0.464785I$ $a = -0.38312 - 1.70536I$ $b = -2.30596 + 0.95072I$	$12.5099 - 7.4058I$	0
$u = -1.190160 + 0.530226I$ $a = -0.24352 + 2.69698I$ $b = 3.08085 - 0.66725I$	$6.2428 - 16.4359I$	0
$u = -1.190160 - 0.530226I$ $a = -0.24352 - 2.69698I$ $b = 3.08085 + 0.66725I$	$6.2428 + 16.4359I$	0
$u = -0.425252 + 0.383889I$ $a = -1.132260 - 0.775726I$ $b = -0.367711 + 0.340835I$	$-1.51336 + 0.22253I$	$-6.47259 - 0.43196I$
$u = -0.425252 - 0.383889I$ $a = -1.132260 + 0.775726I$ $b = -0.367711 - 0.340835I$	$-1.51336 - 0.22253I$	$-6.47259 + 0.43196I$

II. $\boldsymbol{I_2^u = \langle -7u^8a^2 + 2u^8a + \cdots - 8a + 8,\ -3u^8a - u^8 + \cdots - a - 1,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1 \rangle}$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ 0.368421a^2u^8 - 0.105263au^8 + \cdots + 0.421053a - 0.421053 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.210526a^2u^8 - 0.631579au^8 + \cdots + 1.52632a - 0.526316 \\ 0.421053a^2u^8 - 1.26316au^8 + \cdots - 0.947368a - 1.05263 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.526316a^2u^8 - 0.421053au^8 + \cdots - 1.31579a + 0.315789 \\ 0.157895a^2u^8 + 0.526316au^8 + \cdots - 0.105263a + 0.105263 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u \\ u^3 - u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.210526a^2u^8 - 0.631579au^8 + \cdots - 0.473684a + 1.47368 \\ 0.842105a^2u^8 - 0.526316au^8 + \cdots - 0.894737a - 0.105263 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^7 - 8u^5 - 4u^4 + 8u^3 + 4u^2 + 4u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{27} + 18u^{26} + \cdots + u + 1$
c_2, c_5, c_6 c_7, c_{12}	$u^{27} - 9u^{25} + \cdots - u + 1$
c_3, c_{10}	$(u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1)^3$
c_4, c_8	$(u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1)^3$
c_9	$(u^9 - 5u^8 + 12u^7 - 15u^6 + 9u^5 + u^4 - 4u^3 + 2u^2 + u - 1)^3$
c_{11}	$(u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{27} - 18y^{26} + \cdots + 9y - 1$
c_2, c_5, c_6 c_7, c_{12}	$y^{27} - 18y^{26} + \cdots + y - 1$
c_3, c_{10}	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^3$
c_4, c_8	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^3$
c_9	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^3$
c_{11}	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.772920 + 0.510351I$ $a = 0.938233 - 0.549595I$ $b = -0.700495 - 0.037445I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 + 0.510351I$ $a = -0.951167 + 0.931060I$ $b = 0.82536 - 1.27735I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 + 0.510351I$ $a = -1.69872 + 0.67925I$ $b = 0.044903 + 0.772033I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 - 0.510351I$ $a = 0.938233 + 0.549595I$ $b = -0.700495 + 0.037445I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$
$u = -0.772920 - 0.510351I$ $a = -0.951167 - 0.931060I$ $b = 0.82536 + 1.27735I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$
$u = -0.772920 - 0.510351I$ $a = -1.69872 - 0.67925I$ $b = 0.044903 - 0.772033I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$
$u = 0.825933$ $a = -1.009920 + 0.483068I$ $b = 0.666865 - 0.540481I$	1.19845	8.65230
$u = 0.825933$ $a = -1.009920 - 0.483068I$ $b = 0.666865 + 0.540481I$	1.19845	8.65230
$u = 0.825933$ $a = 1.69414$ $b = 1.19129$	1.19845	8.65230
$u = 1.173910 + 0.391555I$ $a = -0.791730 + 0.659033I$ $b = 0.37946 - 1.36702I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.173910 + 0.391555I$ $a = -0.860718 + 0.617604I$ $b = -1.13913 - 0.93448I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 1.173910 + 0.391555I$ $a = -0.05333 - 2.41062I$ $b = 2.95190 - 0.03287I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 1.173910 - 0.391555I$ $a = -0.791730 - 0.659033I$ $b = 0.37946 + 1.36702I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 1.173910 - 0.391555I$ $a = -0.860718 - 0.617604I$ $b = -1.13913 + 0.93448I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 1.173910 - 0.391555I$ $a = -0.05333 + 2.41062I$ $b = 2.95190 + 0.03287I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = -0.141484 + 0.739668I$ $a = 1.078680 - 0.155169I$ $b = -1.098540 + 0.450597I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.141484 + 0.739668I$ $a = 0.11499 - 2.02771I$ $b = -0.242725 + 0.851614I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.141484 + 0.739668I$ $a = -2.74674 - 0.75294I$ $b = 2.59952 + 0.89764I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.141484 - 0.739668I$ $a = 1.078680 + 0.155169I$ $b = -1.098540 - 0.450597I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$
$u = -0.141484 - 0.739668I$ $a = 0.11499 + 2.02771I$ $b = -0.242725 - 0.851614I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.141484 - 0.739668I$ $a = -2.74674 + 0.75294I$ $b = 2.59952 - 0.89764I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$
$u = -1.172470 + 0.500383I$ $a = 1.091800 + 0.484704I$ $b = -0.69350 - 1.28119I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -1.172470 + 0.500383I$ $a = 0.54475 - 1.43728I$ $b = -1.40261 - 0.36766I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -1.172470 + 0.500383I$ $a = 0.49679 + 2.90848I$ $b = 3.21334 - 1.22706I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -1.172470 - 0.500383I$ $a = 1.091800 - 0.484704I$ $b = -0.69350 + 1.28119I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = -1.172470 - 0.500383I$ $a = 0.54475 + 1.43728I$ $b = -1.40261 + 0.36766I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = -1.172470 - 0.500383I$ $a = 0.49679 - 2.90848I$ $b = 3.21334 + 1.22706I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$

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

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}u^3 + u^2 - 1 \\ -1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u \\ u^3 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{2}u^3 + u^2 - 1 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 + 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.098680 + 0.455090I$ $a = -0.77689 + 1.32180I$ $b = -0.544910 - 1.098680I$	$2.46740 + 3.66386I$	$4.00000 - 4.00000I$
$u = 1.098680 - 0.455090I$ $a = -0.77689 - 1.32180I$ $b = -0.544910 + 1.098680I$	$2.46740 - 3.66386I$	$4.00000 + 4.00000I$
$u = -1.098680 + 0.455090I$ $a = 0.776887 - 0.678203I$ $b = -1.45509 - 1.09868I$	$2.46740 - 3.66386I$	$4.00000 + 4.00000I$
$u = -1.098680 - 0.455090I$ $a = 0.776887 + 0.678203I$ $b = -1.45509 + 1.09868I$	$2.46740 + 3.66386I$	$4.00000 - 4.00000I$

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

(i) Arc colorings

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

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

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

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

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

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

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{27}+18u^{26}+\cdots+u+1)(u^{65}+30u^{64}+\cdots+341u+25)$
c_2	$(u-1)(u+1)^4(u^{27}-9u^{25}+\cdots-u+1)(u^{65}+2u^{64}+\cdots-u-5)$
c_3, c_{10}	$u(u^4-2u^2+2)(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^3$ $\cdot(u^{65}-2u^{64}+\cdots+4u-2)$
c_4, c_8	$u(u^4+2u^2+2)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^3$ $\cdot(u^{65}-6u^{64}+\cdots+800u-128)$
c_5	$((u-1)^4)(u+1)(u^{27}-9u^{25}+\cdots-u+1)(u^{65}+2u^{64}+\cdots-u-5)$
c_6, c_7	$((u-1)^4)(u+1)(u^{27}-9u^{25}+\cdots-u+1)(u^{65}-2u^{64}+\cdots-29u-5)$
c_9	$u(u^2+2u+2)^2$ $\cdot(u^9-5u^8+12u^7-15u^6+9u^5+u^4-4u^3+2u^2+u-1)^3$ $\cdot(u^{65}-34u^{64}+\cdots+8u-4)$
c_{11}	$u^5(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^3$ $\cdot(u^{65}+6u^{64}+\cdots-38400u-6400)$
c_{12}	$(u-1)(u+1)^4(u^{27}-9u^{25}+\cdots-u+1)(u^{65}-2u^{64}+\cdots-29u-5)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{27}-18y^{26}+\cdots+9y-1)(y^{65}+18y^{64}+\cdots-5119y-625)$
c_2, c_5	$((y-1)^5)(y^{27}-18y^{26}+\cdots+y-1)(y^{65}-30y^{64}+\cdots+341y-25)$
c_3, c_{10}	$y(y^2-2y+2)^2$ $\cdot\,(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot\,(y^{65}-34y^{64}+\cdots+8y-4)$
c_4, c_8	$y(y^2+2y+2)^2$ $\cdot\,(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$ $\cdot\,(y^{65}+46y^{64}+\cdots-449536y-16384)$
c_6, c_7, c_{12}	$((y-1)^5)(y^{27}-18y^{26}+\cdots+y-1)(y^{65}-62y^{64}+\cdots+101y-25)$
c_9	$y(y^2+4)^2(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^3$ $\cdot\,(y^{65}-6y^{64}+\cdots-96y-16)$
c_{11}	$y^5(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$ $\cdot\,(y^{65}+18y^{64}+\cdots+928972800y-40960000)$