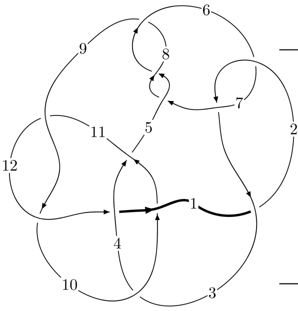
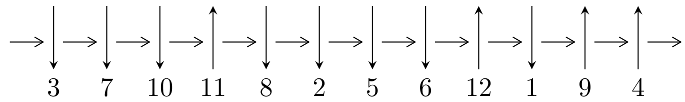
$12a_{0639}$ $(K12a_{0639})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 6.85776 \times 10^{89} u^{105} - 3.83253 \times 10^{90} u^{104} + \cdots + 1.08124 \times 10^{88} b - 4.80658 \times 10^{89},$$
$$4.70720 \times 10^{88} u^{105} - 2.64592 \times 10^{89} u^{104} + \cdots + 6.75773 \times 10^{86} a - 3.15249 \times 10^{88},\ u^{106} - 7u^{105} + \cdots - u^2$$
$$I_2^u = \langle b^5 + b^4 - 2b^3 - b^2 + b - 1,\ a + 1,\ u - 1\rangle$$
$$I_3^u = \langle b - u - 2,\ a + u + 1,\ u^2 + u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 113 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. $\boldsymbol{I_1^u = \langle 6.86 \times 10^{89} u^{105} - 3.83 \times 10^{90} u^{104} + \cdots + 1.08 \times 10^{88} b - 4.81 \times 10^{89},\ 4.71 \times 10^{88} u^{105} - 2.65 \times 10^{89} u^{104} + \cdots + 6.76 \times 10^{86} a - 3.15 \times 10^{88},\ u^{106} - 7u^{105} + \cdots - u^2 + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -69.6565u^{105} + 391.540u^{104} + \cdots + 13.0928u + 46.6502 \\ -63.4251u^{105} + 354.458u^{104} + \cdots + 29.6271u + 44.4544 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -69.5768u^{105} + 390.512u^{104} + \cdots + 13.1350u + 46.3658 \\ -64.8453u^{105} + 361.946u^{104} + \cdots + 29.5052u + 45.2086 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -284.662u^{105} + 1597.59u^{104} + \cdots + 118.715u + 201.545 \\ -311.105u^{105} + 1745.83u^{104} + \cdots + 155.762u + 224.822 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -91.6179u^{105} + 515.563u^{104} + \cdots + 31.6304u + 63.6344 \\ -95.0632u^{105} + 536.170u^{104} + \cdots + 47.1533u + 69.1269 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -71.5437u^{105} + 403.178u^{104} + \cdots + 13.5283u + 47.5824 \\ -65.3971u^{105} + 366.683u^{104} + \cdots + 30.9677u + 46.7591 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -72.6372u^{105} + 410.221u^{104} + \cdots + 24.5715u + 50.5987 \\ -127.336u^{105} + 721.871u^{104} + \cdots + 67.1446u + 94.7937 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -166.039u^{105} + 941.534u^{104} + \cdots + 79.2707u + 121.844 \\ -220.738u^{105} + 1253.18u^{104} + \cdots + 121.844u + 166.039 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -117.650u^{105} + 684.548u^{104} + \cdots + 74.1017u + 98.6648$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{106} + 36u^{105} + \cdots + 15872u + 1024$
c_2, c_6	$u^{106} - 2u^{105} + \cdots - 32u - 32$
c_3	$u^{106} + 5u^{105} + \cdots + 117392u + 6541$
c_4	$u^{106} + u^{105} + \cdots + 294900u - 153931$
c_5, c_7, c_8	$u^{106} - 7u^{105} + \cdots - u^2 + 1$
c_9, c_{11}	$u^{106} + 4u^{105} + \cdots + 63u + 1$
c_{10}	$u^{106} - 18u^{105} + \cdots - 64u + 4$
c_{12}	$u^{106} + 9u^{105} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{106} + 60y^{105} + \cdots - 50987008y + 1048576$
c_2, c_6	$y^{106} - 36y^{105} + \cdots - 15872y + 1024$
c_3	$y^{106} + 119y^{105} + \cdots - 11945791032y + 42784681$
c_4	$y^{106} + 47y^{105} + \cdots - 1112070735948y + 23694752761$
c_5, c_7, c_8	$y^{106} - 89y^{105} + \cdots - 2y + 1$
c_9, c_{11}	$y^{106} - 80y^{105} + \cdots - 5699y + 1$
c_{10}	$y^{106} + 18y^{105} + \cdots - 888y + 16$
c_{12}	$y^{106} - 25y^{105} + \cdots - 20y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.676515 + 0.691802I$ $a = 0.664912 + 0.408543I$ $b = 0.718628 - 0.395544I$	$0.39517 - 2.43050I$	0
$u = -0.676515 - 0.691802I$ $a = 0.664912 - 0.408543I$ $b = 0.718628 + 0.395544I$	$0.39517 + 2.43050I$	0
$u = -0.155047 + 0.936670I$ $a = -0.360203 + 0.420878I$ $b = 0.845813 + 0.632251I$	$6.24033 + 5.37724I$	0
$u = -0.155047 - 0.936670I$ $a = -0.360203 - 0.420878I$ $b = 0.845813 - 0.632251I$	$6.24033 - 5.37724I$	0
$u = -0.154727 + 0.905545I$ $a = -0.913842 + 0.473543I$ $b = 1.47585 + 1.03011I$	$7.1033 + 13.7991I$	0
$u = -0.154727 - 0.905545I$ $a = -0.913842 - 0.473543I$ $b = 1.47585 - 1.03011I$	$7.1033 - 13.7991I$	0
$u = -0.545270 + 0.721728I$ $a = -0.008138 + 0.528724I$ $b = 0.884430 + 0.673476I$	$0.75431 + 7.41963I$	0
$u = -0.545270 - 0.721728I$ $a = -0.008138 - 0.528724I$ $b = 0.884430 - 0.673476I$	$0.75431 - 7.41963I$	0
$u = -0.900430$ $a = 2.61743$ $b = -1.68822$	0.491361	0
$u = -1.086680 + 0.311551I$ $a = 0.817502 - 0.738946I$ $b = -0.656324 - 0.563923I$	$-0.608988 + 0.539453I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.086680 - 0.311551I$ $a = 0.817502 + 0.738946I$ $b = -0.656324 + 0.563923I$	$-0.608988 - 0.539453I$	0
$u = 1.107130 + 0.281035I$ $a = -0.821941 + 0.041902I$ $b = -1.314860 - 0.139803I$	$4.76987 - 4.98668I$	0
$u = 1.107130 - 0.281035I$ $a = -0.821941 - 0.041902I$ $b = -1.314860 + 0.139803I$	$4.76987 + 4.98668I$	0
$u = -1.147060 + 0.071642I$ $a = 3.68942 + 0.33716I$ $b = 0.463816 - 0.751777I$	$-0.503326 + 1.106790I$	0
$u = -1.147060 - 0.071642I$ $a = 3.68942 - 0.33716I$ $b = 0.463816 + 0.751777I$	$-0.503326 - 1.106790I$	0
$u = -0.143266 + 0.836626I$ $a = 1.373120 - 0.108253I$ $b = -0.948240 - 0.538305I$	$2.20961 + 7.79473I$	0
$u = -0.143266 - 0.836626I$ $a = 1.373120 + 0.108253I$ $b = -0.948240 + 0.538305I$	$2.20961 - 7.79473I$	0
$u = -1.095120 + 0.407068I$ $a = 0.320212 - 0.383419I$ $b = -0.782798 + 0.522188I$	$-0.70354 - 3.31461I$	0
$u = -1.095120 - 0.407068I$ $a = 0.320212 + 0.383419I$ $b = -0.782798 - 0.522188I$	$-0.70354 + 3.31461I$	0
$u = -0.088609 + 0.814986I$ $a = 0.762436 - 0.880723I$ $b = -0.794822 - 0.574538I$	$6.58986 + 4.90925I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.088609 - 0.814986I$ $a = 0.762436 + 0.880723I$ $b = -0.794822 + 0.574538I$	$6.58986 - 4.90925I$	0
$u = 0.162273 + 0.798920I$ $a = 0.316274 + 0.790393I$ $b = -0.995395 + 0.354943I$	$7.55362 + 0.96837I$	0
$u = 0.162273 - 0.798920I$ $a = 0.316274 - 0.790393I$ $b = -0.995395 - 0.354943I$	$7.55362 - 0.96837I$	0
$u = 1.149890 + 0.305354I$ $a = -0.939292 + 0.135464I$ $b = -1.58279 - 0.61339I$	$5.12337 + 3.69187I$	0
$u = 1.149890 - 0.305354I$ $a = -0.939292 - 0.135464I$ $b = -1.58279 + 0.61339I$	$5.12337 - 3.69187I$	0
$u = -0.149263 + 0.789775I$ $a = 0.787740 - 0.502854I$ $b = -1.000220 + 0.355985I$	$2.21730 + 3.52862I$	0
$u = -0.149263 - 0.789775I$ $a = 0.787740 + 0.502854I$ $b = -1.000220 - 0.355985I$	$2.21730 - 3.52862I$	0
$u = 0.116906 + 0.784426I$ $a = 1.027520 + 0.758088I$ $b = -1.48580 + 0.84073I$	$8.23030 - 7.68453I$	0
$u = 0.116906 - 0.784426I$ $a = 1.027520 - 0.758088I$ $b = -1.48580 - 0.84073I$	$8.23030 + 7.68453I$	0
$u = -0.043513 + 0.784836I$ $a = -1.13155 - 0.86536I$ $b = 0.974851 - 0.492494I$	$6.79678 + 0.76185I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.043513-0.784836I$ $a=-1.13155+0.86536I$ $b=\ \ 0.974851+0.492494I$	$6.79678-0.76185I$	0
$u=-0.090918+0.770718I$ $a=\ \ 0.001017+1.326850I$ $b=\ \ 0.06005-3.53436I$	$4.25332+2.68884I$	0
$u=-0.090918-0.770718I$ $a=\ \ 0.001017-1.326850I$ $b=\ \ 0.06005+3.53436I$	$4.25332-2.68884I$	0
$u=-1.188560+0.302224I$ $a=-3.89588+2.92318I$ $b=\ \ 0.00036+3.50411I$	$0.93309+1.21144I$	0
$u=-1.188560-0.302224I$ $a=-3.89588-2.92318I$ $b=\ \ 0.00036-3.50411I$	$0.93309-1.21144I$	0
$u=-1.175320+0.364112I$ $a=-0.270216+0.548089I$ $b=-0.889921+0.420737I$	$3.26694-0.64913I$	0
$u=-1.175320-0.364112I$ $a=-0.270216-0.548089I$ $b=-0.889921-0.420737I$	$3.26694+0.64913I$	0
$u=-1.126180+0.508705I$ $a=\ \ 0.898946+0.172086I$ $b=\ \ 1.39497-0.91788I$	$4.14016-8.79112I$	0
$u=-1.126180-0.508705I$ $a=\ \ 0.898946-0.172086I$ $b=\ \ 1.39497+0.91788I$	$4.14016+8.79112I$	0
$u=-0.561852+0.496019I$ $a=\ \ 1.115350-0.527225I$ $b=-0.500955-0.811935I$	$-2.53589+3.13368I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.561852 - 0.496019I$ $a = 1.115350 + 0.527225I$ $b = -0.500955 + 0.811935I$	$-2.53589 - 3.13368I$	0
$u = -1.136020 + 0.558855I$ $a = 0.617174 - 0.047762I$ $b = 0.798355 - 0.402245I$	$3.25541 - 0.12582I$	0
$u = -1.136020 - 0.558855I$ $a = 0.617174 + 0.047762I$ $b = 0.798355 + 0.402245I$	$3.25541 + 0.12582I$	0
$u = 0.011550 + 0.728370I$ $a = -1.54002 - 0.02128I$ $b = 0.811948 - 0.385158I$	$2.92007 - 2.23216I$	0
$u = 0.011550 - 0.728370I$ $a = -1.54002 + 0.02128I$ $b = 0.811948 + 0.385158I$	$2.92007 + 2.23216I$	0
$u = -1.230720 + 0.336990I$ $a = -0.36663 + 2.32265I$ $b = 0.792864 + 0.474315I$	$3.14368 + 3.28642I$	0
$u = -1.230720 - 0.336990I$ $a = -0.36663 - 2.32265I$ $b = 0.792864 - 0.474315I$	$3.14368 - 3.28642I$	0
$u = -1.247910 + 0.266698I$ $a = 0.768384 + 0.760013I$ $b = 0.824777 - 0.350711I$	$-0.96936 + 1.83401I$	0
$u = -1.247910 - 0.266698I$ $a = 0.768384 - 0.760013I$ $b = 0.824777 + 0.350711I$	$-0.96936 - 1.83401I$	0
$u = -1.287610 + 0.041503I$ $a = 0.66975 - 2.02910I$ $b = 0.387490 - 0.867901I$	$-4.21617 - 1.15380I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.287610 - 0.041503I$ $a = 0.66975 + 2.02910I$ $b = 0.387490 + 0.867901I$	$-4.21617 + 1.15380I$	0
$u = -0.053183 + 0.707999I$ $a = -0.903055 - 0.778769I$ $b = 0.902577 + 0.767060I$	$2.69570 + 1.67604I$	0
$u = -0.053183 - 0.707999I$ $a = -0.903055 + 0.778769I$ $b = 0.902577 - 0.767060I$	$2.69570 - 1.67604I$	0
$u = 1.30027$ $a = 0.0462337$ $b = 1.30766$	-1.62200	0
$u = -0.408373 + 0.567951I$ $a = -0.0891000 - 0.0161191I$ $b = -0.260164 + 0.867072I$	$-2.10687 + 0.70084I$	0
$u = -0.408373 - 0.567951I$ $a = -0.0891000 + 0.0161191I$ $b = -0.260164 - 0.867072I$	$-2.10687 - 0.70084I$	0
$u = 1.273780 + 0.296345I$ $a = -0.390302 - 0.625295I$ $b = 0.790325 + 0.164732I$	$-0.99913 - 1.45852I$	0
$u = 1.273780 - 0.296345I$ $a = -0.390302 + 0.625295I$ $b = 0.790325 - 0.164732I$	$-0.99913 + 1.45852I$	0
$u = -1.283820 + 0.305322I$ $a = -0.76594 + 1.50433I$ $b = 0.872259 + 0.566446I$	$-1.11938 + 5.96884I$	0
$u = -1.283820 - 0.305322I$ $a = -0.76594 - 1.50433I$ $b = 0.872259 - 0.566446I$	$-1.11938 - 5.96884I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.327730 + 0.070439I$ $a = -0.62997 + 1.44422I$ $b = -0.014472 + 0.282945I$	$-3.44617 - 3.59566I$	0
$u = 1.327730 - 0.070439I$ $a = -0.62997 - 1.44422I$ $b = -0.014472 - 0.282945I$	$-3.44617 + 3.59566I$	0
$u = 1.298730 + 0.338989I$ $a = 0.285583 + 0.380830I$ $b = 1.123630 + 0.504102I$	$2.60474 - 4.81260I$	0
$u = 1.298730 - 0.338989I$ $a = 0.285583 - 0.380830I$ $b = 1.123630 - 0.504102I$	$2.60474 + 4.81260I$	0
$u = 1.309800 + 0.298572I$ $a = -0.55339 - 1.32739I$ $b = 1.11367 - 1.09988I$	$-1.58451 - 5.32615I$	0
$u = 1.309800 - 0.298572I$ $a = -0.55339 + 1.32739I$ $b = 1.11367 + 1.09988I$	$-1.58451 + 5.32615I$	0
$u = 1.355400 + 0.028503I$ $a = 0.01751 + 3.16477I$ $b = 0.45318 + 2.49341I$	$-4.83518 - 0.65583I$	0
$u = 1.355400 - 0.028503I$ $a = 0.01751 - 3.16477I$ $b = 0.45318 - 2.49341I$	$-4.83518 + 0.65583I$	0
$u = 1.326120 + 0.332619I$ $a = 2.48237 + 2.50089I$ $b = 0.19652 + 3.55328I$	$-0.19585 - 6.67821I$	0
$u = 1.326120 - 0.332619I$ $a = 2.48237 - 2.50089I$ $b = 0.19652 - 3.55328I$	$-0.19585 + 6.67821I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.326560 + 0.356381I$ $a = 0.29521 + 1.92543I$ $b = -0.708338 + 0.686086I$	$2.15213 - 9.12723I$	0
$u = 1.326560 - 0.356381I$ $a = 0.29521 - 1.92543I$ $b = -0.708338 - 0.686086I$	$2.15213 + 9.12723I$	0
$u = -1.341230 + 0.339352I$ $a = -0.09526 - 2.46363I$ $b = -1.41486 - 0.99307I$	$3.64308 + 11.74720I$	0
$u = -1.341230 - 0.339352I$ $a = -0.09526 + 2.46363I$ $b = -1.41486 + 0.99307I$	$3.64308 - 11.74720I$	0
$u = 1.358860 + 0.338855I$ $a = -0.512927 + 0.834676I$ $b = -1.155300 - 0.186797I$	$-2.53934 - 7.60969I$	0
$u = 1.358860 - 0.338855I$ $a = -0.512927 - 0.834676I$ $b = -1.155300 + 0.186797I$	$-2.53934 + 7.60969I$	0
$u = 0.592031 + 0.074392I$ $a = -1.51424 + 0.39595I$ $b = -1.226890 + 0.278103I$	$4.78736 - 4.50881I$	$6.94966 + 4.99876I$
$u = 0.592031 - 0.074392I$ $a = -1.51424 - 0.39595I$ $b = -1.226890 - 0.278103I$	$4.78736 + 4.50881I$	$6.94966 - 4.99876I$
$u = -1.404270 + 0.042876I$ $a = -1.48733 - 1.04364I$ $b = -0.760017 - 0.566211I$	$-1.42389 + 4.99446I$	0
$u = -1.404270 - 0.042876I$ $a = -1.48733 + 1.04364I$ $b = -0.760017 + 0.566211I$	$-1.42389 - 4.99446I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.359400 + 0.362607I$ $a = 0.56802 + 1.29682I$ $b = -1.050780 + 0.591009I$	$-2.52295 - 12.11160I$	0
$u = 1.359400 - 0.362607I$ $a = 0.56802 - 1.29682I$ $b = -1.050780 - 0.591009I$	$-2.52295 + 12.11160I$	0
$u = 1.400470 + 0.183938I$ $a = -0.54835 - 1.40528I$ $b = -0.153428 - 1.096360I$	$-7.82829 - 3.32815I$	0
$u = 1.400470 - 0.183938I$ $a = -0.54835 + 1.40528I$ $b = -0.153428 + 1.096360I$	$-7.82829 + 3.32815I$	0
$u = -0.583612$ $a = 0.544793$ $b = -0.336523$	-0.970312	-9.97770
$u = -1.37079 + 0.35678I$ $a = -0.24834 - 1.41725I$ $b = -0.773940 - 0.533648I$	$2.71114 + 3.22315I$	0
$u = -1.37079 - 0.35678I$ $a = -0.24834 + 1.41725I$ $b = -0.773940 + 0.533648I$	$2.71114 - 3.22315I$	0
$u = 1.41732 + 0.10081I$ $a = 0.00873 + 1.70382I$ $b = -0.708506 + 0.990413I$	$-8.87200 - 4.93818I$	0
$u = 1.41732 - 0.10081I$ $a = 0.00873 - 1.70382I$ $b = -0.708506 - 0.990413I$	$-8.87200 + 4.93818I$	0
$u = 1.37888 + 0.39639I$ $a = -0.11288 - 2.22988I$ $b = 1.50035 - 1.13284I$	$2.2683 - 18.4659I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.37888 - 0.39639I$ $a = -0.11288 + 2.22988I$ $b = 1.50035 + 1.13284I$	$2.2683 + 18.4659I$	0
$u = 1.38164 + 0.41269I$ $a = -0.09672 - 1.47557I$ $b = 0.833671 - 0.803272I$	$1.40270 - 10.20110I$	0
$u = 1.38164 - 0.41269I$ $a = -0.09672 + 1.47557I$ $b = 0.833671 + 0.803272I$	$1.40270 + 10.20110I$	0
$u = 1.44978$ $a = -0.106761$ $b = -0.407994$	-7.46939	0
$u = 1.46808 + 0.17386I$ $a = 0.70037 - 1.61769I$ $b = 0.855289 - 1.015720I$	$-5.89344 - 10.41290I$	0
$u = 1.46808 - 0.17386I$ $a = 0.70037 + 1.61769I$ $b = 0.855289 + 1.015720I$	$-5.89344 + 10.41290I$	0
$u = -0.472359 + 0.148831I$ $a = -0.57944 + 1.97008I$ $b = -1.08911 - 2.05565I$	$0.670260 + 0.135177I$	$27.0189 - 4.6847I$
$u = -0.472359 - 0.148831I$ $a = -0.57944 - 1.97008I$ $b = -1.08911 + 2.05565I$	$0.670260 - 0.135177I$	$27.0189 + 4.6847I$
$u = -0.299380 + 0.376191I$ $a = -0.56926 - 2.18333I$ $b = -0.435451 + 0.189258I$	$1.54060 + 2.24837I$	$-0.25150 - 8.36036I$
$u = -0.299380 - 0.376191I$ $a = -0.56926 + 2.18333I$ $b = -0.435451 - 0.189258I$	$1.54060 - 2.24837I$	$-0.25150 + 8.36036I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.56011 + 0.03449I$ $a = 0.560796 + 0.026578I$ $b = 0.216786 + 0.072352I$	$-7.36096 + 0.00988I$	0
$u = 1.56011 - 0.03449I$ $a = 0.560796 - 0.026578I$ $b = 0.216786 - 0.072352I$	$-7.36096 - 0.00988I$	0
$u = 0.172518 + 0.021543I$ $a = 1.06469 + 2.51398I$ $b = 0.347391 + 0.606245I$	$0.08921 + 1.51284I$	$0.39009 - 4.24743I$
$u = 0.172518 - 0.021543I$ $a = 1.06469 - 2.51398I$ $b = 0.347391 - 0.606245I$	$0.08921 - 1.51284I$	$0.39009 + 4.24743I$
$u = -0.024614 + 0.157392I$ $a = -3.01966 - 7.50084I$ $b = 1.126090 + 0.073113I$	$2.53457 - 0.11622I$	$3.70952 - 2.56780I$
$u = -0.024614 - 0.157392I$ $a = -3.01966 + 7.50084I$ $b = 1.126090 - 0.073113I$	$2.53457 + 0.11622I$	$3.70952 + 2.56780I$

II. $I_2^u = \langle b^5 + b^4 - 2b^3 - b^2 + b - 1,\ a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3b^4 + 7b^3 - 2b^2 - 6b - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = 1.21774$	0.756147	3.96490
$u = 1.00000$ $a = -1.00000$ $b = 0.309916 + 0.549911I$	$-1.31583 + 1.53058I$	$-8.42731 - 4.45807I$
$u = 1.00000$ $a = -1.00000$ $b = 0.309916 - 0.549911I$	$-1.31583 - 1.53058I$	$-8.42731 + 4.45807I$
$u = 1.00000$ $a = -1.00000$ $b = -1.41878 + 0.21917I$	$4.22763 - 4.40083I$	$-8.55516 + 1.78781I$
$u = 1.00000$ $a = -1.00000$ $b = -1.41878 - 0.21917I$	$4.22763 + 4.40083I$	$-8.55516 - 1.78781I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 41$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.61803$ $b = 2.61803$	0.657974	41.0000
$u = -1.61803$ $a = 0.618034$ $b = 0.381966$	-7.23771	41.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^5(u^2-3u+1)(u^{106}+36u^{105}+\cdots+15872u+1024)$
c_2	$u^5(u^2+u-1)(u^{106}-2u^{105}+\cdots-32u-32)$
c_3	$(u^2-3u+1)(u^5-u^4+2u^3-u^2+u-1)$ $\cdot(u^{106}+5u^{105}+\cdots+117392u+6541)$
c_4	$(u^2-3u+1)(u^5+u^4-2u^3-u^2+u-1)$ $\cdot(u^{106}+u^{105}+\cdots+294900u-153931)$
c_5	$((u-1)^5)(u^2+u-1)(u^{106}-7u^{105}+\cdots-u^2+1)$
c_6	$u^5(u^2-u-1)(u^{106}-2u^{105}+\cdots-32u-32)$
c_7, c_8	$((u+1)^5)(u^2-u-1)(u^{106}-7u^{105}+\cdots-u^2+1)$
c_9	$((u+1)^2)(u^5-u^4+\cdots+u+1)(u^{106}+4u^{105}+\cdots+63u+1)$
c_{10}	$u^2(u^5+u^4+\cdots+u+1)(u^{106}-18u^{105}+\cdots-64u+4)$
c_{11}	$((u-1)^2)(u^5+u^4+\cdots+u-1)(u^{106}+4u^{105}+\cdots+63u+1)$
c_{12}	$(u^2-3u+1)(u^5+3u^4+\cdots-u-1)(u^{106}+9u^{105}+\cdots-2u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^5(y^2-7y+1)(y^{106}+60y^{105}+\cdots-5.09870\times10^7y+1048576)$
c_2, c_6	$y^5(y^2-3y+1)(y^{106}-36y^{105}+\cdots-15872y+1024)$
c_3	$(y^2-7y+1)(y^5+3y^4+4y^3+y^2-y-1)$ $\cdot(y^{106}+119y^{105}+\cdots-11945791032y+42784681)$
c_4	$(y^2-7y+1)(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{106}+47y^{105}+\cdots-1112070735948y+23694752761)$
c_5, c_7, c_8	$((y-1)^5)(y^2-3y+1)(y^{106}-89y^{105}+\cdots-2y+1)$
c_9, c_{11}	$((y-1)^2)(y^5-5y^4+\cdots-y-1)(y^{106}-80y^{105}+\cdots-5699y+1)$
c_{10}	$y^2(y^5+3y^4+\cdots-y-1)(y^{106}+18y^{105}+\cdots-888y+16)$
c_{12}	$(y^2-7y+1)(y^5-y^4+\cdots+3y-1)(y^{106}-25y^{105}+\cdots-20y+1)$