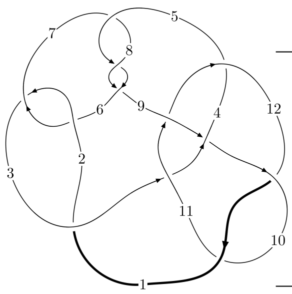
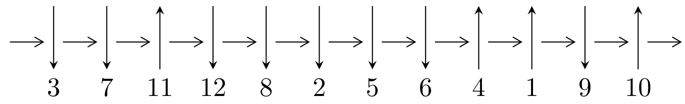
$12a_{0680}$ ($K12a_{0680}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.30506 \times 10^{89} u^{105} + 1.23026 \times 10^{90} u^{104} + \cdots + 1.08124 \times 10^{88} b + 1.22301 \times 10^{89},$$
$$- 6.32954 \times 10^{88} u^{105} - 3.69628 \times 10^{89} u^{104} + \cdots + 2.70309 \times 10^{87} a - 6.48561 \times 10^{88},\ u^{106} + 7u^{105} + \cdots -$$
$$I_2^u = \langle -2a^4 - 9a^3 - 10a^2 + 5b - 11a - 4,\ a^5 + 5a^4 + 6a^3 + 3a^2 + a + 1,\ u - 1 \rangle$$
$$I_3^u = \langle b + u + 2,\ a - 2u - 3,\ u^2 + u - 1 \rangle$$

* 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. $I_1^u = \langle 2.31 \times 10^{89} u^{105} + 1.23 \times 10^{90} u^{104} + \cdots + 1.08 \times 10^{88} b + 1.22 \times 10^{89},\ -6.33 \times 10^{88} u^{105} - 3.70 \times 10^{89} u^{104} + \cdots + 2.70 \times 10^{87} a - 6.49 \times 10^{88},\ u^{106} + 7u^{105} + \cdots - u^2 + 1\rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 23.4159u^{105} + 136.742u^{104} + \cdots - 46.1677u + 23.9933 \\ -21.3187u^{105} - 113.783u^{104} + \cdots + 3.78375u - 11.3113 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -251.012u^{105} - 1411.63u^{104} + \cdots + 127.509u - 179.204 \\ -241.071u^{105} - 1355.21u^{104} + \cdots + 127.389u - 176.226 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 65.9369u^{105} + 378.466u^{104} + \cdots - 60.0074u + 53.8430 \\ 23.5122u^{105} + 140.434u^{104} + \cdots - 18.7637u + 22.2506 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -91.6179u^{105} - 515.563u^{104} + \cdots + 31.6304u - 63.6344 \\ -95.0632u^{105} - 536.170u^{104} + \cdots + 47.1533u - 69.1269 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -37.2311u^{105} - 201.840u^{104} + \cdots - 16.8240u - 18.5106 \\ -81.3556u^{105} - 452.020u^{104} + \cdots + 35.0871u - 54.7541 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 72.6372u^{105} + 410.221u^{104} + \cdots - 24.5715u + 50.5987 \\ 127.336u^{105} + 721.871u^{104} + \cdots - 67.1446u + 94.7937 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 166.039u^{105} + 941.534u^{104} + \cdots - 79.2707u + 121.844 \\ 220.738u^{105} + 1253.18u^{104} + \cdots - 121.844u + 166.039 \end{pmatrix}$$

(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	$u^{106} + u^{105} + \cdots + 294900u - 153931$
c_4	$u^{106} + 5u^{105} + \cdots + 117392u + 6541$
c_5, c_7, c_8	$u^{106} - 7u^{105} + \cdots - u^2 + 1$
c_9	$u^{106} + 9u^{105} + \cdots - 2u - 1$
c_{10}, c_{12}	$u^{106} + 4u^{105} + \cdots + 63u + 1$
c_{11}	$u^{106} - 18u^{105} + \cdots - 64u + 4$

(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	$y^{106} + 47y^{105} + \cdots - 1112070735948y + 23694752761$
c_4	$y^{106} + 119y^{105} + \cdots - 11945791032y + 42784681$
c_5, c_7, c_8	$y^{106} - 89y^{105} + \cdots - 2y + 1$
c_9	$y^{106} - 25y^{105} + \cdots - 20y + 1$
c_{10}, c_{12}	$y^{106} - 80y^{105} + \cdots - 5699y + 1$
c_{11}	$y^{106} + 18y^{105} + \cdots - 888y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.676515 + 0.691802I$ $a = -0.336335 - 0.448876I$ $b = 0.707004 - 0.745975I$	$0.39517 + 2.43050I$	0
$u = 0.676515 - 0.691802I$ $a = -0.336335 + 0.448876I$ $b = 0.707004 + 0.745975I$	$0.39517 - 2.43050I$	0
$u = 0.155047 + 0.936670I$ $a = -0.503729 + 0.426978I$ $b = -0.094660 - 0.739124I$	$6.24033 - 5.37724I$	0
$u = 0.155047 - 0.936670I$ $a = -0.503729 - 0.426978I$ $b = -0.094660 + 0.739124I$	$6.24033 + 5.37724I$	0
$u = 0.154727 + 0.905545I$ $a = 0.479403 - 1.199780I$ $b = 0.94668 + 1.37587I$	$7.1033 - 13.7991I$	0
$u = 0.154727 - 0.905545I$ $a = 0.479403 + 1.199780I$ $b = 0.94668 - 1.37587I$	$7.1033 + 13.7991I$	0
$u = 0.545270 + 0.721728I$ $a = 0.614138 - 0.509648I$ $b = 0.857426 + 0.932428I$	$0.75431 - 7.41963I$	0
$u = 0.545270 - 0.721728I$ $a = 0.614138 + 0.509648I$ $b = 0.857426 - 0.932428I$	$0.75431 + 7.41963I$	0
$u = 0.900430$ $a = -5.58526$ $b = 1.50828$	0.491361	0
$u = 1.086680 + 0.311551I$ $a = -0.488568 - 0.839468I$ $b = 0.502420 - 0.844012I$	$-0.608988 - 0.539453I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.086680 - 0.311551I$ $a = -0.488568 + 0.839468I$ $b = 0.502420 + 0.844012I$	$-0.608988 + 0.539453I$	0
$u = -1.107130 + 0.281035I$ $a = -0.169385 + 0.289596I$ $b = -0.228945 + 1.090470I$	$4.76987 + 4.98668I$	0
$u = -1.107130 - 0.281035I$ $a = -0.169385 - 0.289596I$ $b = -0.228945 - 1.090470I$	$4.76987 - 4.98668I$	0
$u = 1.147060 + 0.071642I$ $a = -2.55732 - 0.51006I$ $b = -0.556726 - 1.145320I$	$-0.503326 - 1.106790I$	0
$u = 1.147060 - 0.071642I$ $a = -2.55732 + 0.51006I$ $b = -0.556726 + 1.145320I$	$-0.503326 + 1.106790I$	0
$u = 0.143266 + 0.836626I$ $a = -0.737577 + 1.002230I$ $b = -0.799361 - 0.878727I$	$2.20961 - 7.79473I$	0
$u = 0.143266 - 0.836626I$ $a = -0.737577 - 1.002230I$ $b = -0.799361 + 0.878727I$	$2.20961 + 7.79473I$	0
$u = 1.095120 + 0.407068I$ $a = -0.491541 + 0.367384I$ $b = -0.703204 + 0.844493I$	$-0.70354 + 3.31461I$	0
$u = 1.095120 - 0.407068I$ $a = -0.491541 - 0.367384I$ $b = -0.703204 - 0.844493I$	$-0.70354 - 3.31461I$	0
$u = 0.088609 + 0.814986I$ $a = -0.72225 - 1.64625I$ $b = -0.008950 + 0.823472I$	$6.58986 - 4.90925I$	0

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.088609 - 0.814986I$ $a = -0.72225 + 1.64625I$ $b = -0.008950 - 0.823472I$	$6.58986 + 4.90925I$	0
$u = -0.162273 + 0.798920I$ $a = 0.797320 + 0.306408I$ $b = -0.100735 - 0.852468I$	$7.55362 - 0.96837I$	0
$u = -0.162273 - 0.798920I$ $a = 0.797320 - 0.306408I$ $b = -0.100735 + 0.852468I$	$7.55362 + 0.96837I$	0
$u = -1.149890 + 0.305354I$ $a = 0.048581 - 0.495678I$ $b = -0.67876 - 1.36317I$	$5.12337 - 3.69187I$	0
$u = -1.149890 - 0.305354I$ $a = 0.048581 + 0.495678I$ $b = -0.67876 + 1.36317I$	$5.12337 + 3.69187I$	0
$u = 0.149263 + 0.789775I$ $a = -0.017817 - 0.679262I$ $b = 0.937147 + 0.817368I$	$2.21730 - 3.52862I$	0
$u = 0.149263 - 0.789775I$ $a = -0.017817 + 0.679262I$ $b = 0.937147 - 0.817368I$	$2.21730 + 3.52862I$	0
$u = -0.116906 + 0.784426I$ $a = -0.68138 - 1.33921I$ $b = -0.83302 + 1.34491I$	$8.23030 + 7.68453I$	0
$u = -0.116906 - 0.784426I$ $a = -0.68138 + 1.33921I$ $b = -0.83302 - 1.34491I$	$8.23030 - 7.68453I$	0
$u = 0.043513 + 0.784836I$ $a = 0.97448 - 1.51173I$ $b = 0.047337 + 0.690405I$	$6.79678 - 0.76185I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.043513 - 0.784836I$ $a = 0.97448 + 1.51173I$ $b = 0.047337 - 0.690405I$	$6.79678 + 0.76185I$	0
$u = 0.090918 + 0.770718I$ $a = -0.19936 + 2.47849I$ $b = 0.00449 - 3.27809I$	$4.25332 - 2.68884I$	0
$u = 0.090918 - 0.770718I$ $a = -0.19936 - 2.47849I$ $b = 0.00449 + 3.27809I$	$4.25332 + 2.68884I$	0
$u = 1.188560 + 0.302224I$ $a = 3.83111 + 1.32734I$ $b = -0.04331 + 3.31510I$	$0.93309 - 1.21144I$	0
$u = 1.188560 - 0.302224I$ $a = 3.83111 - 1.32734I$ $b = -0.04331 - 3.31510I$	$0.93309 + 1.21144I$	0
$u = 1.175320 + 0.364112I$ $a = -1.72182 + 0.97398I$ $b = 0.035690 - 0.706365I$	$3.26694 + 0.64913I$	0
$u = 1.175320 - 0.364112I$ $a = -1.72182 - 0.97398I$ $b = 0.035690 + 0.706365I$	$3.26694 - 0.64913I$	0
$u = 1.126180 + 0.508705I$ $a = -0.119120 - 0.489606I$ $b = 0.89677 - 1.30573I$	$4.14016 + 8.79112I$	0
$u = 1.126180 - 0.508705I$ $a = -0.119120 + 0.489606I$ $b = 0.89677 + 1.30573I$	$4.14016 - 8.79112I$	0
$u = 0.561852 + 0.496019I$ $a = -1.050810 + 0.090517I$ $b = -0.594871 - 0.545650I$	$-2.53589 - 3.13368I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.561852 - 0.496019I$ $a = -1.050810 - 0.090517I$ $b = -0.594871 + 0.545650I$	$-2.53589 + 3.13368I$	0
$u = 1.136020 + 0.558855I$ $a = 0.1116020 + 0.0736034I$ $b = 0.072474 + 0.707088I$	$3.25541 + 0.12582I$	0
$u = 1.136020 - 0.558855I$ $a = 0.1116020 - 0.0736034I$ $b = 0.072474 - 0.707088I$	$3.25541 - 0.12582I$	0
$u = -0.011550 + 0.728370I$ $a = 0.83282 + 1.32236I$ $b = 0.689599 - 0.927159I$	$2.92007 + 2.23216I$	0
$u = -0.011550 - 0.728370I$ $a = 0.83282 - 1.32236I$ $b = 0.689599 + 0.927159I$	$2.92007 - 2.23216I$	0
$u = 1.230720 + 0.336990I$ $a = 0.041104 + 0.919788I$ $b = -0.044115 - 0.784693I$	$3.14368 - 3.28642I$	0
$u = 1.230720 - 0.336990I$ $a = 0.041104 - 0.919788I$ $b = -0.044115 + 0.784693I$	$3.14368 + 3.28642I$	0
$u = 1.247910 + 0.266698I$ $a = -1.77028 + 0.30960I$ $b = -0.785011 - 0.715312I$	$-0.96936 - 1.83401I$	0
$u = 1.247910 - 0.266698I$ $a = -1.77028 - 0.30960I$ $b = -0.785011 + 0.715312I$	$-0.96936 + 1.83401I$	0
$u = 1.287610 + 0.041503I$ $a = 1.59815 - 1.53696I$ $b = 0.533123 - 0.429693I$	$-4.21617 + 1.15380I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.287610 - 0.041503I$ $a = 1.59815 + 1.53696I$ $b = 0.533123 + 0.429693I$	$-4.21617 - 1.15380I$	0
$u = 0.053183 + 0.707999I$ $a = -0.083772 - 0.941084I$ $b = -0.671860 + 1.142280I$	$2.69570 - 1.67604I$	0
$u = 0.053183 - 0.707999I$ $a = -0.083772 + 0.941084I$ $b = -0.671860 - 1.142280I$	$2.69570 + 1.67604I$	0
$u = -1.30027$ $a = 1.98068$ $b = 0.0571525$	-1.62200	0
$u = 0.408373 + 0.567951I$ $a = -0.169169 + 0.696148I$ $b = -0.424876 + 0.326429I$	$-2.10687 - 0.70084I$	0
$u = 0.408373 - 0.567951I$ $a = -0.169169 - 0.696148I$ $b = -0.424876 - 0.326429I$	$-2.10687 + 0.70084I$	0
$u = -1.273780 + 0.296345I$ $a = 0.509622 + 0.207417I$ $b = 0.638369 + 1.031440I$	$-0.99913 + 1.45852I$	0
$u = -1.273780 - 0.296345I$ $a = 0.509622 - 0.207417I$ $b = 0.638369 - 1.031440I$	$-0.99913 - 1.45852I$	0
$u = 1.283820 + 0.305322I$ $a = 2.41448 - 0.52333I$ $b = 0.765872 + 0.842265I$	$-1.11938 - 5.96884I$	0
$u = 1.283820 - 0.305322I$ $a = 2.41448 + 0.52333I$ $b = 0.765872 - 0.842265I$	$-1.11938 + 5.96884I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.327730+0.070439I$ $a=\ \ 0.628795+0.328662I$ $b=\ \ 0.310662-1.052500I$	$-3.44617+3.59566I$	0
$u=-1.327730-0.070439I$ $a=\ \ 0.628795-0.328662I$ $b=\ \ 0.310662+1.052500I$	$-3.44617-3.59566I$	0
$u=-1.298730+0.338989I$ $a=\ \ 1.63046+0.70206I$ $b=\ \ 0.138386-0.615485I$	$2.60474+4.81260I$	0
$u=-1.298730-0.338989I$ $a=\ \ 1.63046-0.70206I$ $b=\ \ 0.138386+0.615485I$	$2.60474-4.81260I$	0
$u=-1.309800+0.298572I$ $a=\ \ 0.211514-1.226060I$ $b=-0.76166-1.48938I$	$-1.58451+5.32615I$	0
$u=-1.309800-0.298572I$ $a=\ \ 0.211514+1.226060I$ $b=-0.76166+1.48938I$	$-1.58451-5.32615I$	0
$u=-1.355400+0.028503I$ $a=-0.58848+2.45860I$ $b=-0.11085+2.50944I$	$-4.83518+0.65583I$	0
$u=-1.355400-0.028503I$ $a=-0.58848-2.45860I$ $b=-0.11085-2.50944I$	$-4.83518-0.65583I$	0
$u=-1.326120+0.332619I$ $a=-2.45639+1.30296I$ $b=-0.05400+3.24926I$	$-0.19585+6.67821I$	0
$u=-1.326120-0.332619I$ $a=-2.45639-1.30296I$ $b=-0.05400-3.24926I$	$-0.19585-6.67821I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.326560 + 0.356381I$ $a = 0.003298 + 0.646392I$ $b = -0.026079 - 0.908207I$	$2.15213 + 9.12723I$	0
$u = -1.326560 - 0.356381I$ $a = 0.003298 - 0.646392I$ $b = -0.026079 + 0.908207I$	$2.15213 - 9.12723I$	0
$u = 1.341230 + 0.339352I$ $a = -2.35563 + 0.27394I$ $b = -0.93728 - 1.33270I$	$3.64308 - 11.74720I$	0
$u = 1.341230 - 0.339352I$ $a = -2.35563 - 0.27394I$ $b = -0.93728 + 1.33270I$	$3.64308 + 11.74720I$	0
$u = -1.358860 + 0.338855I$ $a = 1.55642 + 0.45502I$ $b = 1.148940 - 0.768915I$	$-2.53934 + 7.60969I$	0
$u = -1.358860 - 0.338855I$ $a = 1.55642 - 0.45502I$ $b = 1.148940 + 0.768915I$	$-2.53934 - 7.60969I$	0
$u = -0.592031 + 0.074392I$ $a = -0.649707 + 0.936556I$ $b = -0.522555 + 1.081850I$	$4.78736 + 4.50881I$	$6.94966 - 4.99876I$
$u = -0.592031 - 0.074392I$ $a = -0.649707 - 0.936556I$ $b = -0.522555 - 1.081850I$	$4.78736 - 4.50881I$	$6.94966 + 4.99876I$
$u = 1.404270 + 0.042876I$ $a = -1.51859 - 1.14123I$ $b = -0.817555 - 0.820991I$	$-1.42389 - 4.99446I$	0
$u = 1.404270 - 0.042876I$ $a = -1.51859 + 1.14123I$ $b = -0.817555 + 0.820991I$	$-1.42389 + 4.99446I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.359400+0.362607I$ $a=-2.01867-0.51673I$ $b=-0.867947+0.881577I$	$-2.52295+12.11160I$	0
$u=-1.359400-0.362607I$ $a=-2.01867+0.51673I$ $b=-0.867947-0.881577I$	$-2.52295-12.11160I$	0
$u=-1.400470+0.183938I$ $a=-0.959650-0.786298I$ $b=-0.571738-0.081049I$	$-7.82829+3.32815I$	0
$u=-1.400470-0.183938I$ $a=-0.959650+0.786298I$ $b=-0.571738+0.081049I$	$-7.82829-3.32815I$	0
$u=\ 0.583612$ $a=-0.270838$ $b=\ 0.375844$	-0.970312	-9.97770
$u=\ 1.37079+0.35678I$ $a=\ 0.896498+0.357764I$ $b=\ 0.023413+0.687910I$	$2.71114-3.22315I$	0
$u=\ 1.37079-0.35678I$ $a=\ 0.896498-0.357764I$ $b=\ 0.023413-0.687910I$	$2.71114+3.22315I$	0
$u=-1.41732+0.10081I$ $a=-1.89535+0.45530I$ $b=-0.827832+0.526867I$	$-8.87200+4.93818I$	0
$u=-1.41732-0.10081I$ $a=-1.89535-0.45530I$ $b=-0.827832-0.526867I$	$-8.87200-4.93818I$	0
$u=-1.37888+0.39639I$ $a=\ 2.09562+0.39181I$ $b=\ 1.00111-1.41069I$	$2.2683+18.4659I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.37888-0.39639I$ $a=\ 2.09562-0.39181I$ $b=\ 1.00111+1.41069I$	$2.2683-18.4659I$	0
$u=-1.38164+0.41269I$ $a=-1.017190+0.042585I$ $b=-0.216270+0.731064I$	$1.40270+10.20110I$	0
$u=-1.38164-0.41269I$ $a=-1.017190-0.042585I$ $b=-0.216270-0.731064I$	$1.40270-10.20110I$	0
$u=-1.44978$ $a=\ 1.27717$ $b=\ 1.00132$	-7.46939	0
$u=-1.46808+0.17386I$ $a=\ 1.82916-0.44195I$ $b=\ 1.08073-1.00280I$	$-5.89344+10.41290I$	0
$u=-1.46808-0.17386I$ $a=\ 1.82916+0.44195I$ $b=\ 1.08073+1.00280I$	$-5.89344-10.41290I$	0
$u=\ 0.472359+0.148831I$ $a=-1.73562+3.12337I$ $b=\ 1.16952-2.15089I$	$0.670260-0.135177I$	$27.0189+4.6847I$
$u=\ 0.472359-0.148831I$ $a=-1.73562-3.12337I$ $b=\ 1.16952+2.15089I$	$0.670260+0.135177I$	$27.0189-4.6847I$
$u=\ 0.299380+0.376191I$ $a=-0.66009-2.85268I$ $b=\ 0.424141+0.916734I$	$1.54060-2.24837I$	$-0.25150+8.36036I$
$u=\ 0.299380-0.376191I$ $a=-0.66009+2.85268I$ $b=\ 0.424141-0.916734I$	$1.54060+2.24837I$	$-0.25150-8.36036I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.56011 + 0.03449I$ $a = 0.627791 + 0.194798I$ $b = 0.651640 + 0.137218I$	$-7.36096 - 0.00988I$	0
$u = -1.56011 - 0.03449I$ $a = 0.627791 - 0.194798I$ $b = 0.651640 - 0.137218I$	$-7.36096 + 0.00988I$	0
$u = -0.172518 + 0.021543I$ $a = 1.81779 + 3.90095I$ $b = 0.349706 + 0.727257I$	$0.08921 - 1.51284I$	$0.39009 + 4.24743I$
$u = -0.172518 - 0.021543I$ $a = 1.81779 - 3.90095I$ $b = 0.349706 - 0.727257I$	$0.08921 + 1.51284I$	$0.39009 - 4.24743I$
$u = 0.024614 + 0.157392I$ $a = 2.92457 - 5.12463I$ $b = -0.621769 + 0.285762I$	$2.53457 + 0.11622I$	$3.70952 + 2.56780I$
$u = 0.024614 - 0.157392I$ $a = 2.92457 + 5.12463I$ $b = -0.621769 - 0.285762I$	$2.53457 - 0.11622I$	$3.70952 - 2.56780I$

II.

$$\boldsymbol{I_2^u = \langle -2a^4 - 9a^3 - 10a^2 + 5b - 11a - 4,\ a^5 + 5a^4 + 6a^3 + 3a^2 + a + 1,\ u - 1\rangle}$$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} a \\ \frac{2}{5}a^4 + \frac{9}{5}a^3 + 2a^2 + \frac{11}{5}a + \frac{4}{5} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{5}a^4 + \frac{2}{5}a^3 - a^2 - \frac{2}{5}a + \frac{7}{5} \\ -\frac{1}{5}a^4 - \frac{7}{5}a^3 + \cdots - \frac{8}{5}a + \frac{3}{5} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{16}{5}a - \frac{4}{5} \\ -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \\ -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} \frac{2}{5}a^4 + \frac{9}{5}a^3 + 2a^2 + \frac{16}{5}a + \frac{4}{5} \\ \frac{2}{5}a^4 + \frac{9}{5}a^3 + 2a^2 + \frac{11}{5}a + \frac{4}{5} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \\ -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \\ -\frac{2}{5}a^4 - \frac{14}{5}a^3 + \cdots - \frac{21}{5}a - \frac{4}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{7}{5}a^4 - \frac{24}{5}a^3 + 2a^2 + \frac{9}{5}a - \frac{44}{5}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6	u^5
c_3, c_{12}	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
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	$u^5 + 3u^4 + 4u^3 + u^2 - u - 1$
c_{10}	$u^5 - u^4 - 2u^3 + u^2 + u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.881366 + 0.489365I$ $b = -0.339110 + 0.822375I$	$-1.31583 + 1.53058I$	$-8.42731 - 4.45807I$
$u = 1.00000$ $a = -0.881366 - 0.489365I$ $b = -0.339110 - 0.822375I$	$-1.31583 - 1.53058I$	$-8.42731 + 4.45807I$
$u = 1.00000$ $a = 0.142272 + 0.509071I$ $b = 0.455697 + 1.200150I$	$4.22763 - 4.40083I$	$-8.55516 + 1.78781I$
$u = 1.00000$ $a = 0.142272 - 0.509071I$ $b = 0.455697 - 1.200150I$	$4.22763 + 4.40083I$	$-8.55516 - 1.78781I$
$u = 1.00000$ $a = -3.52181$ $b = 0.766826$	0.756147	3.96490

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 41$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 4.23607$ $b = -2.61803$	0.657974	41.0000
$u = -1.61803$ $a = -0.236068$ $b = -0.381966$	−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	$(u^2+3u+1)(u^5+u^4-2u^3-u^2+u-1)$ $\cdot(u^{106}+u^{105}+\cdots+294900u-153931)$
c_4	$(u^2+3u+1)(u^5-u^4+2u^3-u^2+u-1)$ $\cdot(u^{106}+5u^{105}+\cdots+117392u+6541)$
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	$(u^2+3u+1)(u^5+3u^4+\cdots-u-1)(u^{106}+9u^{105}+\cdots-2u-1)$
c_{10}	$((u+1)^2)(u^5-u^4+\cdots+u+1)(u^{106}+4u^{105}+\cdots+63u+1)$
c_{11}	$u^2(u^5-u^4+\cdots+u-1)(u^{106}-18u^{105}+\cdots-64u+4)$
c_{12}	$((u-1)^2)(u^5+u^4+\cdots+u-1)(u^{106}+4u^{105}+\cdots+63u+1)$

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	$(y^2-7y+1)(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{106}+47y^{105}+\cdots-1112070735948y+23694752761)$
c_4	$(y^2-7y+1)(y^5+3y^4+4y^3+y^2-y-1)$ $\cdot(y^{106}+119y^{105}+\cdots-11945791032y+42784681)$
c_5, c_7, c_8	$((y-1)^5)(y^2-3y+1)(y^{106}-89y^{105}+\cdots-2y+1)$
c_9	$(y^2-7y+1)(y^5-y^4+\cdots+3y-1)(y^{106}-25y^{105}+\cdots-20y+1)$
c_{10}, c_{12}	$((y-1)^2)(y^5-5y^4+\cdots-y-1)(y^{106}-80y^{105}+\cdots-5699y+1)$
c_{11}	$y^2(y^5+3y^4+\cdots-y-1)(y^{106}+18y^{105}+\cdots-888y+16)$