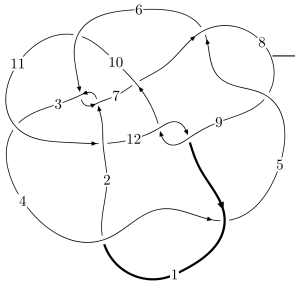
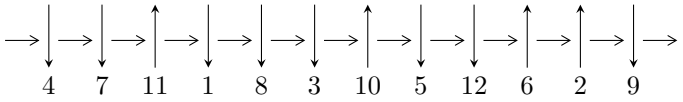
$12a_{1106}$ $(K12a_{1106})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -4.60339 \times 10^{20} u^{45} - 6.13256 \times 10^{21} u^{44} + \cdots + 3.13338 \times 10^{20} b - 5.65347 \times 10^{22}, \\
&\quad - 8.14927 \times 10^{21} u^{45} - 9.80301 \times 10^{22} u^{44} + \cdots + 4.07340 \times 10^{21} a - 3.64681 \times 10^{23}, \\
&\quad u^{46} + 13u^{45} + \cdots + 528u + 52 \rangle \\
I_2^u &= \langle -2.52311 \times 10^{41} a u^{48} + 4.74776 \times 10^{45} u^{48} + \cdots + 1.26156 \times 10^{42} a - 1.24713 \times 10^{46}, \\
&\quad - 2.57277 \times 10^{43} a u^{48} - 5.51496 \times 10^{43} u^{48} + \cdots - 6.30524 \times 10^{44} a - 2.26929 \times 10^{44}, \\
&\quad u^{49} - 5u^{48} + \cdots - 24u + 5 \rangle \\
I_3^u &= \langle 39u^{23} - 272u^{22} + \cdots + 2b + 298,\ -227u^{23} + 1814u^{22} + \cdots + 4a - 104,\ u^{24} - 8u^{23} + \cdots - 14u + 4 \rangle \\
I_4^u &= \langle -u^8 a - 2u^8 + \cdots - a + 12,\ -2u^8 a + 4u^8 + \cdots - 5a + 4, \\
&\quad u^9 + 3u^8 + 8u^7 + 11u^6 + 15u^5 + 12u^4 + 12u^3 + 6u^2 + 4u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 186 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. $\boldsymbol{I_1^u = \langle -4.60 \times 10^{20} u^{45} - 6.13 \times 10^{21} u^{44} + \cdots + 3.13 \times 10^{20} b - 5.65 \times 10^{22},\ -8.15 \times 10^{21} u^{45} - 9.80 \times 10^{22} u^{44} + \cdots + 4.07 \times 10^{21} a - 3.65 \times 10^{23},\ u^{46} + 13 u^{45} + \cdots + 528 u + 52 \rangle}$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 2.00061u^{45} + 24.0659u^{44} + \cdots + 818.429u + 89.5274 \\ 1.46914u^{45} + 19.5717u^{44} + \cdots + 1562.07u + 180.427 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -4.00772u^{45} - 51.8972u^{44} + \cdots - 2075.81u - 216.751 \\ -1.86528u^{45} - 22.5866u^{44} + \cdots - 2577.80u - 305.396 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 3.46975u^{45} + 43.6376u^{44} + \cdots + 2380.50u + 269.954 \\ 1.46914u^{45} + 19.5717u^{44} + \cdots + 1562.07u + 180.427 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -6.58633u^{45} - 80.4182u^{44} + \cdots - 5130.89u - 595.022 \\ -5.20411u^{45} - 63.1627u^{44} + \cdots - 2881.56u - 342.489 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2.09825u^{45} + 27.7764u^{44} + \cdots + 2050.58u + 229.638 \\ -0.444574u^{45} - 6.01583u^{44} + \cdots + 264.191u + 37.7574 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -9.79082u^{45} - 125.313u^{44} + \cdots - 5041.79u - 538.637 \\ -3.63013u^{45} - 47.9190u^{44} + \cdots - 5309.39u - 606.117 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 5.55453u^{45} + 70.1876u^{44} + \cdots + 3099.66u + 331.686 \\ -2.63800u^{45} - 30.8944u^{44} + \cdots - 683.228u - 70.7210 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 8.06685u^{45} + 102.106u^{44} + \cdots + 5565.75u + 618.858 \\ 1.02710u^{45} + 14.1539u^{44} + \cdots + 2593.21u + 305.374 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1739513054631728078213}{1566691251286836936 23}u^{45} - \frac{1972037453604032612 8317}{15666912512868369362 3}u^{44} + \cdots + \frac{6572601222439032534 4578}{15666912512868369362 3}u + \frac{6323936967181692502404}{15666912512868369362 3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8	$u^{46} - u^{45} + \cdots + 4u + 1$
c_2, c_6	$u^{46} + 13u^{45} + \cdots + 528u + 52$
c_3, c_{10}	$u^{46} - u^{45} + \cdots - u + 1$
c_7, c_{11}	$u^{46} + 3u^{45} + \cdots + 44u + 19$
c_9, c_{12}	$u^{46} - 16u^{45} + \cdots - 4284u + 356$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{46} + 51y^{45} + \cdots + 46y + 1$
c_2, c_6	$y^{46} + 25y^{45} + \cdots + 38416y + 2704$
c_3, c_{10}	$y^{46} - 31y^{45} + \cdots - 37y + 1$
c_7, c_{11}	$y^{46} - 11y^{45} + \cdots - 74y + 361$
c_9, c_{12}	$y^{46} + 28y^{45} + \cdots + 6976y + 126736$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.807598 + 0.595089I$ $a = 0.145048 - 0.406650I$ $b = -0.139471 + 0.179847I$	$2.14007 - 2.35023I$	0
$u = 0.807598 - 0.595089I$ $a = 0.145048 + 0.406650I$ $b = -0.139471 - 0.179847I$	$2.14007 + 2.35023I$	0
$u = 0.231176 + 0.989385I$ $a = -1.43994 + 0.06005I$ $b = 0.753112 + 0.540664I$	$1.24241 - 3.60901I$	0
$u = 0.231176 - 0.989385I$ $a = -1.43994 - 0.06005I$ $b = 0.753112 - 0.540664I$	$1.24241 + 3.60901I$	0
$u = -0.958272 + 0.171846I$ $a = -0.139418 - 0.213175I$ $b = -1.218050 + 0.694851I$	$6.01083 - 6.65776I$	0
$u = -0.958272 - 0.171846I$ $a = -0.139418 + 0.213175I$ $b = -1.218050 - 0.694851I$	$6.01083 + 6.65776I$	0
$u = -0.133424 + 0.931610I$ $a = -1.83866 - 0.63682I$ $b = 0.48794 + 1.35404I$	$1.87823 + 0.64171I$	$7.20970 + 0.I$
$u = -0.133424 - 0.931610I$ $a = -1.83866 + 0.63682I$ $b = 0.48794 - 1.35404I$	$1.87823 - 0.64171I$	$7.20970 + 0.I$
$u = -0.850515 + 0.368554I$ $a = 0.199127 + 0.211355I$ $b = 0.481513 - 0.475580I$	$-1.68076 + 0.65406I$	$-4.00000 + 0.I$
$u = -0.850515 - 0.368554I$ $a = 0.199127 - 0.211355I$ $b = 0.481513 + 0.475580I$	$-1.68076 - 0.65406I$	$-4.00000 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.079950 + 1.109550I$ $a = 1.71790 - 0.71105I$ $b = -1.273120 - 0.404326I$	$12.79600 + 1.32693I$	0
$u = 0.079950 - 1.109550I$ $a = 1.71790 + 0.71105I$ $b = -1.273120 + 0.404326I$	$12.79600 - 1.32693I$	0
$u = -0.123378 + 0.876834I$ $a = -1.62741 + 1.21693I$ $b = 1.39351 + 0.40523I$	$11.46350 - 1.33067I$	$5.54801 + 0.I$
$u = -0.123378 - 0.876834I$ $a = -1.62741 - 1.21693I$ $b = 1.39351 - 0.40523I$	$11.46350 + 1.33067I$	$5.54801 + 0.I$
$u = -1.136830 + 0.116641I$ $a = -0.090473 + 0.188791I$ $b = 1.154570 - 0.661441I$	$10.9076 - 13.1169I$	0
$u = -1.136830 - 0.116641I$ $a = -0.090473 - 0.188791I$ $b = 1.154570 + 0.661441I$	$10.9076 + 13.1169I$	0
$u = -1.177030 + 0.246057I$ $a = 0.100844 - 0.173825I$ $b = -0.760628 + 0.238675I$	$-0.28329 - 2.46940I$	0
$u = -1.177030 - 0.246057I$ $a = 0.100844 + 0.173825I$ $b = -0.760628 - 0.238675I$	$-0.28329 + 2.46940I$	0
$u = -0.553395 + 1.117580I$ $a = 0.674037 - 1.222200I$ $b = -1.40922 + 0.32528I$	$13.4569 + 4.5178I$	0
$u = -0.553395 - 1.117580I$ $a = 0.674037 + 1.222200I$ $b = -1.40922 - 0.32528I$	$13.4569 - 4.5178I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.587105 + 1.105440I$ $a = 0.597505 + 0.241208I$ $b = -0.272732 - 0.315437I$	$7.07812 - 0.91875I$	0
$u = 0.587105 - 1.105440I$ $a = 0.597505 - 0.241208I$ $b = -0.272732 + 0.315437I$	$7.07812 + 0.91875I$	0
$u = -0.225696 + 0.704958I$ $a = 1.345580 - 0.046479I$ $b = -0.425277 - 0.851426I$	$-0.34086 + 1.39531I$	$-7.67124 - 3.20232I$
$u = -0.225696 - 0.704958I$ $a = 1.345580 + 0.046479I$ $b = -0.425277 + 0.851426I$	$-0.34086 - 1.39531I$	$-7.67124 + 3.20232I$
$u = -0.410569 + 1.212210I$ $a = 2.01084 - 0.24207I$ $b = -1.52000 - 1.17808I$	$14.4173 + 3.8759I$	0
$u = -0.410569 - 1.212210I$ $a = 2.01084 + 0.24207I$ $b = -1.52000 + 1.17808I$	$14.4173 - 3.8759I$	0
$u = 1.114170 + 0.678095I$ $a = -0.373922 + 0.123021I$ $b = 0.230477 - 0.018824I$	$5.21462 - 5.32991I$	0
$u = 1.114170 - 0.678095I$ $a = -0.373922 - 0.123021I$ $b = 0.230477 + 0.018824I$	$5.21462 + 5.32991I$	0
$u = -0.677172 + 0.036174I$ $a = 0.490434 + 0.446612I$ $b = 1.163000 + 0.751547I$	$10.79730 - 0.17282I$	$2.61634 - 1.42688I$
$u = -0.677172 - 0.036174I$ $a = 0.490434 - 0.446612I$ $b = 1.163000 - 0.751547I$	$10.79730 + 0.17282I$	$2.61634 + 1.42688I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.315606+1.283940I$ $a=-1.034810+0.862364I$ $b=\ \ 1.223300+0.044072I$	$10.86770-2.33603I$	0
$u=-0.315606-1.283940I$ $a=-1.034810-0.862364I$ $b=\ \ 1.223300-0.044072I$	$10.86770+2.33603I$	0
$u=-0.519948+1.222880I$ $a=\ \ 1.245960-0.257027I$ $b=-1.081520-0.697292I$	$1.18366+4.44726I$	0
$u=-0.519948-1.222880I$ $a=\ \ 1.245960+0.257027I$ $b=-1.081520+0.697292I$	$1.18366-4.44726I$	0
$u=-0.550737+1.253470I$ $a=-1.79269+0.41681I$ $b=\ \ 1.63311+0.95618I$	$9.3517+12.1022I$	0
$u=-0.550737-1.253470I$ $a=-1.79269-0.41681I$ $b=\ \ 1.63311-0.95618I$	$9.3517-12.1022I$	0
$u=-0.286358+1.351340I$ $a=-1.179040+0.177372I$ $b=\ \ 0.921389+0.559060I$	$5.63593+2.22264I$	0
$u=-0.286358-1.351340I$ $a=-1.179040-0.177372I$ $b=\ \ 0.921389-0.559060I$	$5.63593-2.22264I$	0
$u=-0.58550+1.33618I$ $a=\ \ 1.67084-0.31304I$ $b=-1.53069-0.89395I$	$14.7508+19.1920I$	0
$u=-0.58550-1.33618I$ $a=\ \ 1.67084+0.31304I$ $b=-1.53069+0.89395I$	$14.7508-19.1920I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.60654+1.32680I$ $a=-1.223140+0.285432I$ $b=\ \ 1.169600+0.620562I$	$3.28252+8.78274I$	0
$u=-0.60654-1.32680I$ $a=-1.223140-0.285432I$ $b=\ \ 1.169600-0.620562I$	$3.28252-8.78274I$	0
$u=-0.38466+1.48180I$ $a=\ \ 0.857403-0.686288I$ $b=-1.047490+0.028732I$	$16.2619-7.4805I$	0
$u=-0.38466-1.48180I$ $a=\ \ 0.857403+0.686288I$ $b=-1.047490-0.028732I$	$16.2619+7.4805I$	0
$u=\ \ 0.175636+0.397553I$ $a=\ \ 1.72245-0.09939I$ $b=-0.433330-0.421079I$	$-0.163355+1.344400I$	$-0.935383-1.030188I$
$u=\ \ 0.175636-0.397553I$ $a=\ \ 1.72245+0.09939I$ $b=-0.433330+0.421079I$	$-0.163355-1.344400I$	$-0.935383+1.030188I$

II. $I_2^u = \langle -2.52 \times 10^{41} a u^{48} + 4.75 \times 10^{45} u^{48} + \cdots + 1.26 \times 10^{42} a - 1.25 \times 10^{46},\ -2.57 \times 10^{43} a u^{48} - 5.51 \times 10^{43} u^{48} + \cdots - 6.31 \times 10^{44} a - 2.27 \times 10^{44},\ u^{49} - 5u^{48} + \cdots - 24u + 5 \rangle$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} a \\ 0.000388350au^{48} - 7.30759u^{48} + \cdots - 0.00194175a + 19.1954 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.558404au^{48} - 4.16725u^{48} + \cdots - 21.6247a - 4.70757 \\ -0.798041au^{48} - 0.836990u^{48} + \cdots - 14.9132a + 38.8839 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.000388350au^{48} - 7.30759u^{48} + \cdots + 0.998058a + 19.1954 \\ 0.000388350au^{48} - 7.30759u^{48} + \cdots - 0.00194175a + 19.1954 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 7.30759au^{48} - 8.39539u^{48} + \cdots - 19.1954a - 12.6628 \\ -7.06522u^{48} + 35.5339u^{47} + \cdots - 142.655u + 24.4019 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -4.28213u^{48} + 22.8488u^{47} + \cdots + a + 21.9874 \\ -0.000388350au^{48} - 6.31628u^{48} + \cdots + 0.00194175a + 15.9948 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -4.17147au^{48} + 5.85731u^{48} + \cdots + 29.7650a - 59.5141 \\ 0.878342au^{48} + 0.836990u^{48} + \cdots + 5.90205a - 37.8839 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -3.32947au^{48} - 1.66919u^{48} + \cdots + 7.94493a - 43.2952 \\ 0.897083au^{48} + 2.34292u^{48} + \cdots + 16.2745a - 40.3382 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -3.75017au^{48} + 3.58649u^{48} + \cdots - 10.6560a - 8.10556 \\ -0.917110au^{48} - 1.49781u^{48} + \cdots + 12.6166a + 7.49436 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -24.6678u^{48} + 121.656u^{47} + \cdots - 316.868u - 8.44978$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8	$u^{98} - 8u^{97} + \cdots - 1622u + 113$
c_2, c_6	$(u^{49} - 5u^{48} + \cdots - 24u + 5)^2$
c_3, c_{10}	$u^{98} - 2u^{97} + \cdots - 1030836u + 176389$
c_7, c_{11}	$u^{98} + 14u^{97} + \cdots + 155699u + 22103$
c_9, c_{12}	$(u^{49} + 12u^{48} + \cdots + 257u + 59)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{98} + 86y^{97} + \cdots + 162250y + 12769$
c_2, c_6	$(y^{49} + 33y^{48} + \cdots - 624y - 25)^2$
c_3, c_{10}	$y^{98} - 12y^{97} + \cdots + 591541541430y + 31113079321$
c_7, c_{11}	$y^{98} - 14y^{97} + \cdots - 3878773113y + 488542609$
c_9, c_{12}	$(y^{49} + 40y^{48} + \cdots + 20383y - 3481)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.957418 + 0.137707I$ $a = 0.286955 + 0.026555I$ $b = 0.770591 + 0.427917I$	$0.78697 + 3.63609I$	$-6.16185 - 3.13365I$
$u = 0.957418 + 0.137707I$ $a = 0.098397 + 0.256279I$ $b = -0.949930 - 0.580750I$	$0.78697 + 3.63609I$	$-6.16185 - 3.13365I$
$u = 0.957418 - 0.137707I$ $a = 0.286955 - 0.026555I$ $b = 0.770591 - 0.427917I$	$0.78697 - 3.63609I$	$-6.16185 + 3.13365I$
$u = 0.957418 - 0.137707I$ $a = 0.098397 - 0.256279I$ $b = -0.949930 + 0.580750I$	$0.78697 - 3.63609I$	$-6.16185 + 3.13365I$
$u = 0.264760 + 1.006070I$ $a = -0.52326 + 1.53050I$ $b = 0.02032 - 2.33382I$	$10.39620 - 9.45799I$	0
$u = 0.264760 + 1.006070I$ $a = 2.83956 - 0.12888I$ $b = -0.675041 + 0.718691I$	$10.39620 - 9.45799I$	0
$u = 0.264760 - 1.006070I$ $a = -0.52326 - 1.53050I$ $b = 0.02032 + 2.33382I$	$10.39620 + 9.45799I$	0
$u = 0.264760 - 1.006070I$ $a = 2.83956 + 0.12888I$ $b = -0.675041 - 0.718691I$	$10.39620 + 9.45799I$	0
$u = 0.226346 + 0.929253I$ $a = -0.148134 + 0.600625I$ $b = -0.020547 + 0.894164I$	$0.67276 - 3.75122I$	$-4.00000 + 10.38124I$
$u = 0.226346 + 0.929253I$ $a = -2.33048 - 0.06053I$ $b = 1.42722 - 0.18159I$	$0.67276 - 3.75122I$	$-4.00000 + 10.38124I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.226346 - 0.929253I$ $a = -0.148134 - 0.600625I$ $b = -0.020547 - 0.894164I$	$0.67276 + 3.75122I$	$-4.00000 - 10.38124I$
$u = 0.226346 - 0.929253I$ $a = -2.33048 + 0.06053I$ $b = 1.42722 + 0.18159I$	$0.67276 + 3.75122I$	$-4.00000 - 10.38124I$
$u = -0.091513 + 0.935745I$ $a = -0.456898 - 0.674035I$ $b = -0.18764 + 1.53444I$	$1.92899 + 0.49464I$	$3.10942 + 0.I$
$u = -0.091513 + 0.935745I$ $a = -2.38983 - 0.72163I$ $b = 0.746133 + 0.681858I$	$1.92899 + 0.49464I$	$3.10942 + 0.I$
$u = -0.091513 - 0.935745I$ $a = -0.456898 + 0.674035I$ $b = -0.18764 - 1.53444I$	$1.92899 - 0.49464I$	$3.10942 + 0.I$
$u = -0.091513 - 0.935745I$ $a = -2.38983 + 0.72163I$ $b = 0.746133 - 0.681858I$	$1.92899 - 0.49464I$	$3.10942 + 0.I$
$u = -0.156773 + 1.055540I$ $a = -1.012630 + 0.946873I$ $b = 1.08233 - 1.74068I$	$6.66499 + 3.79319I$	0
$u = -0.156773 + 1.055540I$ $a = 2.58947 + 0.96162I$ $b = -0.826969 - 0.198015I$	$6.66499 + 3.79319I$	0
$u = -0.156773 - 1.055540I$ $a = -1.012630 - 0.946873I$ $b = 1.08233 + 1.74068I$	$6.66499 - 3.79319I$	0
$u = -0.156773 - 1.055540I$ $a = 2.58947 - 0.96162I$ $b = -0.826969 + 0.198015I$	$6.66499 - 3.79319I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.346619+1.023320I$ $a=\ \ 0.016055-0.908875I$ $b=-0.22570+1.48864I$	$4.55239+5.49253I$	0
$u=-0.346619+1.023320I$ $a=-1.89262-0.17132I$ $b=\ \ 0.520618+0.415489I$	$4.55239+5.49253I$	0
$u=-0.346619-1.023320I$ $a=\ \ 0.016055+0.908875I$ $b=-0.22570-1.48864I$	$4.55239-5.49253I$	0
$u=-0.346619-1.023320I$ $a=-1.89262+0.17132I$ $b=\ \ 0.520618-0.415489I$	$4.55239-5.49253I$	0
$u=\ \ 0.255872+0.810452I$ $a=-2.33454-0.40118I$ $b=\ \ 0.036356-1.193870I$	$3.99300-1.28672I$	$-2.49363+5.09640I$
$u=\ \ 0.255872+0.810452I$ $a=\ \ 2.03137-1.80698I$ $b=-0.70468+2.27070I$	$3.99300-1.28672I$	$-2.49363+5.09640I$
$u=\ \ 0.255872-0.810452I$ $a=-2.33454+0.40118I$ $b=\ \ 0.036356+1.193870I$	$3.99300+1.28672I$	$-2.49363-5.09640I$
$u=\ \ 0.255872-0.810452I$ $a=\ \ 2.03137+1.80698I$ $b=-0.70468-2.27070I$	$3.99300+1.28672I$	$-2.49363-5.09640I$
$u=\ \ 0.650362+0.441524I$ $a=\ \ 0.677266+1.068720I$ $b=-1.096870+0.194713I$	$5.53096-2.47656I$	$1.49723+2.71117I$
$u=\ \ 0.650362+0.441524I$ $a=\ \ 0.184610-0.352276I$ $b=\ \ 0.830729-0.636420I$	$5.53096-2.47656I$	$1.49723+2.71117I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.650362 - 0.441524I$ $a = 0.677266 - 1.068720I$ $b = -1.096870 - 0.194713I$	$5.53096 + 2.47656I$	$1.49723 - 2.71117I$
$u = 0.650362 - 0.441524I$ $a = 0.184610 + 0.352276I$ $b = 0.830729 + 0.636420I$	$5.53096 + 2.47656I$	$1.49723 - 2.71117I$
$u = 1.217590 + 0.050320I$ $a = -0.380129 - 0.100856I$ $b = 0.987499 + 0.498459I$	$3.96783 + 6.46429I$	0
$u = 1.217590 + 0.050320I$ $a = -0.107019 + 0.139455I$ $b = -0.719519 - 0.514679I$	$3.96783 + 6.46429I$	0
$u = 1.217590 - 0.050320I$ $a = -0.380129 + 0.100856I$ $b = 0.987499 - 0.498459I$	$3.96783 - 6.46429I$	0
$u = 1.217590 - 0.050320I$ $a = -0.107019 - 0.139455I$ $b = -0.719519 + 0.514679I$	$3.96783 - 6.46429I$	0
$u = -0.943010 + 0.818382I$ $a = -1.130180 + 0.715066I$ $b = 1.347900 - 0.119643I$	$8.64456 + 5.11693I$	0
$u = -0.943010 + 0.818382I$ $a = 0.185523 + 0.251875I$ $b = 0.692592 + 0.383315I$	$8.64456 + 5.11693I$	0
$u = -0.943010 - 0.818382I$ $a = -1.130180 - 0.715066I$ $b = 1.347900 + 0.119643I$	$8.64456 - 5.11693I$	0
$u = -0.943010 - 0.818382I$ $a = 0.185523 - 0.251875I$ $b = 0.692592 - 0.383315I$	$8.64456 - 5.11693I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.662579+0.318199I$ $a=-1.42153+0.15838I$ $b=\ \ 0.494020+0.798046I$	$2.47935-1.74491I$	$-2.56195+1.08924I$
$u=-0.662579+0.318199I$ $a=\ \ 0.446052+0.340850I$ $b=-0.310211+0.928842I$	$2.47935-1.74491I$	$-2.56195+1.08924I$
$u=-0.662579-0.318199I$ $a=-1.42153-0.15838I$ $b=\ \ 0.494020-0.798046I$	$2.47935+1.74491I$	$-2.56195-1.08924I$
$u=-0.662579-0.318199I$ $a=\ \ 0.446052-0.340850I$ $b=-0.310211-0.928842I$	$2.47935+1.74491I$	$-2.56195-1.08924I$
$u=-0.719602$ $a=-0.388671+1.087390I$ $b=-0.997469-0.455040I$	5.21368	-1.16360
$u=-0.719602$ $a=-0.388671-1.087390I$ $b=-0.997469+0.455040I$	5.21368	-1.16360
$u=\ \ 0.329381+1.249470I$ $a=-1.42789-0.56714I$ $b=\ \ 1.009110-0.770169I$	$10.11660-5.76726I$	0
$u=\ \ 0.329381+1.249470I$ $a=\ \ 1.91025-0.05665I$ $b=-1.53298+0.96374I$	$10.11660-5.76726I$	0
$u=\ \ 0.329381-1.249470I$ $a=-1.42789+0.56714I$ $b=\ \ 1.009110+0.770169I$	$10.11660+5.76726I$	0
$u=\ \ 0.329381-1.249470I$ $a=\ \ 1.91025+0.05665I$ $b=-1.53298-0.96374I$	$10.11660+5.76726I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.396490 + 1.239700I$ $a = -0.873184 - 0.814822I$ $b = 0.874312 - 0.185924I$	$5.25338 - 0.75552I$	0
$u = 0.396490 + 1.239700I$ $a = 1.172500 + 0.287941I$ $b = -1.241080 + 0.395387I$	$5.25338 - 0.75552I$	0
$u = 0.396490 - 1.239700I$ $a = -0.873184 + 0.814822I$ $b = 0.874312 + 0.185924I$	$5.25338 + 0.75552I$	0
$u = 0.396490 - 1.239700I$ $a = 1.172500 - 0.287941I$ $b = -1.241080 - 0.395387I$	$5.25338 + 0.75552I$	0
$u = -0.224605 + 0.658535I$ $a = 1.037960 + 0.472207I$ $b = -0.341084 - 1.075920I$	$-0.38164 + 1.40636I$	$-7.90709 - 4.60491I$
$u = -0.224605 + 0.658535I$ $a = 1.54635 - 0.36863I$ $b = -0.241044 - 0.594512I$	$-0.38164 + 1.40636I$	$-7.90709 - 4.60491I$
$u = -0.224605 - 0.658535I$ $a = 1.037960 - 0.472207I$ $b = -0.341084 + 1.075920I$	$-0.38164 - 1.40636I$	$-7.90709 + 4.60491I$
$u = -0.224605 - 0.658535I$ $a = 1.54635 + 0.36863I$ $b = -0.241044 + 0.594512I$	$-0.38164 - 1.40636I$	$-7.90709 + 4.60491I$
$u = -0.563956 + 1.217970I$ $a = -0.407390 + 0.754967I$ $b = 0.727020 + 0.391576I$	$8.40264 + 4.63276I$	0
$u = -0.563956 + 1.217970I$ $a = -1.61386 + 0.35681I$ $b = 1.57671 + 0.25730I$	$8.40264 + 4.63276I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.563956-1.217970I$ $a=-0.407390-0.754967I$ $b=\ \ 0.727020-0.391576I$	$8.40264-4.63276I$	0
$u=-0.563956-1.217970I$ $a=-1.61386-0.35681I$ $b=\ \ 1.57671-0.25730I$	$8.40264-4.63276I$	0
$u=-0.253681+1.320130I$ $a=\ \ 1.20869-1.20917I$ $b=-0.783841-0.186625I$	$14.9725+8.1096I$	0
$u=-0.253681+1.320130I$ $a=\ \ 1.76114+0.31613I$ $b=-1.73484-0.91494I$	$14.9725+8.1096I$	0
$u=-0.253681-1.320130I$ $a=\ \ 1.20869+1.20917I$ $b=-0.783841+0.186625I$	$14.9725-8.1096I$	0
$u=-0.253681-1.320130I$ $a=\ \ 1.76114-0.31613I$ $b=-1.73484+0.91494I$	$14.9725-8.1096I$	0
$u=\ \ 0.008742+0.639353I$ $a=-0.147556-1.227300I$ $b=\ \ 0.719465-0.763198I$	$5.23017-2.51958I$	$1.241083-0.357010I$
$u=\ \ 0.008742+0.639353I$ $a=\ \ 2.45573+1.48966I$ $b=-1.277630-0.348252I$	$5.23017-2.51958I$	$1.241083-0.357010I$
$u=\ \ 0.008742-0.639353I$ $a=-0.147556+1.227300I$ $b=\ \ 0.719465+0.763198I$	$5.23017+2.51958I$	$1.241083+0.357010I$
$u=\ \ 0.008742-0.639353I$ $a=\ \ 2.45573-1.48966I$ $b=-1.277630+0.348252I$	$5.23017+2.51958I$	$1.241083+0.357010I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.531201 + 1.269820I$ $a = 1.337790 + 0.287032I$ $b = -1.21857 + 0.88759I$	$4.30856 - 9.00359I$	0
$u = 0.531201 + 1.269820I$ $a = -1.68147 - 0.29022I$ $b = 1.42823 - 0.77535I$	$4.30856 - 9.00359I$	0
$u = 0.531201 - 1.269820I$ $a = 1.337790 - 0.287032I$ $b = -1.21857 - 0.88759I$	$4.30856 + 9.00359I$	0
$u = 0.531201 - 1.269820I$ $a = -1.68147 + 0.29022I$ $b = 1.42823 + 0.77535I$	$4.30856 + 9.00359I$	0
$u = 0.324351 + 0.493941I$ $a = 0.515496 + 1.077260I$ $b = 0.647626 + 1.092120I$	$8.96981 + 6.76225I$	$-1.16496 - 1.32686I$
$u = 0.324351 + 0.493941I$ $a = -2.84073 + 1.17981I$ $b = 0.69428 - 1.27815I$	$8.96981 + 6.76225I$	$-1.16496 - 1.32686I$
$u = 0.324351 - 0.493941I$ $a = 0.515496 - 1.077260I$ $b = 0.647626 - 1.092120I$	$8.96981 - 6.76225I$	$-1.16496 + 1.32686I$
$u = 0.324351 - 0.493941I$ $a = -2.84073 - 1.17981I$ $b = 0.69428 + 1.27815I$	$8.96981 - 6.76225I$	$-1.16496 + 1.32686I$
$u = 0.72262 + 1.25115I$ $a = -1.029400 - 0.615681I$ $b = 1.240690 + 0.008012I$	$7.38957 - 3.44269I$	0
$u = 0.72262 + 1.25115I$ $a = 0.478696 + 0.566053I$ $b = -0.912969 + 0.174762I$	$7.38957 - 3.44269I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.72262 - 1.25115I$ $a = -1.029400 + 0.615681I$ $b = 1.240690 - 0.008012I$	$7.38957 + 3.44269I$	0
$u = 0.72262 - 1.25115I$ $a = 0.478696 - 0.566053I$ $b = -0.912969 - 0.174762I$	$7.38957 + 3.44269I$	0
$u = 0.155829 + 0.518115I$ $a = 1.000180 + 0.818212I$ $b = -0.664836 - 0.869546I$	$-0.29520 + 1.46947I$	$-6.37279 - 1.95675I$
$u = 0.155829 + 0.518115I$ $a = 1.97184 - 0.54810I$ $b = -0.078854 - 0.165747I$	$-0.29520 + 1.46947I$	$-6.37279 - 1.95675I$
$u = 0.155829 - 0.518115I$ $a = 1.000180 - 0.818212I$ $b = -0.664836 + 0.869546I$	$-0.29520 - 1.46947I$	$-6.37279 + 1.95675I$
$u = 0.155829 - 0.518115I$ $a = 1.97184 + 0.54810I$ $b = -0.078854 + 0.165747I$	$-0.29520 - 1.46947I$	$-6.37279 + 1.95675I$
$u = 0.57926 + 1.36321I$ $a = -1.312240 - 0.075466I$ $b = 1.23560 - 0.94753I$	$8.1120 - 12.6788I$	0
$u = 0.57926 + 1.36321I$ $a = 1.61270 + 0.32089I$ $b = -1.35017 + 0.69705I$	$8.1120 - 12.6788I$	0
$u = 0.57926 - 1.36321I$ $a = -1.312240 + 0.075466I$ $b = 1.23560 + 0.94753I$	$8.1120 + 12.6788I$	0
$u = 0.57926 - 1.36321I$ $a = 1.61270 - 0.32089I$ $b = -1.35017 - 0.69705I$	$8.1120 + 12.6788I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.27071 + 1.54654I$ $a = -0.733979 + 0.068037I$ $b = 0.853269 - 0.629295I$	$9.84990 + 0.22502I$	0
$u = 0.27071 + 1.54654I$ $a = 1.201400 + 0.636983I$ $b = -0.900300 - 0.032549I$	$9.84990 + 0.22502I$	0
$u = 0.27071 - 1.54654I$ $a = -0.733979 - 0.068037I$ $b = 0.853269 + 0.629295I$	$9.84990 - 0.22502I$	0
$u = 0.27071 - 1.54654I$ $a = 1.201400 - 0.636983I$ $b = -0.900300 + 0.032549I$	$9.84990 - 0.22502I$	0
$u = -0.78839 + 1.49937I$ $a = 1.379970 - 0.308325I$ $b = -1.283850 - 0.199748I$	$10.60110 + 2.92501I$	0
$u = -0.78839 + 1.49937I$ $a = 0.437662 - 0.180997I$ $b = -0.686011 - 0.544678I$	$10.60110 + 2.92501I$	0
$u = -0.78839 - 1.49937I$ $a = 1.379970 + 0.308325I$ $b = -1.283850 + 0.199748I$	$10.60110 - 2.92501I$	0
$u = -0.78839 - 1.49937I$ $a = 0.437662 + 0.180997I$ $b = -0.686011 + 0.544678I$	$10.60110 - 2.92501I$	0

III. $I_3^u = \langle 39u^{23} - 272u^{22} + \cdots + 2b + 298,\ -227u^{23} + 1814u^{22} + \cdots + 4a - 104,\ u^{24} - 8u^{23} + \cdots - 14u + 4\rangle$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} \frac{227}{4}u^{23} - \frac{907}{2}u^{22} + \cdots + \frac{1255}{4}u + 26 \\ -\frac{39}{2}u^{23} + 136u^{22} + \cdots + \frac{797}{2}u - 149 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -67u^{23} + \frac{1195}{2}u^{22} + \cdots - 2016u + \frac{841}{2} \\ \frac{121}{2}u^{23} - 485u^{22} + \cdots + \frac{709}{2}u + 26 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{149}{4}u^{23} - \frac{635}{2}u^{22} + \cdots + \frac{2849}{4}u - 123 \\ -\frac{39}{2}u^{23} + 136u^{22} + \cdots + \frac{797}{2}u - 149 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -70u^{23} + \frac{1047}{2}u^{22} + \cdots + 601u - \frac{623}{2} \\ -\frac{73}{2}u^{23} + 332u^{22} + \cdots - \frac{2581}{2}u + 280 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{233}{4}u^{23} - \frac{959}{2}u^{22} + \cdots + \frac{2737}{4}u - 73 \\ -\frac{21}{2}u^{23} + 67u^{22} + \cdots + \frac{741}{2}u - 123 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{135}{4}u^{23} - \frac{389}{2}u^{22} + \cdots - \frac{7481}{4}u + 583 \\ \frac{153}{2}u^{23} - 604u^{22} + \cdots + \frac{367}{2}u + 107 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{271}{4}u^{23} - \frac{1141}{2}u^{22} + \cdots + \frac{4527}{4}u - 174 \\ -\frac{57}{2}u^{23} + 193u^{22} + \cdots + \frac{1549}{2}u - 271 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{487}{4}u^{23} + \frac{1901}{2}u^{22} + \cdots - \frac{171}{4}u - 236 \\ -\frac{49}{2}u^{23} + 231u^{22} + \cdots - \frac{2137}{2}u + 245 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $=$
$339u^{23} - 2735u^{22} + 12886u^{21} - 42800u^{20} + 109894u^{19} - 227540u^{18} + 388966u^{17} - 554634u^{16} + 658690u^{15} - 638936u^{14} + 477445u^{13} - 219740u^{12} - 41389u^{11} + 214969u^{10} - 260392u^9 + 199498u^8 - 96701u^7 + 10689u^6 + 30944u^5 - 34906u^4 + 22284u^3 - 9152u^2 + 2542u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{24} - u^{23} + \cdots - 3u + 1$
c_2	$u^{24} + 8u^{23} + \cdots + 14u + 4$
c_3, c_{10}	$u^{24} + u^{23} + \cdots - 2u + 1$
c_4, c_8	$u^{24} + u^{23} + \cdots + 3u + 1$
c_6	$u^{24} - 8u^{23} + \cdots - 14u + 4$
c_7, c_{11}	$u^{24} + 3u^{23} + \cdots + 5u + 1$
c_9	$u^{24} - 11u^{23} + \cdots - 20u + 4$
c_{12}	$u^{24} + 11u^{23} + \cdots + 20u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{24} + 21y^{23} + \cdots + 15y + 1$
c_2, c_6	$y^{24} + 12y^{23} + \cdots + 132y + 16$
c_3, c_{10}	$y^{24} + 3y^{23} + \cdots + 70y^2 + 1$
c_7, c_{11}	$y^{24} - 9y^{23} + \cdots - y + 1$
c_9, c_{12}	$y^{24} + 11y^{23} + \cdots + 248y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.671893 + 0.698108I$ $a = 0.630740 - 0.226012I$ $b = -0.017757 + 0.841412I$	$1.37035 - 2.33264I$	$-4.26323 + 3.17988I$
$u = 0.671893 - 0.698108I$ $a = 0.630740 + 0.226012I$ $b = -0.017757 - 0.841412I$	$1.37035 + 2.33264I$	$-4.26323 - 3.17988I$
$u = -0.213205 + 1.019810I$ $a = -1.46281 - 0.25645I$ $b = 0.860408 - 0.461305I$	$1.64116 + 3.68159I$	$9.96979 - 4.33803I$
$u = -0.213205 - 1.019810I$ $a = -1.46281 + 0.25645I$ $b = 0.860408 + 0.461305I$	$1.64116 - 3.68159I$	$9.96979 + 4.33803I$
$u = 0.183939 + 0.915684I$ $a = -2.13851 + 0.97533I$ $b = 0.38486 - 1.74790I$	$4.79771 - 0.83920I$	$7.64954 - 0.48429I$
$u = 0.183939 - 0.915684I$ $a = -2.13851 - 0.97533I$ $b = 0.38486 + 1.74790I$	$4.79771 + 0.83920I$	$7.64954 + 0.48429I$
$u = 1.076920 + 0.061933I$ $a = 0.0447211 + 0.0825541I$ $b = -0.921732 - 0.449679I$	$1.89157 + 4.09183I$	$2.63483 - 6.27018I$
$u = 1.076920 - 0.061933I$ $a = 0.0447211 - 0.0825541I$ $b = -0.921732 + 0.449679I$	$1.89157 - 4.09183I$	$2.63483 + 6.27018I$
$u = 0.219761 + 1.205810I$ $a = 1.74443 - 0.35533I$ $b = -0.87688 + 1.24065I$	$12.2333 - 8.5328I$	$5.43258 + 6.23459I$
$u = 0.219761 - 1.205810I$ $a = 1.74443 + 0.35533I$ $b = -0.87688 - 1.24065I$	$12.2333 + 8.5328I$	$5.43258 - 6.23459I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.033498+0.738278I$ $a=1.72752+0.41856I$ $b=-0.812320+0.640206I$	$0.33135-2.06974I$	$2.21463+6.39372I$
$u=-0.033498-0.738278I$ $a=1.72752-0.41856I$ $b=-0.812320-0.640206I$	$0.33135+2.06974I$	$2.21463-6.39372I$
$u=-0.030881+0.735264I$ $a=1.81388-1.41254I$ $b=0.000148+1.336150I$	$9.95503+7.68910I$	$4.31056-5.22133I$
$u=-0.030881-0.735264I$ $a=1.81388+1.41254I$ $b=0.000148-1.336150I$	$9.95503-7.68910I$	$4.31056+5.22133I$
$u=-0.715028+0.076885I$ $a=0.496566-0.598033I$ $b=-0.192008+0.262985I$	$-0.97820-1.68051I$	$-7.67857+3.11334I$
$u=-0.715028-0.076885I$ $a=0.496566+0.598033I$ $b=-0.192008-0.262985I$	$-0.97820+1.68051I$	$-7.67857-3.11334I$
$u=1.207490+0.553328I$ $a=-0.260037-0.109262I$ $b=0.587657-0.237837I$	$5.46235-5.70006I$	$7.21757+10.78890I$
$u=1.207490-0.553328I$ $a=-0.260037+0.109262I$ $b=0.587657+0.237837I$	$5.46235+5.70006I$	$7.21757-10.78890I$
$u=0.54072+1.31322I$ $a=-1.51712-0.30994I$ $b=1.36741-0.79297I$	$5.80764-9.75826I$	$0.+7.29101I$
$u=0.54072-1.31322I$ $a=-1.51712+0.30994I$ $b=1.36741+0.79297I$	$5.80764+9.75826I$	$0.-7.29101I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.38454 + 1.39270I$ $a = -1.029150 - 0.440987I$ $b = \quad 1.020860 - 0.294308I$	$6.85863 - 1.24969I$	0
$u = \quad 0.38454 - 1.39270I$ $a = -1.029150 + 0.440987I$ $b = \quad 1.020860 + 0.294308I$	$6.85863 + 1.24969I$	0
$u = \quad 0.70735 + 1.32860I$ $a = \quad 0.699775 + 0.433953I$ $b = -0.900639 + 0.136993I$	$8.20180 - 1.36390I$	0
$u = \quad 0.70735 - 1.32860I$ $a = \quad 0.699775 - 0.433953I$ $b = -0.900639 - 0.136993I$	$8.20180 + 1.36390I$	0

IV.

$\boldsymbol{I_4^u = \langle -u^8a-2u^8+\cdots-a+12,\ -2u^8a+4u^8+\cdots-5a+4,\ u^9+3u^8+\cdots+4u+1\rangle}$

(i) Arc colorings

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

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} a \\ \frac{1}{7}u^8a + \frac{2}{7}u^8 + \cdots + \frac{1}{7}a - \frac{12}{7} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{5}{7}u^8a + \frac{11}{7}u^8 + \cdots - \frac{5}{7}a + \frac{25}{7} \\ \frac{3}{7}u^8a - \frac{1}{7}u^8 + \cdots + \frac{3}{7}a - \frac{1}{7} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{7}u^8a + \frac{2}{7}u^8 + \cdots + \frac{8}{7}a - \frac{12}{7} \\ \frac{1}{7}u^8a + \frac{2}{7}u^8 + \cdots + \frac{1}{7}a - \frac{12}{7} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{2}{7}u^8a + \frac{4}{7}u^8 + \cdots - \frac{12}{7}a + \frac{39}{7} \\ -u^8 - 3u^7 - 7u^6 - 9u^5 - 10u^4 - 8u^3 - 6u^2 - 3u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^7 + u^6 + 2u^5 - u^3a - u^4 - au - 2u^2 + a - 1 \\ -\frac{1}{7}u^8a - \frac{9}{7}u^8 + \cdots - \frac{1}{7}a - \frac{16}{7} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4a + u^3a + 2u^2a + a + u - 1 \\ -\frac{3}{7}u^8a + \frac{1}{7}u^8 + \cdots - \frac{3}{7}a - \frac{6}{7} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{7}u^8a + \frac{5}{7}u^8 + \cdots - \frac{15}{7}a + \frac{19}{7} \\ \frac{4}{7}u^8a + \frac{1}{7}u^8 + \cdots - \frac{3}{7}a + \frac{8}{7} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^7a + 3u^6a + 6u^5a + 7u^4a + 6u^3a + u^4 + 4u^2a + 2au + a - u \\ -\frac{1}{7}u^8a - \frac{2}{7}u^8 + \cdots - \frac{1}{7}a - \frac{9}{7} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^8 + 2u^7 - 20u^5 - 26u^4 - 32u^3 - 16u^2 - 17u - 9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{18} + 23y^{17} + \cdots + 622y + 49$
c_2, c_6	$(y^9 + 7y^8 + 28y^7 + 71y^6 + 125y^5 + 142y^4 + 98y^3 + 36y^2 + 4y - 1)^2$
c_3, c_{10}	$y^{18} + y^{17} + \cdots + 82y + 49$
c_7, c_{11}	$y^{18} + 11y^{17} + \cdots + 7y + 1$
c_9, c_{12}	$(y^9 + 6y^8 + 13y^7 + 8y^6 - 10y^5 - 10y^4 + 16y^3 + 27y^2 + 11y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.170099+0.870195I$ $a=-2.28493+0.33363I$ $b=\ \ 0.218125+0.934153I$	$1.39270+0.93298I$	$-8.29333-7.88039I$
$u=-0.170099+0.870195I$ $a=\ \ 1.73845+1.57062I$ $b=-0.75166-2.01417I$	$1.39270+0.93298I$	$-8.29333-7.88039I$
$u=-0.170099-0.870195I$ $a=-2.28493-0.33363I$ $b=\ \ 0.218125-0.934153I$	$1.39270-0.93298I$	$-8.29333+7.88039I$
$u=-0.170099-0.870195I$ $a=\ \ 1.73845-1.57062I$ $b=-0.75166+2.01417I$	$1.39270-0.93298I$	$-8.29333+7.88039I$
$u=\ \ 0.298286+0.823118I$ $a=\ \ 0.989385-0.331156I$ $b=\ \ 0.327124-0.639862I$	$5.25230-3.55910I$	$-0.46414+5.94305I$
$u=\ \ 0.298286+0.823118I$ $a=-1.75178-1.39429I$ $b=\ \ 1.19196+0.79400I$	$5.25230-3.55910I$	$-0.46414+5.94305I$
$u=\ \ 0.298286-0.823118I$ $a=\ \ 0.989385+0.331156I$ $b=\ \ 0.327124+0.639862I$	$5.25230+3.55910I$	$-0.46414-5.94305I$
$u=\ \ 0.298286-0.823118I$ $a=-1.75178+1.39429I$ $b=\ \ 1.19196-0.79400I$	$5.25230+3.55910I$	$-0.46414-5.94305I$
$u=-0.89957+1.19167I$ $a=-1.256460+0.455280I$ $b=\ \ 1.400940+0.053360I$	$9.15358+4.87540I$	$13.3950-4.9499I$
$u=-0.89957+1.19167I$ $a=\ \ 0.199311-0.485010I$ $b=-0.736096-0.285391I$	$9.15358+4.87540I$	$13.3950-4.9499I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.89957-1.19167I$ $a=-1.256460-0.455280I$ $b=\ \ 1.400940-0.053360I$	$9.15358-4.87540I$	$13.3950+4.9499I$
$u=-0.89957-1.19167I$ $a=\ \ 0.199311+0.485010I$ $b=-0.736096+0.285391I$	$9.15358-4.87540I$	$13.3950+4.9499I$
$u=-0.56414+1.39451I$ $a=-0.424477+0.161312I$ $b=\ \ 0.568251+0.712301I$	$10.37290+2.46792I$	$3.97641+2.17917I$
$u=-0.56414+1.39451I$ $a=\ \ 1.59666-0.23541I$ $b=-1.299370-0.292344I$	$10.37290+2.46792I$	$3.97641+2.17917I$
$u=-0.56414-1.39451I$ $a=-0.424477-0.161312I$ $b=\ \ 0.568251-0.712301I$	$10.37290-2.46792I$	$3.97641-2.17917I$
$u=-0.56414-1.39451I$ $a=\ \ 1.59666+0.23541I$ $b=-1.299370+0.292344I$	$10.37290-2.46792I$	$3.97641-2.17917I$
$u=-0.328953$ $a=\ \ 1.69385+1.68878I$ $b=-0.419275+0.827856I$	0.294884	-4.22790
$u=-0.328953$ $a=\ \ 1.69385-1.68878I$ $b=-0.419275-0.827856I$	0.294884	-4.22790

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{18}+u^{17}+\cdots-22u+7)(u^{24}-u^{23}+\cdots-3u+1)$ $\cdot(u^{46}-u^{45}+\cdots+4u+1)(u^{98}-8u^{97}+\cdots-1622u+113)$
c_2	$(u^9-3u^8+8u^7-11u^6+15u^5-12u^4+12u^3-6u^2+4u-1)^2$ $\cdot(u^{24}+8u^{23}+\cdots+14u+4)(u^{46}+13u^{45}+\cdots+528u+52)$ $\cdot(u^{49}-5u^{48}+\cdots-24u+5)^2$
c_3, c_{10}	$(u^{18}+u^{17}+\cdots+4u+7)(u^{24}+u^{23}+\cdots-2u+1)$ $\cdot(u^{46}-u^{45}+\cdots-u+1)(u^{98}-2u^{97}+\cdots-1030836u+176389)$
c_4, c_8	$(u^{18}-u^{17}+\cdots+22u+7)(u^{24}+u^{23}+\cdots+3u+1)$ $\cdot(u^{46}-u^{45}+\cdots+4u+1)(u^{98}-8u^{97}+\cdots-1622u+113)$
c_6	$(u^9+3u^8+8u^7+11u^6+15u^5+12u^4+12u^3+6u^2+4u+1)^2$ $\cdot(u^{24}-8u^{23}+\cdots-14u+4)(u^{46}+13u^{45}+\cdots+528u+52)$ $\cdot(u^{49}-5u^{48}+\cdots-24u+5)^2$
c_7, c_{11}	$(u^{18}+u^{17}+\cdots+u+1)(u^{24}+3u^{23}+\cdots+5u+1)$ $\cdot(u^{46}+3u^{45}+\cdots+44u+19)(u^{98}+14u^{97}+\cdots+155699u+22103)$
c_9	$(u^9-2u^8+5u^7-8u^6+10u^5-12u^4+10u^3-7u^2+5u-1)^2$ $\cdot(u^{24}-11u^{23}+\cdots-20u+4)(u^{46}-16u^{45}+\cdots-4284u+356)$ $\cdot(u^{49}+12u^{48}+\cdots+257u+59)^2$
c_{12}	$(u^9+2u^8+5u^7+8u^6+10u^5+12u^4+10u^3+7u^2+5u+1)^2$ $\cdot(u^{24}+11u^{23}+\cdots+20u+4)(u^{46}-16u^{45}+\cdots-4284u+356)$ $\cdot(u^{49}+12u^{48}+\cdots+257u+59)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$(y^{18}+23y^{17}+\cdots+622y+49)(y^{24}+21y^{23}+\cdots+15y+1)$ $\cdot(y^{46}+51y^{45}+\cdots+46y+1)(y^{98}+86y^{97}+\cdots+162250y+12769)$
c_2, c_6	$(y^9+7y^8+28y^7+71y^6+125y^5+142y^4+98y^3+36y^2+4y-1)^2$ $\cdot(y^{24}+12y^{23}+\cdots+132y+16)(y^{46}+25y^{45}+\cdots+38416y+2704)$ $\cdot(y^{49}+33y^{48}+\cdots-624y-25)^2$
c_3, c_{10}	$(y^{18}+y^{17}+\cdots+82y+49)(y^{24}+3y^{23}+\cdots+70y^2+1)$ $\cdot(y^{46}-31y^{45}+\cdots-37y+1)$ $\cdot(y^{98}-12y^{97}+\cdots+591541541430y+31113079321)$
c_7, c_{11}	$(y^{18}+11y^{17}+\cdots+7y+1)(y^{24}-9y^{23}+\cdots-y+1)$ $\cdot(y^{46}-11y^{45}+\cdots-74y+361)$ $\cdot(y^{98}-14y^{97}+\cdots-3878773113y+488542609)$
c_9, c_{12}	$(y^9+6y^8+13y^7+8y^6-10y^5-10y^4+16y^3+27y^2+11y-1)^2$ $\cdot(y^{24}+11y^{23}+\cdots+248y+16)(y^{46}+28y^{45}+\cdots+6976y+126736)$ $\cdot(y^{49}+40y^{48}+\cdots+20383y-3481)^2$