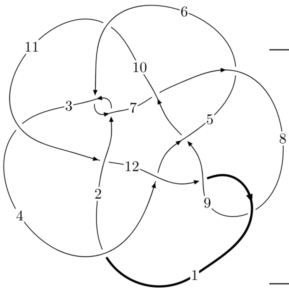
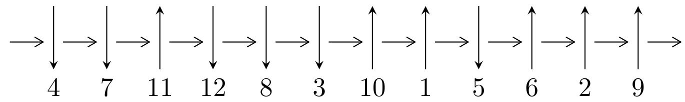
$12a_{1105}$ $(K12a_{1105})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-1.13930 \times 10^{21} u^{39} - 1.89955 \times 10^{22} u^{38} + \cdots + 1.42950 \times 10^{21} b + 3.75712 \times 10^{23}, \\
&- 6.56657 \times 10^{20} u^{39} - 9.62976 \times 10^{21} u^{38} + \cdots + 2.85899 \times 10^{21} a - 1.48932 \times 10^{23}, \\
&u^{40} + 17u^{39} + \cdots - 2560u - 256 \rangle \\
I_2^u = \langle &989449936519u^{27} - 4930796017655u^{26} + \cdots + 17985859937886b - 6638482452236, \\
&5649032515717u^{27} - 20633683854770u^{26} + \cdots + 17985859937886a + 15418713106993, \\
&u^{28} - 4u^{27} + \cdots + 13u^2 + 1 \rangle \\
I_3^u = \langle &-160u^{59}a - 28504115u^{59} + \cdots + 32a + 3787205,\ 52235u^{59}a + 20380u^{59} + \cdots + 25702a + 2510, \\
&5u^{60} - 50u^{59} + \cdots - 3u + 1 \rangle \\
I_4^u = \langle &-u^7a^3 + u^7a^2 + \cdots - a + 3,\ u^7a^3 - u^7a^2 + \cdots + 3a - 1, \\
&u^7a^2 + u^6a^2 - u^7a + 2u^5a^2 - u^6a + u^4a^2 - u^5a + u^3a^2 + u^4a + u^3a - u^4 + u^2a + bu + au + 2u^2 + b + 2u + \\
&u^8a^2 - u^8a + \cdots + 2u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 188 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $I_1^u = \langle -1.14\times10^{21}u^{39} - 1.90\times10^{22}u^{38} + \cdots + 1.43\times10^{21}b + 3.76\times10^{23},\ -6.57\times10^{20}u^{39} - 9.63\times10^{21}u^{38} + \cdots + 2.86\times10^{21}a - 1.49\times10^{23},\ u^{40} + 17u^{39} + \cdots - 2560u - 256\rangle$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} 0.229681u^{39} + 3.36823u^{38} + \cdots + 427.485u + 52.0925 \\ 0.796992u^{39} + 13.2882u^{38} + \cdots - 2417.55u - 262.828 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0129700u^{39} - 0.147174u^{38} + \cdots - 7.46661u + 1.06374 \\ -0.382727u^{39} - 6.19695u^{38} + \cdots + 911.623u + 101.298 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.02667u^{39} + 16.6564u^{38} + \cdots - 1990.06u - 210.736 \\ 0.796992u^{39} + 13.2882u^{38} + \cdots - 2417.55u - 262.828 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.245169u^{39} - 3.87419u^{38} + \cdots + 753.796u + 88.9443 \\ -0.293676u^{39} - 4.54829u^{38} + \cdots + 539.688u + 62.7632 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.758262u^{39} - 11.1881u^{38} + \cdots + 54.0332u + 6.22604 \\ -2.66485u^{39} - 43.7900u^{38} + \cdots + 5568.03u + 593.976 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0107557u^{39} + 0.0107774u^{38} + \cdots - 87.9801u - 3.23265 \\ -0.503035u^{39} - 8.17030u^{38} + \cdots + 910.250u + 100.732 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0567806u^{39} - 0.898599u^{38} + \cdots - 348.002u - 42.0306 \\ 0.752668u^{39} + 11.5333u^{38} + \cdots - 884.556u - 93.8953 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.60236u^{39} - 25.6296u^{38} + \cdots + 1879.61u + 190.846 \\ -1.79529u^{39} - 29.3126u^{38} + \cdots + 4403.99u + 470.747 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{10008158346378989 6653}{4729954149860587 5888}u^{39} - \frac{168233866403703359237}{5255504610956208432}u^{38} + \cdots + \frac{67348901289333962377 42}{2956221343662867243}u + \frac{66901563810503684996 0}{2956221343662867243}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{40} - 3u^{39} + \cdots - 135u + 27$
c_2, c_6	$u^{40} + 17u^{39} + \cdots - 2560u - 256$
c_3, c_{10}	$27(27u^{40} - 27u^{39} + \cdots + u + 1)$
c_4, c_9	$27(27u^{40} + 27u^{39} + \cdots - u + 1)$
c_7, c_{11}	$u^{40} + 3u^{39} + \cdots + 135u + 27$
c_8, c_{12}	$u^{40} - 17u^{39} + \cdots + 2560u - 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$y^{40} - 7y^{39} + \cdots + 2673y + 729$
c_2, c_6, c_8 c_{12}	$y^{40} + 17y^{39} + \cdots + 65536y + 65536$
c_3, c_4, c_9 c_{10}	$729(729y^{40} - 16767y^{39} + \cdots - 59y + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.14028$ $a = 0.542779$ $b = -0.289176$	-0.678004	-12.8890
$u = -1.139630 + 0.242928I$ $a = -0.042870 + 0.308351I$ $b = 1.073230 - 0.724091I$	$-3.3441 - 15.0894I$	0
$u = -1.139630 - 0.242928I$ $a = -0.042870 - 0.308351I$ $b = 1.073230 + 0.724091I$	$-3.3441 + 15.0894I$	0
$u = -0.497516 + 1.077900I$ $a = 1.41196 - 0.31741I$ $b = -1.15222 - 0.87143I$	$0.79692 + 3.49099I$	0
$u = -0.497516 - 1.077900I$ $a = 1.41196 + 0.31741I$ $b = -1.15222 + 0.87143I$	$0.79692 - 3.49099I$	0
$u = -0.104793 + 1.182780I$ $a = 1.52088 - 0.52726I$ $b = -1.185540 - 0.504784I$	$3.39633 + 4.91222I$	0
$u = -0.104793 - 1.182780I$ $a = 1.52088 + 0.52726I$ $b = -1.185540 + 0.504784I$	$3.39633 - 4.91222I$	0
$u = -1.180500 + 0.265835I$ $a = 0.091123 - 0.306079I$ $b = -1.038500 + 0.606550I$	$-8.64429I$	0
$u = -1.180500 - 0.265835I$ $a = 0.091123 + 0.306079I$ $b = -1.038500 - 0.606550I$	$8.64429I$	0
$u = 0.069133 + 1.222940I$ $a = -1.41555 + 0.34686I$ $b = 1.002750 + 0.449758I$	$5.49218 - 1.74539I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.069133 - 1.222940I$ $a = -1.41555 - 0.34686I$ $b = 1.002750 - 0.449758I$	$5.49218 + 1.74539I$	0
$u = -0.660444 + 0.377422I$ $a = 0.462226 + 0.067787I$ $b = 0.245974 - 0.655330I$	$-1.29804 + 0.78862I$	$-7.24318 - 3.09779I$
$u = -0.660444 - 0.377422I$ $a = 0.462226 - 0.067787I$ $b = 0.245974 + 0.655330I$	$-1.29804 - 0.78862I$	$-7.24318 + 3.09779I$
$u = -1.230810 + 0.195258I$ $a = -0.089927 + 0.210729I$ $b = 0.767209 - 0.550768I$	$-6.55337 - 3.59470I$	0
$u = -1.230810 - 0.195258I$ $a = -0.089927 - 0.210729I$ $b = 0.767209 + 0.550768I$	$-6.55337 + 3.59470I$	0
$u = 1.271280 + 0.274737I$ $a = -0.327798 + 0.175529I$ $b = 0.194769 - 0.082155I$	$-5.62477 - 6.34564I$	0
$u = 1.271280 - 0.274737I$ $a = -0.327798 - 0.175529I$ $b = 0.194769 + 0.082155I$	$-5.62477 + 6.34564I$	0
$u = -1.31229$ $a = 0.170911$ $b = -0.718197$	0.678004	0
$u = -1.159260 + 0.636698I$ $a = 0.044626 - 0.246409I$ $b = -0.425349 + 0.271549I$	$-5.49218 + 1.74539I$	0
$u = -1.159260 - 0.636698I$ $a = 0.044626 + 0.246409I$ $b = -0.425349 - 0.271549I$	$-5.49218 - 1.74539I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.695907+1.188770I$ $a=-0.880382+0.211344I$ $b=\ \ 0.869437+0.526441I$	$-3.39633+4.91222I$	0
$u=-0.695907-1.188770I$ $a=-0.880382-0.211344I$ $b=\ \ 0.869437-0.526441I$	$-3.39633-4.91222I$	0
$u=-0.16888+1.42888I$ $a=\ \ 0.875872-0.142263I$ $b=-0.683854-0.359026I$	$1.73091I$	0
$u=-0.16888-1.42888I$ $a=\ \ 0.875872+0.142263I$ $b=-0.683854+0.359026I$	$-\ 1.73091I$	0
$u=-0.63247+1.29831I$ $a=\ \ 1.61971-0.26786I$ $b=-1.48376-0.94120I$	$21.3615I$	0
$u=-0.63247-1.29831I$ $a=\ \ 1.61971+0.26786I$ $b=-1.48376+0.94120I$	$-\ 21.3615I$	0
$u=-0.64624+1.30911I$ $a=-1.52479+0.29337I$ $b=\ \ 1.44031+0.84855I$	$3.3441+15.0894I$	0
$u=-0.64624-1.30911I$ $a=-1.52479-0.29337I$ $b=\ \ 1.44031-0.84855I$	$3.3441-15.0894I$	0
$u=-0.62417+1.33594I$ $a=\ \ 1.398850-0.160563I$ $b=-1.23726-0.84107I$	$-2.88034+10.04620I$	0
$u=-0.62417-1.33594I$ $a=\ \ 1.398850+0.160563I$ $b=-1.23726+0.84107I$	$-2.88034-10.04620I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.17851 + 1.47621I$ $a = -0.946229 + 0.461968I$ $b = 0.912818 + 0.160424I$	$6.55337 - 3.59470I$	0
$u = -0.17851 - 1.47621I$ $a = -0.946229 - 0.461968I$ $b = 0.912818 - 0.160424I$	$6.55337 + 3.59470I$	0
$u = -0.21634 + 1.47625I$ $a = 0.836758 - 0.579742I$ $b = -0.908395 - 0.025097I$	$2.88034 - 10.04620I$	0
$u = -0.21634 - 1.47625I$ $a = 0.836758 + 0.579742I$ $b = -0.908395 + 0.025097I$	$2.88034 + 10.04620I$	0
$u = -0.338539 + 0.326750I$ $a = 1.24825 + 1.08328I$ $b = 0.919011 - 0.516162I$	$-0.79692 + 3.49099I$	$3.06687 - 1.73251I$
$u = -0.338539 - 0.326750I$ $a = 1.24825 - 1.08328I$ $b = 0.919011 + 0.516162I$	$-0.79692 - 3.49099I$	$3.06687 + 1.73251I$
$u = -0.51178 + 1.44815I$ $a = -1.163360 + 0.203861I$ $b = 1.046570 + 0.560106I$	$5.62477 + 6.34564I$	0
$u = -0.51178 - 1.44815I$ $a = -1.163360 - 0.203861I$ $b = 1.046570 - 0.560106I$	$5.62477 - 6.34564I$	0
$u = 0.231374 + 0.240170I$ $a = 0.27380 - 1.92615I$ $b = -0.353506 + 0.377468I$	$1.29804 - 0.78862I$	$7.24318 + 3.09779I$
$u = 0.231374 - 0.240170I$ $a = 0.27380 + 1.92615I$ $b = -0.353506 - 0.377468I$	$1.29804 + 0.78862I$	$7.24318 - 3.09779I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 9.89\times10^{11}u^{27}-4.93\times10^{12}u^{26}+\cdots+1.80\times10^{12}b-6.64\times10^{12},\ 5.65\times10^{12}u^{27}-2.06\times10^{13}u^{26}+\cdots+1.80\times10^{12}a+1.54\times10^{13},\ u^{28}-4u^{27}+\cdots+13u^2+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3.14082u^{27}+11.4722u^{26}+\cdots-7.75888u-8.57269 \\ -0.550127u^{27}+2.74148u^{26}+\cdots-4.88174u+3.69095 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.791533u^{27}-3.02387u^{26}+\cdots-2.73997u-2.68930 \\ -0.481655u^{27}+1.30270u^{26}+\cdots-3.99918u-0.309878 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -3.69095u^{27}+14.2137u^{26}+\cdots-12.6406u-4.88174 \\ -0.550127u^{27}+2.74148u^{26}+\cdots-4.88174u+3.69095 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.500393u^{27}-0.727935u^{26}+\cdots+12.0120u+4.77242 \\ 1.27364u^{27}-4.63118u^{26}+\cdots+5.77242u-0.500393 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -4.28175u^{27}+16.4743u^{26}+\cdots-15.2405u-5.85271 \\ -0.881453u^{27}+4.04850u^{26}+\cdots-6.89077u+2.82253 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.805857u^{27}-5.11783u^{26}+\cdots+1.87723u-8.50015 \\ -1.27048u^{27}+4.47409u^{26}+\cdots-7.19028u-1.28751 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -2.62974u^{27}+10.9428u^{26}+\cdots-10.3722u+4.79910 \\ 0.582475u^{27}-1.68360u^{26}+\cdots+5.31824u+1.68675 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 4.47203u^{27}-14.7420u^{26}+\cdots+8.00604u+10.7851 \\ 1.97526u^{27}-9.60197u^{26}+\cdots+9.33245u-3.01553 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{3953985943693}{1798585993788}u^{27} - \frac{20451602633597}{1798585993788}u^{26} + \cdots - \frac{247528535361361}{1798585993788}u - \frac{3067689954026}{449646498447}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{28} - 3u^{27} + \cdots - 48u + 36$
c_2, c_{12}	$u^{28} + 4u^{27} + \cdots + 13u^2 + 1$
c_3, c_{10}	$4(4u^{28} + 4u^{27} + \cdots + 3u + 1)$
c_4, c_9	$4(4u^{28} - 4u^{27} + \cdots - 3u + 1)$
c_6, c_8	$u^{28} - 4u^{27} + \cdots + 13u^2 + 1$
c_7, c_{11}	$u^{28} + 3u^{27} + \cdots + 48u + 36$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$y^{28} + 7y^{27} + \cdots + 6192y + 1296$
c_2, c_6, c_8 c_{12}	$y^{28} + 14y^{27} + \cdots + 26y + 1$
c_3, c_4, c_9 c_{10}	$16(16y^{28} - 144y^{27} + \cdots + 13y + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.136648+0.946331I$ $a=\ \ 1.76583+0.81451I$ $b=-1.200650+0.372627I$	$1.17094I$	$-70.10-0.0853212I$
$u=-0.136648-0.946331I$ $a=\ \ 1.76583-0.81451I$ $b=-1.200650-0.372627I$	$-1.17094I$	$-70.10+0.0853212I$
$u=\ \ 0.177807+0.938169I$ $a=\ \ 1.51071+0.88729I$ $b=-1.247460+0.492279I$	$4.15816-3.28640I$	$5.68449+2.42731I$
$u=\ \ 0.177807-0.938169I$ $a=\ \ 1.51071-0.88729I$ $b=-1.247460-0.492279I$	$4.15816+3.28640I$	$5.68449-2.42731I$
$u=\ \ 0.873788+0.210879I$ $a=-0.272534+0.199714I$ $b=-0.994243-0.733917I$	$1.08386+4.88595I$	$-0.88479-6.08182I$
$u=\ \ 0.873788-0.210879I$ $a=-0.272534-0.199714I$ $b=-0.994243+0.733917I$	$1.08386-4.88595I$	$-0.88479+6.08182I$
$u=-0.634034+0.950647I$ $a=-0.745266-0.027755I$ $b=\ \ 0.411893-0.183179I$	$-4.15816+3.28640I$	$-5.68449-2.42731I$
$u=-0.634034-0.950647I$ $a=-0.745266+0.027755I$ $b=\ \ 0.411893+0.183179I$	$-4.15816-3.28640I$	$-5.68449+2.42731I$
$u=-1.028830+0.552365I$ $a=\ \ 0.250126-0.345287I$ $b=-0.092210+0.218091I$	$-5.62841+2.09236I$	$-7.49506-8.83052I$
$u=-1.028830-0.552365I$ $a=\ \ 0.250126+0.345287I$ $b=-0.092210-0.218091I$	$-5.62841-2.09236I$	$-7.49506+8.83052I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.006272 + 1.212530I$ $a = -1.33659 - 0.47696I$ $b = 1.027810 - 0.369099I$	$5.62841 + 2.09236I$	$7.49506 - 8.83052I$
$u = -0.006272 - 1.212530I$ $a = -1.33659 + 0.47696I$ $b = 1.027810 + 0.369099I$	$5.62841 - 2.09236I$	$7.49506 + 8.83052I$
$u = -0.339230 + 0.707931I$ $a = 1.52784 - 0.63710I$ $b = -0.439616 + 0.736626I$	$-5.44803 + 1.13999I$	$-6.37606 - 0.43186I$
$u = -0.339230 - 0.707931I$ $a = 1.52784 + 0.63710I$ $b = -0.439616 - 0.736626I$	$-5.44803 - 1.13999I$	$-6.37606 + 0.43186I$
$u = 0.390685 + 1.185710I$ $a = -0.840034 - 0.831890I$ $b = 1.107050 - 0.013789I$	$5.44803 + 1.13999I$	$6.37606 - 0.43186I$
$u = 0.390685 - 1.185710I$ $a = -0.840034 + 0.831890I$ $b = 1.107050 + 0.013789I$	$5.44803 - 1.13999I$	$6.37606 + 0.43186I$
$u = 0.549899 + 1.210700I$ $a = -1.71288 - 0.31897I$ $b = 1.48225 - 1.01007I$	$4.10977 - 10.09610I$	$1.16490 + 8.56371I$
$u = 0.549899 - 1.210700I$ $a = -1.71288 + 0.31897I$ $b = 1.48225 + 1.01007I$	$4.10977 + 10.09610I$	$1.16490 - 8.56371I$
$u = 0.421389 + 1.322980I$ $a = 1.42666 - 0.08889I$ $b = -0.974358 + 0.969439I$	$- 12.1531I$	$0. + 9.97979I$
$u = 0.421389 - 1.322980I$ $a = 1.42666 + 0.08889I$ $b = -0.974358 - 0.969439I$	$12.1531I$	$0. - 9.97979I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.401670 + 0.143744I$ $a = -0.179789 + 0.033183I$ $b = 0.550372 - 0.248416I$	$-5.41627 - 6.67339I$	$4.1940 + 14.0424I$
$u = 1.401670 - 0.143744I$ $a = -0.179789 - 0.033183I$ $b = 0.550372 + 0.248416I$	$-5.41627 + 6.67339I$	$4.1940 - 14.0424I$
$u = -0.012372 + 0.517408I$ $a = 2.45831 - 1.35804I$ $b = 0.010640 + 1.278440I$	$-4.10977 + 10.09610I$	$-1.16490 - 8.56371I$
$u = -0.012372 - 0.517408I$ $a = 2.45831 + 1.35804I$ $b = 0.010640 - 1.278440I$	$-4.10977 - 10.09610I$	$-1.16490 + 8.56371I$
$u = 0.47228 + 1.48270I$ $a = -1.165310 - 0.144959I$ $b = 1.003810 - 0.583498I$	$5.41627 - 6.67339I$	$-4.1940 + 14.0424I$
$u = 0.47228 - 1.48270I$ $a = -1.165310 + 0.144959I$ $b = 1.003810 + 0.583498I$	$5.41627 + 6.67339I$	$-4.1940 - 14.0424I$
$u = -0.130132 + 0.342927I$ $a = -2.18708 + 2.27887I$ $b = -0.145284 - 0.970139I$	$-1.08386 + 4.88595I$	$0.88479 - 6.08182I$
$u = -0.130132 - 0.342927I$ $a = -2.18708 - 2.27887I$ $b = -0.145284 + 0.970139I$	$-1.08386 - 4.88595I$	$0.88479 + 6.08182I$

III. $\boldsymbol{I^u_3 = \langle -160au^{59} - 2.85\times 10^{7}u^{59} + \cdots + 32a + 3.79\times 10^{6},\ 52235u^{59}a + 20380u^{59} + \cdots + 25702a + 2510,\ 5u^{60} - 50u^{59} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} a \\ 0.00673854au^{59} + 1200.48u^{59} + \cdots - 0.00134771a - 159.502 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -657.727au^{59} + 128.283u^{59} + \cdots + 230.545a - 15.2191 \\ 676.391au^{59} + 101.012u^{59} + \cdots + 9.54999a - 0.233701 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00673854au^{59} + 1200.48u^{59} + \cdots + 0.998652a - 159.502 \\ 0.00673854au^{59} + 1200.48u^{59} + \cdots - 0.00134771a - 159.502 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1200.48au^{59} + 50.4671u^{59} + \cdots + 159.502a + 72.3128 \\ 101.641u^{59} - 975.234u^{58} + \cdots + 32.5156u - 1.60938 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} \frac{27545}{64}u^{59} - \frac{21845}{4}u^{58} + \cdots + a - \frac{18627}{64} \\ -0.00673854au^{59} + 525.539u^{59} + \cdots + 0.00134771a - 63.3109 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 30.5585au^{59} + 25.4406u^{59} + \cdots - 94.1117a - 64.7600 \\ -551.703au^{59} - 131.794u^{59} + \cdots + 60.2781a + 6.54620 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 420u^{59}a + \frac{5445}{32}u^{59} + \cdots + \frac{1049}{8}a + \frac{203}{8} \\ -146.867au^{59} - 181.153u^{59} + \cdots - 51.7203a - 27.6287 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 293.697au^{59} + 509.814u^{59} + \cdots - 55.1769a + 131.475 \\ -192.985au^{59} + 861.219u^{59} + \cdots - 28.0905a - 24.3376 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1265}{8}u^{59} + \frac{14965}{4}u^{58} + \cdots - \frac{8543}{8}u + \frac{759}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_{11}	$400u^{120} - 5480u^{119} + \cdots - 472919040u + 28339200$
c_2, c_8, c_{12}	$(5u^{60} - 50u^{59} + \cdots - 3u + 1)^2$
c_3, c_9	$64u^{120} + 192u^{119} + \cdots + 426240000u + 2733137920$
c_4, c_{10}	$64u^{120} - 192u^{119} + \cdots - 426240000u + 2733137920$
c_6	$(5u^{60} + 50u^{59} + \cdots + 3u + 1)^2$
c_7	$400u^{120} + 5480u^{119} + \cdots + 472919040u + 28339200$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$1.60 \times 10^5 y^{120} - 7200y^{119} + \cdots + 3.42 \times 10^{16} y + 8.03 \times 10^{14}$
c_2, c_6, c_8 c_{12}	$(25y^{60} + 930y^{59} + \cdots + 15y + 1)^2$
c_3, c_4, c_9 c_{10}	$4096y^{120} + 1.08 \times 10^4 y^{119} + \cdots + 2.60 \times 10^{19} y + 7.47 \times 10^{18}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.321907 + 0.943564I$ $a = -0.211148 + 1.105250I$ $b = -0.26256 - 1.99549I$	$-3.67203 - 11.90650I$	0
$u = 0.321907 + 0.943564I$ $a = 2.66689 - 0.33653I$ $b = -0.687502 + 0.733552I$	$-3.67203 - 11.90650I$	0
$u = 0.321907 - 0.943564I$ $a = -0.211148 - 1.105250I$ $b = -0.26256 + 1.99549I$	$-3.67203 + 11.90650I$	0
$u = 0.321907 - 0.943564I$ $a = 2.66689 + 0.33653I$ $b = -0.687502 - 0.733552I$	$-3.67203 + 11.90650I$	0
$u = 0.290898 + 0.962372I$ $a = 0.700197 + 0.784048I$ $b = -0.75843 - 1.46413I$	$-4.84435 - 2.21317I$	0
$u = 0.290898 + 0.962372I$ $a = 2.24984 - 0.55461I$ $b = -0.637554 + 0.253876I$	$-4.84435 - 2.21317I$	0
$u = 0.290898 - 0.962372I$ $a = 0.700197 - 0.784048I$ $b = -0.75843 + 1.46413I$	$-4.84435 + 2.21317I$	0
$u = 0.290898 - 0.962372I$ $a = 2.24984 + 0.55461I$ $b = -0.637554 - 0.253876I$	$-4.84435 + 2.21317I$	0
$u = -0.204638 + 0.984696I$ $a = -1.034140 + 0.554038I$ $b = -0.071904 + 0.987935I$	$0.982206 + 0.844454I$	0
$u = -0.204638 + 0.984696I$ $a = -2.26834 - 1.27479I$ $b = 1.29204 + 1.40466I$	$0.982206 + 0.844454I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.204638 - 0.984696I$ $a = -1.034140 - 0.554038I$ $b = -0.071904 - 0.987935I$	$0.982206 - 0.844454I$	0
$u = -0.204638 - 0.984696I$ $a = -2.26834 + 1.27479I$ $b = 1.29204 - 1.40466I$	$0.982206 - 0.844454I$	0
$u = 0.318254 + 0.962466I$ $a = 0.026549 - 0.690358I$ $b = 0.24232 + 1.66247I$	$-0.35565 - 6.64390I$	0
$u = 0.318254 + 0.962466I$ $a = -2.48216 + 0.28024I$ $b = 0.850057 - 0.568151I$	$-0.35565 - 6.64390I$	0
$u = 0.318254 - 0.962466I$ $a = 0.026549 + 0.690358I$ $b = 0.24232 - 1.66247I$	$-0.35565 + 6.64390I$	0
$u = 0.318254 - 0.962466I$ $a = -2.48216 - 0.28024I$ $b = 0.850057 + 0.568151I$	$-0.35565 + 6.64390I$	0
$u = -0.984855 + 0.363005I$ $a = -0.655421 + 0.694738I$ $b = 1.049900 - 0.000916I$	$-2.65659 + 7.48205I$	0
$u = -0.984855 + 0.363005I$ $a = 0.298474 - 0.194999I$ $b = 0.640368 + 0.540116I$	$-2.65659 + 7.48205I$	0
$u = -0.984855 - 0.363005I$ $a = -0.655421 - 0.694738I$ $b = 1.049900 + 0.000916I$	$-2.65659 - 7.48205I$	0
$u = -0.984855 - 0.363005I$ $a = 0.298474 + 0.194999I$ $b = 0.640368 - 0.540116I$	$-2.65659 - 7.48205I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.304706+0.896132I$ $a=\ 0.957243+0.856438I$ $b=-0.07957-1.50726I$	$3.23047I$	0
$u=-0.304706+0.896132I$ $a=\ 1.79637+0.39260I$ $b=-0.315785-0.984822I$	$3.23047I$	0
$u=-0.304706-0.896132I$ $a=\ 0.957243-0.856438I$ $b=-0.07957+1.50726I$	$-3.23047I$	0
$u=-0.304706-0.896132I$ $a=\ 1.79637-0.39260I$ $b=-0.315785+0.984822I$	$-3.23047I$	0
$u=-0.159113+0.919352I$ $a=\ 0.023781-0.297620I$ $b=-0.48301+1.39389I$	$1.29549+0.75677I$	0
$u=-0.159113+0.919352I$ $a=-2.49514-0.85194I$ $b=\ 0.934786+0.596619I$	$1.29549+0.75677I$	0
$u=-0.159113-0.919352I$ $a=\ 0.023781+0.297620I$ $b=-0.48301-1.39389I$	$1.29549-0.75677I$	0
$u=-0.159113-0.919352I$ $a=-2.49514+0.85194I$ $b=\ 0.934786-0.596619I$	$1.29549-0.75677I$	0
$u=-0.563422+0.906939I$ $a=\ 0.369590-0.833889I$ $b=-0.652128+1.007840I$	$-4.28468+5.58928I$	0
$u=-0.563422+0.906939I$ $a=-1.122690-0.374955I$ $b=-0.001425+0.354252I$	$-4.28468+5.58928I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.563422 - 0.906939I$ $a = 0.369590 + 0.833889I$ $b = -0.652128 - 1.007840I$	$-4.28468 - 5.58928I$	0
$u = -0.563422 - 0.906939I$ $a = -1.122690 + 0.374955I$ $b = -0.001425 - 0.354252I$	$-4.28468 - 5.58928I$	0
$u = 0.910138 + 0.143266I$ $a = 0.308329 - 0.280726I$ $b = 0.947533 + 0.830228I$	$0.35565 + 6.64390I$	0
$u = 0.910138 + 0.143266I$ $a = -0.0917514 - 0.0501821I$ $b = -1.064280 - 0.680045I$	$0.35565 + 6.64390I$	0
$u = 0.910138 - 0.143266I$ $a = 0.308329 + 0.280726I$ $b = 0.947533 - 0.830228I$	$0.35565 - 6.64390I$	0
$u = 0.910138 - 0.143266I$ $a = -0.0917514 + 0.0501821I$ $b = -1.064280 + 0.680045I$	$0.35565 - 6.64390I$	0
$u = 0.882774 + 0.181268I$ $a = -0.129951 + 0.347717I$ $b = -1.017010 - 0.715087I$	$1.39107 + 3.59624I$	0
$u = 0.882774 + 0.181268I$ $a = 0.319140 + 0.018071I$ $b = 0.945911 + 0.532211I$	$1.39107 + 3.59624I$	0
$u = 0.882774 - 0.181268I$ $a = -0.129951 - 0.347717I$ $b = -1.017010 + 0.715087I$	$1.39107 - 3.59624I$	0
$u = 0.882774 - 0.181268I$ $a = 0.319140 - 0.018071I$ $b = 0.945911 - 0.532211I$	$1.39107 - 3.59624I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.519961 + 0.729814I$ $a = 1.42695 - 0.10017I$ $b = -0.444188 - 0.465152I$	$-1.56173 + 2.08294I$	0
$u = -0.519961 + 0.729814I$ $a = 0.036719 + 0.306272I$ $b = 0.098418 - 1.011180I$	$-1.56173 + 2.08294I$	0
$u = -0.519961 - 0.729814I$ $a = 1.42695 + 0.10017I$ $b = -0.444188 + 0.465152I$	$-1.56173 - 2.08294I$	0
$u = -0.519961 - 0.729814I$ $a = 0.036719 - 0.306272I$ $b = 0.098418 + 1.011180I$	$-1.56173 - 2.08294I$	0
$u = 1.095990 + 0.142402I$ $a = -0.396890 + 0.128629I$ $b = -0.280943 - 0.633355I$	$-6.10739 + 5.95943I$	0
$u = 1.095990 + 0.142402I$ $a = -0.345099 - 0.114158I$ $b = 0.671021 + 0.649697I$	$-6.10739 + 5.95943I$	0
$u = 1.095990 - 0.142402I$ $a = -0.396890 - 0.128629I$ $b = -0.280943 + 0.633355I$	$-6.10739 - 5.95943I$	0
$u = 1.095990 - 0.142402I$ $a = -0.345099 + 0.114158I$ $b = 0.671021 - 0.649697I$	$-6.10739 - 5.95943I$	0
$u = 0.358153 + 1.115160I$ $a = 0.843184 + 0.869340I$ $b = -0.781423 + 0.661689I$	$4.28468 - 5.58928I$	0
$u = 0.358153 + 1.115160I$ $a = -2.01909 - 0.19074I$ $b = 1.68522 - 0.61722I$	$4.28468 - 5.58928I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.358153 - 1.115160I$ $a = 0.843184 - 0.869340I$ $b = -0.781423 - 0.661689I$	$4.28468 + 5.58928I$	0
$u = 0.358153 - 1.115160I$ $a = -2.01909 + 0.19074I$ $b = 1.68522 + 0.61722I$	$4.28468 + 5.58928I$	0
$u = -0.044759 + 0.769987I$ $a = 1.78625 + 1.75828I$ $b = -0.98838 - 2.07654I$	$-0.982206 - 0.844454I$	0
$u = -0.044759 + 0.769987I$ $a = 2.82275 - 0.80695I$ $b = -0.209346 - 0.628594I$	$-0.982206 - 0.844454I$	0
$u = -0.044759 - 0.769987I$ $a = 1.78625 - 1.75828I$ $b = -0.98838 + 2.07654I$	$-0.982206 + 0.844454I$	0
$u = -0.044759 - 0.769987I$ $a = 2.82275 + 0.80695I$ $b = -0.209346 + 0.628594I$	$-0.982206 + 0.844454I$	0
$u = 0.330776 + 1.199400I$ $a = -0.946469 - 0.989763I$ $b = 0.813263 - 0.304525I$	$5.39263 - 1.15812I$	0
$u = 0.330776 + 1.199400I$ $a = 1.57047 + 0.10732I$ $b = -1.50830 + 0.58789I$	$5.39263 - 1.15812I$	0
$u = 0.330776 - 1.199400I$ $a = -0.946469 + 0.989763I$ $b = 0.813263 + 0.304525I$	$5.39263 + 1.15812I$	0
$u = 0.330776 - 1.199400I$ $a = 1.57047 - 0.10732I$ $b = -1.50830 - 0.58789I$	$5.39263 + 1.15812I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.369323 + 0.649111I$ $a = 0.243352 + 0.267315I$ $b = 0.526307 + 1.292300I$	$-4.53004 + 8.84379I$	0
$u = 0.369323 + 0.649111I$ $a = -2.58061 + 0.83239I$ $b = 0.728108 - 1.075600I$	$-4.53004 + 8.84379I$	0
$u = 0.369323 - 0.649111I$ $a = 0.243352 - 0.267315I$ $b = 0.526307 - 1.292300I$	$-4.53004 - 8.84379I$	0
$u = 0.369323 - 0.649111I$ $a = -2.58061 - 0.83239I$ $b = 0.728108 + 1.075600I$	$-4.53004 - 8.84379I$	0
$u = -0.561022 + 0.471335I$ $a = 0.243530 + 0.297277I$ $b = 0.243884 + 1.024390I$	$-5.39263 - 1.15812I$	0
$u = -0.561022 + 0.471335I$ $a = -1.54085 + 0.77276I$ $b = 0.896398 + 0.511751I$	$-5.39263 - 1.15812I$	0
$u = -0.561022 - 0.471335I$ $a = 0.243530 - 0.297277I$ $b = 0.243884 - 1.024390I$	$-5.39263 + 1.15812I$	0
$u = -0.561022 - 0.471335I$ $a = -1.54085 - 0.77276I$ $b = 0.896398 - 0.511751I$	$-5.39263 + 1.15812I$	0
$u = 0.374728 + 0.600295I$ $a = 0.1176460 - 0.0657947I$ $b = -0.587436 - 1.139780I$	$-1.39107 + 3.59624I$	0
$u = 0.374728 + 0.600295I$ $a = 2.35353 - 0.58506I$ $b = -0.547659 + 0.733776I$	$-1.39107 + 3.59624I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.374728 - 0.600295I$ $a = 0.1176460 + 0.0657947I$ $b = -0.587436 + 1.139780I$	$-1.39107 - 3.59624I$	0
$u = 0.374728 - 0.600295I$ $a = 2.35353 + 0.58506I$ $b = -0.547659 - 0.733776I$	$-1.39107 - 3.59624I$	0
$u = 0.367071 + 1.260570I$ $a = -0.798354 - 0.858019I$ $b = 0.931039 - 0.107339I$	$5.87193 - 0.56893I$	0
$u = 0.367071 + 1.260570I$ $a = 1.145840 + 0.516614I$ $b = -1.265610 + 0.187097I$	$5.87193 - 0.56893I$	0
$u = 0.367071 - 1.260570I$ $a = -0.798354 + 0.858019I$ $b = 0.931039 + 0.107339I$	$5.87193 + 0.56893I$	0
$u = 0.367071 - 1.260570I$ $a = 1.145840 - 0.516614I$ $b = -1.265610 - 0.187097I$	$5.87193 + 0.56893I$	0
$u = 0.295673 + 0.598047I$ $a = -0.522578 + 0.581146I$ $b = 0.370410 + 1.047480I$	$-5.87193 - 0.56893I$	$-5.71165 + 2.62808I$
$u = 0.295673 + 0.598047I$ $a = -2.67253 + 0.19240I$ $b = 1.018990 - 0.390536I$	$-5.87193 - 0.56893I$	$-5.71165 + 2.62808I$
$u = 0.295673 - 0.598047I$ $a = -0.522578 - 0.581146I$ $b = 0.370410 - 1.047480I$	$-5.87193 + 0.56893I$	$-5.71165 - 2.62808I$
$u = 0.295673 - 0.598047I$ $a = -2.67253 - 0.19240I$ $b = 1.018990 + 0.390536I$	$-5.87193 + 0.56893I$	$-5.71165 - 2.62808I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.382429 + 1.285840I$ $a = 0.513393 + 0.703587I$ $b = -0.852984 + 0.063407I$	$4.84435 + 2.21317I$	0
$u = 0.382429 + 1.285840I$ $a = -0.980146 - 0.766268I$ $b = 1.116100 + 0.143339I$	$4.84435 + 2.21317I$	0
$u = 0.382429 - 1.285840I$ $a = 0.513393 - 0.703587I$ $b = -0.852984 - 0.063407I$	$4.84435 - 2.21317I$	0
$u = 0.382429 - 1.285840I$ $a = -0.980146 + 0.766268I$ $b = 1.116100 - 0.143339I$	$4.84435 - 2.21317I$	0
$u = 0.551013 + 1.224120I$ $a = 1.50347 + 0.41968I$ $b = -1.36326 + 0.91622I$	$4.53004 - 8.84379I$	0
$u = 0.551013 + 1.224120I$ $a = -1.76358 - 0.29845I$ $b = 1.55805 - 0.90773I$	$4.53004 - 8.84379I$	0
$u = 0.551013 - 1.224120I$ $a = 1.50347 - 0.41968I$ $b = -1.36326 - 0.91622I$	$4.53004 + 8.84379I$	0
$u = 0.551013 - 1.224120I$ $a = -1.76358 + 0.29845I$ $b = 1.55805 + 0.90773I$	$4.53004 + 8.84379I$	0
$u = 0.542249 + 1.239600I$ $a = 1.72699 + 0.12373I$ $b = -1.51023 + 1.09918I$	$3.67203 - 11.90650I$	0
$u = 0.542249 + 1.239600I$ $a = -1.69535 - 0.41640I$ $b = 1.39839 - 0.93182I$	$3.67203 - 11.90650I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.542249 - 1.239600I$ $a = 1.72699 - 0.12373I$ $b = -1.51023 - 1.09918I$	$3.67203 + 11.90650I$	0
$u = 0.542249 - 1.239600I$ $a = -1.69535 + 0.41640I$ $b = 1.39839 + 0.93182I$	$3.67203 + 11.90650I$	0
$u = -0.380832 + 1.323190I$ $a = 1.19262 - 0.84227I$ $b = -0.861585 - 0.399905I$	$2.50586 + 11.87860I$	0
$u = -0.380832 + 1.323190I$ $a = 1.62361 + 0.22942I$ $b = -1.51757 - 0.91108I$	$2.50586 + 11.87860I$	0
$u = -0.380832 - 1.323190I$ $a = 1.19262 + 0.84227I$ $b = -0.861585 + 0.399905I$	$2.50586 - 11.87860I$	0
$u = -0.380832 - 1.323190I$ $a = 1.62361 - 0.22942I$ $b = -1.51757 + 0.91108I$	$2.50586 - 11.87860I$	0
$u = 0.032535 + 1.376960I$ $a = -0.067483 + 1.117620I$ $b = 0.16064 - 1.58335I$	$0.520516I$	0
$u = 0.032535 + 1.376960I$ $a = 1.79080 + 0.25687I$ $b = -0.644316 - 0.113122I$	$0.520516I$	0
$u = 0.032535 - 1.376960I$ $a = -0.067483 - 1.117620I$ $b = 0.16064 + 1.58335I$	$-0.520516I$	0
$u = 0.032535 - 1.376960I$ $a = 1.79080 - 0.25687I$ $b = -0.644316 + 0.113122I$	$-0.520516I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.575559 + 0.132100I$ $a = -0.254659 + 1.029720I$ $b = -0.899561 - 0.511447I$	$1.56173 + 2.08294I$	$1.60950 - 3.67011I$
$u = 0.575559 + 0.132100I$ $a = 0.945682 + 0.649198I$ $b = 0.732785 - 0.145823I$	$1.56173 + 2.08294I$	$1.60950 - 3.67011I$
$u = 0.575559 - 0.132100I$ $a = -0.254659 - 1.029720I$ $b = -0.899561 + 0.511447I$	$1.56173 - 2.08294I$	$1.60950 + 3.67011I$
$u = 0.575559 - 0.132100I$ $a = 0.945682 - 0.649198I$ $b = 0.732785 + 0.145823I$	$1.56173 - 2.08294I$	$1.60950 + 3.67011I$
$u = 0.67143 + 1.25283I$ $a = 0.835340 + 0.222425I$ $b = -0.990351 + 0.766177I$	$2.65659 - 7.48205I$	0
$u = 0.67143 + 1.25283I$ $a = -1.48861 - 0.39915I$ $b = 1.34263 - 0.46958I$	$2.65659 - 7.48205I$	0
$u = 0.67143 - 1.25283I$ $a = 0.835340 - 0.222425I$ $b = -0.990351 - 0.766177I$	$2.65659 + 7.48205I$	0
$u = 0.67143 - 1.25283I$ $a = -1.48861 + 0.39915I$ $b = 1.34263 + 0.46958I$	$2.65659 + 7.48205I$	0
$u = 0.58417 + 1.29672I$ $a = -1.071870 + 0.156151I$ $b = 0.94658 - 1.11184I$	$-2.50586 - 11.87860I$	0
$u = 0.58417 + 1.29672I$ $a = 1.60547 + 0.20718I$ $b = -1.166070 + 0.720746I$	$-2.50586 - 11.87860I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.58417 - 1.29672I$ $a = -1.071870 - 0.156151I$ $b = 0.94658 + 1.11184I$	$-2.50586 + 11.87860I$	0
$u = 0.58417 - 1.29672I$ $a = 1.60547 - 0.20718I$ $b = -1.166070 - 0.720746I$	$-2.50586 + 11.87860I$	0
$u = -0.40259 + 1.37690I$ $a = -1.059920 + 0.600086I$ $b = 0.839133 + 0.405350I$	$6.10739 + 5.95943I$	0
$u = -0.40259 + 1.37690I$ $a = -1.402550 - 0.068041I$ $b = 1.29550 + 0.70878I$	$6.10739 + 5.95943I$	0
$u = -0.40259 - 1.37690I$ $a = -1.059920 - 0.600086I$ $b = 0.839133 - 0.405350I$	$6.10739 - 5.95943I$	0
$u = -0.40259 - 1.37690I$ $a = -1.402550 + 0.068041I$ $b = 1.29550 - 0.70878I$	$6.10739 - 5.95943I$	0
$u = -0.129167 + 0.122817I$ $a = 0.78075 - 5.53107I$ $b = 0.336444 - 1.032790I$	$-1.29549 - 0.75677I$	$-5.76024 + 1.81125I$
$u = -0.129167 + 0.122817I$ $a = 6.02259 - 1.91348I$ $b = -0.661849 - 0.985048I$	$-1.29549 - 0.75677I$	$-5.76024 + 1.81125I$
$u = -0.129167 - 0.122817I$ $a = 0.78075 + 5.53107I$ $b = 0.336444 + 1.032790I$	$-1.29549 + 0.75677I$	$-5.76024 - 1.81125I$
$u = -0.129167 - 0.122817I$ $a = 6.02259 + 1.91348I$ $b = -0.661849 + 0.985048I$	$-1.29549 + 0.75677I$	$-5.76024 - 1.81125I$

IV. $\boldsymbol{I_4^u = \langle -u^7a^3 + u^7a^2 + \cdots - a + 3,\ u^7a^3 - u^7a^2 + \cdots + 3a - 1,\ u^7a^2 - u^7a + \cdots + b + 1,\ u^8a^2 - u^8a + \cdots + 2u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} a \\ b \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{1}{2}u^7a^3 - \frac{1}{2}u^7a^2 + \cdots + \frac{3}{2}a + \frac{1}{2} \\ u^6a^2 - u^6a + \cdots + b + 2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} b + a \\ b \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{2}u^7a^3 + \frac{1}{2}u^7a^2 + \cdots + \frac{1}{2}a - \frac{1}{2} \\ -u^6a^2 + u^6a - 2u^4a^2 + u^4a - a^2u^2 - u^3a + u^3 - au - u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^3a + u^3 - au + a - 1 \\ -u^7a^2 + u^7a + \cdots - b - 3 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -u^7a^3 + u^7a^2 + \cdots - a - 1 \\ \frac{1}{2}u^7a^3 - \frac{3}{2}u^7a^2 + \cdots + \frac{1}{2}a - \frac{5}{2} \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	0	0

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u^{28} - 3u^{27} + \cdots - 48u + 36)(u^{40} - 3u^{39} + \cdots - 135u + 27)$
c_2	$(u^{28} + 4u^{27} + \cdots + 13u^2 + 1)(u^{40} + 17u^{39} + \cdots - 2560u - 256)$
c_3, c_{10}	$108(4u^{28} + 4u^{27} + \cdots + 3u + 1)(27u^{40} - 27u^{39} + \cdots + u + 1)$
c_4, c_9	$108(4u^{28} - 4u^{27} + \cdots - 3u + 1)(27u^{40} + 27u^{39} + \cdots - u + 1)$
c_6	$(u^{28} - 4u^{27} + \cdots + 13u^2 + 1)(u^{40} + 17u^{39} + \cdots - 2560u - 256)$
c_7, c_{11}	$(u^{28} + 3u^{27} + \cdots + 48u + 36)(u^{40} + 3u^{39} + \cdots + 135u + 27)$
c_8	$(u^{28} - 4u^{27} + \cdots + 13u^2 + 1)(u^{40} - 17u^{39} + \cdots + 2560u - 256)$
c_{12}	$(u^{28} + 4u^{27} + \cdots + 13u^2 + 1)(u^{40} - 17u^{39} + \cdots + 2560u - 256)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$(y^{28} + 7y^{27} + \cdots + 6192y + 1296)(y^{40} - 7y^{39} + \cdots + 2673y + 729)$
c_2, c_6, c_8 c_{12}	$(y^{28} + 14y^{27} + \cdots + 26y + 1)(y^{40} + 17y^{39} + \cdots + 65536y + 65536)$
c_3, c_4, c_9 c_{10}	$11664(16y^{28} - 144y^{27} + \cdots + 13y + 1)$ $\cdot (729y^{40} - 16767y^{39} + \cdots - 59y + 1)$