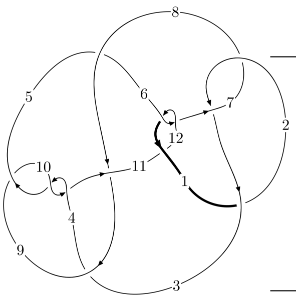
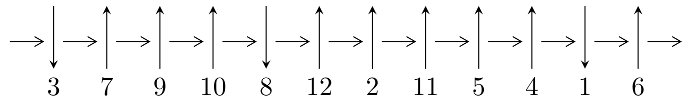
$12a_{0570}$ ($K12a_{0570}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{40} + 3u^{39} + \cdots + b + 3,\ -3u^{42} - 9u^{41} + \cdots + 2a - 11,\ u^{43} + 3u^{42} + \cdots + 11u + 2\rangle$$
$$I_2^u = \langle 190u^{31}a + 573u^{31} + \cdots - 125a - 709,\ -u^{31} - 14u^{29} + \cdots + a^2 + a,\ u^{32} - u^{31} + \cdots - 2u + 1\rangle$$
$$I_3^u = \langle u^9 + 4u^7 + 5u^5 - u^4 + u^3 - 2u^2 + b,\ u^8 + 4u^6 + 5u^4 + 2u^2 + a + 1,\ u^{10} + 5u^8 + 8u^6 + 3u^4 - u^2 + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 117 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $I^u_1 =$
$\langle u^{40}+3u^{39}+\cdots+b+3,\ -3u^{42}-9u^{41}+\cdots+2a-11,\ u^{43}+3u^{42}+\cdots+11u+2\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2+1 \\ -u^4-2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{3}{2}u^{42}+\frac{9}{2}u^{41}+\cdots+23u+\frac{11}{2} \\ -u^{40}-3u^{39}+\cdots-10u-3 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3-2u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{5}{2}u^{42}+\frac{15}{2}u^{41}+\cdots+41u+\frac{19}{2} \\ -2u^{40}-5u^{39}+\cdots-18u-5 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ u^8+4u^6+4u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{13}-6u^{11}-13u^9-10u^7+2u^5+4u^3-u \\ u^{15}+7u^{13}+18u^{11}+19u^9+4u^7-4u^5+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}u^{42}+\frac{1}{2}u^{41}+\cdots+u+\frac{1}{2} \\ u^{41}+2u^{40}+\cdots+4u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{3}{2}u^{42}-\frac{9}{2}u^{41}+\cdots-25u-\frac{9}{2} \\ u^{40}+3u^{39}+\cdots+11u+3 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 12u^{42}+26u^{41}+\cdots+114u+38$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{43} + 18u^{42} + \cdots - 5u - 1$
c_2, c_6, c_7 c_{12}	$u^{43} + 9u^{41} + \cdots + u - 1$
c_3	$u^{43} + 3u^{42} + \cdots + 79u - 10$
c_4, c_9, c_{10}	$u^{43} - 3u^{42} + \cdots + 11u - 2$
c_5	$u^{43} - 21u^{42} + \cdots + 18607u - 1058$
c_8	$u^{43} + 9u^{42} + \cdots - 863u - 88$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{43} + 26y^{42} + \cdots + 67y - 1$
c_2, c_6, c_7 c_{12}	$y^{43} + 18y^{42} + \cdots - 5y - 1$
c_3	$y^{43} + 3y^{42} + \cdots + 241y - 100$
c_4, c_9, c_{10}	$y^{43} + 39y^{42} + \cdots + 17y - 4$
c_5	$y^{43} + 3y^{42} + \cdots + 10766737y - 1119364$
c_8	$y^{43} + 15y^{42} + \cdots + 108705y - 7744$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.164014 + 0.946057I$ $a = 1.282900 - 0.345090I$ $b = 0.534324 - 0.151237I$	$2.20216 - 1.04215I$	$8.70214 + 2.03700I$
$u = 0.164014 - 0.946057I$ $a = 1.282900 + 0.345090I$ $b = 0.534324 + 0.151237I$	$2.20216 + 1.04215I$	$8.70214 - 2.03700I$
$u = 0.243062 + 1.100190I$ $a = -1.54071 - 0.64105I$ $b = -1.52314 + 0.64705I$	$-0.89825 + 9.73279I$	$4.53563 - 8.30440I$
$u = 0.243062 - 1.100190I$ $a = -1.54071 + 0.64105I$ $b = -1.52314 - 0.64705I$	$-0.89825 - 9.73279I$	$4.53563 + 8.30440I$
$u = -0.722534 + 0.301697I$ $a = 0.08578 + 3.01066I$ $b = -0.29124 - 2.70866I$	$-0.37610 - 13.45560I$	$5.29575 + 10.36544I$
$u = -0.722534 - 0.301697I$ $a = 0.08578 - 3.01066I$ $b = -0.29124 + 2.70866I$	$-0.37610 + 13.45560I$	$5.29575 - 10.36544I$
$u = -0.404425 + 0.657515I$ $a = -2.67151 + 0.36651I$ $b = 0.065501 - 1.014060I$	$-1.70851 + 9.45730I$	$2.82665 - 5.31681I$
$u = -0.404425 - 0.657515I$ $a = -2.67151 - 0.36651I$ $b = 0.065501 + 1.014060I$	$-1.70851 - 9.45730I$	$2.82665 + 5.31681I$
$u = -0.204544 + 0.730389I$ $a = 1.43841 - 0.73472I$ $b = 0.293207 + 0.580345I$	$2.08121 - 1.04733I$	$8.22274 + 3.41589I$
$u = -0.204544 - 0.730389I$ $a = 1.43841 + 0.73472I$ $b = 0.293207 - 0.580345I$	$2.08121 + 1.04733I$	$8.22274 - 3.41589I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.644960 + 0.373766I$ $a = 0.760035 + 0.158019I$ $b = -1.138310 + 0.047746I$	$-3.38888 + 1.43692I$	$3.05929 - 2.01133I$
$u = -0.644960 - 0.373766I$ $a = 0.760035 - 0.158019I$ $b = -1.138310 - 0.047746I$	$-3.38888 - 1.43692I$	$3.05929 + 2.01133I$
$u = -0.703437 + 0.246639I$ $a = 0.66216 - 1.99434I$ $b = -0.29319 + 1.70932I$	$3.84861 - 2.56258I$	$11.41433 + 1.98438I$
$u = -0.703437 - 0.246639I$ $a = 0.66216 + 1.99434I$ $b = -0.29319 - 1.70932I$	$3.84861 + 2.56258I$	$11.41433 - 1.98438I$
$u = 0.702975 + 0.194251I$ $a = -0.86374 + 1.45652I$ $b = 0.330233 - 1.365890I$	$4.46731 + 4.55873I$	$11.59252 - 6.90277I$
$u = 0.702975 - 0.194251I$ $a = -0.86374 - 1.45652I$ $b = 0.330233 + 1.365890I$	$4.46731 - 4.55873I$	$11.59252 + 6.90277I$
$u = -0.522120 + 0.491654I$ $a = -0.240133 - 1.023150I$ $b = 0.500490 - 0.298029I$	$-3.88878 - 5.31369I$	$1.61265 + 8.28245I$
$u = -0.522120 - 0.491654I$ $a = -0.240133 + 1.023150I$ $b = 0.500490 + 0.298029I$	$-3.88878 + 5.31369I$	$1.61265 - 8.28245I$
$u = 0.704270 + 0.097056I$ $a = -0.35999 - 2.14445I$ $b = 0.72753 + 1.96810I$	$2.11782 - 6.17915I$	$9.04327 + 4.42784I$
$u = 0.704270 - 0.097056I$ $a = -0.35999 + 2.14445I$ $b = 0.72753 - 1.96810I$	$2.11782 + 6.17915I$	$9.04327 - 4.42784I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.562309 + 0.373892I$ $a = -0.425293 - 0.567896I$ $b = 0.349891 + 0.140060I$	$-2.01863 + 1.75385I$	$5.78006 - 4.89342I$
$u = 0.562309 - 0.373892I$ $a = -0.425293 + 0.567896I$ $b = 0.349891 - 0.140060I$	$-2.01863 - 1.75385I$	$5.78006 + 4.89342I$
$u = 0.260662 + 1.303620I$ $a = 0.878955 + 0.346423I$ $b = 0.39384 - 2.51915I$	$-2.24110 - 2.69252I$	0
$u = 0.260662 - 1.303620I$ $a = 0.878955 - 0.346423I$ $b = 0.39384 + 2.51915I$	$-2.24110 + 2.69252I$	0
$u = -0.001427 + 1.338340I$ $a = -0.356373 - 0.037117I$ $b = 0.518324 - 0.887394I$	$-3.78341 - 1.46954I$	0
$u = -0.001427 - 1.338340I$ $a = -0.356373 + 0.037117I$ $b = 0.518324 + 0.887394I$	$-3.78341 + 1.46954I$	0
$u = -0.126955 + 1.361350I$ $a = -0.527328 - 0.405446I$ $b = 0.745333 - 0.463766I$	$-3.68931 - 1.78526I$	0
$u = -0.126955 - 1.361350I$ $a = -0.527328 + 0.405446I$ $b = 0.745333 + 0.463766I$	$-3.68931 + 1.78526I$	0
$u = 0.277378 + 1.369800I$ $a = -0.295618 - 0.850189I$ $b = -1.30294 + 1.86794I$	$-0.48560 + 8.11013I$	0
$u = 0.277378 - 1.369800I$ $a = -0.295618 + 0.850189I$ $b = -1.30294 - 1.86794I$	$-0.48560 - 8.11013I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.27745 + 1.39855I$ $a = -1.137110 + 0.389286I$ $b = -0.19324 - 2.23756I$	$-1.39190 - 6.12597I$	0
$u = -0.27745 - 1.39855I$ $a = -1.137110 - 0.389286I$ $b = -0.19324 + 2.23756I$	$-1.39190 + 6.12597I$	0
$u = 0.21669 + 1.43469I$ $a = 0.352241 + 0.027500I$ $b = -0.842082 - 0.581266I$	$-7.80581 + 4.63802I$	0
$u = 0.21669 - 1.43469I$ $a = 0.352241 - 0.027500I$ $b = -0.842082 + 0.581266I$	$-7.80581 - 4.63802I$	0
$u = -0.28325 + 1.42482I$ $a = 1.35303 - 1.05301I$ $b = 1.20627 + 3.61742I$	$-5.8954 - 17.1146I$	0
$u = -0.28325 - 1.42482I$ $a = 1.35303 + 1.05301I$ $b = 1.20627 - 3.61742I$	$-5.8954 + 17.1146I$	0
$u = -0.11220 + 1.45113I$ $a = 1.182720 + 0.686675I$ $b = -1.55004 - 0.11281I$	$-8.32121 + 7.81517I$	0
$u = -0.11220 - 1.45113I$ $a = 1.182720 - 0.686675I$ $b = -1.55004 + 0.11281I$	$-8.32121 - 7.81517I$	0
$u = -0.24228 + 1.44282I$ $a = -0.108809 - 0.420814I$ $b = 1.41781 - 0.62704I$	$-9.21691 - 1.80423I$	0
$u = -0.24228 - 1.44282I$ $a = -0.108809 + 0.420814I$ $b = 1.41781 + 0.62704I$	$-9.21691 + 1.80423I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.18017+1.45365I$ $a=-0.205904+0.631433I$ $b=\ \ 0.244371+0.099729I$	$-10.10500-7.84159I$	0
$u=-0.18017-1.45365I$ $a=-0.205904-0.631433I$ $b=\ \ 0.244371-0.099729I$	$-10.10500+7.84159I$	0
$u=-0.411211$ $a=\ \ 0.972593$ $b=-0.385880$	0.654283	15.3800

II. $I_2^u = \langle 190u^{31}a + 573u^{31} + \cdots - 125a - 709,\ -u^{31} - 14u^{29} + \cdots + a^2 + a,\ u^{32} - u^{31} + \cdots - 2u + 1\rangle$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ -0.278592au^{31} - 0.840176u^{31} + \cdots + 0.183284a + 1.03959 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.140762au^{31} - 0.517595u^{31} + \cdots + 0.828446a + 0.458944 \\ -0.153959au^{31} - 0.293255u^{31} + \cdots + 0.140762a + 0.482405 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u^{13} - 6u^{11} - 13u^9 - 10u^7 + 2u^5 + 4u^3 - u \\ u^{15} + 7u^{13} + 18u^{11} + 19u^9 + 4u^7 - 4u^5 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.293255au^{31} - 1.03666u^{31} + \cdots - 0.482405a + 1.24780 \\ -0.214076au^{31} - 0.0982405u^{31} + \cdots - 0.332845a - 0.895894 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0982405au^{31} - 0.0747801u^{31} + \cdots + 0.895894a + 0.325513 \\ -0.0953079au^{31} - 0.800587u^{31} + \cdots - 0.0557185a + 0.631965 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -4u^{31} + 4u^{30} - 60u^{29} + 52u^{28} - 392u^{27} + 292u^{26} - 1448u^{25} + 908u^{24} - 3260u^{23} + 1640u^{22} - 4412u^{21} + 1548u^{20} - 3076u^{19} + 248u^{18} - 220u^{17} - 888u^{16} + 924u^{15} - 580u^{14} - 60u^{13} + 204u^{12} - 616u^{11} + 212u^{10} - 144u^9 - 72u^8 + 108u^7 - 60u^6 + 12u^5 + 8u^4 - 20u^3 + 8u^2 - 8u + 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{64} + 35u^{63} + \cdots + 52u^2 + 1$
c_2, c_6, c_7 c_{12}	$u^{64} + u^{63} + \cdots + 2u + 1$
c_3	$(u^{32} - u^{31} + \cdots + 20u^3 + 1)^2$
c_4, c_9, c_{10}	$(u^{32} + u^{31} + \cdots + 2u + 1)^2$
c_5, c_8	$(u^{32} + 7u^{31} + \cdots + 104u + 17)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{64} - 13y^{63} + \cdots + 104y + 1$
c_2, c_6, c_7 c_{12}	$y^{64} + 35y^{63} + \cdots + 52y^2 + 1$
c_3	$(y^{32} + y^{31} + \cdots + 56y^2 + 1)^2$
c_4, c_9, c_{10}	$(y^{32} + 29y^{31} + \cdots + 4y^2 + 1)^2$
c_5, c_8	$(y^{32} + 9y^{31} + \cdots + 3056y + 289)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.209460 + 1.051390I$ $a = -0.934884 - 0.232233I$ $b = -0.533239 - 0.058153I$	$1.12671 - 4.25629I$	$7.47389 + 4.09777I$
$u = -0.209460 + 1.051390I$ $a = 1.55966 - 0.70578I$ $b = 1.32202 + 0.52410I$	$1.12671 - 4.25629I$	$7.47389 + 4.09777I$
$u = -0.209460 - 1.051390I$ $a = -0.934884 + 0.232233I$ $b = -0.533239 + 0.058153I$	$1.12671 + 4.25629I$	$7.47389 - 4.09777I$
$u = -0.209460 - 1.051390I$ $a = 1.55966 + 0.70578I$ $b = 1.32202 - 0.52410I$	$1.12671 + 4.25629I$	$7.47389 - 4.09777I$
$u = 0.089089 + 1.108640I$ $a = 0.194552 - 0.198501I$ $b = 0.02787 - 1.84014I$	$-4.54650 + 1.65846I$	$3.56019 - 4.42001I$
$u = 0.089089 + 1.108640I$ $a = -1.76337 - 1.02559I$ $b = -1.54639 - 0.20893I$	$-4.54650 + 1.65846I$	$3.56019 - 4.42001I$
$u = 0.089089 - 1.108640I$ $a = 0.194552 + 0.198501I$ $b = 0.02787 + 1.84014I$	$-4.54650 - 1.65846I$	$3.56019 + 4.42001I$
$u = 0.089089 - 1.108640I$ $a = -1.76337 + 1.02559I$ $b = -1.54639 + 0.20893I$	$-4.54650 - 1.65846I$	$3.56019 + 4.42001I$
$u = 0.714631 + 0.281038I$ $a = -0.58887 - 1.89058I$ $b = 0.08278 + 1.63195I$	$2.12380 + 7.91274I$	$8.55825 - 6.96002I$
$u = 0.714631 + 0.281038I$ $a = -0.44223 + 2.80524I$ $b = 0.42814 - 2.47045I$	$2.12380 + 7.91274I$	$8.55825 - 6.96002I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.714631 - 0.281038I$ $a = -0.58887 + 1.89058I$ $b = 0.08278 - 1.63195I$	$2.12380 - 7.91274I$	$8.55825 + 6.96002I$
$u = 0.714631 - 0.281038I$ $a = -0.44223 - 2.80524I$ $b = 0.42814 + 2.47045I$	$2.12380 - 7.91274I$	$8.55825 + 6.96002I$
$u = 0.339557 + 0.664733I$ $a = -1.37593 - 0.63879I$ $b = -0.035908 + 0.835219I$	$0.65551 - 4.07051I$	$5.91410 + 1.89651I$
$u = 0.339557 + 0.664733I$ $a = 2.50163 - 0.00413I$ $b = -0.044254 - 0.702995I$	$0.65551 - 4.07051I$	$5.91410 + 1.89651I$
$u = 0.339557 - 0.664733I$ $a = -1.37593 + 0.63879I$ $b = -0.035908 - 0.835219I$	$0.65551 + 4.07051I$	$5.91410 - 1.89651I$
$u = 0.339557 - 0.664733I$ $a = 2.50163 + 0.00413I$ $b = -0.044254 + 0.702995I$	$0.65551 + 4.07051I$	$5.91410 - 1.89651I$
$u = -0.672202 + 0.282270I$ $a = 0.506296 + 0.591013I$ $b = -1.271420 - 0.532717I$	$-3.28987 - 4.49550I$	$4.00000 + 7.21172I$
$u = -0.672202 + 0.282270I$ $a = 1.35780 + 3.33899I$ $b = -1.12075 - 2.55842I$	$-3.28987 - 4.49550I$	$4.00000 + 7.21172I$
$u = -0.672202 - 0.282270I$ $a = 0.506296 - 0.591013I$ $b = -1.271420 + 0.532717I$	$-3.28987 + 4.49550I$	$4.00000 - 7.21172I$
$u = -0.672202 - 0.282270I$ $a = 1.35780 - 3.33899I$ $b = -1.12075 + 2.55842I$	$-3.28987 + 4.49550I$	$4.00000 - 7.21172I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.694439 + 0.142847I$ $a = 0.789254 + 0.891876I$ $b = -0.153418 - 0.883404I$	$3.82740 + 0.78256I$	$11.62681 + 0.59259I$
$u = -0.694439 + 0.142847I$ $a = 0.47492 - 2.22804I$ $b = -0.62800 + 1.94416I$	$3.82740 + 0.78256I$	$11.62681 + 0.59259I$
$u = -0.694439 - 0.142847I$ $a = 0.789254 - 0.891876I$ $b = -0.153418 + 0.883404I$	$3.82740 - 0.78256I$	$11.62681 - 0.59259I$
$u = -0.694439 - 0.142847I$ $a = 0.47492 + 2.22804I$ $b = -0.62800 - 1.94416I$	$3.82740 - 0.78256I$	$11.62681 - 0.59259I$
$u = 0.515560 + 0.370610I$ $a = -0.971553 - 0.576478I$ $b = 0.521901 + 0.456852I$	$-2.03323 + 1.65846I$	$4.43981 - 4.42001I$
$u = 0.515560 + 0.370610I$ $a = 0.092361 - 0.506624I$ $b = 0.160147 - 0.302293I$	$-2.03323 + 1.65846I$	$4.43981 - 4.42001I$
$u = 0.515560 - 0.370610I$ $a = -0.971553 + 0.576478I$ $b = 0.521901 - 0.456852I$	$-2.03323 - 1.65846I$	$4.43981 + 4.42001I$
$u = 0.515560 - 0.370610I$ $a = 0.092361 + 0.506624I$ $b = 0.160147 + 0.302293I$	$-2.03323 - 1.65846I$	$4.43981 + 4.42001I$
$u = 0.598306 + 0.209645I$ $a = 0.055218 + 0.713308I$ $b = 0.864572 - 0.880440I$	$-2.09042 + 1.01594I$	$7.95412 - 1.45531I$
$u = 0.598306 + 0.209645I$ $a = -1.36702 - 2.81720I$ $b = 1.01471 + 1.80896I$	$-2.09042 + 1.01594I$	$7.95412 - 1.45531I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.598306 - 0.209645I$ $a = 0.055218 - 0.713308I$ $b = 0.864572 + 0.880440I$	$-2.09042 - 1.01594I$	$7.95412 + 1.45531I$
$u = 0.598306 - 0.209645I$ $a = -1.36702 + 2.81720I$ $b = 1.01471 - 1.80896I$	$-2.09042 - 1.01594I$	$7.95412 + 1.45531I$
$u = -0.265495 + 1.341380I$ $a = -1.020800 + 0.433430I$ $b = -0.36050 - 2.59349I$	$-0.84097 - 2.68301I$	$6.52130 + 2.36594I$
$u = -0.265495 + 1.341380I$ $a = 0.007855 - 0.645958I$ $b = 0.98543 + 1.23226I$	$-0.84097 - 2.68301I$	$6.52130 + 2.36594I$
$u = -0.265495 - 1.341380I$ $a = -1.020800 - 0.433430I$ $b = -0.36050 + 2.59349I$	$-0.84097 + 2.68301I$	$6.52130 - 2.36594I$
$u = -0.265495 - 1.341380I$ $a = 0.007855 + 0.645958I$ $b = 0.98543 - 1.23226I$	$-0.84097 + 2.68301I$	$6.52130 - 2.36594I$
$u = -0.323417 + 0.508294I$ $a = -0.520273 - 1.034610I$ $b = 0.287125 - 0.913296I$	$-4.48931 + 1.01594I$	$0.04588 - 1.45531I$
$u = -0.323417 + 0.508294I$ $a = -3.36072 - 0.80274I$ $b = 0.743295 - 0.386337I$	$-4.48931 + 1.01594I$	$0.04588 - 1.45531I$
$u = -0.323417 - 0.508294I$ $a = -0.520273 + 1.034610I$ $b = 0.287125 + 0.913296I$	$-4.48931 - 1.01594I$	$0.04588 + 1.45531I$
$u = -0.323417 - 0.508294I$ $a = -3.36072 + 0.80274I$ $b = 0.743295 + 0.386337I$	$-4.48931 - 1.01594I$	$0.04588 + 1.45531I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.235723 + 1.392280I$ $a = 1.45838 + 0.35987I$ $b = -0.57974 - 2.88435I$	$-7.23525 + 4.07051I$	$2.08590 - 1.89651I$
$u = 0.235723 + 1.392280I$ $a = -0.320654 - 0.130453I$ $b = -1.43078 - 0.01572I$	$-7.23525 + 4.07051I$	$2.08590 - 1.89651I$
$u = 0.235723 - 1.392280I$ $a = 1.45838 - 0.35987I$ $b = -0.57974 + 2.88435I$	$-7.23525 - 4.07051I$	$2.08590 + 1.89651I$
$u = 0.235723 - 1.392280I$ $a = -0.320654 + 0.130453I$ $b = -1.43078 + 0.01572I$	$-7.23525 - 4.07051I$	$2.08590 + 1.89651I$
$u = -0.14428 + 1.41797I$ $a = 0.182119 + 0.762399I$ $b = 0.568805 + 0.605729I$	$-10.40710 - 0.78256I$	$-3.62681 - 0.59259I$
$u = -0.14428 + 1.41797I$ $a = 0.86680 + 1.28541I$ $b = -2.41207 - 0.83594I$	$-10.40710 - 0.78256I$	$-3.62681 - 0.59259I$
$u = -0.14428 - 1.41797I$ $a = 0.182119 - 0.762399I$ $b = 0.568805 - 0.605729I$	$-10.40710 + 0.78256I$	$-3.62681 + 0.59259I$
$u = -0.14428 - 1.41797I$ $a = 0.86680 - 1.28541I$ $b = -2.41207 + 0.83594I$	$-10.40710 + 0.78256I$	$-3.62681 + 0.59259I$
$u = 0.19271 + 1.41648I$ $a = 0.691663 - 0.425815I$ $b = -1.19278 - 0.82150I$	$-7.70645 + 4.25629I$	$0. - 4.09777I$
$u = 0.19271 + 1.41648I$ $a = -0.066784 + 0.334796I$ $b = -0.819907 + 0.086970I$	$-7.70645 + 4.25629I$	$0. - 4.09777I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.19271 - 1.41648I$ $a = 0.691663 + 0.425815I$ $b = -1.19278 + 0.82150I$	$-7.70645 - 4.25629I$	$0. + 4.09777I$
$u = 0.19271 - 1.41648I$ $a = -0.066784 - 0.334796I$ $b = -0.819907 - 0.086970I$	$-7.70645 - 4.25629I$	$0. + 4.09777I$
$u = 0.10594 + 1.42756I$ $a = -0.918714 + 0.715280I$ $b = 1.54734 - 0.53710I$	$-5.73877 - 2.68301I$	$1.47870 + 2.36594I$
$u = 0.10594 + 1.42756I$ $a = 0.676636 - 0.372114I$ $b = -0.756124 - 0.741018I$	$-5.73877 - 2.68301I$	$1.47870 + 2.36594I$
$u = 0.10594 - 1.42756I$ $a = -0.918714 - 0.715280I$ $b = 1.54734 + 0.53710I$	$-5.73877 + 2.68301I$	$1.47870 - 2.36594I$
$u = 0.10594 - 1.42756I$ $a = 0.676636 + 0.372114I$ $b = -0.756124 + 0.741018I$	$-5.73877 + 2.68301I$	$1.47870 - 2.36594I$
$u = -0.26371 + 1.41237I$ $a = 0.230081 - 0.417931I$ $b = 1.66019 - 0.28514I$	$-8.70354 - 7.91274I$	$0. + 6.96002I$
$u = -0.26371 + 1.41237I$ $a = 1.02067 - 1.69275I$ $b = 2.33566 + 3.50017I$	$-8.70354 - 7.91274I$	$0. + 6.96002I$
$u = -0.26371 - 1.41237I$ $a = 0.230081 + 0.417931I$ $b = 1.66019 + 0.28514I$	$-8.70354 + 7.91274I$	$0. - 6.96002I$
$u = -0.26371 - 1.41237I$ $a = 1.02067 + 1.69275I$ $b = 2.33566 - 3.50017I$	$-8.70354 + 7.91274I$	$0. - 6.96002I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.28148 + 1.41481I$ $a = 1.110910 + 0.401180I$ $b = 0.27105 - 2.03432I$	$-3.28987 + 11.53570I$	$4.00000 - 7.26982I$
$u = 0.28148 + 1.41481I$ $a = -1.12502 - 1.13544I$ $b = -1.43575 + 3.33825I$	$-3.28987 + 11.53570I$	$4.00000 - 7.26982I$
$u = 0.28148 - 1.41481I$ $a = 1.110910 - 0.401180I$ $b = 0.27105 + 2.03432I$	$-3.28987 - 11.53570I$	$4.00000 + 7.26982I$
$u = 0.28148 - 1.41481I$ $a = -1.12502 + 1.13544I$ $b = -1.43575 - 3.33825I$	$-3.28987 - 11.53570I$	$4.00000 + 7.26982I$

III. $\boldsymbol{I_3^u = \langle u^9+4u^7+5u^5-u^4+u^3-2u^2+b,\ u^8+4u^6+5u^4+2u^2+a+1,\ u^{10}+5u^8+8u^6+3u^4-u^2+1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2+1 \\ -u^4-2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^8-4u^6-5u^4-2u^2-1 \\ -u^9-4u^7-5u^5+u^4-u^3+2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3-2u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^8-4u^6-5u^4+u^3-2u^2+2u-1 \\ -u^9-4u^7-5u^5+u^4-2u^3+2u^2-u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ u^8+4u^6+4u^4 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^7+4u^5+4u^3 \\ -u^7-3u^5-2u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^9+5u^7-u^6+8u^5-3u^4+3u^3-2u^2-u+1 \\ -u^7-3u^5-2u^3+u-1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^8-4u^6-5u^4+u^3-u^2+2u \\ -u^9-4u^7-5u^5-2u^3-u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^6-12u^4-8u^2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.217740I$ $a = -0.821196$ $b = -0.76683 - 1.58802I$	-5.69095	-1.48110
$u = -1.217740I$ $a = -0.821196$ $b = -0.76683 + 1.58802I$	-5.69095	-1.48110
$u = 0.549911 + 0.309916I$ $a = -0.77780 - 1.38013I$ $b = 0.896862 + 0.383681I$	$-3.61897 + 1.53058I$	$-0.51511 - 4.43065I$
$u = 0.549911 - 0.309916I$ $a = -0.77780 + 1.38013I$ $b = 0.896862 - 0.383681I$	$-3.61897 - 1.53058I$	$-0.51511 + 4.43065I$
$u = -0.549911 + 0.309916I$ $a = -0.77780 + 1.38013I$ $b = -0.218641 - 1.261070I$	$-3.61897 - 1.53058I$	$-0.51511 + 4.43065I$
$u = -0.549911 - 0.309916I$ $a = -0.77780 - 1.38013I$ $b = -0.218641 + 1.261070I$	$-3.61897 + 1.53058I$	$-0.51511 - 4.43065I$
$u = -0.21917 + 1.41878I$ $a = 0.688402 - 0.106340I$ $b = 0.638115 + 0.967447I$	$-9.16243 - 4.40083I$	$-4.74431 + 3.49859I$
$u = -0.21917 - 1.41878I$ $a = 0.688402 + 0.106340I$ $b = 0.638115 - 0.967447I$	$-9.16243 + 4.40083I$	$-4.74431 - 3.49859I$
$u = 0.21917 + 1.41878I$ $a = 0.688402 + 0.106340I$ $b = -1.54951 - 1.43286I$	$-9.16243 + 4.40083I$	$-4.74431 - 3.49859I$
$u = 0.21917 - 1.41878I$ $a = 0.688402 - 0.106340I$ $b = -1.54951 + 1.43286I$	$-9.16243 - 4.40083I$	$-4.74431 + 3.49859I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$((u-1)^{10})(u^{43}+18u^{42}+\cdots-5u-1)(u^{64}+35u^{63}+\cdots+52u^2+1)$
c_2, c_6, c_7 c_{12}	$((u^2+1)^5)(u^{43}+9u^{41}+\cdots+u-1)(u^{64}+u^{63}+\cdots+2u+1)$
c_3	$(u^{10}+u^8+8u^6+3u^4+3u^2+1)(u^{32}-u^{31}+\cdots+20u^3+1)^2$ $\cdot(u^{43}+3u^{42}+\cdots+79u-10)$
c_4, c_9, c_{10}	$(u^{10}+5u^8+8u^6+3u^4-u^2+1)(u^{32}+u^{31}+\cdots+2u+1)^2$ $\cdot(u^{43}-3u^{42}+\cdots+11u-2)$
c_5	$(u^{10}-3u^8+4u^6-u^4-u^2+1)(u^{32}+7u^{31}+\cdots+104u+17)^2$ $\cdot(u^{43}-21u^{42}+\cdots+18607u-1058)$
c_8	$((u^5-u^4+2u^3-u^2+u-1)^2)(u^{32}+7u^{31}+\cdots+104u+17)^2$ $\cdot(u^{43}+9u^{42}+\cdots-863u-88)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$((y-1)^{10})(y^{43}+26y^{42}+\cdots+67y-1)(y^{64}-13y^{63}+\cdots+104y+1)$
c_2, c_6, c_7 c_{12}	$((y+1)^{10})(y^{43}+18y^{42}+\cdots-5y-1)(y^{64}+35y^{63}+\cdots+52y^2+1)$
c_3	$((y^5+y^4+8y^3+3y^2+3y+1)^2)(y^{32}+y^{31}+\cdots+56y^2+1)^2$ $\cdot(y^{43}+3y^{42}+\cdots+241y-100)$
c_4, c_9, c_{10}	$((y^5+5y^4+8y^3+3y^2-y+1)^2)(y^{32}+29y^{31}+\cdots+4y^2+1)^2$ $\cdot(y^{43}+39y^{42}+\cdots+17y-4)$
c_5	$((y^5-3y^4+4y^3-y^2-y+1)^2)(y^{32}+9y^{31}+\cdots+3056y+289)^2$ $\cdot(y^{43}+3y^{42}+\cdots+10766737y-1119364)$
c_8	$((y^5+3y^4+4y^3+y^2-y-1)^2)(y^{32}+9y^{31}+\cdots+3056y+289)^2$ $\cdot(y^{43}+15y^{42}+\cdots+108705y-7744)$