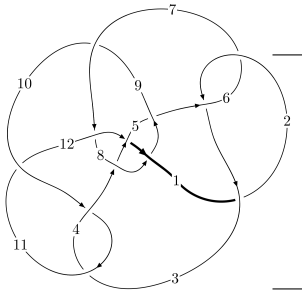
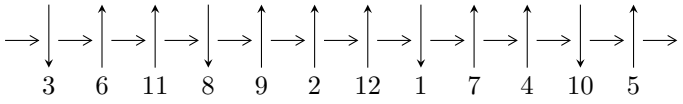
$12a_{0474}$ $(K12a_{0474})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1055648117u^{31} + 1559328616u^{30} + \cdots + 2272266299b + 2175618217,$$
$$1820724774u^{31} - 1996711433u^{30} + \cdots + 2272266299a - 4457918006,\ u^{32} - u^{31} + \cdots - 2u + 1\rangle$$
$$I_2^u = \langle -7.24825 \times 10^{482}u^{157} - 5.26354 \times 10^{483}u^{156} + \cdots + 2.15540 \times 10^{482}b - 2.31148 \times 10^{486},$$
$$-2.62230 \times 10^{485}u^{157} + 3.31275 \times 10^{486}u^{156} + \cdots + 9.03111 \times 10^{484}a + 1.77163 \times 10^{489},$$
$$u^{158} + 36u^{156} + \cdots + 795u + 419\rangle$$
$$I_3^u = \langle -u^2 + b + u + 1,\ a + 1,\ u^5 + u^3 + u^2 + u + 1\rangle$$
$$I_4^u = \langle -1984676u^{37} + 1585526u^{36} + \cdots + 78131b + 933931,\ u^{37} + 12u^{35} + \cdots + a + 1,$$
$$u^{38} - u^{37} + \cdots + u + 1\rangle$$
$$I_5^u = \langle u^3 + u^2 + b - 1,\ u^3 + a,\ u^4 + u^3 + u^2 + u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 237 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. $\boldsymbol{I_1^u = \langle 1.06\times 10^9 u^{31} + 1.56\times 10^9 u^{30} + \cdots + 2.27\times 10^9 b + 2.18\times 10^9,\ 1.82\times 10^9 u^{31} - 2.00\times 10^9 u^{30} + \cdots + 2.27\times 10^9 a - 4.46\times 10^9,\ u^{32} - u^{31} + \cdots - 2u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -0.801281u^{31} + 0.878731u^{30} + \cdots - 4.37539u + 1.96188 \\ -0.464579u^{31} - 0.686244u^{30} + \cdots + 2.44777u - 0.957466 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.803867u^{31} + 1.07467u^{30} + \cdots - 7.16864u + 3.19015 \\ -0.467165u^{31} - 0.490301u^{30} + \cdots - 0.345481u + 0.270807 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.253688u^{31} - 1.40072u^{30} + \cdots + 6.07370u - 3.05988 \\ -0.382000u^{31} - 0.403712u^{30} + \cdots + 0.804118u - 0.994004 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.773816u^{31} + 0.992632u^{30} + \cdots - 4.85623u + 2.88686 \\ -0.520128u^{31} - 0.408087u^{30} + \cdots + 1.21747u - 0.173024 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.393606u^{31} + 0.511780u^{30} + \cdots + 0.952466u - 0.0779587 \\ -0.664413u^{31} + 0.315422u^{30} + \cdots - 0.629955u + 0.118174 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.454876u^{31} + 1.01874u^{30} + \cdots - 4.95799u + 2.52574 \\ 0.346405u^{31} + 0.140005u^{30} + \cdots - 0.582597u + 0.563860 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.922041u^{31} + 0.528435u^{30} + \cdots - 6.30347u + 2.79655 \\ -0.118174u^{31} - 0.546239u^{30} + \cdots + 0.865171u - 0.393606 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3072844380}{2272266299}u^{31} - \frac{8096501151}{2272266299}u^{30} + \cdots + \frac{41644937217}{2272266299}u - \frac{3810236961}{2272266299}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{32} + 15u^{31} + \cdots + 6u + 1$
c_2, c_3, c_6 c_{10}	$u^{32} - u^{31} + \cdots - 2u + 1$
c_4, c_8	$u^{32} + u^{31} + \cdots - 9u^2 + 1$
c_5, c_7	$u^{32} + u^{31} + \cdots - 4u - 1$
c_9	$u^{32} + 12u^{31} + \cdots - 368u - 320$
c_{12}	$u^{32} - 19u^{31} + \cdots + 76u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{32} + 3y^{31} + \cdots + 6y + 1$
c_2, c_3, c_6 c_{10}	$y^{32} + 15y^{31} + \cdots + 6y + 1$
c_4, c_8	$y^{32} - 13y^{31} + \cdots - 18y + 1$
c_5, c_7	$y^{32} - 5y^{31} + \cdots - 10y + 1$
c_9	$y^{32} - 4y^{31} + \cdots - 1748224y + 102400$
c_{12}	$y^{32} - 5y^{31} + \cdots - 784y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.477757 + 0.915446I$ $a = 0.822115 + 0.863569I$ $b = 2.29964 - 0.04858I$	$-3.03094 + 1.03307I$	$1.81391 - 3.75205I$
$u = 0.477757 - 0.915446I$ $a = 0.822115 - 0.863569I$ $b = 2.29964 + 0.04858I$	$-3.03094 - 1.03307I$	$1.81391 + 3.75205I$
$u = -0.925303 + 0.470201I$ $a = 0.77272 + 1.27966I$ $b = -0.0866021 + 0.0749753I$	$5.40111 + 9.30081I$	$8.64815 - 4.34110I$
$u = -0.925303 - 0.470201I$ $a = 0.77272 - 1.27966I$ $b = -0.0866021 - 0.0749753I$	$5.40111 - 9.30081I$	$8.64815 + 4.34110I$
$u = 1.06263$ $a = -0.505330$ $b = 0.475352$	3.35063	-29.5350
$u = 0.373274 + 0.995878I$ $a = -0.659253 + 0.718345I$ $b = -1.82629 + 1.33122I$	$-0.05576 + 5.19371I$	$4.42887 - 7.08711I$
$u = 0.373274 - 0.995878I$ $a = -0.659253 - 0.718345I$ $b = -1.82629 - 1.33122I$	$-0.05576 - 5.19371I$	$4.42887 + 7.08711I$
$u = -0.474535 + 0.969658I$ $a = -0.744476 + 0.521874I$ $b = -1.200380 - 0.655213I$	$-3.34712 - 6.37289I$	$-0.19797 + 8.93417I$
$u = -0.474535 - 0.969658I$ $a = -0.744476 - 0.521874I$ $b = -1.200380 + 0.655213I$	$-3.34712 + 6.37289I$	$-0.19797 - 8.93417I$
$u = 0.476166 + 1.040000I$ $a = -0.853673 + 0.236108I$ $b = -2.72342 - 0.90132I$	$-2.54495 + 10.44430I$	$0.7629 - 14.2377I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.476166 - 1.040000I$ $a = -0.853673 - 0.236108I$ $b = -2.72342 + 0.90132I$	$-2.54495 - 10.44430I$	$0.7629 + 14.2377I$
$u = -0.196973 + 1.132120I$ $a = 0.933768 - 0.180629I$ $b = 1.58099 - 0.40135I$	$-7.68853 - 3.19636I$	$-7.98532 + 3.48642I$
$u = -0.196973 - 1.132120I$ $a = 0.933768 + 0.180629I$ $b = 1.58099 + 0.40135I$	$-7.68853 + 3.19636I$	$-7.98532 - 3.48642I$
$u = 1.042280 + 0.520937I$ $a = -0.301819 + 0.612779I$ $b = 0.408436 + 0.046950I$	$3.94817 - 0.47576I$	$7.7925 + 21.6997I$
$u = 1.042280 - 0.520937I$ $a = -0.301819 - 0.612779I$ $b = 0.408436 - 0.046950I$	$3.94817 + 0.47576I$	$7.7925 - 21.6997I$
$u = 0.130483 + 1.162900I$ $a = -0.770437 - 0.770567I$ $b = -1.25491 - 1.22831I$	$-6.42362 - 4.43426I$	$-3.93661 + 3.90816I$
$u = 0.130483 - 1.162900I$ $a = -0.770437 + 0.770567I$ $b = -1.25491 + 1.22831I$	$-6.42362 + 4.43426I$	$-3.93661 - 3.90816I$
$u = -0.466499 + 1.079320I$ $a = 0.058442 + 0.427246I$ $b = 0.630894 - 0.311585I$	$-3.17466 - 6.99170I$	$-1.77681 + 6.23178I$
$u = -0.466499 - 1.079320I$ $a = 0.058442 - 0.427246I$ $b = 0.630894 + 0.311585I$	$-3.17466 + 6.99170I$	$-1.77681 - 6.23178I$
$u = -0.427864 + 1.109050I$ $a = 0.567795 + 0.877389I$ $b = 1.48550 + 0.75181I$	$-3.53644 - 7.33288I$	$-2.60525 + 8.48950I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.427864-1.109050I$ $a=\ \ 0.567795-0.877389I$ $b=\ \ 1.48550-0.75181I$	$-3.53644+7.33288I$	$-2.60525-8.48950I$
$u=\ \ 0.667854+1.161150I$ $a=\ \ 1.177840-0.492133I$ $b=\ \ 2.41595-1.10503I$	$1.1241+21.0689I$	$3.49932-11.71002I$
$u=\ \ 0.667854-1.161150I$ $a=\ \ 1.177840+0.492133I$ $b=\ \ 2.41595+1.10503I$	$1.1241-21.0689I$	$3.49932+11.71002I$
$u=-0.490346+0.432416I$ $a=\ \ 0.130078-1.235820I$ $b=-0.781587+0.581190I$	$0.96043+2.38010I$	$7.46276-4.21750I$
$u=-0.490346-0.432416I$ $a=\ \ 0.130078+1.235820I$ $b=-0.781587-0.581190I$	$0.96043-2.38010I$	$7.46276+4.21750I$
$u=-0.683123+1.170780I$ $a=-0.884504-0.167122I$ $b=-1.75324-0.73186I$	$-0.28660-12.80370I$	$1.33394+11.29862I$
$u=-0.683123-1.170780I$ $a=-0.884504+0.167122I$ $b=-1.75324+0.73186I$	$-0.28660+12.80370I$	$1.33394-11.29862I$
$u=-0.219303+0.597960I$ $a=-0.46196-1.88067I$ $b=\ \ 0.342049+0.528048I$	$2.71565-0.83716I$	$2.90542+8.40033I$
$u=-0.219303-0.597960I$ $a=-0.46196+1.88067I$ $b=\ \ 0.342049-0.528048I$	$2.71565+0.83716I$	$2.90542-8.40033I$
$u=\ \ 0.441452+0.401358I$ $a=\ \ 0.722248+0.018264I$ $b=\ \ 0.438511+0.462396I$	$0.914598+0.783161I$	$7.49019-4.89846I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.441452-0.401358I$		
$a=$	$0.722248-0.018264I$	$0.914598-0.783161I$	$7.49019+4.89846I$
$b=$	$0.438511-0.462396I$		
$u=$	0.486729		
$a=$	2.48756	2.02457	5.26330
$b=$	0.573576		

II. $\boldsymbol{I_2^u = \langle -7.25 \times 10^{482} u^{157} - 5.26 \times 10^{483} u^{156} + \cdots + 2.16 \times 10^{482} b - 2.31 \times 10^{486},\ -2.62 \times 10^{485} u^{157} + 3.31 \times 10^{486} u^{156} + \cdots + 9.03 \times 10^{484} a + 1.77 \times 10^{489},\ u^{158} + 36 u^{156} + \cdots + 795 u + 419 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 2.90363u^{157} - 36.6816u^{156} + \cdots - 56119.5u - 19617.0 \\ 3.36284u^{157} + 24.4203u^{156} + \cdots + 33100.0u + 10724.2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 55.5454u^{157} - 42.2460u^{156} + \cdots - 104888.u - 45218.7 \\ 56.0046u^{157} + 18.8559u^{156} + \cdots - 15668.4u - 14877.5 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 38.8314u^{157} + 29.1246u^{156} + \cdots + 12999.9u - 2240.90 \\ 29.3771u^{157} + 52.6291u^{156} + \cdots + 54801.0u + 13658.2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 49.9442u^{157} - 33.1921u^{156} + \cdots - 87278.2u - 38257.9 \\ 35.5733u^{157} + 17.8124u^{156} + \cdots - 1422.57u - 6532.33 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -68.6087u^{157} + 82.8124u^{156} + \cdots + 174212.u + 71146.3 \\ -85.6069u^{157} - 11.5076u^{156} + \cdots + 49001.8u + 31342.5 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -42.8030u^{157} - 6.55761u^{156} + \cdots + 22975.2u + 15153.7 \\ -29.2559u^{157} - 60.7310u^{156} + \cdots - 66924.7u - 17825.3 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -31.0195u^{157} - 23.1998u^{156} + \cdots - 10016.3u + 1903.58 \\ -52.5109u^{157} - 75.9427u^{156} + \cdots - 71536.0u - 15388.7 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 82.0341u^{157} + 69.2993u^{156} + \cdots + 39167.4u - 737.807$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{158} + 72u^{157} + \cdots + 3542053u + 175561$
c_2, c_3, c_6 c_{10}	$u^{158} + 36u^{156} + \cdots + 795u + 419$
c_4, c_8	$u^{158} + 4u^{157} + \cdots - 84u + 305$
c_5, c_7	$u^{158} - 7u^{156} + \cdots - 1086387u + 160579$
c_9	$(u^{79} - 12u^{78} + \cdots - 16031u + 5803)^2$
c_{12}	$(u^{79} + 7u^{78} + \cdots - u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{158} + 40y^{157} + \cdots - 2099160591827y + 30821664721$
c_2, c_3, c_6 c_{10}	$y^{158} + 72y^{157} + \cdots + 3542053y + 175561$
c_4, c_8	$y^{158} + 8y^{157} + \cdots - 7749786y + 93025$
c_5, c_7	$y^{158} - 14y^{157} + \cdots - 1110681919919y + 25785615241$
c_9	$(y^{79} - 22y^{78} + \cdots + 521006249y - 33674809)^2$
c_{12}	$(y^{79} - y^{78} + \cdots + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.310553+0.959553I$ $a=-1.30464-0.80619I$ $b=-2.25826+0.33876I$	$-2.54106+5.73014I$	0
$u=-0.310553-0.959553I$ $a=-1.30464+0.80619I$ $b=-2.25826-0.33876I$	$-2.54106-5.73014I$	0
$u=-0.434056+0.885145I$ $a=\ \ 2.01832-1.29649I$ $b=\ \ 2.40756-0.98414I$	$-6.62459-1.78219I$	0
$u=-0.434056-0.885145I$ $a=\ \ 2.01832+1.29649I$ $b=\ \ 2.40756+0.98414I$	$-6.62459+1.78219I$	0
$u=-0.265458+0.979005I$ $a=\ \ 0.115623+0.809267I$ $b=\ \ 0.465376+0.297373I$	$-4.16298+0.24557I$	0
$u=-0.265458-0.979005I$ $a=\ \ 0.115623-0.809267I$ $b=\ \ 0.465376-0.297373I$	$-4.16298-0.24557I$	0
$u=-0.568710+0.840944I$ $a=-0.312373-1.146900I$ $b=\ \ 0.217198+0.226950I$	$4.11004-1.48250I$	0
$u=-0.568710-0.840944I$ $a=-0.312373+1.146900I$ $b=\ \ 0.217198-0.226950I$	$4.11004+1.48250I$	0
$u=-0.091908+0.977990I$ $a=-0.723067+0.656630I$ $b=-1.76400+1.68289I$	$-0.54608+4.60609I$	0
$u=-0.091908-0.977990I$ $a=-0.723067-0.656630I$ $b=-1.76400-1.68289I$	$-0.54608-4.60609I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.382591 + 0.899744I$ $a = 1.68343 - 0.70032I$ $b = 2.18485 + 0.24223I$	$0.049532 - 0.236212I$	0
$u = 0.382591 - 0.899744I$ $a = 1.68343 + 0.70032I$ $b = 2.18485 - 0.24223I$	$0.049532 + 0.236212I$	0
$u = -0.735318 + 0.710316I$ $a = -0.380441 - 0.803541I$ $b = 0.186008 + 0.707821I$	$5.24621 + 0.61229I$	0
$u = -0.735318 - 0.710316I$ $a = -0.380441 + 0.803541I$ $b = 0.186008 - 0.707821I$	$5.24621 - 0.61229I$	0
$u = 0.918664 + 0.319464I$ $a = 0.719427 - 0.742569I$ $b = 0.356304 + 0.267336I$	$0.049532 - 0.236212I$	0
$u = 0.918664 - 0.319464I$ $a = 0.719427 + 0.742569I$ $b = 0.356304 - 0.267336I$	$0.049532 + 0.236212I$	0
$u = -0.589770 + 0.841559I$ $a = 0.881205 + 0.323399I$ $b = 1.91030 + 0.99055I$	$4.09867 - 3.13109I$	0
$u = -0.589770 - 0.841559I$ $a = 0.881205 - 0.323399I$ $b = 1.91030 - 0.99055I$	$4.09867 + 3.13109I$	0
$u = 0.481337 + 0.916294I$ $a = -0.773779 + 0.323872I$ $b = -1.62808 - 1.38929I$	$-3.00491 + 3.72449I$	0
$u = 0.481337 - 0.916294I$ $a = -0.773779 - 0.323872I$ $b = -1.62808 + 1.38929I$	$-3.00491 - 3.72449I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.795996 + 0.675080I$ $a = 0.369650 - 0.699877I$ $b = -0.105022 + 0.867379I$	$3.75059 - 5.60386I$	0
$u = 0.795996 - 0.675080I$ $a = 0.369650 + 0.699877I$ $b = -0.105022 - 0.867379I$	$3.75059 + 5.60386I$	0
$u = 0.952560 + 0.428199I$ $a = -0.80810 + 1.25137I$ $b = 0.0918948 - 0.0588807I$	$3.3684 - 15.1632I$	0
$u = 0.952560 - 0.428199I$ $a = -0.80810 - 1.25137I$ $b = 0.0918948 + 0.0588807I$	$3.3684 + 15.1632I$	0
$u = -0.828714 + 0.636993I$ $a = 0.56583 + 1.34399I$ $b = -0.100191 + 0.581741I$	$6.17644 + 4.30612I$	0
$u = -0.828714 - 0.636993I$ $a = 0.56583 - 1.34399I$ $b = -0.100191 - 0.581741I$	$6.17644 - 4.30612I$	0
$u = 0.398177 + 0.863793I$ $a = 0.409774 - 1.284210I$ $b = 0.332705 + 0.390561I$	$0.29819 - 2.09088I$	0
$u = 0.398177 - 0.863793I$ $a = 0.409774 + 1.284210I$ $b = 0.332705 - 0.390561I$	$0.29819 + 2.09088I$	0
$u = 0.561309 + 0.748245I$ $a = -1.108600 + 0.318648I$ $b = -1.87960 + 0.98263I$	$1.98199 - 2.11208I$	0
$u = 0.561309 - 0.748245I$ $a = -1.108600 - 0.318648I$ $b = -1.87960 - 0.98263I$	$1.98199 + 2.11208I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.792422 + 0.720401I$ $a = -0.424977 + 1.294580I$ $b = 0.152595 + 0.766920I$	$4.86883 + 1.98153I$	0
$u = 0.792422 - 0.720401I$ $a = -0.424977 - 1.294580I$ $b = 0.152595 - 0.766920I$	$4.86883 - 1.98153I$	0
$u = 0.795505 + 0.456402I$ $a = -0.79974 + 1.42218I$ $b = -0.235471 + 0.214744I$	$-1.14863 - 6.63514I$	0
$u = 0.795505 - 0.456402I$ $a = -0.79974 - 1.42218I$ $b = -0.235471 - 0.214744I$	$-1.14863 + 6.63514I$	0
$u = 0.557057 + 0.929299I$ $a = 0.165136 - 1.250270I$ $b = -0.354709 - 0.114513I$	$1.40852 + 6.59786I$	0
$u = 0.557057 - 0.929299I$ $a = 0.165136 + 1.250270I$ $b = -0.354709 + 0.114513I$	$1.40852 - 6.59786I$	0
$u = 0.527880 + 0.947283I$ $a = -1.45741 - 1.53177I$ $b = -2.25677 - 1.07570I$	$1.00763 + 5.22007I$	0
$u = 0.527880 - 0.947283I$ $a = -1.45741 + 1.53177I$ $b = -2.25677 + 1.07570I$	$1.00763 - 5.22007I$	0
$u = 0.431827 + 0.806322I$ $a = -0.063102 - 0.407064I$ $b = 1.73474 - 0.17811I$	$-2.59007 + 0.08562I$	0
$u = 0.431827 - 0.806322I$ $a = -0.063102 + 0.407064I$ $b = 1.73474 + 0.17811I$	$-2.59007 - 0.08562I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.432313 + 0.805507I$ $a = 1.064280 + 0.561916I$ $b = 1.19099 - 0.88066I$	$-2.62411 + 2.75813I$	0
$u = 0.432313 - 0.805507I$ $a = 1.064280 - 0.561916I$ $b = 1.19099 + 0.88066I$	$-2.62411 - 2.75813I$	0
$u = 0.421077 + 1.001710I$ $a = -0.20603 + 1.48403I$ $b = -0.68683 + 1.63297I$	$-0.40858 + 3.12056I$	0
$u = 0.421077 - 1.001710I$ $a = -0.20603 - 1.48403I$ $b = -0.68683 - 1.63297I$	$-0.40858 - 3.12056I$	0
$u = -1.001470 + 0.423311I$ $a = 0.456088 + 0.775520I$ $b = -0.335205 - 0.008493I$	$2.00890 + 6.73082I$	0
$u = -1.001470 - 0.423311I$ $a = 0.456088 - 0.775520I$ $b = -0.335205 + 0.008493I$	$2.00890 - 6.73082I$	0
$u = 0.171636 + 0.889290I$ $a = 0.856525 + 0.617603I$ $b = 1.29028 + 1.65011I$	$0.996008 + 0.228208I$	0
$u = 0.171636 - 0.889290I$ $a = 0.856525 - 0.617603I$ $b = 1.29028 - 1.65011I$	$0.996008 - 0.228208I$	0
$u = -0.757754 + 0.491337I$ $a = -0.59566 - 1.77542I$ $b = 0.238053 + 0.058058I$	$4.45408 + 5.94036I$	0
$u = -0.757754 - 0.491337I$ $a = -0.59566 + 1.77542I$ $b = 0.238053 - 0.058058I$	$4.45408 - 5.94036I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.474769 + 1.001460I$ $a = -0.103439 + 0.715197I$ $b = -0.421852 + 0.439449I$	$-0.62943 + 2.99422I$	0
$u = \quad 0.474769 - 1.001460I$ $a = -0.103439 - 0.715197I$ $b = -0.421852 - 0.439449I$	$-0.62943 - 2.99422I$	0
$u = -0.395583 + 0.794434I$ $a = -0.891930 + 0.915396I$ $b = -2.02916 - 0.04997I$	$-2.62411 + 2.75813I$	0
$u = -0.395583 - 0.794434I$ $a = -0.891930 - 0.915396I$ $b = -2.02916 + 0.04997I$	$-2.62411 - 2.75813I$	0
$u = -0.502570 + 0.996824I$ $a = -1.369680 - 0.282057I$ $b = -2.10107 - 0.03500I$	$-5.64126 - 3.23768I$	0
$u = -0.502570 - 0.996824I$ $a = -1.369680 + 0.282057I$ $b = -2.10107 + 0.03500I$	$-5.64126 + 3.23768I$	0
$u = \quad 0.778124 + 0.414904I$ $a = \quad 1.47017 - 0.37757I$ $b = \quad 0.048902 - 0.227058I$	$4.09867 + 3.13109I$	0
$u = \quad 0.778124 - 0.414904I$ $a = \quad 1.47017 + 0.37757I$ $b = \quad 0.048902 + 0.227058I$	$4.09867 - 3.13109I$	0
$u = -0.298166 + 1.079110I$ $a = -0.792936 + 0.759993I$ $b = -2.26691 + 0.61890I$	$-2.59007 - 0.08562I$	0
$u = -0.298166 - 1.079110I$ $a = -0.792936 - 0.759993I$ $b = -2.26691 - 0.61890I$	$-2.59007 + 0.08562I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.484094 + 0.734137I$ $a = -1.99303 - 1.21164I$ $b = -2.04533 - 0.41284I$	$1.72808 - 1.04080I$	0
$u = \quad 0.484094 - 0.734137I$ $a = -1.99303 + 1.21164I$ $b = -2.04533 + 0.41284I$	$1.72808 + 1.04080I$	0
$u = -0.086871 + 1.120720I$ $a = -0.761688 + 0.387029I$ $b = -1.45240 + 0.20255I$	$-3.83157 + 0.71992I$	0
$u = -0.086871 - 1.120720I$ $a = -0.761688 - 0.387029I$ $b = -1.45240 - 0.20255I$	$-3.83157 - 0.71992I$	0
$u = \quad 0.692083 + 0.535192I$ $a = \quad 0.71604 - 1.93417I$ $b = -0.135547 - 0.251225I$	$5.24621 - 0.61229I$	0
$u = \quad 0.692083 - 0.535192I$ $a = \quad 0.71604 + 1.93417I$ $b = -0.135547 + 0.251225I$	$5.24621 + 0.61229I$	0
$u = \quad 0.946963 + 0.614514I$ $a = -0.730292 + 0.411435I$ $b = \quad 0.140681 + 0.065288I$	$6.17644 + 4.30612I$	0
$u = \quad 0.946963 - 0.614514I$ $a = -0.730292 - 0.411435I$ $b = \quad 0.140681 - 0.065288I$	$6.17644 - 4.30612I$	0
$u = -0.954405 + 0.609131I$ $a = -0.553862 - 0.689104I$ $b = -0.263916 - 0.139116I$	$1.72808 + 1.04080I$	0
$u = -0.954405 - 0.609131I$ $a = -0.553862 + 0.689104I$ $b = -0.263916 + 0.139116I$	$1.72808 - 1.04080I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.016630 + 0.510273I$ $a = 0.613493 - 0.706283I$ $b = 0.146183 + 0.036293I$	$1.00763 - 5.22007I$	0
$u = 1.016630 - 0.510273I$ $a = 0.613493 + 0.706283I$ $b = 0.146183 - 0.036293I$	$1.00763 + 5.22007I$	0
$u = 0.399897 + 1.066680I$ $a = 0.798583 + 0.803025I$ $b = 2.47682 + 0.34607I$	$-3.00491 - 3.72449I$	0
$u = 0.399897 - 1.066680I$ $a = 0.798583 - 0.803025I$ $b = 2.47682 - 0.34607I$	$-3.00491 + 3.72449I$	0
$u = -0.546153 + 1.001830I$ $a = 1.16381 - 1.42348I$ $b = 2.12433 - 1.06698I$	$-0.99488 - 11.48250I$	0
$u = -0.546153 - 1.001830I$ $a = 1.16381 + 1.42348I$ $b = 2.12433 + 1.06698I$	$-0.99488 + 11.48250I$	0
$u = 0.688376 + 0.501519I$ $a = 0.676559 - 0.556792I$ $b = 0.265065 + 0.560795I$	$0.996008 + 0.228208I$	0
$u = 0.688376 - 0.501519I$ $a = 0.676559 + 0.556792I$ $b = 0.265065 - 0.560795I$	$0.996008 - 0.228208I$	0
$u = -0.341377 + 1.101100I$ $a = -0.508755 + 0.675606I$ $b = -1.009930 + 0.460172I$	$-4.16298 - 0.24557I$	0
$u = -0.341377 - 1.101100I$ $a = -0.508755 - 0.675606I$ $b = -1.009930 - 0.460172I$	$-4.16298 + 0.24557I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.586174+0.997243I$ $a=\ 0.850903+0.360043I$ $b=\ 1.80384-0.34155I$	$-0.46550-7.02513I$	0
$u=-0.586174-0.997243I$ $a=\ 0.850903-0.360043I$ $b=\ 1.80384+0.34155I$	$-0.46550+7.02513I$	0
$u=-0.659887+0.965771I$ $a=\ 0.620572+0.228337I$ $b=\ 2.05133+0.83766I$	$4.45408-5.94036I$	0
$u=-0.659887-0.965771I$ $a=\ 0.620572-0.228337I$ $b=\ 2.05133-0.83766I$	$4.45408+5.94036I$	0
$u=\ 0.567850+1.025580I$ $a=-0.487372+0.413230I$ $b=-1.69268+0.63123I$	$-0.54608+4.60609I$	0
$u=\ 0.567850-1.025580I$ $a=-0.487372-0.413230I$ $b=-1.69268-0.63123I$	$-0.54608-4.60609I$	0
$u=-0.942383+0.698077I$ $a=\ 0.759295+0.419727I$ $b=\ 0.004151+0.164350I$	$5.00194-9.97884I$	0
$u=-0.942383-0.698077I$ $a=\ 0.759295-0.419727I$ $b=\ 0.004151-0.164350I$	$5.00194+9.97884I$	0
$u=\ 0.687123+0.953819I$ $a=\ 1.43518-0.36327I$ $b=\ 1.78713-0.72200I$	$4.14017+3.57693I$	0
$u=\ 0.687123-0.953819I$ $a=\ 1.43518+0.36327I$ $b=\ 1.78713+0.72200I$	$4.14017-3.57693I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.420682+1.101670I$ $a=-0.277978+0.022640I$ $b=-0.692295-1.062360I$	-3.56315	0
$u=-0.420682-1.101670I$ $a=-0.277978-0.022640I$ $b=-0.692295+1.062360I$	-3.56315	0
$u=-0.772390+0.270072I$ $a=-1.65475-0.34539I$ $b=\ \ 0.161056-0.145472I$	$4.11004+1.48250I$	0
$u=-0.772390-0.270072I$ $a=-1.65475+0.34539I$ $b=\ \ 0.161056+0.145472I$	$4.11004-1.48250I$	0
$u=-0.800802+0.127364I$ $a=-1.009110-0.405406I$ $b=-0.661979+0.172911I$	$-0.40858+3.12056I$	0
$u=-0.800802-0.127364I$ $a=-1.009110+0.405406I$ $b=-0.661979-0.172911I$	$-0.40858-3.12056I$	0
$u=-0.714810+0.959332I$ $a=-0.993714+0.509602I$ $b=-1.48592+0.18951I$	$-5.02416-2.82268I$	0
$u=-0.714810-0.959332I$ $a=-0.993714-0.509602I$ $b=-1.48592-0.18951I$	$-5.02416+2.82268I$	0
$u=\ \ 0.598092+1.038180I$ $a=-1.61264+0.51271I$ $b=-2.88134+1.16487I$	$3.75059+5.60386I$	0
$u=\ \ 0.598092-1.038180I$ $a=-1.61264-0.51271I$ $b=-2.88134-1.16487I$	$3.75059-5.60386I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.270415 + 1.170310I$ $a = 0.560037 - 0.177285I$ $b = 0.852233 - 1.052720I$	$-1.13423 + 4.13535I$	0
$u = 0.270415 - 1.170310I$ $a = 0.560037 + 0.177285I$ $b = 0.852233 + 1.052720I$	$-1.13423 - 4.13535I$	0
$u = -0.653525 + 0.451009I$ $a = -0.311978 - 1.140630I$ $b = -0.568685 + 0.320566I$	$0.97564 + 2.31172I$	0
$u = -0.653525 - 0.451009I$ $a = -0.311978 + 1.140630I$ $b = -0.568685 - 0.320566I$	$0.97564 - 2.31172I$	0
$u = 0.675893 + 1.002900I$ $a = -0.556998 + 0.202352I$ $b = -2.14046 + 0.75499I$	$2.72713 + 11.14780I$	0
$u = 0.675893 - 1.002900I$ $a = -0.556998 - 0.202352I$ $b = -2.14046 - 0.75499I$	$2.72713 - 11.14780I$	0
$u = -0.548179 + 1.081710I$ $a = 0.984157 + 0.311380I$ $b = 2.63681 + 0.00137I$	$-0.93553 - 6.97306I$	0
$u = -0.548179 - 1.081710I$ $a = 0.984157 - 0.311380I$ $b = 2.63681 - 0.00137I$	$-0.93553 + 6.97306I$	0
$u = -0.501446 + 0.586462I$ $a = 1.92864 - 1.20508I$ $b = 1.62944 - 0.12929I$	$0.26567 + 7.11077I$	0
$u = -0.501446 - 0.586462I$ $a = 1.92864 + 1.20508I$ $b = 1.62944 + 0.12929I$	$0.26567 - 7.11077I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.691640+1.020570I$ $a=-1.37343-0.44280I$ $b=-1.97075-0.90997I$	$5.00194-9.97884I$	0
$u=-0.691640-1.020570I$ $a=-1.37343+0.44280I$ $b=-1.97075+0.90997I$	$5.00194+9.97884I$	0
$u=-0.613886+1.070870I$ $a=\ \ 1.46384+0.33278I$ $b=\ \ 2.97199+0.98520I$	$2.72713-11.14780I$	0
$u=-0.613886-1.070870I$ $a=\ \ 1.46384-0.33278I$ $b=\ \ 2.97199-0.98520I$	$2.72713+11.14780I$	0
$u=-0.430079+1.161930I$ $a=\ \ 0.582615+0.761725I$ $b=\ \ 1.45091+1.71180I$	$0.29819-2.09088I$	0
$u=-0.430079-1.161930I$ $a=\ \ 0.582615-0.761725I$ $b=\ \ 1.45091-1.71180I$	$0.29819+2.09088I$	0
$u=\ \ 0.627639+1.099090I$ $a=\ \ 1.253660-0.583782I$ $b=\ \ 2.28599-0.89412I$	$-3.05898+11.99430I$	0
$u=\ \ 0.627639-1.099090I$ $a=\ \ 1.253660+0.583782I$ $b=\ \ 2.28599+0.89412I$	$-3.05898-11.99430I$	0
$u=\ \ 0.242663+0.690109I$ $a=-0.488133-0.373111I$ $b=\ \ 1.77767+1.25045I$	$-0.93553-6.97306I$	0
$u=\ \ 0.242663-0.690109I$ $a=-0.488133+0.373111I$ $b=\ \ 1.77767-1.25045I$	$-0.93553+6.97306I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.636713+0.358715I$ $a=\ \ 0.860813+0.227248I$ $b=-0.525472-0.388495I$	$-1.13423-4.13535I$	0
$u=-0.636713-0.358715I$ $a=\ \ 0.860813-0.227248I$ $b=-0.525472+0.388495I$	$-1.13423+4.13535I$	0
$u=\ \ 0.607768+1.124670I$ $a=-0.479627+0.823560I$ $b=-0.68480+1.53923I$	$1.98199+2.11208I$	0
$u=\ \ 0.607768-1.124670I$ $a=-0.479627-0.823560I$ $b=-0.68480-1.53923I$	$1.98199-2.11208I$	0
$u=-0.712373+1.072990I$ $a=\ \ 0.827627+0.421722I$ $b=\ \ 1.49660+0.42575I$	$0.26567-7.11077I$	0
$u=-0.712373-1.072990I$ $a=\ \ 0.827627-0.421722I$ $b=\ \ 1.49660-0.42575I$	$0.26567+7.11077I$	0
$u=-0.833205+0.982765I$ $a=-0.498767-0.403098I$ $b=-0.739078-0.793596I$	$4.14017+3.57693I$	0
$u=-0.833205-0.982765I$ $a=-0.498767+0.403098I$ $b=-0.739078+0.793596I$	$4.14017-3.57693I$	0
$u=-0.014022+1.301380I$ $a=\ \ 0.574955-0.618539I$ $b=\ \ 1.10680-1.39265I$	$-1.14863+6.63514I$	0
$u=-0.014022-1.301380I$ $a=\ \ 0.574955+0.618539I$ $b=\ \ 1.10680+1.39265I$	$-1.14863-6.63514I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.599739 + 1.165620I$ $a = -0.818084 + 0.510760I$ $b = -1.96007 + 0.61164I$	$-2.54106 + 5.73014I$	0
$u = 0.599739 - 1.165620I$ $a = -0.818084 - 0.510760I$ $b = -1.96007 - 0.61164I$	$-2.54106 - 5.73014I$	0
$u = 0.788182 + 1.048400I$ $a = 0.499498 - 0.312198I$ $b = 0.882089 - 0.823699I$	$4.86883 + 1.98153I$	0
$u = 0.788182 - 1.048400I$ $a = 0.499498 + 0.312198I$ $b = 0.882089 + 0.823699I$	$4.86883 - 1.98153I$	0
$u = -0.574520 + 1.185810I$ $a = 0.527043 + 0.816309I$ $b = 0.86995 + 1.78445I$	$1.40852 - 6.59786I$	0
$u = -0.574520 - 1.185810I$ $a = 0.527043 - 0.816309I$ $b = 0.86995 - 1.78445I$	$1.40852 + 6.59786I$	0
$u = -0.674555 + 1.135350I$ $a = -1.212950 - 0.494366I$ $b = -2.32315 - 1.08402I$	$3.3684 - 15.1632I$	0
$u = -0.674555 - 1.135350I$ $a = -1.212950 + 0.494366I$ $b = -2.32315 + 1.08402I$	$3.3684 + 15.1632I$	0
$u = 0.145727 + 1.320420I$ $a = 0.445515 + 0.388411I$ $b = 1.093950 + 0.368109I$	$-5.64126 + 3.23768I$	0
$u = 0.145727 - 1.320420I$ $a = 0.445515 - 0.388411I$ $b = 1.093950 - 0.368109I$	$-5.64126 - 3.23768I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.713434 + 1.135240I$ $a = 0.832513 - 0.087903I$ $b = 1.56300 - 0.61923I$	$2.00890 + 6.73082I$	0
$u = 0.713434 - 1.135240I$ $a = 0.832513 + 0.087903I$ $b = 1.56300 + 0.61923I$	$2.00890 - 6.73082I$	0
$u = 0.072618 + 1.342030I$ $a = -0.540918 - 0.690908I$ $b = -1.19943 - 1.46350I$	$-3.05898 - 11.99430I$	0
$u = 0.072618 - 1.342030I$ $a = -0.540918 + 0.690908I$ $b = -1.19943 + 1.46350I$	$-3.05898 + 11.99430I$	0
$u = 0.717837 + 1.150840I$ $a = -0.812804 + 0.435766I$ $b = -1.63701 + 0.68784I$	$-0.99488 + 11.48250I$	0
$u = 0.717837 - 1.150840I$ $a = -0.812804 - 0.435766I$ $b = -1.63701 - 0.68784I$	$-0.99488 - 11.48250I$	0
$u = -0.615962 + 0.117735I$ $a = -0.350383 - 0.326259I$ $b = -0.680784 + 0.340817I$	$-0.62943 + 2.99422I$	0
$u = -0.615962 - 0.117735I$ $a = -0.350383 + 0.326259I$ $b = -0.680784 - 0.340817I$	$-0.62943 - 2.99422I$	0
$u = -0.506324 + 0.223289I$ $a = 0.15038 + 1.71230I$ $b = 0.262077 + 0.264360I$	$-3.83157 - 0.71992I$	0
$u = -0.506324 - 0.223289I$ $a = 0.15038 - 1.71230I$ $b = 0.262077 - 0.264360I$	$-3.83157 + 0.71992I$	0

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.02696+1.51625I$		
$a=$	$0.062685+0.348097I$	$-6.62459-1.78219I$	0
$b=$	$0.195230+0.644220I$		
$u=$	$0.02696-1.51625I$		
$a=$	$0.062685-0.348097I$	$-6.62459+1.78219I$	0
$b=$	$0.195230-0.644220I$		
$u=$	$-0.09409+1.55208I$		
$a=$	$0.076689-0.128034I$	$-5.02416+2.82268I$	0
$b=$	$0.207284-0.560484I$		
$u=$	$-0.09409-1.55208I$		
$a=$	$0.076689+0.128034I$	$-5.02416-2.82268I$	0
$b=$	$0.207284+0.560484I$		
$u=$	$-0.097038+0.425642I$		
$a=$	$1.50211-0.54612I$	$0.97564+2.31172I$	$6.81449-4.45056I$
$b=$	$-0.638989+1.096140I$		
$u=$	$-0.097038-0.425642I$		
$a=$	$1.50211+0.54612I$	$0.97564-2.31172I$	$6.81449+4.45056I$
$b=$	$-0.638989-1.096140I$		
$u=$	$0.360284+0.083987I$		
$a=$	$1.22698+2.75279I$	$-0.46550+7.02513I$	$4.81797-8.69305I$
$b=$	$0.762809-0.918146I$		
$u=$	$0.360284-0.083987I$		
$a=$	$1.22698-2.75279I$	$-0.46550-7.02513I$	$4.81797+8.69305I$
$b=$	$0.762809+0.918146I$		

III. $I_3^u = \langle -u^2 + b + u + 1,\ a + 1,\ u^5 + u^3 + u^2 + u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -1 \\ u^2 - u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 - u^3 - 1 \\ u^4 - u^3 + u^2 - u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u^3 - u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^3 - 1 \\ -u^3 - u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^3 - u^2 - u + 1 \\ u^4 + 2u^3 - u^2 + u + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^4 - u \\ -u^4 - u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 - u - 1 \\ -u^4 + u^3 + u^2 - u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^4 - 8u^3 + 5u^2 - u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^5 + 2y^4 + 3y^3 - 3y^2 + 3y - 1$
c_2, c_3, c_5 c_6, c_7, c_{10}	$y^5 + 2y^4 + 3y^3 + y^2 - y - 1$
c_4, c_8	$y^5 - 4y^3 + 3y^2 + 10y - 1$
c_9	$y^5 - 5y^4 + 16y^3 - 39y^2 + 51y - 25$
c_{12}	$y^5 - 3y^4 + 3y^3 - 3y^2 - 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.262247+0.873157I$ $a=-1.00000$ $b=-1.43138-1.33112I$	$-3.23200-4.86949I$	$-1.68901+5.80392I$
$u=-0.262247-0.873157I$ $a=-1.00000$ $b=-1.43138+1.33112I$	$-3.23200+4.86949I$	$-1.68901-5.80392I$
$u=-0.800095$ $a=-1.00000$ $b=\ \ 0.440247$	3.56186	15.3770
$u=\ \ 0.662294+1.032030I$ $a=-1.00000$ $b=-2.28874+0.33498I$	$1.45107+11.01950I$	$3.00067-9.96957I$
$u=\ \ 0.662294-1.032030I$ $a=-1.00000$ $b=-2.28874-0.33498I$	$1.45107-11.01950I$	$3.00067+9.96957I$

IV. $I_4^u = \langle -1.98\times 10^6 u^{37} + 1.59\times 10^6 u^{36} + \cdots + 7.81\times 10^4 b + 9.34\times 10^5,\ u^{37} + 12u^{35} + \cdots + a + 1,\ u^{38} - u^{37} + \cdots + u + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^{37} - 12u^{35} + \cdots - 15u - 1 \\ 25.4019u^{37} - 20.2932u^{36} + \cdots + 27.4983u - 11.9534 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -8.90282u^{37} - 8.70708u^{36} + \cdots - 47.5106u - 7.10873 \\ 17.4991u^{37} - 29.0003u^{36} + \cdots - 5.01231u - 18.0621 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2u^{37} - 6u^{36} + \cdots + 8u - 7 \\ -20.8689u^{37} + 31.3164u^{36} + \cdots + 15.2184u + 15.7883 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0465372u^{37} - 6.68628u^{36} + \cdots - 26.0102u - 8.56096 \\ 17.2296u^{37} - 12.7400u^{36} + \cdots + 15.9072u - 7.09197 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 47.5463u^{37} - 43.5185u^{36} + \cdots + 62.2595u + 6.55671 \\ 34.9682u^{37} - 21.6243u^{36} + \cdots + 45.5719u + 8.68607 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -7.11001u^{37} + 34.2559u^{36} + \cdots + 51.6108u + 38.2171 \\ -25.1721u^{37} + 35.8190u^{36} + \cdots + 1.59311u + 26.1673 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -20.8051u^{37} + 29.9356u^{36} + \cdots + 11.8040u + 29.6783 \\ 0.0692171u^{37} - 28.6170u^{36} + \cdots - 27.9778u - 16.8464 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{684514}{78131}u^{37} - \frac{1377704}{78131}u^{36} + \cdots + \frac{565695}{78131}u - \frac{4124650}{78131}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} - 25u^{37} + \cdots - 29u + 1$
c_2, c_{10}	$u^{38} - u^{37} + \cdots + u + 1$
c_3, c_6	$u^{38} + u^{37} + \cdots - u + 1$
c_4, c_8	$u^{38} - u^{37} + \cdots + 7u^2 + 1$
c_5, c_7	$u^{38} - 3u^{37} + \cdots - 11u + 1$
c_9	$(u^{19} - 7u^{18} + \cdots + 3u - 1)^2$
c_{11}	$u^{38} + 25u^{37} + \cdots + 29u + 1$
c_{12}	$(u^{19} + 2u^{18} + \cdots + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{38} - 11y^{37} + \cdots - 67y + 1$
c_2, c_3, c_6 c_{10}	$y^{38} + 25y^{37} + \cdots + 29y + 1$
c_4, c_8	$y^{38} + y^{37} + \cdots + 14y + 1$
c_5, c_7	$y^{38} + 15y^{37} + \cdots - 39y + 1$
c_9	$(y^{19} + 3y^{18} + \cdots - 13y - 1)^2$
c_{12}	$(y^{19} + 8y^{18} + \cdots + y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.857291 + 0.471939I$ $a = 0.489725 - 0.735021I$ $b = 0.521340 + 0.336730I$	$0.471614 - 0.794306I$	$3.56373 + 5.07257I$
$u = 0.857291 - 0.471939I$ $a = 0.489725 + 0.735021I$ $b = 0.521340 - 0.336730I$	$0.471614 + 0.794306I$	$3.56373 - 5.07257I$
$u = -0.339881 + 0.974319I$ $a = -0.674523 + 0.845710I$ $b = -1.83508 - 0.10903I$	$-3.73840 + 2.35300I$	$-3.19315 - 1.59794I$
$u = -0.339881 - 0.974319I$ $a = -0.674523 - 0.845710I$ $b = -1.83508 + 0.10903I$	$-3.73840 - 2.35300I$	$-3.19315 + 1.59794I$
$u = 0.385555 + 0.887397I$ $a = 1.98518 + 1.05174I$ $b = 2.23280 + 1.00987I$	$-6.80652 + 1.60888I$	$-11.9912 + 9.5186I$
$u = 0.385555 - 0.887397I$ $a = 1.98518 - 1.05174I$ $b = 2.23280 - 1.00987I$	$-6.80652 - 1.60888I$	$-11.9912 - 9.5186I$
$u = -0.364564 + 0.968354I$ $a = -0.708654 + 1.071120I$ $b = 0.009391 + 1.118890I$	$0.07884 - 3.73395I$	$5.32221 + 8.03220I$
$u = -0.364564 - 0.968354I$ $a = -0.708654 - 1.071120I$ $b = 0.009391 - 1.118890I$	$0.07884 + 3.73395I$	$5.32221 - 8.03220I$
$u = 0.300960 + 0.993122I$ $a = 0.542850 + 0.596656I$ $b = -0.822378 + 0.266941I$	$-1.89294 + 8.64589I$	$2.93385 - 10.21550I$
$u = 0.300960 - 0.993122I$ $a = 0.542850 - 0.596656I$ $b = -0.822378 - 0.266941I$	$-1.89294 - 8.64589I$	$2.93385 + 10.21550I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.848401 + 0.610309I$ $a = 0.226580 - 0.874994I$ $b = -0.201691 + 0.306571I$	$2.75263 - 5.40942I$	$5.53760 + 5.21975I$
$u = 0.848401 - 0.610309I$ $a = 0.226580 + 0.874994I$ $b = -0.201691 - 0.306571I$	$2.75263 + 5.40942I$	$5.53760 - 5.21975I$
$u = 0.259484 + 0.918290I$ $a = 0.817419 + 0.208348I$ $b = 0.381830 - 1.357280I$	$-3.73840 + 2.35300I$	$-3.19315 - 1.59794I$
$u = 0.259484 - 0.918290I$ $a = 0.817419 - 0.208348I$ $b = 0.381830 + 1.357280I$	$-3.73840 - 2.35300I$	$-3.19315 + 1.59794I$
$u = -0.348783 + 0.861259I$ $a = -1.76105 + 0.29227I$ $b = -2.49906 + 1.14696I$	$0.471614 + 0.794306I$	$3.56373 - 5.07257I$
$u = -0.348783 - 0.861259I$ $a = -1.76105 - 0.29227I$ $b = -2.49906 - 1.14696I$	$0.471614 - 0.794306I$	$3.56373 + 5.07257I$
$u = 0.299592 + 0.869774I$ $a = 1.250900 + 0.117358I$ $b = 2.79613 + 1.22391I$	$-1.44854 - 6.15707I$	$1.62490 + 4.95559I$
$u = 0.299592 - 0.869774I$ $a = 1.250900 - 0.117358I$ $b = 2.79613 - 1.22391I$	$-1.44854 + 6.15707I$	$1.62490 - 4.95559I$
$u = -0.764063 + 0.399289I$ $a = -0.735506 - 0.785314I$ $b = -0.783034 + 0.077087I$	$0.07884 + 3.73395I$	$5.32221 - 8.03220I$
$u = -0.764063 - 0.399289I$ $a = -0.735506 + 0.785314I$ $b = -0.783034 - 0.077087I$	$0.07884 - 3.73395I$	$5.32221 + 8.03220I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.694304 + 0.946157I$ $a = -1.112440 - 0.529650I$ $b = -1.58387 - 0.19054I$	$-4.92954 + 2.76340I$	$32.6505 + 12.4930I$
$u = 0.694304 - 0.946157I$ $a = -1.112440 + 0.529650I$ $b = -1.58387 + 0.19054I$	$-4.92954 - 2.76340I$	$32.6505 - 12.4930I$
$u = -0.640614 + 1.003430I$ $a = 1.220570 + 0.008241I$ $b = 2.23544 + 0.44108I$	$2.75263 - 5.40942I$	$4.00000 + 5.21975I$
$u = -0.640614 - 1.003430I$ $a = 1.220570 - 0.008241I$ $b = 2.23544 - 0.44108I$	$2.75263 + 5.40942I$	$4.00000 - 5.21975I$
$u = -0.468792 + 1.102810I$ $a = 0.379086 + 0.747842I$ $b = 1.12862 + 1.42597I$	$0.84871 - 3.68252I$	$7.53677 + 3.79983I$
$u = -0.468792 - 1.102810I$ $a = 0.379086 - 0.747842I$ $b = 1.12862 - 1.42597I$	$0.84871 + 3.68252I$	$7.53677 - 3.79983I$
$u = -0.561759 + 1.074280I$ $a = 0.824401 + 0.557811I$ $b = 1.91991 + 0.06261I$	$-1.89294 - 8.64589I$	$4.00000 + 10.21550I$
$u = -0.561759 - 1.074280I$ $a = 0.824401 - 0.557811I$ $b = 1.91991 - 0.06261I$	$-1.89294 + 8.64589I$	$4.00000 - 10.21550I$
$u = 0.602960 + 1.090830I$ $a = -0.799404 + 0.340668I$ $b = -2.16981 + 0.04109I$	$-1.44854 + 6.15707I$	0
$u = 0.602960 - 1.090830I$ $a = -0.799404 - 0.340668I$ $b = -2.16981 - 0.04109I$	$-1.44854 - 6.15707I$	0

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.295711+0.495304I$ $a=-1.11636-1.55763I$ $b=\ \ 0.226864+0.692206I$	3.00935	$10.02954+0.I$
$u=-0.295711-0.495304I$ $a=-1.11636+1.55763I$ $b=\ \ 0.226864-0.692206I$	3.00935	$10.02954+0.I$
$u=\ \ 0.01175+1.46500I$ $a=-0.002432+0.226165I$ $b=\ \ 0.137257+0.136757I$	$-6.80652+1.60888I$	0
$u=\ \ 0.01175-1.46500I$ $a=-0.002432-0.226165I$ $b=\ \ 0.137257-0.136757I$	$-6.80652-1.60888I$	0
$u=\ \ 0.06718+1.55891I$ $a=-0.016024+0.205169I$ $b=\ \ 0.100936+0.625989I$	$-4.92954-2.76340I$	0
$u=\ \ 0.06718-1.55891I$ $a=-0.016024-0.205169I$ $b=\ \ 0.100936-0.625989I$	$-4.92954+2.76340I$	0
$u=-0.043310+0.386385I$ $a=-0.31032-2.49305I$ $b=-1.295590+0.462262I$	$0.84871+3.68252I$	$7.53677-3.79983I$
$u=-0.043310-0.386385I$ $a=-0.31032+2.49305I$ $b=-1.295590-0.462262I$	$0.84871-3.68252I$	$7.53677+3.79983I$

V. $I_5^u = \langle u^3+u^2+b-1,\ u^3+a,\ u^4+u^3+u^2+u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^3+7u^2+2u+6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6, c_7 c_{10}, c_{11}, c_{12}	$y^4 + y^3 + y^2 + y + 1$
c_4, c_8	$y^4 - y^3 + 6y^2 + 4y + 1$
c_9	$y^4 + 10y^2 - 25y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.309017 + 0.951057I$ $a = 0.809017 + 0.587785I$ $b = 2.61803$	-3.94784	$-5.51722 + 1.31433I$
$u = 0.309017 - 0.951057I$ $a = 0.809017 - 0.587785I$ $b = 2.61803$	-3.94784	$-5.51722 - 1.31433I$
$u = -0.809017 + 0.587785I$ $a = -0.309017 - 0.951057I$ $b = 0.381966$	3.94784	$9.01722 + 2.12663I$
$u = -0.809017 - 0.587785I$ $a = -0.309017 + 0.951057I$ $b = 0.381966$	3.94784	$9.01722 - 2.12663I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4-u^3+u^2-u+1)(u^5-2u^4+3u^3-u^2-u+1)$ $\cdot(u^{32}+15u^{31}+\cdots+6u+1)(u^{38}-25u^{37}+\cdots-29u+1)$ $\cdot(u^{158}+72u^{157}+\cdots+3542053u+175561)$
c_2, c_{10}	$(u^4+u^3+u^2+u+1)(u^5+u^3+u^2+u+1)(u^{32}-u^{31}+\cdots-2u+1)$ $\cdot(u^{38}-u^{37}+\cdots+u+1)(u^{158}+36u^{156}+\cdots+795u+419)$
c_3, c_6	$(u^4-u^3+u^2-u+1)(u^5+u^3-u^2+u-1)(u^{32}-u^{31}+\cdots-2u+1)$ $\cdot(u^{38}+u^{37}+\cdots-u+1)(u^{158}+36u^{156}+\cdots+795u+419)$
c_4, c_8	$(u^4+3u^3+4u^2+2u+1)(u^5-2u^4+2u^3-3u^2+2u+1)$ $\cdot(u^{32}+u^{31}+\cdots-9u^2+1)(u^{38}-u^{37}+\cdots+7u^2+1)$ $\cdot(u^{158}+4u^{157}+\cdots-84u+305)$
c_5, c_7	$(u^4+u^3+u^2+u+1)(u^5+u^3+u^2+u+1)(u^{32}+u^{31}+\cdots-4u-1)$ $\cdot(u^{38}-3u^{37}+\cdots-11u+1)(u^{158}-7u^{156}+\cdots-1086387u+160579)$
c_9	$(u^4-5u+5)(u^5-u^4+\cdots+u-5)(u^{19}-7u^{18}+\cdots+3u-1)^2$ $\cdot(u^{32}+12u^{31}+\cdots-368u-320)$ $\cdot(u^{79}-12u^{78}+\cdots-16031u+5803)^2$
c_{11}	$(u^4+u^3+u^2+u+1)(u^5+2u^4+3u^3+u^2-u-1)$ $\cdot(u^{32}+15u^{31}+\cdots+6u+1)(u^{38}+25u^{37}+\cdots+29u+1)$ $\cdot(u^{158}+72u^{157}+\cdots+3542053u+175561)$
c_{12}	$(u^4-u^3+u^2-u+1)(u^5-u^4-u^3+3u^2-2u+1)$ $\cdot((u^{19}+2u^{18}+\cdots+u+1)^2)(u^{32}-19u^{31}+\cdots+76u-8)$ $\cdot(u^{79}+7u^{78}+\cdots-u-1)^2$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^4+y^3+y^2+y+1)(y^5+2y^4+3y^3-3y^2+3y-1)$ $\cdot(y^{32}+3y^{31}+\cdots+6y+1)(y^{38}-11y^{37}+\cdots-67y+1)$ $\cdot(y^{158}+40y^{157}+\cdots-2099160591827y+30821664721)$
c_2, c_3, c_6 c_{10}	$(y^4+y^3+y^2+y+1)(y^5+2y^4+3y^3+y^2-y-1)$ $\cdot(y^{32}+15y^{31}+\cdots+6y+1)(y^{38}+25y^{37}+\cdots+29y+1)$ $\cdot(y^{158}+72y^{157}+\cdots+3542053y+175561)$
c_4, c_8	$(y^4-y^3+6y^2+4y+1)(y^5-4y^3+3y^2+10y-1)$ $\cdot(y^{32}-13y^{31}+\cdots-18y+1)(y^{38}+y^{37}+\cdots+14y+1)$ $\cdot(y^{158}+8y^{157}+\cdots-7749786y+93025)$
c_5, c_7	$(y^4+y^3+y^2+y+1)(y^5+2y^4+3y^3+y^2-y-1)$ $\cdot(y^{32}-5y^{31}+\cdots-10y+1)(y^{38}+15y^{37}+\cdots-39y+1)$ $\cdot(y^{158}-14y^{157}+\cdots-1110681919919y+25785615241)$
c_9	$(y^4+10y^2-25y+25)(y^5-5y^4+16y^3-39y^2+51y-25)$ $\cdot(y^{19}+3y^{18}+\cdots-13y-1)^2$ $\cdot(y^{32}-4y^{31}+\cdots-1748224y+102400)$ $\cdot(y^{79}-22y^{78}+\cdots+521006249y-33674809)^2$
c_{12}	$(y^4+y^3+y^2+y+1)(y^5-3y^4+3y^3-3y^2-2y-1)$ $\cdot((y^{19}+8y^{18}+\cdots+y-1)^2)(y^{32}-5y^{31}+\cdots-784y+64)$ $\cdot(y^{79}-y^{78}+\cdots+3y-1)^2$