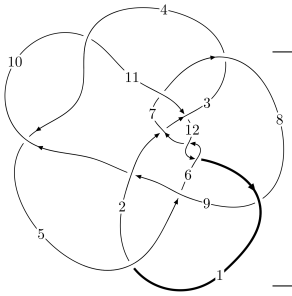
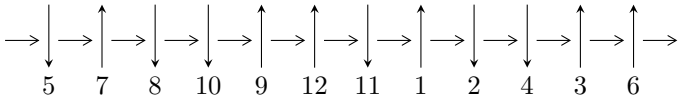
$12a_{1251}$ $(K12a_{1251})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5.41545 \times 10^{45} u^{37} + 1.08996 \times 10^{47} u^{36} + \cdots + 6.38981 \times 10^{46} b - 4.06452 \times 10^{47},$$
$$4.21436 \times 10^{47} u^{37} - 5.72689 \times 10^{47} u^{36} + \cdots + 6.38981 \times 10^{46} a - 6.24484 \times 10^{47},\ u^{38} - u^{37} + \cdots - 9u - 1 \rangle$$
$$I_2^u = \langle 1.93258 \times 10^{942} u^{139} + 1.35995 \times 10^{941} u^{138} + \cdots + 1.25727 \times 10^{946} b + 8.29635 \times 10^{946},$$
$$- 7.36045 \times 10^{947} u^{139} + 2.14268 \times 10^{946} u^{138} + \cdots + 1.30768 \times 10^{950} a + 3.16361 \times 10^{951},$$
$$u^{140} + 12u^{138} + \cdots + 54306u + 10401 \rangle$$
$$I_3^u = \langle 5.84926 \times 10^{78} u^{43} + 2.23945 \times 10^{79} u^{42} + \cdots + 7.36510 \times 10^{78} b + 3.17801 \times 10^{79},$$
$$- 7.36354 \times 10^{78} u^{43} - 2.10865 \times 10^{79} u^{42} + \cdots + 2.45503 \times 10^{78} a - 1.10180 \times 10^{79},\ u^{44} + 3u^{43} + \cdots + 6u +$$
$$I_4^u = \langle b + u,\ a,\ u^2 - u + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 224 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.

$\boldsymbol{I_1^u = \langle 5.42\times 10^{45}u^{37}+1.09\times 10^{47}u^{36}+\cdots+6.39\times 10^{46}b-4.06\times 10^{47},\ 4.21\times 10^{47}u^{37}-5.73\times 10^{47}u^{36}+\cdots+6.39\times 10^{46}a-6.24\times 10^{47},\ u^{38}-u^{37}+\cdots-9u-1\rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix}-6.59544u^{37}+8.96254u^{36}+\cdots+82.8273u+9.77312\\-0.0847514u^{37}-1.70577u^{36}+\cdots+42.9121u+6.36094\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-6.42624u^{37}+9.22886u^{36}+\cdots+19.2650u+1.75561\\0.910048u^{37}-2.06794u^{36}+\cdots-2.54449u-0.660358\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}8.60481u^{37}-10.8610u^{36}+\cdots-101.127u-12.6893\\-2.24228u^{37}+1.54603u^{36}+\cdots+55.9095u+7.23400\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-6.68019u^{37}+7.25676u^{36}+\cdots+125.739u+16.1341\\-0.0847514u^{37}-1.70577u^{36}+\cdots+42.9121u+6.36094\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-7.56505u^{37}+10.8064u^{36}+\cdots-8.83701u-3.28785\\-2.04886u^{37}+3.64546u^{36}+\cdots-23.5575u-4.38310\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-7.23400u^{37}+9.47628u^{36}+\cdots+84.3183u+9.19655\\-0.142437u^{37}-0.423822u^{36}+\cdots+28.4746u+4.69524\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-4.16928u^{37}+7.04773u^{36}+\cdots-22.3735u-2.69198\\3.39814u^{37}-2.23185u^{36}+\cdots-81.7143u-11.1789\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-4.97785u^{37}+9.43787u^{36}+\cdots+19.5643u+0.591739\\0.553812u^{37}-2.21951u^{36}+\cdots+41.4211u+6.93751\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.515910u^{37}+0.638113u^{36}+\cdots-59.9990u-12.7552\\-3.06293u^{37}+4.04695u^{36}+\cdots+17.0847u+0.406432\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -12.1292u^{37}+7.88921u^{36}+\cdots+89.0283u+5.29741$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{38} + u^{37} + \cdots + 9u - 1$
c_2, c_8	$u^{38} + u^{37} + \cdots + 3u + 1$
c_3, c_9	$u^{38} - u^{37} + \cdots - 3u + 1$
c_4, c_{10}	$u^{38} - 5u^{37} + \cdots + 1968u - 260$
c_5, c_{11}	$u^{38} - u^{37} + \cdots - 9u - 1$
c_6, c_{12}	$u^{38} + 5u^{37} + \cdots - 1968u - 260$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$y^{38} - 3y^{37} + \cdots - 7y + 1$
c_2, c_3, c_8 c_9	$y^{38} + 11y^{37} + \cdots - 9y + 1$
c_4, c_6, c_{10} c_{12}	$y^{38} + 23y^{37} + \cdots - 657344y + 67600$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.968211 + 0.099082I$ $a = 0.401521 - 0.037333I$ $b = -0.802971 - 0.684067I$	$-6.09133 + 2.82939I$	$-12.39412 - 2.25794I$
$u = 0.968211 - 0.099082I$ $a = 0.401521 + 0.037333I$ $b = -0.802971 + 0.684067I$	$-6.09133 - 2.82939I$	$-12.39412 + 2.25794I$
$u = 0.922908$ $a = -1.81558$ $b = 0.594003$	-0.408756	-21.5410
$u = 0.720784 + 0.523136I$ $a = 0.55211 - 1.81656I$ $b = -0.618829 - 0.151609I$	$-4.50176 - 6.57911I$	$-7.6096 + 11.9321I$
$u = 0.720784 - 0.523136I$ $a = 0.55211 + 1.81656I$ $b = -0.618829 + 0.151609I$	$-4.50176 + 6.57911I$	$-7.6096 - 11.9321I$
$u = -1.12740$ $a = -1.26510$ $b = 0.446488$	0.408756	21.5410
$u = -0.600621 + 0.958137I$ $a = 1.167140 - 0.465471I$ $b = -1.090910 + 0.751718I$	$3.33253 + 3.84409I$	$1.41355 - 3.81235I$
$u = -0.600621 - 0.958137I$ $a = 1.167140 + 0.465471I$ $b = -1.090910 - 0.751718I$	$3.33253 - 3.84409I$	$1.41355 + 3.81235I$
$u = 0.763304 + 0.285378I$ $a = -0.769399 + 0.299416I$ $b = 0.641337 + 0.167735I$	$-1.42108 - 0.29384I$	$-6.42575 - 0.42207I$
$u = 0.763304 - 0.285378I$ $a = -0.769399 - 0.299416I$ $b = 0.641337 - 0.167735I$	$-1.42108 + 0.29384I$	$-6.42575 + 0.42207I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.313558+0.748788I$ $a=-1.84466-0.27944I$ $b=\ \ 0.107405-1.317060I$	$3.85199+3.54385I$	$6.26632-12.05234I$
$u=-0.313558-0.748788I$ $a=-1.84466+0.27944I$ $b=\ \ 0.107405+1.317060I$	$3.85199-3.54385I$	$6.26632+12.05234I$
$u=-0.317210+0.738243I$ $a=-1.62595+0.37185I$ $b=\ \ 1.03695-1.43027I$	$6.09133+2.82939I$	$12.39412-2.25794I$
$u=-0.317210-0.738243I$ $a=-1.62595-0.37185I$ $b=\ \ 1.03695+1.43027I$	$6.09133-2.82939I$	$12.39412+2.25794I$
$u=-0.969222+0.842096I$ $a=\ \ 0.963939+0.355295I$ $b=-0.824258+0.634902I$	$8.69452I$	$0.-12.41317I$
$u=-0.969222-0.842096I$ $a=\ \ 0.963939-0.355295I$ $b=-0.824258-0.634902I$	$-8.69452I$	$0.+12.41317I$
$u=-0.276258+0.623777I$ $a=\ \ 1.67633-0.36759I$ $b=-0.67294+2.23248I$	$2.19412+1.25898I$	$0.90146-4.40538I$
$u=-0.276258-0.623777I$ $a=\ \ 1.67633+0.36759I$ $b=-0.67294-2.23248I$	$2.19412-1.25898I$	$0.90146+4.40538I$
$u=-0.922652+0.956457I$ $a=-0.870010-0.455985I$ $b=\ \ 1.098310-0.762936I$	$-6.0882+14.6929I$	$-3.35386-10.24839I$
$u=-0.922652-0.956457I$ $a=-0.870010+0.455985I$ $b=\ \ 1.098310+0.762936I$	$-6.0882-14.6929I$	$-3.35386+10.24839I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.267862+0.556164I$ $a=\ \ 2.84678-0.60784I$ $b=-0.324135+0.855181I$	$5.02615+1.33424I$	$10.68384-4.00875I$
$u=-0.267862-0.556164I$ $a=\ \ 2.84678+0.60784I$ $b=-0.324135-0.855181I$	$5.02615-1.33424I$	$10.68384+4.00875I$
$u=-1.44047+0.11070I$ $a=-0.120309+0.887526I$ $b=\ \ 0.344050-1.303370I$	$-2.19412-1.25898I$	0
$u=-1.44047-0.11070I$ $a=-0.120309-0.887526I$ $b=\ \ 0.344050+1.303370I$	$-2.19412+1.25898I$	0
$u=-0.81328+1.33675I$ $a=-0.457106+0.006304I$ $b=\ \ 0.849741-0.044800I$	$-5.02615-1.33424I$	0
$u=-0.81328-1.33675I$ $a=-0.457106-0.006304I$ $b=\ \ 0.849741+0.044800I$	$-5.02615+1.33424I$	0
$u=\ \ 0.94529+1.26888I$ $a=\ \ 0.965645+0.331885I$ $b=-1.25182-1.29006I$	$-20.8093I$	0
$u=\ \ 0.94529-1.26888I$ $a=\ \ 0.965645-0.331885I$ $b=-1.25182+1.29006I$	$20.8093I$	0
$u=-0.231065+0.320032I$ $a=-0.17217-1.64494I$ $b=-0.373634-0.346076I$	$1.42108+0.29384I$	$6.42575+0.42207I$
$u=-0.231065-0.320032I$ $a=-0.17217+1.64494I$ $b=-0.373634+0.346076I$	$1.42108-0.29384I$	$6.42575-0.42207I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.95520 + 1.34300I$ $a = -0.919074 - 0.295860I$ $b = 1.06753 + 1.08845I$	$6.0882 - 14.6929I$	0
$u = 0.95520 - 1.34300I$ $a = -0.919074 + 0.295860I$ $b = 1.06753 - 1.08845I$	$6.0882 + 14.6929I$	0
$u = -0.320051 + 0.098884I$ $a = 0.06483 + 2.75766I$ $b = 0.803936 + 0.504458I$	$-3.33253 + 3.84409I$	$-1.41355 - 3.81235I$
$u = -0.320051 - 0.098884I$ $a = 0.06483 - 2.75766I$ $b = 0.803936 - 0.504458I$	$-3.33253 - 3.84409I$	$-1.41355 + 3.81235I$
$u = 0.98153 + 1.45353I$ $a = 0.831832 + 0.178309I$ $b = -0.849035 - 0.685813I$	$4.50176 - 6.57911I$	0
$u = 0.98153 - 1.45353I$ $a = 0.831832 - 0.178309I$ $b = -0.849035 + 0.685813I$	$4.50176 + 6.57911I$	0
$u = 1.74017 + 0.80024I$ $a = -0.151098 - 0.523665I$ $b = -0.160972 + 0.236880I$	$-3.85199 + 3.54385I$	0
$u = 1.74017 - 0.80024I$ $a = -0.151098 + 0.523665I$ $b = -0.160972 - 0.236880I$	$-3.85199 - 3.54385I$	0

II. $\boldsymbol{I_2^u = \langle 1.93 \times 10^{942} u^{139} + 1.36 \times 10^{941} u^{138} + \cdots + 1.26 \times 10^{946} b + 8.30 \times 10^{946},\ -7.36 \times 10^{947} u^{139} + 2.14 \times 10^{946} u^{138} + \cdots + 1.31 \times 10^{950} a + 3.16 \times 10^{951},\ u^{140} + 12 u^{138} + \cdots + 54306 u + 10401 \rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix} 0.00562862u^{139} - 0.000163853u^{138} + \cdots + 116.482u - 24.1925 \\ -0.000153713u^{139} - 0.0000108168u^{138} + \cdots - 51.8041u - 6.59872 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00582107u^{139} - 0.00216164u^{138} + \cdots - 297.717u - 83.6275 \\ -0.00138482u^{139} - 0.000452467u^{138} + \cdots - 181.344u - 19.2547 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.00272863u^{139} - 0.00304649u^{138} + \cdots - 576.031u - 104.088 \\ 0.000334281u^{139} - 0.000906312u^{138} + \cdots - 62.9029u - 15.7146 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00547491u^{139} - 0.000174670u^{138} + \cdots + 64.6777u - 30.7912 \\ -0.000153713u^{139} - 0.0000108168u^{138} + \cdots - 51.8041u - 6.59872 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00446024u^{139} - 0.00295521u^{138} + \cdots - 561.134u - 115.140 \\ 0.0000239840u^{139} - 0.000341102u^{138} + \cdots - 80.0729u - 12.2574 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00727880u^{139} + 0.0000415565u^{138} + \cdots + 163.941u - 26.0092 \\ 0.000511692u^{139} + 0.0000718818u^{138} + \cdots - 21.2994u - 4.34975 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00444084u^{139} - 0.00312167u^{138} + \cdots - 550.988u - 107.315 \\ 0.000929956u^{139} - 0.0000740184u^{138} + \cdots - 10.8583u - 4.88679 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00462116u^{139} + 0.0000891687u^{138} + \cdots + 177.520u + 47.1196 \\ -0.000737727u^{139} - 0.000616594u^{138} + \cdots - 91.7030u - 13.5757 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.000463728u^{139} - 0.00480298u^{138} + \cdots - 881.879u - 163.598 \\ -0.00146877u^{139} - 0.00111609u^{138} + \cdots - 227.563u - 36.3600 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.00535623u^{139} - 0.00670142u^{138} + \cdots - 1311.85u - 217.480$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{140} + 12u^{138} + \cdots - 54306u + 10401$
c_2, c_8	$u^{140} + u^{139} + \cdots - 96505u + 4729$
c_3, c_9	$u^{140} - u^{139} + \cdots + 96505u + 4729$
c_4, c_{10}	$(u^{70} + 2u^{69} + \cdots + 1179u - 211)^2$
c_5, c_{11}	$u^{140} + 12u^{138} + \cdots + 54306u + 10401$
c_6, c_{12}	$(u^{70} - 2u^{69} + \cdots - 1179u - 211)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$y^{140} + 24y^{139} + \cdots + 6449867628y + 108180801$
c_2, c_3, c_8 c_9	$y^{140} + 33y^{139} + \cdots - 890326919y + 22363441$
c_4, c_6, c_{10} c_{12}	$(y^{70} + 50y^{69} + \cdots - 865495y + 44521)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.260607+0.957647I$ $a=\ \ 1.076760-0.047164I$ $b=-0.17973+1.61195I$	$3.61200+0.98906I$	0
$u=-0.260607-0.957647I$ $a=\ \ 1.076760+0.047164I$ $b=-0.17973-1.61195I$	$3.61200-0.98906I$	0
$u=\ \ 0.315607+0.938612I$ $a=-1.310900+0.087179I$ $b=\ \ 0.404767+0.995005I$	$-4.95068I$	0
$u=\ \ 0.315607-0.938612I$ $a=-1.310900-0.087179I$ $b=\ \ 0.404767-0.995005I$	$4.95068I$	0
$u=\ \ 0.390897+0.900603I$ $a=\ \ 1.61401+0.05652I$ $b=-0.384643-1.255120I$	$2.07145-12.42820I$	0
$u=\ \ 0.390897-0.900603I$ $a=\ \ 1.61401-0.05652I$ $b=-0.384643+1.255120I$	$2.07145+12.42820I$	0
$u=\ \ 0.845309+0.568360I$ $a=\ \ 0.942280+0.931931I$ $b=-0.89869-1.69407I$	$2.81456-7.38758I$	0
$u=\ \ 0.845309-0.568360I$ $a=\ \ 0.942280-0.931931I$ $b=-0.89869+1.69407I$	$2.81456+7.38758I$	0
$u=-0.967287+0.122879I$ $a=\ \ 0.003203+1.226480I$ $b=\ \ 0.329864-0.011835I$	$-3.10613+3.74546I$	0
$u=-0.967287-0.122879I$ $a=\ \ 0.003203-1.226480I$ $b=\ \ 0.329864+0.011835I$	$-3.10613-3.74546I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.685126+0.772834I$ $a=-1.23616+0.88689I$ $b=\ \ 0.030831-0.820977I$	$3.53444+0.13727I$	0
$u=-0.685126-0.772834I$ $a=-1.23616-0.88689I$ $b=\ \ 0.030831+0.820977I$	$3.53444-0.13727I$	0
$u=-0.559810+0.759792I$ $a=-0.029368-0.290599I$ $b=\ \ 0.196776-0.949676I$	$1.99898+2.39251I$	0
$u=-0.559810-0.759792I$ $a=-0.029368+0.290599I$ $b=\ \ 0.196776+0.949676I$	$1.99898-2.39251I$	0
$u=\ \ 0.580972+0.722903I$ $a=\ \ 0.335188-0.330442I$ $b=-0.337362+0.975889I$	$1.42365-4.02526I$	0
$u=\ \ 0.580972-0.722903I$ $a=\ \ 0.335188+0.330442I$ $b=-0.337362-0.975889I$	$1.42365+4.02526I$	0
$u=\ \ 0.449147+0.980408I$ $a=\ \ 0.209901-0.346117I$ $b=-0.708833-0.783820I$	$1.42365-4.02526I$	0
$u=\ \ 0.449147-0.980408I$ $a=\ \ 0.209901+0.346117I$ $b=-0.708833+0.783820I$	$1.42365+4.02526I$	0
$u=-0.392217+1.008780I$ $a=-0.200302-0.157294I$ $b=\ \ 0.133244+0.765577I$	$1.99898-2.39251I$	0
$u=-0.392217-1.008780I$ $a=-0.200302+0.157294I$ $b=\ \ 0.133244-0.765577I$	$1.99898+2.39251I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.351304+0.842177I$ $a=\ \ 1.51267-0.82276I$ $b=-0.150332+0.267043I$	$3.53444-0.13727I$	0
$u=-0.351304-0.842177I$ $a=\ \ 1.51267+0.82276I$ $b=-0.150332-0.267043I$	$3.53444+0.13727I$	0
$u=-0.542115+0.715651I$ $a=\ \ 0.049500-1.400900I$ $b=\ \ 0.859124-0.459279I$	$-5.16564-3.33643I$	0
$u=-0.542115-0.715651I$ $a=\ \ 0.049500+1.400900I$ $b=\ \ 0.859124+0.459279I$	$-5.16564+3.33643I$	0
$u=\ \ 0.252790+1.081740I$ $a=\ \ 1.123190+0.239963I$ $b=-0.207075-0.756252I$	$5.37530+2.73843I$	0
$u=\ \ 0.252790-1.081740I$ $a=\ \ 1.123190-0.239963I$ $b=-0.207075+0.756252I$	$5.37530-2.73843I$	0
$u=-0.425482+0.780133I$ $a=\ \ 1.52214-0.52417I$ $b=-1.78000+0.70554I$	$3.10613+3.74546I$	0
$u=-0.425482-0.780133I$ $a=\ \ 1.52214+0.52417I$ $b=-1.78000-0.70554I$	$3.10613-3.74546I$	0
$u=\ \ 0.732165+0.841538I$ $a=-0.747634+0.323942I$ $b=\ \ 1.196470+0.086638I$	$-2.58879-0.27761I$	0
$u=\ \ 0.732165-0.841538I$ $a=-0.747634-0.323942I$ $b=\ \ 1.196470-0.086638I$	$-2.58879+0.27761I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.257395+0.819091I$ $a=\ \ 1.36106-0.62195I$ $b=-1.14289+1.39217I$	$6.17925+0.85610I$	0
$u=-0.257395-0.819091I$ $a=\ \ 1.36106+0.62195I$ $b=-1.14289-1.39217I$	$6.17925-0.85610I$	0
$u=-0.535561+0.661055I$ $a=\ \ 0.083913+1.082100I$ $b=-0.653843+0.804828I$	$-5.37530+2.73843I$	0
$u=-0.535561-0.661055I$ $a=\ \ 0.083913-1.082100I$ $b=-0.653843-0.804828I$	$-5.37530-2.73843I$	0
$u=\ \ 0.801077+0.270434I$ $a=-0.83332-1.45240I$ $b=\ \ 1.20701+1.95684I$	$-0.55813-9.85968I$	0
$u=\ \ 0.801077-0.270434I$ $a=-0.83332+1.45240I$ $b=\ \ 1.20701-1.95684I$	$-0.55813+9.85968I$	0
$u=\ \ 0.790072+0.860480I$ $a=-0.109716+0.782801I$ $b=\ \ 0.938165-0.315917I$	$-5.37530-2.73843I$	0
$u=\ \ 0.790072-0.860480I$ $a=-0.109716-0.782801I$ $b=\ \ 0.938165+0.315917I$	$-5.37530+2.73843I$	0
$u=\ \ 0.524348+1.048140I$ $a=\ \ 0.029965+0.428280I$ $b=\ \ 0.852322+0.746485I$	$-2.81456-7.38758I$	0
$u=\ \ 0.524348-1.048140I$ $a=\ \ 0.029965-0.428280I$ $b=\ \ 0.852322-0.746485I$	$-2.81456+7.38758I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.274817 + 0.772107I$ $a = -0.786101 + 0.782232I$ $b = 0.184822 + 0.577082I$	$-2.58879 - 0.27761I$	0
$u = 0.274817 - 0.772107I$ $a = -0.786101 - 0.782232I$ $b = 0.184822 - 0.577082I$	$-2.58879 + 0.27761I$	0
$u = 0.848636 + 0.821513I$ $a = -0.795598 + 0.027066I$ $b = 0.902479 + 0.764781I$	$-1.99898 - 2.39251I$	0
$u = 0.848636 - 0.821513I$ $a = -0.795598 - 0.027066I$ $b = 0.902479 - 0.764781I$	$-1.99898 + 2.39251I$	0
$u = -0.002098 + 1.185280I$ $a = -1.267330 - 0.044236I$ $b = 0.144454 + 0.160431I$	$3.75251 + 6.23561I$	0
$u = -0.002098 - 1.185280I$ $a = -1.267330 + 0.044236I$ $b = 0.144454 - 0.160431I$	$3.75251 - 6.23561I$	0
$u = 0.245867 + 0.769791I$ $a = -2.03841 - 0.02255I$ $b = 0.453064 + 0.862653I$	$6.07769 - 7.63458I$	0
$u = 0.245867 - 0.769791I$ $a = -2.03841 + 0.02255I$ $b = 0.453064 - 0.862653I$	$6.07769 + 7.63458I$	0
$u = 1.186010 + 0.149076I$ $a = -0.046126 - 0.980985I$ $b = -0.14851 + 1.58671I$	$-3.61200 + 0.98906I$	0
$u = 1.186010 - 0.149076I$ $a = -0.046126 + 0.980985I$ $b = -0.14851 - 1.58671I$	$-3.61200 - 0.98906I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.856067+0.834835I$ $a=\ \ 0.553916+0.576593I$ $b=-0.758993+0.732139I$	$-6.07769+7.63458I$	0
$u=-0.856067-0.834835I$ $a=\ \ 0.553916-0.576593I$ $b=-0.758993-0.732139I$	$-6.07769-7.63458I$	0
$u=\ \ 0.822452+0.885058I$ $a=\ \ 0.725507-0.856629I$ $b=-1.092770-0.474982I$	$-2.64550-5.63372I$	0
$u=\ \ 0.822452-0.885058I$ $a=\ \ 0.725507+0.856629I$ $b=-1.092770+0.474982I$	$-2.64550+5.63372I$	0
$u=\ \ 0.829334+0.888333I$ $a=-0.796515-0.482925I$ $b=\ \ 0.85173+1.62859I$	$-3.75251-6.23561I$	0
$u=\ \ 0.829334-0.888333I$ $a=-0.796515+0.482925I$ $b=\ \ 0.85173-1.62859I$	$-3.75251+6.23561I$	0
$u=-1.214780+0.090690I$ $a=-0.351160+1.001060I$ $b=\ \ 0.078998-0.385780I$	$2.58879-0.27761I$	0
$u=-1.214780-0.090690I$ $a=-0.351160-1.001060I$ $b=\ \ 0.078998+0.385780I$	$2.58879+0.27761I$	0
$u=\ \ 0.470023+0.619470I$ $a=-0.074483+0.642767I$ $b=\ \ 0.14929-1.95058I$	$-2.81456-7.38758I$	0
$u=\ \ 0.470023-0.619470I$ $a=-0.074483-0.642767I$ $b=\ \ 0.14929+1.95058I$	$-2.81456+7.38758I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.152637+0.759225I$ $a=-1.65449+0.12307I$ $b=\ \ 0.286800-1.290370I$	$6.17925-0.85610I$	0
$u=-0.152637-0.759225I$ $a=-1.65449-0.12307I$ $b=\ \ 0.286800+1.290370I$	$6.17925+0.85610I$	0
$u=-0.471425+1.133980I$ $a=\ \ 1.135180-0.261406I$ $b=-0.925210+1.027120I$	$3.10613+3.74546I$	0
$u=-0.471425-1.133980I$ $a=\ \ 1.135180+0.261406I$ $b=-0.925210-1.027120I$	$3.10613-3.74546I$	0
$u=-0.321138+0.689372I$ $a=-1.112990+0.860013I$ $b=\ \ 0.63215-2.35643I$	$3.61200-0.98906I$	0
$u=-0.321138-0.689372I$ $a=-1.112990-0.860013I$ $b=\ \ 0.63215+2.35643I$	$3.61200+0.98906I$	0
$u=\ \ 0.817302+0.936461I$ $a=\ \ 0.997986-0.170928I$ $b=-1.23638-1.10075I$	$-5.16564-3.33643I$	0
$u=\ \ 0.817302-0.936461I$ $a=\ \ 0.997986+0.170928I$ $b=-1.23638+1.10075I$	$-5.16564+3.33643I$	0
$u=\ \ 0.774862+0.976674I$ $a=-0.572418-0.401775I$ $b=-0.254759+0.447007I$	$-3.53444+0.13727I$	0
$u=\ \ 0.774862-0.976674I$ $a=-0.572418+0.401775I$ $b=-0.254759-0.447007I$	$-3.53444-0.13727I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.482491+1.210100I$ $a=-1.081350+0.480892I$ $b=\ \ 1.39744-0.65312I$	$2.11433I$	0
$u=-0.482491-1.210100I$ $a=-1.081350-0.480892I$ $b=\ \ 1.39744+0.65312I$	$-2.11433I$	0
$u=\ \ 0.030629+0.688541I$ $a=-1.88599-0.35954I$ $b=\ \ 1.40504+1.16711I$	$5.73423+6.43567I$	0
$u=\ \ 0.030629-0.688541I$ $a=-1.88599+0.35954I$ $b=\ \ 1.40504-1.16711I$	$5.73423-6.43567I$	0
$u=-0.687043+0.019550I$ $a=-0.609593+0.367432I$ $b=\ \ 0.950034+0.834454I$	$-6.17925+0.85610I$	0
$u=-0.687043-0.019550I$ $a=-0.609593-0.367432I$ $b=\ \ 0.950034-0.834454I$	$-6.17925-0.85610I$	0
$u=-0.016900+0.678322I$ $a=\ \ 1.82623-0.54054I$ $b=-0.613259-0.569059I$	$2.58879+0.27761I$	0
$u=-0.016900-0.678322I$ $a=\ \ 1.82623+0.54054I$ $b=-0.613259+0.569059I$	$2.58879-0.27761I$	0
$u=\ \ 0.883707+0.996664I$ $a=\ \ 0.338199-0.375532I$ $b=-0.665219-0.365075I$	$-1.42365-4.02526I$	0
$u=\ \ 0.883707-0.996664I$ $a=\ \ 0.338199+0.375532I$ $b=-0.665219+0.365075I$	$-1.42365+4.02526I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.587320+0.306225I$ $a=\ \ 0.49346+1.33102I$ $b=-0.672513+0.293211I$	$-1.99898-2.39251I$	0
$u=-0.587320-0.306225I$ $a=\ \ 0.49346-1.33102I$ $b=-0.672513-0.293211I$	$-1.99898+2.39251I$	0
$u=-0.135367+1.331160I$ $a=\ \ 0.841403+0.088404I$ $b=-1.72254+0.00278I$	$-3.75251+6.23561I$	0
$u=-0.135367-1.331160I$ $a=\ \ 0.841403-0.088404I$ $b=-1.72254-0.00278I$	$-3.75251-6.23561I$	0
$u=-0.010579+1.342550I$ $a=-0.647966+0.043199I$ $b=\ \ 1.277280+0.213511I$	$-3.53444+0.13727I$	0
$u=-0.010579-1.342550I$ $a=-0.647966-0.043199I$ $b=\ \ 1.277280-0.213511I$	$-3.53444-0.13727I$	0
$u=-0.570772+0.306414I$ $a=\ \ 1.054160+0.149364I$ $b=-1.59854+0.76472I$	$-5.73423+6.43567I$	$0.-9.92162I$
$u=-0.570772-0.306414I$ $a=\ \ 1.054160-0.149364I$ $b=-1.59854-0.76472I$	$-5.73423-6.43567I$	$0.+9.92162I$
$u=-0.626530$ $a=-3.33707$ $b=\ \ 0.243670$	0.566214	391.170
$u=\ \ 0.949687+0.997507I$ $a=-0.449168+0.221433I$ $b=\ \ 0.754467+0.768706I$	$-5.73423-6.43567I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.949687 - 0.997507I$ $a = -0.449168 - 0.221433I$ $b = 0.754467 - 0.768706I$	$-5.73423 + 6.43567I$	0
$u = 1.095000 + 0.860215I$ $a = 0.349739 - 0.033326I$ $b = -0.772759 - 0.327712I$	$-6.17925 - 0.85610I$	0
$u = 1.095000 - 0.860215I$ $a = 0.349739 + 0.033326I$ $b = -0.772759 + 0.327712I$	$-6.17925 + 0.85610I$	0
$u = -0.971937 + 0.999190I$ $a = -0.799969 + 0.723013I$ $b = 0.84194 - 1.59385I$	$3.75251 + 6.23561I$	0
$u = -0.971937 - 0.999190I$ $a = -0.799969 - 0.723013I$ $b = 0.84194 + 1.59385I$	$3.75251 - 6.23561I$	0
$u = -1.301730 + 0.508965I$ $a = 0.016811 + 0.930660I$ $b = -0.471652 - 0.387450I$	$-4.95068I$	0
$u = -1.301730 - 0.508965I$ $a = 0.016811 - 0.930660I$ $b = -0.471652 + 0.387450I$	$4.95068I$	0
$u = -0.467858 + 0.373415I$ $a = -0.884335 - 0.694681I$ $b = 0.879118 - 0.854616I$	$-1.42365 + 4.02526I$	$-6.24753 - 6.85777I$
$u = -0.467858 - 0.373415I$ $a = -0.884335 + 0.694681I$ $b = 0.879118 + 0.854616I$	$-1.42365 - 4.02526I$	$-6.24753 + 6.85777I$
$u = 0.052139 + 0.592220I$ $a = 0.30445 - 2.26096I$ $b = 0.157736 - 0.820195I$	$-2.64550 + 5.63372I$	$6.39032 - 3.72635I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.052139 - 0.592220I$ $a = 0.30445 + 2.26096I$ $b = 0.157736 + 0.820195I$	$-2.64550 - 5.63372I$	$6.39032 + 3.72635I$
$u = -0.69773 + 1.24486I$ $a = -0.865543 + 0.332666I$ $b = 1.14992 - 1.25494I$	$5.73423 + 6.43567I$	0
$u = -0.69773 - 1.24486I$ $a = -0.865543 - 0.332666I$ $b = 1.14992 + 1.25494I$	$5.73423 - 6.43567I$	0
$u = -1.03649 + 1.01383I$ $a = 0.486178 + 0.445471I$ $b = -0.978660 - 0.184495I$	$-6.07769 - 7.63458I$	0
$u = -1.03649 - 1.01383I$ $a = 0.486178 - 0.445471I$ $b = -0.978660 + 0.184495I$	$-6.07769 + 7.63458I$	0
$u = 0.162937 + 0.505156I$ $a = 2.14912 + 1.12561I$ $b = -1.20093 - 2.40558I$	$0.55813 + 9.85968I$	$7.81351 - 6.01006I$
$u = 0.162937 - 0.505156I$ $a = 2.14912 - 1.12561I$ $b = -1.20093 + 2.40558I$	$0.55813 - 9.85968I$	$7.81351 + 6.01006I$
$u = -0.72512 + 1.29440I$ $a = 0.818186 - 0.289591I$ $b = -1.33361 + 1.30680I$	$0.55813 + 9.85968I$	0
$u = -0.72512 - 1.29440I$ $a = 0.818186 + 0.289591I$ $b = -1.33361 - 1.30680I$	$0.55813 - 9.85968I$	0
$u = -0.86960 + 1.20933I$ $a = -1.031670 + 0.262241I$ $b = 1.33011 - 1.29565I$	$2.07145 + 12.42820I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.86960-1.20933I$ $a=-1.031670-0.262241I$ $b=\ \ 1.33011+1.29565I$	$2.07145-12.42820I$	0
$u=\ \ 0.055903+0.465596I$ $a=\ \ 3.24649+0.51907I$ $b=-0.807047+0.810117I$	$-2.11433I$	$-60.10-0.912453I$
$u=\ \ 0.055903-0.465596I$ $a=\ \ 3.24649-0.51907I$ $b=-0.807047-0.810117I$	$2.11433I$	$-60.10+0.912453I$
$u=-0.91702+1.29157I$ $a=\ \ 0.987416-0.326466I$ $b=-1.10428+1.07225I$	$6.07769+7.63458I$	0
$u=-0.91702-1.29157I$ $a=\ \ 0.987416+0.326466I$ $b=-1.10428-1.07225I$	$6.07769-7.63458I$	0
$u=\ \ 0.99021+1.25955I$ $a=-0.796256-0.300278I$ $b=\ \ 1.05420+1.19346I$	$-2.07145-12.42820I$	0
$u=\ \ 0.99021-1.25955I$ $a=-0.796256+0.300278I$ $b=\ \ 1.05420-1.19346I$	$-2.07145+12.42820I$	0
$u=\ \ 0.99604+1.26259I$ $a=\ \ 0.617644+0.440251I$ $b=-0.76005-1.19992I$	$5.16564-3.33643I$	0
$u=\ \ 0.99604-1.26259I$ $a=\ \ 0.617644-0.440251I$ $b=-0.76005+1.19992I$	$5.16564+3.33643I$	0
$u=\ \ 0.345508$ $a=-7.25793$ $b=\ \ 0.140043$	-0.566214	-391.170

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.87650 + 1.42024I$ $a = 0.692617 + 0.169426I$ $b = -0.885097 - 0.867310I$	$2.64550 - 5.63372I$	0
$u = 0.87650 - 1.42024I$ $a = 0.692617 - 0.169426I$ $b = -0.885097 + 0.867310I$	$2.64550 + 5.63372I$	0
$u = -0.94213 + 1.38732I$ $a = 0.621134 - 0.439367I$ $b = -0.767822 + 0.925023I$	$5.37530 + 2.73843I$	0
$u = -0.94213 - 1.38732I$ $a = 0.621134 + 0.439367I$ $b = -0.767822 - 0.925023I$	$5.37530 - 2.73843I$	0
$u = 1.56001 + 0.63865I$ $a = 0.067016 + 0.806062I$ $b = 0.350006 - 0.399480I$	$-2.07145 + 12.42820I$	0
$u = 1.56001 - 0.63865I$ $a = 0.067016 - 0.806062I$ $b = 0.350006 + 0.399480I$	$-2.07145 - 12.42820I$	0
$u = -0.94293 + 1.40476I$ $a = 0.772091 - 0.322654I$ $b = -1.16845 + 1.10490I$	$-0.55813 + 9.85968I$	0
$u = -0.94293 - 1.40476I$ $a = 0.772091 + 0.322654I$ $b = -1.16845 - 1.10490I$	$-0.55813 - 9.85968I$	0
$u = -0.031783 + 0.278330I$ $a = -4.14385 + 1.02580I$ $b = 1.54934 + 0.79917I$	$-3.10613 + 3.74546I$	$-3.76547 - 6.44627I$
$u = -0.031783 - 0.278330I$ $a = -4.14385 - 1.02580I$ $b = 1.54934 - 0.79917I$	$-3.10613 - 3.74546I$	$-3.76547 + 6.44627I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.76869+1.54074I$ $a=-0.756896+0.204429I$ $b=\ \ 1.165650-0.748679I$	$2.81456+7.38758I$	0
$u=-0.76869-1.54074I$ $a=-0.756896-0.204429I$ $b=\ \ 1.165650+0.748679I$	$2.81456-7.38758I$	0
$u=-1.73229+0.45124I$ $a=\ \ 0.115320-0.645559I$ $b=\ \ 0.160415+0.164563I$	$-3.61200-0.98906I$	0
$u=-1.73229-0.45124I$ $a=\ \ 0.115320+0.645559I$ $b=\ \ 0.160415-0.164563I$	$-3.61200+0.98906I$	0
$u=\ \ 1.84882+0.11307I$ $a=\ \ 0.234782+0.598021I$ $b=-0.187168-0.280610I$	$2.64550-5.63372I$	0
$u=\ \ 1.84882-0.11307I$ $a=\ \ 0.234782-0.598021I$ $b=-0.187168+0.280610I$	$2.64550+5.63372I$	0
$u=\ \ 0.83866+1.65869I$ $a=-0.570566-0.324263I$ $b=\ \ 0.782570+0.758289I$	$5.16564+3.33643I$	0
$u=\ \ 0.83866-1.65869I$ $a=-0.570566+0.324263I$ $b=\ \ 0.782570-0.758289I$	$5.16564-3.33643I$	0
$u=\ \ 1.93810$ $a=-1.29388$ $b=\ \ 0.970611$	-0.566214	0
$u=-2.45929$ $a=-0.850153$ $b=\ \ 0.709662$	0.566214	0

III.

$\boldsymbol{I_3^u = \langle 5.85\times 10^{78}u^{43}+2.24\times 10^{79}u^{42}+\cdots+7.37\times 10^{78}b+3.18\times 10^{79},\ -7.36\times 10^{78}u^{43}-2.11\times 10^{79}u^{42}+\cdots+2.46\times 10^{78}a-1.10\times 10^{79},\ u^{44}+3u^{43}+\cdots+6u+1\rangle}$

(i) Arc colorings

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

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

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

$$a_{10} = \begin{pmatrix}2.99936u^{43}+8.58907u^{42}+\cdots+22.3938u+4.48791\\-0.794186u^{43}-3.04062u^{42}+\cdots-21.0623u-4.31496\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-5.90350u^{43}-14.4345u^{42}+\cdots-31.4236u-11.4275\\1.38210u^{43}+3.56290u^{42}+\cdots+1.09967u-1.02890\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}7.32548u^{43}+20.6001u^{42}+\cdots+89.4969u+37.5441\\1.30764u^{43}+4.21360u^{42}+\cdots+9.87639u+1.33671\end{pmatrix}$$

$$a_9 = \begin{pmatrix}2.20518u^{43}+5.54845u^{42}+\cdots+1.33150u+0.172955\\-0.794186u^{43}-3.04062u^{42}+\cdots-21.0623u-4.31496\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-3.81104u^{43}-9.80830u^{42}+\cdots-48.4217u-16.1833\\0.710357u^{43}+1.06333u^{42}+\cdots-16.0978u-3.72689\end{pmatrix}$$

$$a_8 = \begin{pmatrix}3.14056u^{43}+8.75903u^{42}+\cdots+18.1965u+3.42083\\-0.399757u^{43}-1.95450u^{42}+\cdots-17.7004u-3.91054\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-8.12759u^{43}-22.0487u^{42}+\cdots-87.8028u-26.2982\\0.459037u^{43}+0.658227u^{42}+\cdots-15.8909u-3.68348\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-24.1631u^{43}-65.1774u^{42}+\cdots-194.622u-70.0154\\0.428732u^{43}+1.63735u^{42}+\cdots+11.9828u+2.69676\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}6.68114u^{43}+17.5165u^{42}+\cdots+79.8037u+26.2937\\-0.524277u^{43}-1.05496u^{42}+\cdots+7.20652u+0.916220\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 98.2334u^{43}+264.804u^{42}+\cdots+696.397u+286.276$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{44} + 3u^{43} + \cdots + 6u + 1$
c_2, c_8	$u^{44} - 2u^{43} + \cdots + 39u + 3$
c_3, c_9	$u^{44} + 2u^{43} + \cdots - 39u + 3$
c_4, c_6, c_{10} c_{12}	$u^{44} + 9u^{42} + \cdots + 2430u^2 + 100$
c_5, c_{11}	$u^{44} - 3u^{43} + \cdots - 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7 c_{11}	$y^{44} - 9y^{43} + \cdots - 2y + 1$
c_2, c_3, c_8 c_9	$y^{44} + 34y^{43} + \cdots - 1227y + 9$
c_4, c_6, c_{10} c_{12}	$(y^{22} + 9y^{21} + \cdots + 2430y + 100)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.393451+0.902638I$ $a=\ 1.406840-0.129394I$ $b=-0.380639+1.359300I$	$3.50228+2.42748I$	$4.14496-3.04999I$
$u=-0.393451-0.902638I$ $a=\ 1.406840+0.129394I$ $b=-0.380639-1.359300I$	$3.50228-2.42748I$	$4.14496+3.04999I$
$u=-0.313735+0.868388I$ $a=-1.165080+0.420926I$ $b=\ 0.46946-1.36539I$	5.64580	$7.02658+0.I$
$u=-0.313735-0.868388I$ $a=-1.165080-0.420926I$ $b=\ 0.46946+1.36539I$	5.64580	$7.02658+0.I$
$u=\ 1.038400+0.307755I$ $a=-0.094643-0.319334I$ $b=-0.410933-0.367102I$	-5.64580	$-7.02658+0.I$
$u=\ 1.038400-0.307755I$ $a=-0.094643+0.319334I$ $b=-0.410933+0.367102I$	-5.64580	$-7.02658+0.I$
$u=\ 0.709967+0.838459I$ $a=-0.323759+1.026840I$ $b=\ 0.859015+0.425193I$	$-3.27533-6.12171I$	$-1.90528+8.20036I$
$u=\ 0.709967-0.838459I$ $a=-0.323759-1.026840I$ $b=\ 0.859015-0.425193I$	$-3.27533+6.12171I$	$-1.90528-8.20036I$
$u=\ 0.112460+1.124000I$ $a=\ 1.199500+0.277237I$ $b=-0.722506-0.130081I$	$5.33876+5.37809I$	$5.67924-4.18993I$
$u=\ 0.112460-1.124000I$ $a=\ 1.199500-0.277237I$ $b=-0.722506+0.130081I$	$5.33876-5.37809I$	$5.67924+4.18993I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.804550 + 0.813652I$ $a = -0.474070 - 0.012785I$ $b = 0.606948 + 1.204450I$	$-5.33876 - 5.37809I$	$-5.67924 + 4.18993I$
$u = 0.804550 - 0.813652I$ $a = -0.474070 + 0.012785I$ $b = 0.606948 - 1.204450I$	$-5.33876 + 5.37809I$	$-5.67924 - 4.18993I$
$u = -0.415836 + 0.672445I$ $a = -1.73762 + 1.07453I$ $b = 0.190458 - 0.667769I$	4.71428	$8.31783 + 0.I$
$u = -0.415836 - 0.672445I$ $a = -1.73762 - 1.07453I$ $b = 0.190458 + 0.667769I$	4.71428	$8.31783 + 0.I$
$u = 1.063860 + 0.631750I$ $a = 0.475900 + 0.747188I$ $b = -0.816792 - 0.993562I$	$-3.50228 + 2.42748I$	0
$u = 1.063860 - 0.631750I$ $a = 0.475900 - 0.747188I$ $b = -0.816792 + 0.993562I$	$-3.50228 - 2.42748I$	0
$u = 0.369839 + 1.209530I$ $a = 0.245450 + 0.075051I$ $b = -0.850007 + 0.083893I$	-4.71428	0
$u = 0.369839 - 1.209530I$ $a = 0.245450 - 0.075051I$ $b = -0.850007 - 0.083893I$	-4.71428	0
$u = -0.227663 + 0.662742I$ $a = 1.49153 - 0.51237I$ $b = -0.54365 + 2.31474I$	2.33027	$2.48394 + 0.I$
$u = -0.227663 - 0.662742I$ $a = 1.49153 + 0.51237I$ $b = -0.54365 - 2.31474I$	2.33027	$2.48394 + 0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.862691+1.066870I$ $a=-0.862766+0.532008I$ $b=\ \ 0.95519-1.36087I$	$5.33876+5.37809I$	0
$u=-0.862691-1.066870I$ $a=-0.862766-0.532008I$ $b=\ \ 0.95519+1.36087I$	$5.33876-5.37809I$	0
$u=\ \ 0.596811+0.180059I$ $a=\ \ 1.02744+1.88568I$ $b=-0.19430-2.43874I$	$-10.2792I$	$0.+12.94810I$
$u=\ \ 0.596811-0.180059I$ $a=\ \ 1.02744-1.88568I$ $b=-0.19430+2.43874I$	$10.2792I$	$0.-12.94810I$
$u=\ \ 0.602688$ $a=\ \ 3.61534$ $b=-0.242463$	0.557272	-506.140
$u=-1.41030+0.21787I$ $a=-0.138394+0.895852I$ $b=\ \ 0.366963-1.330470I$	-2.33027	0
$u=-1.41030-0.21787I$ $a=-0.138394-0.895852I$ $b=\ \ 0.366963+1.330470I$	-2.33027	0
$u=-0.111760+0.552692I$ $a=\ \ 0.557965-0.784105I$ $b=\ \ 1.356300+0.193543I$	$-5.33876-5.37809I$	$-5.67924+4.18993I$
$u=-0.111760-0.552692I$ $a=\ \ 0.557965+0.784105I$ $b=\ \ 1.356300-0.193543I$	$-5.33876+5.37809I$	$-5.67924-4.18993I$
$u=-0.207013+0.477464I$ $a=-2.66234+0.23962I$ $b=\ \ 0.73539-1.63229I$	$3.50228+2.42748I$	$4.14496-3.04999I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.207013-0.477464I$ $a=-2.66234-0.23962I$ $b=\ \ 0.73539+1.63229I$	$3.50228-2.42748I$	$4.14496+3.04999I$
$u=\ \ 1.30820+0.71494I$ $a=-0.628702-0.614851I$ $b=\ \ 0.538712+0.838275I$	$3.27533-6.12171I$	0
$u=\ \ 1.30820-0.71494I$ $a=-0.628702+0.614851I$ $b=\ \ 0.538712-0.838275I$	$3.27533+6.12171I$	0
$u=-1.51392+0.44238I$ $a=\ \ 0.215667-0.660632I$ $b=\ \ 0.184294+0.181277I$	$-3.50228-2.42748I$	0
$u=-1.51392-0.44238I$ $a=\ \ 0.215667+0.660632I$ $b=\ \ 0.184294-0.181277I$	$-3.50228+2.42748I$	0
$u=-0.80630+1.38679I$ $a=\ \ 0.791934-0.263112I$ $b=-1.28665+1.13216I$	$10.2792I$	0
$u=-0.80630-1.38679I$ $a=\ \ 0.791934+0.263112I$ $b=-1.28665-1.13216I$	$-10.2792I$	0
$u=-0.277460+0.227947I$ $a=-1.53833-2.91293I$ $b=-0.012769-0.938108I$	$-3.27533+6.12171I$	$-1.90528-8.20036I$
$u=-0.277460-0.227947I$ $a=-1.53833+2.91293I$ $b=-0.012769+0.938108I$	$-3.27533-6.12171I$	$-1.90528+8.20036I$
$u=-0.317478$ $a=\ \ 8.19037$ $b=-0.0922151$	-0.557272	506.140

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.83746+1.47969I$ $a=-0.752709+0.167247I$ $b=\ \ 0.976207-0.773550I$	$3.27533+6.12171I$	0
$u=-0.83746-1.47969I$ $a=-0.752709-0.167247I$ $b=\ \ 0.976207+0.773550I$	$3.27533-6.12171I$	0
$u=\ \ 2.03279$ $a=\ \ 1.27916$ $b=-0.982677$	-0.557272	0
$u=-2.57099$ $a=\ \ 0.847503$ $b=-0.724018$	0.557272	0

IV. $I_4^u = \langle b+u,\ a,\ u^2-u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$	$-4.05977I$	$0. + 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$	$4.05977I$	$0. - 6.92820I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^2-u+1)(u^{38}+u^{37}+\cdots+9u-1)(u^{44}+3u^{43}+\cdots+6u+1)$ $\cdot(u^{140}+12u^{138}+\cdots-54306u+10401)$
c_2, c_8	$(u^2+u+1)(u^{38}+u^{37}+\cdots+3u+1)(u^{44}-2u^{43}+\cdots+39u+3)$ $\cdot(u^{140}+u^{139}+\cdots-96505u+4729)$
c_3, c_9	$(u^2-u+1)(u^{38}-u^{37}+\cdots-3u+1)(u^{44}+2u^{43}+\cdots-39u+3)$ $\cdot(u^{140}-u^{139}+\cdots+96505u+4729)$
c_4, c_{10}	$u^2(u^{38}-5u^{37}+\cdots+1968u-260)(u^{44}+9u^{42}+\cdots+2430u^2+100)$ $\cdot(u^{70}+2u^{69}+\cdots+1179u-211)^2$
c_5, c_{11}	$(u^2+u+1)(u^{38}-u^{37}+\cdots-9u-1)(u^{44}-3u^{43}+\cdots-6u+1)$ $\cdot(u^{140}+12u^{138}+\cdots+54306u+10401)$
c_6, c_{12}	$u^2(u^{38}+5u^{37}+\cdots-1968u-260)(u^{44}+9u^{42}+\cdots+2430u^2+100)$ $\cdot(u^{70}-2u^{69}+\cdots-1179u-211)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7	$(y^2+y+1)(y^{38}-3y^{37}+\cdots-7y+1)(y^{44}-9y^{43}+\cdots-2y+1)$
c_{11}	$\cdot(y^{140}+24y^{139}+\cdots+6449867628y+108180801)$
c_2, c_3, c_8	$(y^2+y+1)(y^{38}+11y^{37}+\cdots-9y+1)(y^{44}+34y^{43}+\cdots-1227y+9)$
c_9	$\cdot(y^{140}+33y^{139}+\cdots-890326919y+22363441)$
c_4, c_6, c_{10}	$y^2(y^{22}+9y^{21}+\cdots+2430y+100)^2$
c_{12}	$\cdot(y^{38}+23y^{37}+\cdots-657344y+67600)$
	$\cdot(y^{70}+50y^{69}+\cdots-865495y+44521)^2$