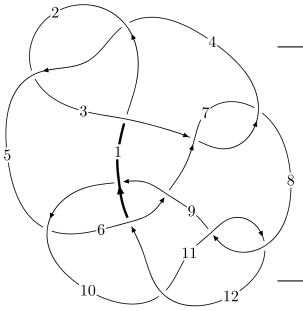
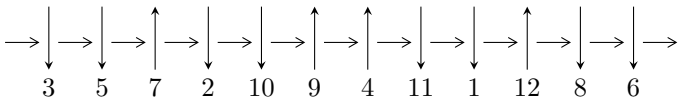
$12a_{0059}$ $(K12a_{0059})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -4.71088 \times 10^{361} u^{137} - 4.89757 \times 10^{362} u^{136} + \cdots + 2.81012 \times 10^{363} b + 2.16214 \times 10^{363}, \\ & 3.37731 \times 10^{362} u^{137} - 1.72512 \times 10^{363} u^{136} + \cdots + 2.81012 \times 10^{363} a + 1.76728 \times 10^{364}, \\ & u^{138} + 2u^{137} + \cdots - 14u + 1 \rangle \\ I_2^u = \langle & b,\ u^8 + 2u^7 + 3u^6 + 2u^5 + 3u^4 + 2u^3 + 2u^2 + a + 1,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 147 representations.

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

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

I. $\boldsymbol{I_1^u = \langle -4.71 \times 10^{361} u^{137} - 4.90 \times 10^{362} u^{136} + \cdots + 2.81 \times 10^{363} b + 2.16 \times 10^{363},\ 3.38 \times 10^{362} u^{137} - 1.73 \times 10^{363} u^{136} + \cdots + 2.81 \times 10^{363} a + 1.77 \times 10^{364},\ u^{138} + 2u^{137} + \cdots - 14u + 1 \rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.120184u^{137} + 0.613895u^{136} + \cdots + 15.1732u - 6.28898 \\ 0.0167640u^{137} + 0.174283u^{136} + \cdots + 12.4843u - 0.769412 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.560792u^{137} - 0.490800u^{136} + \cdots - 47.6605u + 3.40798 \\ 0.180158u^{137} + 0.477905u^{136} + \cdots + 9.60968u - 1.21932 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.618598u^{137} + 1.87938u^{136} + \cdots + 60.5458u - 12.1743 \\ -0.0179355u^{137} + 0.0130907u^{136} + \cdots + 5.49317u + 0.408548 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.849545u^{137} - 1.94068u^{136} + \cdots - 47.8784u + 3.99652 \\ 0.333855u^{137} + 0.868326u^{136} + \cdots - 2.31475u - 0.346952 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.287569u^{137} + 0.783730u^{136} + \cdots - 31.9924u + 4.35349 \\ -1.43846u^{137} - 2.79732u^{136} + \cdots + 21.5369u - 1.72603 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -0.767107u^{137} - 1.00356u^{136} + \cdots - 57.8502u + 4.70515 \\ 0.200522u^{137} + 0.538058u^{136} + \cdots + 10.8465u - 1.34799 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.458501u^{137} + 0.239804u^{136} + \cdots - 11.9475u - 5.01052 \\ 0.119330u^{137} + 0.460278u^{136} + \cdots + 19.9372u - 1.43411 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.92502u^{137} - 8.32211u^{136} + \cdots - 15.6428u - 3.22352$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{138} + 70u^{137} + \cdots - 82u + 1$
c_2, c_4	$u^{138} - 10u^{137} + \cdots + 14u - 1$
c_3, c_7	$u^{138} - u^{137} + \cdots + 4096u + 512$
c_5	$u^{138} + 2u^{137} + \cdots - 2626u - 97$
c_6	$u^{138} + 6u^{137} + \cdots - 67104u - 2117$
c_8, c_{11}	$u^{138} - 2u^{137} + \cdots + 14u + 1$
c_9	$u^{138} - 14u^{137} + \cdots - 2u + 1$
c_{10}	$u^{138} - 54u^{137} + \cdots + 14u + 1$
c_{12}	$u^{138} - 10u^{137} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{138} + 6y^{137} + \cdots - 5018y + 1$
c_2, c_4	$y^{138} - 70y^{137} + \cdots + 82y + 1$
c_3, c_7	$y^{138} - 57y^{137} + \cdots - 8912896y + 262144$
c_5	$y^{138} - 166y^{137} + \cdots + 9748742y + 9409$
c_6	$y^{138} - 118y^{137} + \cdots - 1356064422y + 4481689$
c_8, c_{11}	$y^{138} + 54y^{137} + \cdots - 14y + 1$
c_9	$y^{138} - 10y^{137} + \cdots - 14y + 1$
c_{10}	$y^{138} + 62y^{137} + \cdots + 2378y + 1$
c_{12}	$y^{138} - 14y^{137} + \cdots - 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.340095 + 0.938631I$ $a = -2.65484 - 1.57222I$ $b = 1.084210 + 0.480895I$	$0.93099 + 3.37995I$	0
$u = 0.340095 - 0.938631I$ $a = -2.65484 + 1.57222I$ $b = 1.084210 - 0.480895I$	$0.93099 - 3.37995I$	0
$u = -0.565847 + 0.829711I$ $a = -1.89250 + 1.37711I$ $b = 1.243040 + 0.380663I$	$-3.90120 + 1.41992I$	0
$u = -0.565847 - 0.829711I$ $a = -1.89250 - 1.37711I$ $b = 1.243040 - 0.380663I$	$-3.90120 - 1.41992I$	0
$u = 0.523816 + 0.842586I$ $a = 0.49491 - 4.58806I$ $b = 0.513302 - 0.642122I$	$-2.14770 - 1.10222I$	0
$u = 0.523816 - 0.842586I$ $a = 0.49491 + 4.58806I$ $b = 0.513302 + 0.642122I$	$-2.14770 + 1.10222I$	0
$u = 0.555562 + 0.842147I$ $a = -5.63415 + 2.08299I$ $b = 0.371240 + 0.165548I$	$-2.14622 - 2.23521I$	0
$u = 0.555562 - 0.842147I$ $a = -5.63415 - 2.08299I$ $b = 0.371240 - 0.165548I$	$-2.14622 + 2.23521I$	0
$u = 0.586154 + 0.792966I$ $a = 1.72146 + 0.94919I$ $b = 1.028400 + 0.569460I$	$-0.64257 + 3.65096I$	0
$u = 0.586154 - 0.792966I$ $a = 1.72146 - 0.94919I$ $b = 1.028400 - 0.569460I$	$-0.64257 - 3.65096I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.420026 + 0.927286I$ $a = 2.99710 + 2.14722I$ $b = -1.042910 - 0.202388I$	$2.43266 - 1.40735I$	0
$u = 0.420026 - 0.927286I$ $a = 2.99710 - 2.14722I$ $b = -1.042910 + 0.202388I$	$2.43266 + 1.40735I$	0
$u = -0.867495 + 0.535351I$ $a = 0.858232 + 0.532125I$ $b = -0.974643 + 0.546694I$	$-5.66343 - 4.80751I$	0
$u = -0.867495 - 0.535351I$ $a = 0.858232 - 0.532125I$ $b = -0.974643 - 0.546694I$	$-5.66343 + 4.80751I$	0
$u = 0.527672 + 0.877110I$ $a = 3.63134 + 0.70902I$ $b = 0.475349 + 0.722868I$	$-2.03184 - 3.14136I$	0
$u = 0.527672 - 0.877110I$ $a = 3.63134 - 0.70902I$ $b = 0.475349 - 0.722868I$	$-2.03184 + 3.14136I$	0
$u = -0.570493 + 0.859311I$ $a = -0.816912 + 0.512172I$ $b = 1.193220 - 0.620973I$	$-3.80516 + 3.12708I$	0
$u = -0.570493 - 0.859311I$ $a = -0.816912 - 0.512172I$ $b = 1.193220 + 0.620973I$	$-3.80516 - 3.12708I$	0
$u = -0.805471 + 0.534825I$ $a = -0.459619 + 0.647350I$ $b = 0.399102 + 0.957238I$	$-2.80156 - 2.93042I$	0
$u = -0.805471 - 0.534825I$ $a = -0.459619 - 0.647350I$ $b = 0.399102 - 0.957238I$	$-2.80156 + 2.93042I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.897882+0.515328I$ $a=\ \ 0.312579-0.760968I$ $b=-0.607381-1.045900I$	$-5.02344-7.63080I$	0
$u=-0.897882-0.515328I$ $a=\ \ 0.312579+0.760968I$ $b=-0.607381+1.045900I$	$-5.02344+7.63080I$	0
$u=-0.544617+0.793755I$ $a=-1.27517+0.91926I$ $b=\ \ 0.791951+1.123120I$	$-3.20951-0.12052I$	0
$u=-0.544617-0.793755I$ $a=-1.27517-0.91926I$ $b=\ \ 0.791951-1.123120I$	$-3.20951+0.12052I$	0
$u=\ \ 0.939245+0.442594I$ $a=\ \ 0.741341+0.959246I$ $b=-0.643323+0.685004I$	$-5.01384-0.52036I$	0
$u=\ \ 0.939245-0.442594I$ $a=\ \ 0.741341-0.959246I$ $b=-0.643323-0.685004I$	$-5.01384+0.52036I$	0
$u=\ \ 0.921298+0.258898I$ $a=-0.612122+0.342593I$ $b=\ \ 0.775567+0.394484I$	$-1.60499+0.17048I$	0
$u=\ \ 0.921298-0.258898I$ $a=-0.612122-0.342593I$ $b=\ \ 0.775567-0.394484I$	$-1.60499-0.17048I$	0
$u=-0.926037+0.480444I$ $a=-0.494592-0.435788I$ $b=\ \ 1.155250-0.638410I$	$-0.45961-8.68715I$	0
$u=-0.926037-0.480444I$ $a=-0.494592+0.435788I$ $b=\ \ 1.155250+0.638410I$	$-0.45961+8.68715I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.443756 + 0.830350I$ $a = -2.01243 + 1.70574I$ $b = 0.261401 - 0.675701I$	$-1.47744 - 0.92019I$	0
$u = 0.443756 - 0.830350I$ $a = -2.01243 - 1.70574I$ $b = 0.261401 + 0.675701I$	$-1.47744 + 0.92019I$	0
$u = 0.526271 + 0.919440I$ $a = 2.00835 + 3.67470I$ $b = -1.007240 + 0.365828I$	$1.86133 - 3.37943I$	0
$u = 0.526271 - 0.919440I$ $a = 2.00835 - 3.67470I$ $b = -1.007240 - 0.365828I$	$1.86133 + 3.37943I$	0
$u = -0.567574 + 0.894548I$ $a = 0.764645 + 0.598660I$ $b = 0.621808 - 1.262870I$	$-2.87405 + 4.60153I$	0
$u = -0.567574 - 0.894548I$ $a = 0.764645 - 0.598660I$ $b = 0.621808 + 1.262870I$	$-2.87405 - 4.60153I$	0
$u = 0.515741 + 0.769892I$ $a = -1.25620 - 1.50356I$ $b = -0.901914 - 0.317542I$	$1.38659 - 0.85768I$	0
$u = 0.515741 - 0.769892I$ $a = -1.25620 + 1.50356I$ $b = -0.901914 + 0.317542I$	$1.38659 + 0.85768I$	0
$u = 0.566397 + 0.918644I$ $a = -1.35698 - 3.43726I$ $b = 1.077150 - 0.598666I$	$-0.24222 - 8.22199I$	0
$u = 0.566397 - 0.918644I$ $a = -1.35698 + 3.43726I$ $b = 1.077150 + 0.598666I$	$-0.24222 + 8.22199I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.949135 + 0.531029I$ $a = 0.523176 - 0.931856I$ $b = -0.607911 - 0.752609I$	$-4.92549 - 2.89963I$	0
$u = 0.949135 - 0.531029I$ $a = 0.523176 + 0.931856I$ $b = -0.607911 + 0.752609I$	$-4.92549 + 2.89963I$	0
$u = -0.966171 + 0.502589I$ $a = 0.379640 + 0.566707I$ $b = -1.152770 + 0.759561I$	$-3.2577 - 14.1817I$	0
$u = -0.966171 - 0.502589I$ $a = 0.379640 - 0.566707I$ $b = -1.152770 - 0.759561I$	$-3.2577 + 14.1817I$	0
$u = -0.568724 + 0.933541I$ $a = 1.070970 - 0.091178I$ $b = -0.332883 - 1.227780I$	$-0.88815 + 5.59474I$	0
$u = -0.568724 - 0.933541I$ $a = 1.070970 + 0.091178I$ $b = -0.332883 + 1.227780I$	$-0.88815 - 5.59474I$	0
$u = -0.640432 + 0.629019I$ $a = 0.124626 - 0.127664I$ $b = 1.106790 - 0.792448I$	$-2.00335 - 6.93606I$	0
$u = -0.640432 - 0.629019I$ $a = 0.124626 + 0.127664I$ $b = 1.106790 + 0.792448I$	$-2.00335 + 6.93606I$	0
$u = -0.880650 + 0.674813I$ $a = 0.120061 - 0.508459I$ $b = -0.669186 - 0.519624I$	$-6.65019 - 0.44704I$	0
$u = -0.880650 - 0.674813I$ $a = 0.120061 + 0.508459I$ $b = -0.669186 + 0.519624I$	$-6.65019 + 0.44704I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.503273 + 0.988805I$ $a = -0.645970 + 0.778771I$ $b = 0.012925 + 0.583466I$	$-0.84910 - 2.82406I$	0
$u = 0.503273 - 0.988805I$ $a = -0.645970 - 0.778771I$ $b = 0.012925 - 0.583466I$	$-0.84910 + 2.82406I$	0
$u = -0.506605 + 0.729659I$ $a = -1.176970 - 0.084622I$ $b = -0.037414 + 1.194540I$	$-1.56126 - 1.16042I$	0
$u = -0.506605 - 0.729659I$ $a = -1.176970 + 0.084622I$ $b = -0.037414 - 1.194540I$	$-1.56126 + 1.16042I$	0
$u = -0.556750 + 0.963875I$ $a = 1.81613 - 1.33143I$ $b = -1.26077 - 0.75154I$	$2.07530 + 6.01010I$	0
$u = -0.556750 - 0.963875I$ $a = 1.81613 + 1.33143I$ $b = -1.26077 + 0.75154I$	$2.07530 - 6.01010I$	0
$u = -0.041155 + 1.118680I$ $a = -0.578064 - 0.424438I$ $b = 0.049286 + 0.900920I$	$2.85912 - 1.44732I$	0
$u = -0.041155 - 1.118680I$ $a = -0.578064 + 0.424438I$ $b = 0.049286 - 0.900920I$	$2.85912 + 1.44732I$	0
$u = -0.089174 + 0.872710I$ $a = -1.91374 + 1.24914I$ $b = 1.226050 - 0.580758I$	$2.14280 - 6.67345I$	0
$u = -0.089174 - 0.872710I$ $a = -1.91374 - 1.24914I$ $b = 1.226050 + 0.580758I$	$2.14280 + 6.67345I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.791527+0.796986I$ $a=\ \ 0.290374+0.296175I$ $b=\ \ 0.565089-0.368280I$	$-6.08890-1.96052I$	0
$u=-0.791527-0.796986I$ $a=\ \ 0.290374-0.296175I$ $b=\ \ 0.565089+0.368280I$	$-6.08890+1.96052I$	0
$u=-0.248672+0.839981I$ $a=\ \ 1.78038-1.28114I$ $b=-1.315550+0.359668I$	$3.97771-0.99477I$	0
$u=-0.248672-0.839981I$ $a=\ \ 1.78038+1.28114I$ $b=-1.315550-0.359668I$	$3.97771+0.99477I$	0
$u=\ \ 0.640276+0.926105I$ $a=-0.316915+0.018862I$ $b=\ \ 0.219549+0.280103I$	$-0.60788-2.56876I$	0
$u=\ \ 0.640276-0.926105I$ $a=-0.316915-0.018862I$ $b=\ \ 0.219549-0.280103I$	$-0.60788+2.56876I$	0
$u=\ \ 1.090690+0.332375I$ $a=\ \ 0.327935-0.464455I$ $b=-0.995065-0.606465I$	$-3.92952+4.48424I$	0
$u=\ \ 1.090690-0.332375I$ $a=\ \ 0.327935+0.464455I$ $b=-0.995065+0.606465I$	$-3.92952-4.48424I$	0
$u=\ \ 0.960018+0.654883I$ $a=-0.542341-0.578508I$ $b=\ \ 0.891237-0.451061I$	$-1.21505-3.56819I$	0
$u=\ \ 0.960018-0.654883I$ $a=-0.542341+0.578508I$ $b=\ \ 0.891237+0.451061I$	$-1.21505+3.56819I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.614735+0.988958I$ $a=-1.73542+1.36678I$ $b=\ \ 1.20482+0.82034I$	$-0.93423+11.87520I$	0
$u=-0.614735-0.988958I$ $a=-1.73542-1.36678I$ $b=\ \ 1.20482-0.82034I$	$-0.93423-11.87520I$	0
$u=-0.519531+1.052460I$ $a=\ \ 1.73633-1.00520I$ $b=-1.45789+0.02040I$	$5.82999+4.34658I$	0
$u=-0.519531-1.052460I$ $a=\ \ 1.73633+1.00520I$ $b=-1.45789-0.02040I$	$5.82999-4.34658I$	0
$u=-0.254920+1.146160I$ $a=\ \ 2.05460-0.90445I$ $b=-1.288680-0.281651I$	$7.47653+2.85325I$	0
$u=-0.254920-1.146160I$ $a=\ \ 2.05460+0.90445I$ $b=-1.288680+0.281651I$	$7.47653-2.85325I$	0
$u=\ \ 0.052177+1.174100I$ $a=\ \ 2.44826+0.16287I$ $b=-0.821216+0.326395I$	$0.77318-3.15109I$	0
$u=\ \ 0.052177-1.174100I$ $a=\ \ 2.44826-0.16287I$ $b=-0.821216-0.326395I$	$0.77318+3.15109I$	0
$u=-0.735630+0.928061I$ $a=-0.329799+0.420148I$ $b=\ \ 0.577195+0.506526I$	$-5.67444+7.70604I$	0
$u=-0.735630-0.928061I$ $a=-0.329799-0.420148I$ $b=\ \ 0.577195-0.506526I$	$-5.67444-7.70604I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.466191+0.662679I$ $a=-0.256341-0.270104I$ $b=-1.008480+0.760858I$	$1.12610-1.66732I$	0
$u=-0.466191-0.662679I$ $a=-0.256341+0.270104I$ $b=-1.008480-0.760858I$	$1.12610+1.66732I$	0
$u=0.204194+0.775884I$ $a=-0.107475-0.863173I$ $b=-0.614984+0.187284I$	$1.56307-1.66544I$	0
$u=0.204194-0.775884I$ $a=-0.107475+0.863173I$ $b=-0.614984-0.187284I$	$1.56307+1.66544I$	0
$u=-0.743205+0.293413I$ $a=-0.414296+0.414264I$ $b=1.273680-0.189034I$	$3.28436-5.64107I$	0
$u=-0.743205-0.293413I$ $a=-0.414296-0.414264I$ $b=1.273680+0.189034I$	$3.28436+5.64107I$	0
$u=-0.170748+1.203340I$ $a=-2.09962+0.67220I$ $b=1.276750+0.042565I$	$8.11672-2.73587I$	0
$u=-0.170748-1.203340I$ $a=-2.09962-0.67220I$ $b=1.276750-0.042565I$	$8.11672+2.73587I$	0
$u=-0.569413+1.095080I$ $a=-1.81139+1.05047I$ $b=1.42457+0.18628I$	$5.52769+10.52010I$	0
$u=-0.569413-1.095080I$ $a=-1.81139-1.05047I$ $b=1.42457-0.18628I$	$5.52769-10.52010I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.072080 + 0.621660I$ $a = 0.423149 + 0.719322I$ $b = -1.030340 + 0.632780I$	$-3.62101 - 8.17819I$	0
$u = 1.072080 - 0.621660I$ $a = 0.423149 - 0.719322I$ $b = -1.030340 - 0.632780I$	$-3.62101 + 8.17819I$	0
$u = 0.840207 + 0.916366I$ $a = -0.268636 - 0.177104I$ $b = 0.807402 + 0.162485I$	$-0.41806 - 2.81299I$	0
$u = 0.840207 - 0.916366I$ $a = -0.268636 + 0.177104I$ $b = 0.807402 - 0.162485I$	$-0.41806 + 2.81299I$	0
$u = 0.043833 + 1.243540I$ $a = 0.731556 + 0.401121I$ $b = -0.447071 - 0.969480I$	$1.61097 - 5.54766I$	0
$u = 0.043833 - 1.243540I$ $a = 0.731556 - 0.401121I$ $b = -0.447071 + 0.969480I$	$1.61097 + 5.54766I$	0
$u = -0.655393 + 1.072350I$ $a = 0.629769 + 0.362432I$ $b = 0.356173 - 1.076340I$	$-1.18583 + 8.42374I$	0
$u = -0.655393 - 1.072350I$ $a = 0.629769 - 0.362432I$ $b = 0.356173 + 1.076340I$	$-1.18583 - 8.42374I$	0
$u = -0.743993 + 1.030390I$ $a = -0.257378 - 0.371069I$ $b = -0.580352 + 0.452643I$	$-5.55713 + 6.45135I$	0
$u = -0.743993 - 1.030390I$ $a = -0.257378 + 0.371069I$ $b = -0.580352 - 0.452643I$	$-5.55713 - 6.45135I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.678289+1.090390I$ $a=\ \ 1.96897-1.31967I$ $b=-1.052960-0.511029I$	$-3.97612+10.54010I$	0
$u=-0.678289-1.090390I$ $a=\ \ 1.96897+1.31967I$ $b=-1.052960+0.511029I$	$-3.97612-10.54010I$	0
$u=\ \ 0.722888+1.079420I$ $a=\ \ 1.71635+1.44442I$ $b=-0.660289+0.557121I$	$-3.27436-3.20135I$	0
$u=\ \ 0.722888-1.079420I$ $a=\ \ 1.71635-1.44442I$ $b=-0.660289-0.557121I$	$-3.27436+3.20135I$	0
$u=\ \ 0.005056+1.301740I$ $a=-1.93035+0.13195I$ $b=\ \ 1.161370-0.485891I$	$6.18648-6.09287I$	0
$u=\ \ 0.005056-1.301740I$ $a=-1.93035-0.13195I$ $b=\ \ 1.161370+0.485891I$	$6.18648+6.09287I$	0
$u=-0.682652+1.108700I$ $a=-0.577455-0.484277I$ $b=-0.595154+1.111130I$	$-3.21354+13.45620I$	0
$u=-0.682652-1.108700I$ $a=-0.577455+0.484277I$ $b=-0.595154-1.111130I$	$-3.21354-13.45620I$	0
$u=\ \ 0.697326$ $a=-0.709724$ $b=\ \ 0.484619$	-1.42472	-7.17280
$u=\ \ 0.475013+1.219590I$ $a=-1.43737-0.40185I$ $b=\ \ 1.002230+0.056995I$	$2.60318-4.38929I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.475013 - 1.219590I$ $a = -1.43737 + 0.40185I$ $b = \quad 1.002230 - 0.056995I$	$2.60318 + 4.38929I$	0
$u = \quad 0.332014 + 1.271120I$ $a = \quad 1.117710 + 0.326993I$ $b = -0.983568 - 0.420621I$	$1.52583 - 0.05279I$	0
$u = \quad 0.332014 - 1.271120I$ $a = \quad 1.117710 - 0.326993I$ $b = -0.983568 + 0.420621I$	$1.52583 + 0.05279I$	0
$u = -0.679432 + 1.131560I$ $a = -1.80994 + 1.29141I$ $b = \quad 1.215480 + 0.657197I$	$1.5306 + 14.5699I$	0
$u = -0.679432 - 1.131560I$ $a = -1.80994 - 1.29141I$ $b = \quad 1.215480 - 0.657197I$	$1.5306 - 14.5699I$	0
$u = -0.701275 + 1.140790I$ $a = \quad 1.75264 - 1.33487I$ $b = -1.18737 - 0.77838I$	$-1.2856 + 20.2575I$	0
$u = -0.701275 - 1.140790I$ $a = \quad 1.75264 + 1.33487I$ $b = -1.18737 + 0.77838I$	$-1.2856 - 20.2575I$	0
$u = \quad 0.708172 + 1.139180I$ $a = -0.0648661 - 0.0825119I$ $b = -0.535602 - 0.829305I$	$-2.92258 - 5.51420I$	0
$u = \quad 0.708172 - 1.139180I$ $a = -0.0648661 + 0.0825119I$ $b = -0.535602 + 0.829305I$	$-2.92258 + 5.51420I$	0
$u = \quad 0.047685 + 1.345810I$ $a = \quad 1.76874 - 0.05657I$ $b = -1.164010 + 0.662985I$	$3.85974 - 11.48810I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.047685 - 1.345810I$ $a = 1.76874 + 0.05657I$ $b = -1.164010 - 0.662985I$	$3.85974 + 11.48810I$	0
$u = 0.872691 + 1.063990I$ $a = 0.050170 + 0.183584I$ $b = -0.973914 - 0.548572I$	$-2.29363 + 1.26582I$	0
$u = 0.872691 - 1.063990I$ $a = 0.050170 - 0.183584I$ $b = -0.973914 + 0.548572I$	$-2.29363 - 1.26582I$	0
$u = 0.680256 + 1.204020I$ $a = -1.51515 - 0.95046I$ $b = 1.013460 - 0.467152I$	$1.14019 - 6.08874I$	0
$u = 0.680256 - 1.204020I$ $a = -1.51515 + 0.95046I$ $b = 1.013460 + 0.467152I$	$1.14019 + 6.08874I$	0
$u = -0.591841 + 0.148863I$ $a = 0.054230 - 0.880314I$ $b = -1.223500 - 0.025026I$	$3.62495 - 0.18798I$	$-0.484423 + 0.189420I$
$u = -0.591841 - 0.148863I$ $a = 0.054230 + 0.880314I$ $b = -1.223500 + 0.025026I$	$3.62495 + 0.18798I$	$-0.484423 - 0.189420I$
$u = 0.74149 + 1.22952I$ $a = 1.36782 + 1.02473I$ $b = -1.083240 + 0.646473I$	$-1.23497 - 11.03660I$	0
$u = 0.74149 - 1.22952I$ $a = 1.36782 - 1.02473I$ $b = -1.083240 - 0.646473I$	$-1.23497 + 11.03660I$	0
$u = 0.373876 + 0.232370I$ $a = -0.335474 + 0.827439I$ $b = 1.024840 - 0.606612I$	$-0.87217 - 6.18814I$	$-0.85758 + 6.42606I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.373876 - 0.232370I$ $a = -0.335474 - 0.827439I$ $b = 1.024840 + 0.606612I$	$-0.87217 + 6.18814I$	$-0.85758 - 6.42606I$
$u = 0.118177 + 0.393125I$ $a = -0.495643 - 1.229900I$ $b = -0.856902 + 0.439878I$	$1.42734 - 1.67105I$	$2.08270 + 3.16763I$
$u = 0.118177 - 0.393125I$ $a = -0.495643 + 1.229900I$ $b = -0.856902 - 0.439878I$	$1.42734 + 1.67105I$	$2.08270 - 3.16763I$
$u = -0.030627 + 0.311856I$ $a = -3.28350 + 0.01360I$ $b = 0.142187 + 0.803358I$	$-1.18089 - 1.44155I$	$-4.59977 + 5.03886I$
$u = -0.030627 - 0.311856I$ $a = -3.28350 - 0.01360I$ $b = 0.142187 - 0.803358I$	$-1.18089 + 1.44155I$	$-4.59977 - 5.03886I$
$u = 0.208705$ $a = -7.07164$ $b = 0.535544$	-2.39938	2.13270
$u = 0.120903 + 0.077848I$ $a = -5.02322 + 0.08248I$ $b = 0.562307 + 0.712073I$	$-2.24121 - 1.11087I$	$-4.19709 + 0.75951I$
$u = 0.120903 - 0.077848I$ $a = -5.02322 - 0.08248I$ $b = 0.562307 - 0.712073I$	$-2.24121 + 1.11087I$	$-4.19709 - 0.75951I$

II.

$\boldsymbol{I_2^u = \langle b,\ u^8+2u^7+\cdots+a+1,\ u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-u^8-2u^7-3u^6-2u^5-3u^4-2u^3-2u^2-1\\0\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-u^8-2u^7-3u^6-2u^5-3u^4-2u^3-2u^2-1\\0\end{pmatrix}$$

$$a_6 = \begin{pmatrix}u^2+1\\u^4\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-u^7-2u^5-2u^3-2u\\u^8+u^7+u^6+2u^5+u^4+2u^3+2u-1\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}u^7+2u^5+2u^3+2u\\-u^8-u^7-u^6-2u^5-u^4-2u^3-2u+1\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-u^8-3u^7-3u^6-4u^5-3u^4-4u^3-2u^2-2u-1\\u^8+u^7+u^6+2u^5+u^4+2u^3+2u-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^8-9u^7-12u^6-13u^5-15u^4-15u^3-8u^2-5u-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_7	u^9
c_4	$(u+1)^9$
c_5, c_9	$u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1$
c_6, c_{10}	$u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1$
c_8	$u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1$
c_{11}	$u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1$
c_{12}	$u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_7	y^9
c_5, c_9	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_6, c_{10}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_8, c_{11}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_{12}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = 0.939568 + 0.981640I$ $b = 0$	$0.13850 - 2.09337I$	$-3.38047 + 2.85927I$
$u = 0.140343 - 0.966856I$ $a = 0.939568 - 0.981640I$ $b = 0$	$0.13850 + 2.09337I$	$-3.38047 - 2.85927I$
$u = 0.628449 + 0.875112I$ $a = -2.26219 + 2.13290I$ $b = 0$	$-2.26187 - 2.45442I$	$-6.9022 + 12.4598I$
$u = 0.628449 - 0.875112I$ $a = -2.26219 - 2.13290I$ $b = 0$	$-2.26187 + 2.45442I$	$-6.9022 - 12.4598I$
$u = -0.796005 + 0.733148I$ $a = -0.119081 + 0.409451I$ $b = 0$	$-6.01628 - 1.33617I$	$-6.48878 - 2.15019I$
$u = -0.796005 - 0.733148I$ $a = -0.119081 - 0.409451I$ $b = 0$	$-6.01628 + 1.33617I$	$-6.48878 + 2.15019I$
$u = -0.728966 + 0.986295I$ $a = 0.016164 - 0.378317I$ $b = 0$	$-5.24306 + 7.08493I$	$-2.48514 - 6.49599I$
$u = -0.728966 - 0.986295I$ $a = 0.016164 + 0.378317I$ $b = 0$	$-5.24306 - 7.08493I$	$-2.48514 + 6.49599I$
$u = 0.512358$ $a = -2.14893$ $b = 0$	-2.84338	-17.4870

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{138}+70u^{137}+\cdots-82u+1)$
c_2	$((u-1)^9)(u^{138}-10u^{137}+\cdots+14u-1)$
c_3, c_7	$u^9(u^{138}-u^{137}+\cdots+4096u+512)$
c_4	$((u+1)^9)(u^{138}-10u^{137}+\cdots+14u-1)$
c_5	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{138}+2u^{137}+\cdots-2626u-97)$
c_6	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{138}+6u^{137}+\cdots-67104u-2117)$
c_8	$(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{138}-2u^{137}+\cdots+14u+1)$
c_9	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{138}-14u^{137}+\cdots-2u+1)$
c_{10}	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{138}-54u^{137}+\cdots+14u+1)$
c_{11}	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{138}-2u^{137}+\cdots+14u+1)$
c_{12}	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{138}-10u^{137}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{138}+6y^{137}+\cdots-5018y+1)$
c_2, c_4	$((y-1)^9)(y^{138}-70y^{137}+\cdots+82y+1)$
c_3, c_7	$y^9(y^{138}-57y^{137}+\cdots-8912896y+262144)$
c_5	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{138}-166y^{137}+\cdots+9748742y+9409)$
c_6	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{138}-118y^{137}+\cdots-1356064422y+4481689)$
c_8, c_{11}	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{138}+54y^{137}+\cdots-14y+1)$
c_9	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{138}-10y^{137}+\cdots-14y+1)$
c_{10}	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{138}+62y^{137}+\cdots+2378y+1)$
c_{12}	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{138}-14y^{137}+\cdots-10y+1)$