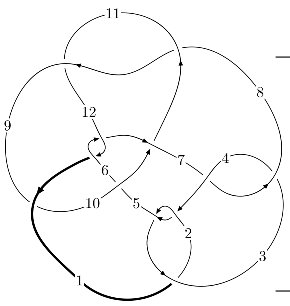
$12a_{0102}$ ($K12a_{0102}$)



A knot diagram[1]

Linearized knot diagam

$\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow\downarrow\rightarrow$

3 5 8 2 10 12 4 11 1 7 9 6

Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & -2.86118 \times 10^{608} u^{128} - 9.03918 \times 10^{608} u^{127} + \cdots + 3.04756 \times 10^{609} b - 2.75259 \times 10^{610}, \\
& 2.19044 \times 10^{608} u^{128} + 9.28924 \times 10^{608} u^{127} + \cdots + 4.57134 \times 10^{609} a - 5.57993 \times 10^{610}, \\
& u^{129} + 4u^{128} + \cdots + 810u + 81 \rangle \\
I^u_2 = \langle & b,\ u^7 + 2u^6 - 2u^5 - 4u^4 + 2u^3 + 2u^2 + a + 2,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1 \rangle \\
I^u_3 = \langle & 2b - 3a - 2,\ 9a^2 + 6a - 4,\ u - 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 139 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. $\boldsymbol{I_1^u = \langle -2.86 \times 10^{608} u^{128} - 9.04 \times 10^{608} u^{127} + \cdots + 3.05 \times 10^{609} b - 2.75 \times 10^{610},\ 2.19 \times 10^{608} u^{128} + 9.29 \times 10^{608} u^{127} + \cdots + 4.57 \times 10^{609} a - 5.58 \times 10^{610},\ u^{129} + 4u^{128} + \cdots + 810u + 81 \rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0479167u^{128} - 0.203206u^{127} + \cdots + 38.5131u + 12.2063 \\ 0.0938842u^{128} + 0.296604u^{127} + \cdots + 73.2334u + 9.03212 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.0459675u^{128} + 0.0933979u^{127} + \cdots + 111.746u + 21.2385 \\ 0.0938842u^{128} + 0.296604u^{127} + \cdots + 73.2334u + 9.03212 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0705351u^{128} - 0.229615u^{127} + \cdots - 22.0216u - 8.44795 \\ -0.174404u^{128} - 0.559025u^{127} + \cdots - 129.629u - 14.8100 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.217094u^{128} - 0.708408u^{127} + \cdots - 147.263u - 22.5766 \\ -0.108675u^{128} - 0.354830u^{127} + \cdots - 79.5453u - 9.38430 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0402884u^{128} + 0.0431499u^{127} + \cdots - 3.07411u - 5.90774 \\ 0.0971169u^{128} + 0.306541u^{127} + \cdots + 72.8538u + 7.09885 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0935044u^{128} + 0.442842u^{127} + \cdots + 39.1713u + 9.65066 \\ 0.00292730u^{128} + 0.0528804u^{127} + \cdots - 21.8667u - 0.921416 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.129678u^{128} - 0.378848u^{127} + \cdots - 146.629u - 20.5705 \\ -0.0423601u^{128} - 0.133841u^{127} + \cdots - 42.7148u - 5.05621 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.124068u^{128} - 0.463817u^{127} + \cdots - 29.7332u + 0.392563 \\ 0.0423601u^{128} + 0.133841u^{127} + \cdots + 42.7148u + 5.05621 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.612839u^{128} - 1.98956u^{127} + \cdots - 336.700u - 48.6406$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{129} + 68u^{128} + \cdots + 31u + 1$
c_2, c_4	$u^{129} - 10u^{128} + \cdots + 5u - 1$
c_3, c_7	$u^{129} + 2u^{128} + \cdots + 896u + 256$
c_5	$u^{129} - 2u^{128} + \cdots - 5940u + 324$
c_6, c_{12}	$u^{129} - 3u^{128} + \cdots + 3u - 1$
c_8, c_{11}	$u^{129} - 4u^{128} + \cdots + 810u - 81$
c_9	$9(9u^{129} - 111u^{128} + \cdots + 5137u - 257)$
c_{10}	$9(9u^{129} - 72u^{128} + \cdots - 1416882u + 58007)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{129} - 4y^{128} + \cdots + 1563y - 1$
c_2, c_4	$y^{129} - 68y^{128} + \cdots + 31y - 1$
c_3, c_7	$y^{129} + 48y^{128} + \cdots - 933888y - 65536$
c_5	$y^{129} + 12y^{128} + \cdots + 12906216y - 104976$
c_6, c_{12}	$y^{129} + 69y^{128} + \cdots + 31y - 1$
c_8, c_{11}	$y^{129} - 82y^{128} + \cdots + 92178y - 6561$
c_9	$81(81y^{129} + 1953y^{128} + \cdots - 1315317y - 66049)$
c_{10}	$81(81y^{129} - 1926y^{128} + \cdots + 4.58236 \times 10^{11}y - 3.36481 \times 10^{9})$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00492$ $a = -0.404669$ $b = -1.60820$	-10.5373	0
$u = 0.982713 + 0.038300I$ $a = 5.27556 - 1.67776I$ $b = -0.733347 - 0.404998I$	$-1.87304 + 0.83221I$	0
$u = 0.982713 - 0.038300I$ $a = 5.27556 + 1.67776I$ $b = -0.733347 + 0.404998I$	$-1.87304 - 0.83221I$	0
$u = 0.674124 + 0.761026I$ $a = 0.482223 - 0.849940I$ $b = -0.501622 + 0.961337I$	$-1.85468 + 3.08743I$	0
$u = 0.674124 - 0.761026I$ $a = 0.482223 + 0.849940I$ $b = -0.501622 - 0.961337I$	$-1.85468 - 3.08743I$	0
$u = 0.980966 + 0.046013I$ $a = -7.16952 + 1.70964I$ $b = -0.582621 - 1.073900I$	$0.04635 - 5.79605I$	0
$u = 0.980966 - 0.046013I$ $a = -7.16952 - 1.70964I$ $b = -0.582621 + 1.073900I$	$0.04635 + 5.79605I$	0
$u = -0.982919 + 0.278211I$ $a = 0.265666 - 1.252800I$ $b = 0.310620 + 1.117390I$	$-1.93394 + 3.59448I$	0
$u = -0.982919 - 0.278211I$ $a = 0.265666 + 1.252800I$ $b = 0.310620 - 1.117390I$	$-1.93394 - 3.59448I$	0
$u = -0.166599 + 0.952197I$ $a = -0.018311 - 0.731128I$ $b = -0.817315 + 0.177510I$	$3.03000 - 2.69910I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.166599 - 0.952197I$ $a = -0.018311 + 0.731128I$ $b = -0.817315 - 0.177510I$	$3.03000 + 2.69910I$	0
$u = -1.006390 + 0.296562I$ $a = 1.261000 + 0.568644I$ $b = 0.831125 - 1.109170I$	$0.78134 + 8.18503I$	0
$u = -1.006390 - 0.296562I$ $a = 1.261000 - 0.568644I$ $b = 0.831125 + 1.109170I$	$0.78134 - 8.18503I$	0
$u = 0.908132 + 0.527773I$ $a = -0.630407 + 0.914742I$ $b = 0.108140 - 0.878237I$	$-0.309030 - 0.975544I$	0
$u = 0.908132 - 0.527773I$ $a = -0.630407 - 0.914742I$ $b = 0.108140 + 0.878237I$	$-0.309030 + 0.975544I$	0
$u = 0.885045 + 0.329182I$ $a = -0.453167 + 1.264950I$ $b = 0.666855 - 0.083688I$	$-1.00084 - 1.88868I$	0
$u = 0.885045 - 0.329182I$ $a = -0.453167 - 1.264950I$ $b = 0.666855 + 0.083688I$	$-1.00084 + 1.88868I$	0
$u = -0.581569 + 0.883135I$ $a = -1.01069 - 1.39213I$ $b = -0.191368 + 1.227640I$	$7.90256 + 0.75255I$	0
$u = -0.581569 - 0.883135I$ $a = -1.01069 + 1.39213I$ $b = -0.191368 - 1.227640I$	$7.90256 - 0.75255I$	0
$u = 0.132248 + 0.913123I$ $a = 0.09390 + 1.52207I$ $b = -0.659661 - 1.130090I$	$-0.14095 - 8.90764I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.132248 - 0.913123I$ $a = 0.09390 - 1.52207I$ $b = -0.659661 + 1.130090I$	$-0.14095 + 8.90764I$	0
$u = 0.920644 + 0.020580I$ $a = 4.93732 - 3.68809I$ $b = 0.354878 + 1.013590I$	$2.08506 - 0.96748I$	0
$u = 0.920644 - 0.020580I$ $a = 4.93732 + 3.68809I$ $b = 0.354878 - 1.013590I$	$2.08506 + 0.96748I$	0
$u = 1.066750 + 0.166485I$ $a = -1.34067 - 4.93839I$ $b = -0.193008 + 0.474455I$	$-2.43184 - 0.84245I$	0
$u = 1.066750 - 0.166485I$ $a = -1.34067 + 4.93839I$ $b = -0.193008 - 0.474455I$	$-2.43184 + 0.84245I$	0
$u = 0.917822$ $a = -2.96550$ $b = -0.414891$	-2.95218	0
$u = -0.774867 + 0.469488I$ $a = 0.813798 + 1.050750I$ $b = 0.302427 - 1.316010I$	$3.08304 + 4.83288I$	0
$u = -0.774867 - 0.469488I$ $a = 0.813798 - 1.050750I$ $b = 0.302427 + 1.316010I$	$3.08304 - 4.83288I$	0
$u = -0.871944 + 0.220956I$ $a = 0.536470 + 0.195240I$ $b = 1.189990 - 0.367385I$	$-0.722498 + 0.774565I$	0
$u = -0.871944 - 0.220956I$ $a = 0.536470 - 0.195240I$ $b = 1.189990 + 0.367385I$	$-0.722498 - 0.774565I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.033700 + 0.387184I$ $a = -0.311301 - 0.258206I$ $b = -1.115560 + 0.163228I$	$0.43091 + 5.89606I$	0
$u = -1.033700 - 0.387184I$ $a = -0.311301 + 0.258206I$ $b = -1.115560 - 0.163228I$	$0.43091 - 5.89606I$	0
$u = -0.077905 + 1.109910I$ $a = 0.29674 - 1.80543I$ $b = 0.451396 + 0.833928I$	$0.59629 - 4.24180I$	0
$u = -0.077905 - 1.109910I$ $a = 0.29674 + 1.80543I$ $b = 0.451396 - 0.833928I$	$0.59629 + 4.24180I$	0
$u = -0.823127 + 0.326176I$ $a = -1.47652 - 0.55961I$ $b = -0.731170 + 1.053620I$	$3.98035 + 2.83956I$	0
$u = -0.823127 - 0.326176I$ $a = -1.47652 + 0.55961I$ $b = -0.731170 - 1.053620I$	$3.98035 - 2.83956I$	0
$u = -0.471399 + 1.033790I$ $a = 0.67505 + 1.49811I$ $b = -0.043017 - 1.232660I$	$8.20160 - 4.60896I$	0
$u = -0.471399 - 1.033790I$ $a = 0.67505 - 1.49811I$ $b = -0.043017 + 1.232660I$	$8.20160 + 4.60896I$	0
$u = 0.650578 + 0.952456I$ $a = -0.127306 - 1.175360I$ $b = 0.025470 + 0.914503I$	$1.88599 - 4.20801I$	0
$u = 0.650578 - 0.952456I$ $a = -0.127306 + 1.175360I$ $b = 0.025470 - 0.914503I$	$1.88599 + 4.20801I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.006630 + 0.591665I$ $a = 0.411815 + 1.236560I$ $b = 0.000328 - 1.373620I$	$6.49374 + 4.63447I$	0
$u = -1.006630 - 0.591665I$ $a = 0.411815 - 1.236560I$ $b = 0.000328 + 1.373620I$	$6.49374 - 4.63447I$	0
$u = -1.148220 + 0.275689I$ $a = 0.262420 + 0.214400I$ $b = 1.081100 + 0.460110I$	$-3.92344 + 1.90005I$	0
$u = -1.148220 - 0.275689I$ $a = 0.262420 - 0.214400I$ $b = 1.081100 - 0.460110I$	$-3.92344 - 1.90005I$	0
$u = -0.120985 + 1.198530I$ $a = 0.050366 + 0.707725I$ $b = 0.963931 - 0.522551I$	$1.25794 - 6.76486I$	0
$u = -0.120985 - 1.198530I$ $a = 0.050366 - 0.707725I$ $b = 0.963931 + 0.522551I$	$1.25794 + 6.76486I$	0
$u = 0.035020 + 0.793581I$ $a = -0.28499 - 1.65893I$ $b = 0.476647 + 1.106970I$	$2.20983 - 3.68482I$	0
$u = 0.035020 - 0.793581I$ $a = -0.28499 + 1.65893I$ $b = 0.476647 - 1.106970I$	$2.20983 + 3.68482I$	0
$u = 0.305578 + 1.195660I$ $a = 0.069210 + 0.803414I$ $b = 0.461373 - 0.896592I$	$0.818942 - 0.469421I$	0
$u = 0.305578 - 1.195660I$ $a = 0.069210 - 0.803414I$ $b = 0.461373 + 0.896592I$	$0.818942 + 0.469421I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.741171+0.116138I$ $a=1.154160+0.448603I$ $b=0.919315+0.803419I$	$-0.19016+1.46770I$	0
$u=-0.741171-0.116138I$ $a=1.154160-0.448603I$ $b=0.919315-0.803419I$	$-0.19016-1.46770I$	0
$u=-1.223360+0.324904I$ $a=-1.02985-1.24609I$ $b=-0.575630+1.056400I$	$-6.90472+4.00909I$	0
$u=-1.223360-0.324904I$ $a=-1.02985+1.24609I$ $b=-0.575630-1.056400I$	$-6.90472-4.00909I$	0
$u=-0.645586+0.327104I$ $a=0.002597+0.672417I$ $b=-0.433681-1.273930I$	$4.44411+0.29904I$	0
$u=-0.645586-0.327104I$ $a=0.002597-0.672417I$ $b=-0.433681+1.273930I$	$4.44411-0.29904I$	0
$u=-1.115520+0.638791I$ $a=-0.59914-1.29559I$ $b=-0.204658+1.363680I$	$6.10627+10.54450I$	0
$u=-1.115520-0.638791I$ $a=-0.59914+1.29559I$ $b=-0.204658-1.363680I$	$6.10627-10.54450I$	0
$u=-0.202225+1.270620I$ $a=0.006206+1.393810I$ $b=-0.538338-1.124520I$	$5.71587-7.50058I$	0
$u=-0.202225-1.270620I$ $a=0.006206-1.393810I$ $b=-0.538338+1.124520I$	$5.71587+7.50058I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.244720 + 0.377582I$ $a = -0.198296 - 0.258470I$ $b = -1.099790 - 0.642821I$	$-6.23959 + 6.98143I$	0
$u = -1.244720 - 0.377582I$ $a = -0.198296 + 0.258470I$ $b = -1.099790 + 0.642821I$	$-6.23959 - 6.98143I$	0
$u = -0.456656 + 0.528841I$ $a = -0.91557 - 1.20900I$ $b = -0.084954 + 1.241910I$	$3.87976 - 0.76203I$	$-12.00000 + 0.I$
$u = -0.456656 - 0.528841I$ $a = -0.91557 + 1.20900I$ $b = -0.084954 - 1.241910I$	$3.87976 + 0.76203I$	$-12.00000 + 0.I$
$u = 1.245550 + 0.412422I$ $a = -0.098639 + 0.388820I$ $b = 0.313701 - 0.441055I$	$-1.13956 - 1.32806I$	0
$u = 1.245550 - 0.412422I$ $a = -0.098639 - 0.388820I$ $b = 0.313701 + 0.441055I$	$-1.13956 + 1.32806I$	0
$u = 0.162155 + 0.668260I$ $a = 0.248964 - 1.032650I$ $b = -0.899239 + 0.478152I$	$-2.15161 - 3.15660I$	$-12.00000 + 4.91890I$
$u = 0.162155 - 0.668260I$ $a = 0.248964 + 1.032650I$ $b = -0.899239 - 0.478152I$	$-2.15161 + 3.15660I$	$-12.00000 - 4.91890I$
$u = -1.247090 + 0.447609I$ $a = 1.02369 + 1.07188I$ $b = 0.690131 - 1.183640I$	$-1.58958 + 8.19357I$	0
$u = -1.247090 - 0.447609I$ $a = 1.02369 - 1.07188I$ $b = 0.690131 + 1.183640I$	$-1.58958 - 8.19357I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.328620 + 0.228438I$ $a = 0.175289 - 0.056402I$ $b = 0.408056 - 0.524170I$	$-4.20368 + 6.98905I$	0
$u = -1.328620 - 0.228438I$ $a = 0.175289 + 0.056402I$ $b = 0.408056 + 0.524170I$	$-4.20368 - 6.98905I$	0
$u = -0.148084 + 1.360490I$ $a = 0.085023 - 1.239770I$ $b = 0.693994 + 1.139140I$	$3.20116 - 12.82290I$	0
$u = -0.148084 - 1.360490I$ $a = 0.085023 + 1.239770I$ $b = 0.693994 - 1.139140I$	$3.20116 + 12.82290I$	0
$u = -1.266620 + 0.539126I$ $a = -0.083766 - 0.279793I$ $b = -1.021900 - 0.393108I$	$-0.41432 + 8.09825I$	0
$u = -1.266620 - 0.539126I$ $a = -0.083766 + 0.279793I$ $b = -1.021900 + 0.393108I$	$-0.41432 - 8.09825I$	0
$u = 0.622098 + 0.035393I$ $a = 2.69169 + 2.64059I$ $b = -0.161584 - 1.002220I$	$2.76309 - 0.92048I$	$-8.26635 + 0.35450I$
$u = 0.622098 - 0.035393I$ $a = 2.69169 - 2.64059I$ $b = -0.161584 + 1.002220I$	$2.76309 + 0.92048I$	$-8.26635 - 0.35450I$
$u = 1.329090 + 0.374778I$ $a = -0.977806 + 0.776270I$ $b = -0.452221 - 0.908343I$	$-1.30643 - 1.95102I$	0
$u = 1.329090 - 0.374778I$ $a = -0.977806 - 0.776270I$ $b = -0.452221 + 0.908343I$	$-1.30643 + 1.95102I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.387680+0.119134I$ $a=-0.099333-0.135998I$ $b=-0.505843-0.549552I$	$-8.55610-0.51653I$	0
$u=-1.387680-0.119134I$ $a=-0.099333+0.135998I$ $b=-0.505843+0.549552I$	$-8.55610+0.51653I$	0
$u=-1.319300+0.462663I$ $a=-1.08523-1.01255I$ $b=-0.793606+1.164820I$	$-4.5214+13.8088I$	0
$u=-1.319300-0.462663I$ $a=-1.08523+1.01255I$ $b=-0.793606-1.164820I$	$-4.5214-13.8088I$	0
$u=-0.175980+0.573284I$ $a=\ \ 0.291343-1.153700I$ $b=-0.665378-0.313323I$	$2.70854-2.21222I$	$-6.37990+3.42963I$
$u=-0.175980-0.573284I$ $a=\ \ 0.291343+1.153700I$ $b=-0.665378+0.313323I$	$2.70854+2.21222I$	$-6.37990-3.42963I$
$u=\ \ 1.40369+0.22869I$ $a=\ \ 0.870467+0.145286I$ $b=\ \ 0.748745-0.603153I$	$-5.03711-1.30340I$	0
$u=\ \ 1.40369-0.22869I$ $a=\ \ 0.870467-0.145286I$ $b=\ \ 0.748745+0.603153I$	$-5.03711+1.30340I$	0
$u=\ \ 0.262924+0.514147I$ $a=-0.18352+2.49956I$ $b=-0.426177-0.694272I$	$-2.75849-0.86457I$	$-15.0728+5.8151I$
$u=\ \ 0.262924-0.514147I$ $a=-0.18352-2.49956I$ $b=-0.426177+0.694272I$	$-2.75849+0.86457I$	$-15.0728-5.8151I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.31936 + 0.56356I$ $a = 1.09944 + 1.48135I$ $b = 0.541886 - 1.019480I$	$-3.27476 + 10.10590I$	0
$u = -1.31936 - 0.56356I$ $a = 1.09944 - 1.48135I$ $b = 0.541886 + 1.019480I$	$-3.27476 - 10.10590I$	0
$u = 1.38519 + 0.38670I$ $a = -0.114390 + 0.347369I$ $b = 0.194051 - 0.668016I$	$-1.14181 - 1.35551I$	0
$u = 1.38519 - 0.38670I$ $a = -0.114390 - 0.347369I$ $b = 0.194051 + 0.668016I$	$-1.14181 + 1.35551I$	0
$u = 1.27027 + 0.69953I$ $a = -1.09179 + 1.51519I$ $b = -0.619424 - 0.699430I$	$-4.15839 - 2.13695I$	0
$u = 1.27027 - 0.69953I$ $a = -1.09179 - 1.51519I$ $b = -0.619424 + 0.699430I$	$-4.15839 + 2.13695I$	0
$u = 1.45060 + 0.13256I$ $a = 1.30633 - 0.70431I$ $b = 0.693163 + 0.634356I$	$-5.11123 + 1.06296I$	0
$u = 1.45060 - 0.13256I$ $a = 1.30633 + 0.70431I$ $b = 0.693163 - 0.634356I$	$-5.11123 - 1.06296I$	0
$u = -1.40013 + 0.41804I$ $a = -0.011171 + 0.196830I$ $b = 0.515312 + 0.615281I$	$-4.58140 + 5.74757I$	0
$u = -1.40013 - 0.41804I$ $a = -0.011171 - 0.196830I$ $b = 0.515312 - 0.615281I$	$-4.58140 - 5.74757I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.33619 + 0.59635I$ $a = 0.035391 + 0.302029I$ $b = 1.081690 + 0.612879I$	$-2.58803 + 12.99720I$	0
$u = -1.33619 - 0.59635I$ $a = 0.035391 - 0.302029I$ $b = 1.081690 - 0.612879I$	$-2.58803 - 12.99720I$	0
$u = 1.23165 + 0.79659I$ $a = -0.164890 - 0.296273I$ $b = -0.828826 + 0.592006I$	$-3.89027 - 4.57234I$	0
$u = 1.23165 - 0.79659I$ $a = -0.164890 + 0.296273I$ $b = -0.828826 - 0.592006I$	$-3.89027 + 4.57234I$	0
$u = 1.15795 + 0.91147I$ $a = 0.60365 - 1.33882I$ $b = 0.513844 + 0.972227I$	$0.08922 - 5.31573I$	0
$u = 1.15795 - 0.91147I$ $a = 0.60365 + 1.33882I$ $b = 0.513844 - 0.972227I$	$0.08922 + 5.31573I$	0
$u = -1.34044 + 0.64173I$ $a = -1.04124 - 1.26118I$ $b = -0.659884 + 1.184340I$	$2.0610 + 14.1160I$	0
$u = -1.34044 - 0.64173I$ $a = -1.04124 + 1.26118I$ $b = -0.659884 - 1.184340I$	$2.0610 - 14.1160I$	0
$u = -0.392930 + 0.316930I$ $a = -0.258243 - 0.154711I$ $b = 0.601075 + 1.204190I$	$2.43301 - 5.31759I$	$-7.07742 + 1.86035I$
$u = -0.392930 - 0.316930I$ $a = -0.258243 + 0.154711I$ $b = 0.601075 - 1.204190I$	$2.43301 + 5.31759I$	$-7.07742 - 1.86035I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.51286 + 0.02516I$ $a = -0.483067 + 0.335421I$ $b = -0.423058 - 0.813762I$	$-1.62544 - 1.74532I$	0
$u = 1.51286 - 0.02516I$ $a = -0.483067 - 0.335421I$ $b = -0.423058 + 0.813762I$	$-1.62544 + 1.74532I$	0
$u = -1.38800 + 0.64909I$ $a = 1.11088 + 1.18127I$ $b = 0.776955 - 1.167520I$	$-0.7851 + 19.7119I$	0
$u = -1.38800 - 0.64909I$ $a = 1.11088 - 1.18127I$ $b = 0.776955 + 1.167520I$	$-0.7851 - 19.7119I$	0
$u = 1.48468 + 0.41784I$ $a = 0.982445 - 0.628255I$ $b = 0.637709 + 1.032430I$	$-3.72158 - 6.59471I$	0
$u = 1.48468 - 0.41784I$ $a = 0.982445 + 0.628255I$ $b = 0.637709 - 1.032430I$	$-3.72158 + 6.59471I$	0
$u = 1.28130 + 0.98074I$ $a = -0.691242 + 1.149970I$ $b = -0.666782 - 1.057980I$	$-2.44628 - 10.17080I$	0
$u = 1.28130 - 0.98074I$ $a = -0.691242 - 1.149970I$ $b = -0.666782 + 1.057980I$	$-2.44628 + 10.17080I$	0
$u = 0.350067 + 0.094915I$ $a = -2.84369 + 3.18211I$ $b = 0.494219 - 1.032940I$	$1.26936 + 5.44661I$	$-9.63617 - 6.98566I$
$u = 0.350067 - 0.094915I$ $a = -2.84369 - 3.18211I$ $b = 0.494219 + 1.032940I$	$1.26936 - 5.44661I$	$-9.63617 + 6.98566I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.65304 + 0.08274I$ $a = 0.505877 + 0.143652I$ $b = 0.616968 - 0.997278I$	$-4.00569 + 6.12775I$	0
$u = 1.65304 - 0.08274I$ $a = 0.505877 - 0.143652I$ $b = 0.616968 + 0.997278I$	$-4.00569 - 6.12775I$	0
$u = 1.51841 + 0.66229I$ $a = 0.021514 - 0.214805I$ $b = -0.586562 + 0.959572I$	$-3.34466 + 2.62448I$	0
$u = 1.51841 - 0.66229I$ $a = 0.021514 + 0.214805I$ $b = -0.586562 - 0.959572I$	$-3.34466 - 2.62448I$	0
$u = 0.264288$ $a = -1.49188$ $b = 0.395152$	-0.675214	-14.6290
$u = -0.075513 + 0.203086I$ $a = 0.44466 + 2.46621I$ $b = 0.736606 + 0.101583I$	$-0.839116 + 0.254597I$	$-10.56987 + 0.84875I$
$u = -0.075513 - 0.203086I$ $a = 0.44466 - 2.46621I$ $b = 0.736606 - 0.101583I$	$-0.839116 - 0.254597I$	$-10.56987 - 0.84875I$
$u = -0.130513 + 0.154925I$ $a = 6.57809 + 1.35839I$ $b = 0.628497 - 0.648119I$	$-0.107532 - 1.168680I$	$-10.33746 - 0.59013I$
$u = -0.130513 - 0.154925I$ $a = 6.57809 - 1.35839I$ $b = 0.628497 + 0.648119I$	$-0.107532 + 1.168680I$	$-10.33746 + 0.59013I$

II.

$$\boldsymbol{I^u_2 = \langle b,\ u^7+2u^6-2u^5-4u^4+2u^3+2u^2+a+2,\ u^8+u^7-3u^6-2u^5+3u^4+2u-1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^7 + u^6 + u^5 + 2u^4 - 5u^3 - 4u^2 + 3u - 14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^8$
c_3, c_7	y^8
c_5, c_9	$y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1$
c_6, c_{12}	$y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1$
c_8, c_{10}, c_{11}	$y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = -1.21928 - 2.03110I$ $b = 0$	$-2.68559 - 1.13123I$	$-18.1377 + 5.3065I$
$u = 1.180120 - 0.268597I$ $a = -1.21928 + 2.03110I$ $b = 0$	$-2.68559 + 1.13123I$	$-18.1377 - 5.3065I$
$u = 0.108090 + 0.747508I$ $a = 1.230330 - 0.083902I$ $b = 0$	$0.51448 - 2.57849I$	$-10.11893 + 3.45077I$
$u = 0.108090 - 0.747508I$ $a = 1.230330 + 0.083902I$ $b = 0$	$0.51448 + 2.57849I$	$-10.11893 - 3.45077I$
$u = -1.37100$ $a = -0.337834$ $b = 0$	-8.14766	-12.9880
$u = -1.334530 + 0.318930I$ $a = 0.370895 - 0.073482I$ $b = 0$	$-4.02461 + 6.44354I$	$-10.82984 - 2.68172I$
$u = -1.334530 - 0.318930I$ $a = 0.370895 + 0.073482I$ $b = 0$	$-4.02461 - 6.44354I$	$-10.82984 + 2.68172I$
$u = 0.463640$ $a = -2.42604$ $b = 0$	-2.48997	-13.8390

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

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}a\\\frac{3}{2}a+1\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_3 = \begin{pmatrix}\frac{5}{2}a+1\\\frac{3}{2}a+1\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.333333\\-\frac{3}{2}a-2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-\frac{3}{2}a-\frac{5}{3}\\-\frac{3}{2}a-2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-4a-\frac{16}{3}\\-\frac{9}{2}a-5\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.111111\\-\frac{1}{2}a+\frac{1}{3}\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-\frac{3}{2}a-\frac{5}{3}\\-\frac{3}{2}a-2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-1.66667\\-\frac{3}{2}a-2\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 280a + \frac{2605}{9}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_{12}	$y^2 - 7y + 1$
c_2, c_3, c_4 c_7	$y^2 - 3y + 1$
c_5	y^2
c_8, c_{11}	$(y-1)^2$
c_9	$81(81y^2 - 63y + 1)$
c_{10}	$81(9y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.07869$ $b = -0.618034$	-2.63189	-12.5890
$u = 1.00000$ $a = 0.412023$ $b = 1.61803$	-10.5276	404.810

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^2-3u+1)(u^{129}+68u^{128}+\cdots+31u+1)$
c_2	$((u-1)^8)(u^2+u-1)(u^{129}-10u^{128}+\cdots+5u-1)$
c_3	$u^8(u^2+u-1)(u^{129}+2u^{128}+\cdots+896u+256)$
c_4	$((u+1)^8)(u^2-u-1)(u^{129}-10u^{128}+\cdots+5u-1)$
c_5	$u^2(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{129}-2u^{128}+\cdots-5940u+324)$
c_6	$(u^2+3u+1)(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{129}-3u^{128}+\cdots+3u-1)$
c_7	$u^8(u^2-u-1)(u^{129}+2u^{128}+\cdots+896u+256)$
c_8	$(u-1)^2(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{129}-4u^{128}+\cdots+810u-81)$
c_9	$81(9u^2-9u+1)(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(9u^{129}-111u^{128}+\cdots+5137u-257)$
c_{10}	$81(3u+1)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(9u^{129}-72u^{128}+\cdots-1416882u+58007)$
c_{11}	$(u+1)^2(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(u^{129}-4u^{128}+\cdots+810u-81)$
c_{12}	$(u^2-3u+1)(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{129}-3u^{128}+\cdots+3u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^2-7y+1)(y^{129}-4y^{128}+\cdots+1563y-1)$
c_2, c_4	$((y-1)^8)(y^2-3y+1)(y^{129}-68y^{128}+\cdots+31y-1)$
c_3, c_7	$y^8(y^2-3y+1)(y^{129}+48y^{128}+\cdots-933888y-65536)$
c_5	$y^2(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{129}+12y^{128}+\cdots+12906216y-104976)$
c_6, c_{12}	$(y^2-7y+1)(y^8+5y^7+\cdots-4y+1)$ $\cdot(y^{129}+69y^{128}+\cdots+31y-1)$
c_8, c_{11}	$(y-1)^2(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{129}-82y^{128}+\cdots+92178y-6561)$
c_9	$6561(81y^2-63y+1)$ $\cdot(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(81y^{129}+1953y^{128}+\cdots-1315317y-66049)$
c_{10}	$6561(9y-1)^2(y^8-7y^7+\cdots-4y+1)$ $\cdot(81y^{129}-1926y^{128}+\cdots+458235777734y-3364812049)$