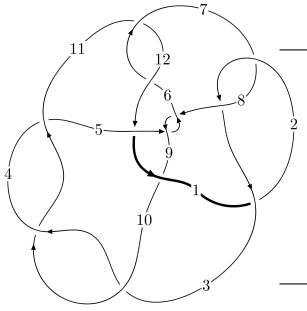
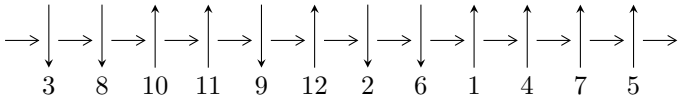
$12a_{0756}$ $(K12a_{0756})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.63385 \times 10^{330} u^{124} - 1.41764 \times 10^{330} u^{123} + \cdots + 1.29035 \times 10^{328} b + 9.70787 \times 10^{330},$$
$$6.48012 \times 10^{331} u^{124} + 5.24624 \times 10^{331} u^{123} + \cdots + 1.29035 \times 10^{328} a - 3.36479 \times 10^{332},\ u^{125} + u^{124} + \cdots - 3 \rangle$$
$$I_2^u = \langle 469u^{31} - 142u^{30} + \cdots + 293b + 474,\ -1355u^{31} + 717u^{30} + \cdots + 293a - 2414,$$
$$u^{32} - 18u^{30} + \cdots - 4u^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 157 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. $\boldsymbol{I_1^u = \langle -1.63 \times 10^{330} u^{124} - 1.42 \times 10^{330} u^{123} + \cdots + 1.29 \times 10^{328} b + 9.71 \times 10^{330},\ 6.48 \times 10^{331} u^{124} + 5.25 \times 10^{331} u^{123} + \cdots + 1.29 \times 10^{328} a - 3.36 \times 10^{332},\ u^{125} + u^{124} + \cdots - 39u - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -5021.98u^{124} - 4065.74u^{123} + \cdots + 883332.u + 26076.5 \\ 126.621u^{124} + 109.865u^{123} + \cdots - 25537.3u - 752.343 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -4001.75u^{124} - 3223.53u^{123} + \cdots + 698858.u + 20642.5 \\ -37.9296u^{124} - 8.33395u^{123} + \cdots - 10819.9u - 389.924 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -4039.68u^{124} - 3231.87u^{123} + \cdots + 688038.u + 20252.5 \\ -37.9296u^{124} - 8.33395u^{123} + \cdots - 10819.9u - 389.924 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1453.38u^{124} - 1154.59u^{123} + \cdots + 246407.u + 7265.27 \\ 471.963u^{124} + 369.067u^{123} + \cdots - 66258.7u - 1840.77 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -3723.02u^{124} - 2997.80u^{123} + \cdots + 649734.u + 19189.7 \\ -82.0694u^{124} - 41.9836u^{123} + \cdots - 4543.04u - 212.025 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -5194.57u^{124} - 4244.77u^{123} + \cdots + 953249.u + 28426.4 \\ -69.1566u^{124} - 74.0379u^{123} + \cdots + 28810.1u + 944.086 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3626.15u^{124} + 3080.15u^{123} + \cdots - 754222.u - 22905.4 \\ 523.574u^{124} + 441.914u^{123} + \cdots - 104441.u - 3131.93 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -10077.2u^{124} - 8235.08u^{123} + \cdots + 1.77727 \times 10^6 u + 52146.8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{125} + 49u^{124} + \cdots + 9905408u + 295936$
c_2, c_7	$u^{125} + u^{124} + \cdots - 1072u - 544$
c_3, c_4, c_{10}	$u^{125} + u^{124} + \cdots - 39u - 1$
c_5, c_8	$u^{125} - 2u^{124} + \cdots - 10915u + 1369$
c_6, c_{11}	$u^{125} + u^{124} + \cdots - 614u - 129$
c_9	$u^{125} - 7u^{124} + \cdots - 597974523u + 137487799$
c_{12}	$u^{125} - 5u^{124} + \cdots + 2718423u - 646429$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{125} + 71y^{124} + \cdots - 2183472283648y - 87578116096$
c_2, c_7	$y^{125} - 49y^{124} + \cdots + 9905408y - 295936$
c_3, c_4, c_{10}	$y^{125} - 129y^{124} + \cdots + 123y - 1$
c_5, c_8	$y^{125} + 76y^{124} + \cdots - 60105945y - 1874161$
c_6, c_{11}	$y^{125} + 67y^{124} + \cdots - 1021106y - 16641$
c_9	$y^{125} - 53y^{124} + \cdots + 628976017143595697y - 18902894873864401$
c_{12}	$y^{125} - 25y^{124} + \cdots + 4561628210455y - 417870452041$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.560070+0.830618I$ $a=\ \ 0.005726+0.557264I$ $b=\ \ 0.638215-0.682382I$	$-0.99708-2.04417I$	0
$u=-0.560070-0.830618I$ $a=\ \ 0.005726-0.557264I$ $b=\ \ 0.638215+0.682382I$	$-0.99708+2.04417I$	0
$u=-0.522093+0.835666I$ $a=\ \ 0.868028-1.000420I$ $b=\ \ 0.675904+0.675750I$	$2.86252+2.82941I$	0
$u=-0.522093-0.835666I$ $a=\ \ 0.868028+1.000420I$ $b=\ \ 0.675904-0.675750I$	$2.86252-2.82941I$	0
$u=-0.766804+0.684858I$ $a=-0.75095+1.45806I$ $b=-0.793488-0.543772I$	$-0.41768-3.51081I$	0
$u=-0.766804-0.684858I$ $a=-0.75095-1.45806I$ $b=-0.793488+0.543772I$	$-0.41768+3.51081I$	0
$u=\ \ 0.952983+0.413336I$ $a=\ \ 0.56168-1.41133I$ $b=-1.023360+0.155541I$	$-1.25962-2.31481I$	0
$u=\ \ 0.952983-0.413336I$ $a=\ \ 0.56168+1.41133I$ $b=-1.023360-0.155541I$	$-1.25962+2.31481I$	0
$u=\ \ 0.526064+0.898950I$ $a=-0.683296-1.126120I$ $b=-1.095740+0.689568I$	$1.40579+13.87260I$	0
$u=\ \ 0.526064-0.898950I$ $a=-0.683296+1.126120I$ $b=-1.095740-0.689568I$	$1.40579-13.87260I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.574092+0.756910I$ $a=\ 0.177973-0.420259I$ $b=-0.528567+0.876131I$	$3.11164-8.07591I$	0
$u=-0.574092-0.756910I$ $a=\ 0.177973+0.420259I$ $b=-0.528567-0.876131I$	$3.11164+8.07591I$	0
$u=\ 0.470946+0.980198I$ $a=\ 0.557346+1.056750I$ $b=\ 1.005970-0.651704I$	$-2.09362+7.24326I$	0
$u=\ 0.470946-0.980198I$ $a=\ 0.557346-1.056750I$ $b=\ 1.005970+0.651704I$	$-2.09362-7.24326I$	0
$u=\ 0.716743+0.877059I$ $a=-0.116982-0.199348I$ $b=\ 0.990435+0.643096I$	$1.90273-7.96364I$	0
$u=\ 0.716743-0.877059I$ $a=-0.116982+0.199348I$ $b=\ 0.990435-0.643096I$	$1.90273+7.96364I$	0
$u=\ 0.584208+0.610604I$ $a=-0.554282+0.009632I$ $b=\ 0.686207+0.758646I$	$5.48584+2.08617I$	0
$u=\ 0.584208-0.610604I$ $a=-0.554282-0.009632I$ $b=\ 0.686207-0.758646I$	$5.48584-2.08617I$	0
$u=-1.145640+0.206937I$ $a=-1.157130+0.045348I$ $b=-0.507097-0.326991I$	$3.88412-5.25444I$	0
$u=-1.145640-0.206937I$ $a=-1.157130-0.045348I$ $b=-0.507097+0.326991I$	$3.88412+5.25444I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.165430+0.091842I$ $a=\ \ 0.728158-0.555600I$ $b=\ \ 1.101850+0.466236I$	$0.33460-5.32985I$	0
$u=-1.165430-0.091842I$ $a=\ \ 0.728158+0.555600I$ $b=\ \ 1.101850-0.466236I$	$0.33460+5.32985I$	0
$u=-0.749603+0.352544I$ $a=\ \ 0.337914+1.263390I$ $b=\ \ 0.471834-0.145078I$	$-1.55105-1.59703I$	0
$u=-0.749603-0.352544I$ $a=\ \ 0.337914-1.263390I$ $b=\ \ 0.471834+0.145078I$	$-1.55105+1.59703I$	0
$u=-0.666409+0.452542I$ $a=-0.94981+1.66830I$ $b=-0.842878-0.409913I$	$-0.39342-3.59527I$	0
$u=-0.666409-0.452542I$ $a=-0.94981-1.66830I$ $b=-0.842878+0.409913I$	$-0.39342+3.59527I$	0
$u=-0.445649+0.668121I$ $a=\ \ 1.35812-1.35621I$ $b=\ \ 0.987473+0.682486I$	$4.57341-7.56022I$	0
$u=-0.445649-0.668121I$ $a=\ \ 1.35812+1.35621I$ $b=\ \ 0.987473-0.682486I$	$4.57341+7.56022I$	0
$u=\ \ 0.318208+0.730456I$ $a=-0.680030-0.855887I$ $b=-0.849369+0.756483I$	$4.68328+2.26812I$	0
$u=\ \ 0.318208-0.730456I$ $a=-0.680030+0.855887I$ $b=-0.849369-0.756483I$	$4.68328-2.26812I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.117992 + 0.778543I$ $a = -0.745560 + 0.488532I$ $b = -1.044850 - 0.052298I$	$-5.84195 + 1.29047I$	0
$u = \quad 0.117992 - 0.778543I$ $a = -0.745560 - 0.488532I$ $b = -1.044850 + 0.052298I$	$-5.84195 - 1.29047I$	0
$u = \quad 0.929508 + 0.812838I$ $a = \quad 0.304121 + 0.383870I$ $b = -0.907528 - 0.588471I$	$-0.789159 - 1.059320I$	0
$u = \quad 0.929508 - 0.812838I$ $a = \quad 0.304121 - 0.383870I$ $b = -0.907528 + 0.588471I$	$-0.789159 + 1.059320I$	0
$u = -0.681221 + 0.250791I$ $a = \quad 0.391398 - 0.974536I$ $b = \quad 1.145420 + 0.617855I$	$-0.01058 - 5.49855I$	0
$u = -0.681221 - 0.250791I$ $a = \quad 0.391398 + 0.974536I$ $b = \quad 1.145420 - 0.617855I$	$-0.01058 + 5.49855I$	0
$u = -0.114227 + 0.716514I$ $a = -0.985080 + 0.777489I$ $b = -0.877419 + 0.522652I$	$-2.38804 + 2.09884I$	0
$u = -0.114227 - 0.716514I$ $a = -0.985080 - 0.777489I$ $b = -0.877419 - 0.522652I$	$-2.38804 - 2.09884I$	0
$u = -0.366763 + 0.612661I$ $a = -0.263955 - 0.210363I$ $b = -0.881588 + 0.774174I$	$4.60862 + 3.48554I$	0
$u = -0.366763 - 0.612661I$ $a = -0.263955 + 0.210363I$ $b = -0.881588 - 0.774174I$	$4.60862 - 3.48554I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.684821 + 0.192674I$ $a = 0.191778 + 0.641827I$ $b = 0.189140 - 0.835048I$	$2.75381 - 0.24097I$	0
$u = 0.684821 - 0.192674I$ $a = 0.191778 - 0.641827I$ $b = 0.189140 + 0.835048I$	$2.75381 + 0.24097I$	0
$u = 1.171860 + 0.550693I$ $a = -0.113413 + 1.195930I$ $b = 0.889439 - 0.246879I$	$-2.73540 + 3.43854I$	0
$u = 1.171860 - 0.550693I$ $a = -0.113413 - 1.195930I$ $b = 0.889439 + 0.246879I$	$-2.73540 - 3.43854I$	0
$u = -1.300470 + 0.054758I$ $a = -0.503238 + 1.222800I$ $b = -1.173770 - 0.449089I$	$0.52150 - 2.48167I$	0
$u = -1.300470 - 0.054758I$ $a = -0.503238 - 1.222800I$ $b = -1.173770 + 0.449089I$	$0.52150 + 2.48167I$	0
$u = -0.563295 + 0.410456I$ $a = -0.73797 + 1.46376I$ $b = -1.130870 - 0.461304I$	$-1.01038 - 3.73149I$	0
$u = -0.563295 - 0.410456I$ $a = -0.73797 - 1.46376I$ $b = -1.130870 + 0.461304I$	$-1.01038 + 3.73149I$	0
$u = 1.295980 + 0.276425I$ $a = -0.104844 + 0.406230I$ $b = 0.667351 + 0.431985I$	$1.97854 + 1.51991I$	0
$u = 1.295980 - 0.276425I$ $a = -0.104844 - 0.406230I$ $b = 0.667351 - 0.431985I$	$1.97854 - 1.51991I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.321440 + 0.252713I$ $a = 0.229971 - 0.530094I$ $b = -0.991752 - 0.302605I$	$2.20410 + 2.63018I$	0
$u = 1.321440 - 0.252713I$ $a = 0.229971 + 0.530094I$ $b = -0.991752 + 0.302605I$	$2.20410 - 2.63018I$	0
$u = -1.334000 + 0.230857I$ $a = -0.010917 - 0.275692I$ $b = 1.206230 + 0.109276I$	$-1.31497 - 4.81685I$	0
$u = -1.334000 - 0.230857I$ $a = -0.010917 + 0.275692I$ $b = 1.206230 - 0.109276I$	$-1.31497 + 4.81685I$	0
$u = 0.207239 + 0.608895I$ $a = 0.887015 - 0.326481I$ $b = 1.270940 - 0.040167I$	$-3.49592 + 5.99439I$	0
$u = 0.207239 - 0.608895I$ $a = 0.887015 + 0.326481I$ $b = 1.270940 + 0.040167I$	$-3.49592 - 5.99439I$	0
$u = -0.160001 + 0.619308I$ $a = 1.139030 - 0.725126I$ $b = 1.062110 - 0.364198I$	$-2.40336 + 0.58212I$	0
$u = -0.160001 - 0.619308I$ $a = 1.139030 + 0.725126I$ $b = 1.062110 + 0.364198I$	$-2.40336 - 0.58212I$	0
$u = 1.36461$ $a = -0.201345$ $b = -1.09759$	2.85484	0
$u = -1.386170 + 0.008339I$ $a = 0.44783 + 2.17065I$ $b = -0.913799 - 0.669271I$	$2.83268 - 1.28287I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.386170-0.008339I$ $a=\ \ 0.44783-2.17065I$ $b=-0.913799+0.669271I$	$2.83268+1.28287I$	0
$u=-1.388640+0.024356I$ $a=-1.04296+2.29329I$ $b=\ \ 0.722162-0.581090I$	$4.76840-3.49617I$	0
$u=-1.388640-0.024356I$ $a=-1.04296-2.29329I$ $b=\ \ 0.722162+0.581090I$	$4.76840+3.49617I$	0
$u=\ \ 1.390110+0.044785I$ $a=\ \ 0.409417-0.865522I$ $b=-0.202973+0.810809I$	$3.62840+2.12031I$	0
$u=\ \ 1.390110-0.044785I$ $a=\ \ 0.409417+0.865522I$ $b=-0.202973-0.810809I$	$3.62840-2.12031I$	0
$u=-1.399420+0.045549I$ $a=-0.54545-1.88034I$ $b=\ \ 1.11231+0.99003I$	$8.51763-4.17105I$	0
$u=-1.399420-0.045549I$ $a=-0.54545+1.88034I$ $b=\ \ 1.11231-0.99003I$	$8.51763+4.17105I$	0
$u=\ \ 0.574493+0.157884I$ $a=\ \ 0.606746+0.361121I$ $b=-0.421532-0.396092I$	$1.011430+0.226694I$	0
$u=\ \ 0.574493-0.157884I$ $a=\ \ 0.606746-0.361121I$ $b=-0.421532+0.396092I$	$1.011430-0.226694I$	0
$u=-1.41252+0.17057I$ $a=\ \ 0.437694+0.475558I$ $b=-1.49767-0.14692I$	$1.71323-8.66640I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.41252-0.17057I$ $a=\ \ 0.437694-0.475558I$ $b=-1.49767+0.14692I$	$1.71323+8.66640I$	0
$u=\ \ 1.42990+0.04798I$ $a=\ \ 0.517785+0.550231I$ $b=\ \ 1.107380-0.031310I$	$5.93415+3.76410I$	0
$u=\ \ 1.42990-0.04798I$ $a=\ \ 0.517785-0.550231I$ $b=\ \ 1.107380+0.031310I$	$5.93415-3.76410I$	0
$u=\ \ 1.45024+0.09542I$ $a=\ \ 1.17413-1.64301I$ $b=-0.793055+0.649275I$	$3.21590+3.84758I$	0
$u=\ \ 1.45024-0.09542I$ $a=\ \ 1.17413+1.64301I$ $b=-0.793055-0.649275I$	$3.21590-3.84758I$	0
$u=\ \ 1.45433+0.12436I$ $a=-0.90741+2.22612I$ $b=\ \ 0.971525-0.584749I$	$3.95800+8.15493I$	0
$u=\ \ 1.45433-0.12436I$ $a=-0.90741-2.22612I$ $b=\ \ 0.971525+0.584749I$	$3.95800-8.15493I$	0
$u=\ \ 1.46094+0.02460I$ $a=-0.62291+1.58596I$ $b=\ \ 0.67639-1.27596I$	$9.83186+3.67940I$	0
$u=\ \ 1.46094-0.02460I$ $a=-0.62291-1.58596I$ $b=\ \ 0.67639+1.27596I$	$9.83186-3.67940I$	0
$u=-1.46482+0.34435I$ $a=\ \ 0.01966-1.80520I$ $b=\ \ 0.935755+0.825465I$	$10.29070-6.34764I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.46482-0.34435I$ $a=\ \ 0.01966+1.80520I$ $b=\ \ 0.935755-0.825465I$	$10.29070+6.34764I$	0
$u=\ \ 1.49090+0.24676I$ $a=-0.25178-1.91311I$ $b=-1.092470+0.701219I$	$10.8627+10.9335I$	0
$u=\ \ 1.49090-0.24676I$ $a=-0.25178+1.91311I$ $b=-1.092470-0.701219I$	$10.8627-10.9335I$	0
$u=\ \ 1.48613+0.28135I$ $a=-0.826003-1.017160I$ $b=\ \ 0.863483+0.870070I$	$10.53280+0.06582I$	0
$u=\ \ 1.48613-0.28135I$ $a=-0.826003+1.017160I$ $b=\ \ 0.863483-0.870070I$	$10.53280-0.06582I$	0
$u=\ \ 0.031279+0.484384I$ $a=\ \ 1.29261-0.70808I$ $b=-0.059153-0.541656I$	$0.65818+2.61281I$	0
$u=\ \ 0.031279-0.484384I$ $a=\ \ 1.29261+0.70808I$ $b=-0.059153+0.541656I$	$0.65818-2.61281I$	0
$u=-1.53360+0.19563I$ $a=\ \ 0.901457-0.881586I$ $b=-0.577297+0.890051I$	$12.45140-5.03884I$	0
$u=-1.53360-0.19563I$ $a=\ \ 0.901457+0.881586I$ $b=-0.577297-0.890051I$	$12.45140+5.03884I$	0
$u=\ \ 1.54095+0.12837I$ $a=-0.35724+1.54219I$ $b=\ \ 1.215550-0.602561I$	$6.00078+5.72659I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.54095 - 0.12837I$ $a = -0.35724 - 1.54219I$ $b = 1.215550 + 0.602561I$	$6.00078 - 5.72659I$	0
$u = 1.54379 + 0.09192I$ $a = 0.60093 - 1.49709I$ $b = -1.28320 + 0.84650I$	$7.28577 + 6.85904I$	0
$u = 1.54379 - 0.09192I$ $a = 0.60093 + 1.49709I$ $b = -1.28320 - 0.84650I$	$7.28577 - 6.85904I$	0
$u = -0.284654 + 0.350194I$ $a = -0.56372 + 3.72614I$ $b = -1.073340 - 0.462416I$	$-1.82555 - 6.40335I$	$0. + 12.56791I$
$u = -0.284654 - 0.350194I$ $a = -0.56372 - 3.72614I$ $b = -1.073340 + 0.462416I$	$-1.82555 + 6.40335I$	$0. - 12.56791I$
$u = 1.53448 + 0.21454I$ $a = 0.03631 + 1.77056I$ $b = 1.040570 - 0.636265I$	$6.77922 + 6.58251I$	0
$u = 1.53448 - 0.21454I$ $a = 0.03631 - 1.77056I$ $b = 1.040570 + 0.636265I$	$6.77922 - 6.58251I$	0
$u = -1.55767 + 0.01776I$ $a = 0.15615 + 1.48985I$ $b = -0.259787 - 1.171730I$	$10.25640 - 0.32613I$	0
$u = -1.55767 - 0.01776I$ $a = 0.15615 - 1.48985I$ $b = -0.259787 + 1.171730I$	$10.25640 + 0.32613I$	0
$u = -1.55722 + 0.10507I$ $a = -0.711336 + 1.014210I$ $b = 0.506428 - 0.739167I$	$8.30090 - 1.37345I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.55722-0.10507I$ $a=-0.711336-1.014210I$ $b=\ \ 0.506428+0.739167I$	$8.30090+1.37345I$	0
$u=\ \ 1.53801+0.27214I$ $a=\ \ 0.764294+1.117260I$ $b=-0.627234-0.900488I$	$5.83514+5.99338I$	0
$u=\ \ 1.53801-0.27214I$ $a=\ \ 0.764294-1.117260I$ $b=-0.627234+0.900488I$	$5.83514-5.99338I$	0
$u=\ \ 1.54556+0.25935I$ $a=-0.782113-1.163170I$ $b=\ \ 0.558374+1.055100I$	$10.0370+11.8102I$	0
$u=\ \ 1.54556-0.25935I$ $a=-0.782113+1.163170I$ $b=\ \ 0.558374-1.055100I$	$10.0370-11.8102I$	0
$u=-1.55007+0.32187I$ $a=-0.03780-1.81800I$ $b=\ \ 1.158870+0.755891I$	$8.1406-18.3342I$	0
$u=-1.55007-0.32187I$ $a=-0.03780+1.81800I$ $b=\ \ 1.158870-0.755891I$	$8.1406+18.3342I$	0
$u=-1.54543+0.34619I$ $a=\ \ 0.04293+1.78974I$ $b=-1.075140-0.732250I$	$4.45255-12.03210I$	0
$u=-1.54543-0.34619I$ $a=\ \ 0.04293-1.78974I$ $b=-1.075140+0.732250I$	$4.45255+12.03210I$	0
$u=\ \ 1.57451+0.28056I$ $a=-0.18047-1.55731I$ $b=-0.912835+0.670428I$	$9.79840+1.34406I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.57451 - 0.28056I$ $a = -0.18047 + 1.55731I$ $b = -0.912835 - 0.670428I$	$9.79840 - 1.34406I$	0
$u = -0.129864 + 0.337557I$ $a = 2.18916 - 0.20050I$ $b = 0.834121 - 0.293543I$	$-1.36503 + 0.96077I$	$-2.26477 - 0.76917I$
$u = -0.129864 - 0.337557I$ $a = 2.18916 + 0.20050I$ $b = 0.834121 + 0.293543I$	$-1.36503 - 0.96077I$	$-2.26477 + 0.76917I$
$u = -0.284448 + 0.208008I$ $a = -2.38495 - 2.92243I$ $b = 0.964406 + 0.463082I$	$-2.58416 - 2.59005I$	$-0.96655 + 4.26055I$
$u = -0.284448 - 0.208008I$ $a = -2.38495 + 2.92243I$ $b = 0.964406 - 0.463082I$	$-2.58416 + 2.59005I$	$-0.96655 - 4.26055I$
$u = -1.66079 + 0.04111I$ $a = -0.765492 + 0.775809I$ $b = 0.605364 - 0.404140I$	$8.65952 - 1.61792I$	0
$u = -1.66079 - 0.04111I$ $a = -0.765492 - 0.775809I$ $b = 0.605364 + 0.404140I$	$8.65952 + 1.61792I$	0
$u = -1.67909 + 0.20352I$ $a = 0.669467 - 0.807013I$ $b = -0.799147 + 0.656332I$	$10.15450 + 3.80654I$	0
$u = -1.67909 - 0.20352I$ $a = 0.669467 + 0.807013I$ $b = -0.799147 - 0.656332I$	$10.15450 - 3.80654I$	0
$u = -0.208967 + 0.119445I$ $a = -2.46111 + 2.48479I$ $b = 0.544639 + 0.424569I$	$-1.46307 - 1.24235I$	$-0.09926 + 3.49057I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.208967-0.119445I$ $a=-2.46111-2.48479I$ $b=\ \ 0.544639-0.424569I$	$-1.46307+1.24235I$	$-0.09926-3.49057I$
$u=-0.185898+0.065034I$ $a=\ \ 0.35462+1.40565I$ $b=-0.814308+1.000220I$	$4.08748+3.55759I$	$20.3705-11.4990I$
$u=-0.185898-0.065034I$ $a=\ \ 0.35462-1.40565I$ $b=-0.814308-1.000220I$	$4.08748-3.55759I$	$20.3705+11.4990I$
$u=-0.180834+0.014822I$ $a=-6.96058+7.53634I$ $b=-0.705849+0.105967I$	$0.42093-3.22495I$	$-2.01065+9.42270I$
$u=-0.180834-0.014822I$ $a=-6.96058-7.53634I$ $b=-0.705849-0.105967I$	$0.42093+3.22495I$	$-2.01065-9.42270I$

II. $I_2^u = \langle 469u^{31} - 142u^{30} + \cdots + 293b + 474,\ -1355u^{31} + 717u^{30} + \cdots + 293a - 2414,\ u^{32} - 18u^{30} + \cdots - 4u^2 + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 4.62457u^{31} - 2.44710u^{30} + \cdots - 20.2116u + 8.23891 \\ -1.60068u^{31} + 0.484642u^{30} + \cdots + 2.06143u - 1.61775 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -6.93857u^{31} + 2.38225u^{30} + \cdots + 26.4710u - 11.4027 \\ 1.13311u^{31} - 0.505119u^{30} + \cdots - 7.97952u + 3.46075 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -5.80546u^{31} + 1.87713u^{30} + \cdots + 18.4915u - 7.94198 \\ 1.13311u^{31} - 0.505119u^{30} + \cdots - 7.97952u + 3.46075 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -3.09215u^{31} + 1.42662u^{30} + \cdots + 15.2935u - 8.39590 \\ 2.80205u^{31} - 2.45392u^{30} + \cdots - 12.1843u + 4.85324 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -5.80546u^{31} + 1.87713u^{30} + \cdots + 17.4915u - 7.94198 \\ 1.13311u^{31} - 0.505119u^{30} + \cdots - 6.97952u + 3.46075 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.95563u^{31} + 0.498294u^{30} + \cdots + 14.0068u - 6.84642 \\ 0.416382u^{31} - 2.63140u^{30} + \cdots + 0.525597u + 0.825939 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.365188u^{31} - 0.283276u^{30} + \cdots + 5.13311u - 0.505119 \\ 2.87713u^{31} - 2.76451u^{30} + \cdots - 8.94198u + 5.80546 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{2531}{293}u^{31} - \frac{838}{293}u^{30} + \cdots + \frac{12142}{293}u - \frac{5448}{293}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{32} - 16u^{31} + \cdots - 19u + 1$
c_2	$u^{32} - 8u^{30} + \cdots + u + 1$
c_3, c_4	$u^{32} - 18u^{30} + \cdots - 4u^2 + 1$
c_5	$u^{32} - 3u^{31} + \cdots + 10u^2 + 1$
c_6	$u^{32} + 12u^{30} + \cdots - u + 1$
c_7	$u^{32} - 8u^{30} + \cdots - u + 1$
c_8	$u^{32} + 3u^{31} + \cdots + 10u^2 + 1$
c_9	$u^{32} - 2u^{30} + \cdots - 3u^2 + 1$
c_{10}	$u^{32} - 18u^{30} + \cdots - 4u^2 + 1$
c_{11}	$u^{32} + 12u^{30} + \cdots + u + 1$
c_{12}	$u^{32} - 9u^{29} + \cdots + 8u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{32} + 16y^{31} + \cdots + 17y + 1$
c_2, c_7	$y^{32} - 16y^{31} + \cdots - 19y + 1$
c_3, c_4, c_{10}	$y^{32} - 36y^{31} + \cdots - 8y + 1$
c_5, c_8	$y^{32} + 17y^{31} + \cdots + 20y + 1$
c_6, c_{11}	$y^{32} + 24y^{31} + \cdots + 29y + 1$
c_9	$y^{32} - 4y^{31} + \cdots - 6y + 1$
c_{12}	$y^{32} + 2y^{30} + \cdots + 16y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.823229+0.573526I$ $a=\ 0.230051-1.193660I$ $b=\ 1.001010+0.496794I$	$-2.09021-5.00508I$	$0.32029+7.36848I$
$u=-0.823229-0.573526I$ $a=\ 0.230051+1.193660I$ $b=\ 1.001010-0.496794I$	$-2.09021+5.00508I$	$0.32029-7.36848I$
$u=-0.905331+0.410272I$ $a=\ 0.637023-0.634846I$ $b=-1.030370+0.490351I$	$-2.15241+1.03931I$	$-0.740501-0.627183I$
$u=-0.905331-0.410272I$ $a=\ 0.637023+0.634846I$ $b=-1.030370-0.490351I$	$-2.15241-1.03931I$	$-0.740501+0.627183I$
$u=\ 0.886661+0.571779I$ $a=\ 0.277016-0.483095I$ $b=\ 0.686227+0.474422I$	$-1.00963+0.99283I$	$2.87836+2.32450I$
$u=\ 0.886661-0.571779I$ $a=\ 0.277016+0.483095I$ $b=\ 0.686227-0.474422I$	$-1.00963-0.99283I$	$2.87836-2.32450I$
$u=\ 0.960413+0.497111I$ $a=-0.30409-1.84527I$ $b=-0.655739+0.511334I$	$-0.86909+3.07016I$	$-1.325078-0.355339I$
$u=\ 0.960413-0.497111I$ $a=-0.30409+1.84527I$ $b=-0.655739-0.511334I$	$-0.86909-3.07016I$	$-1.325078+0.355339I$
$u=\ 1.226110+0.132661I$ $a=-1.16737-1.05240I$ $b=-0.739922-0.151475I$	$3.21909+4.21288I$	$2.38672-4.46762I$
$u=\ 1.226110-0.132661I$ $a=-1.16737+1.05240I$ $b=-0.739922+0.151475I$	$3.21909-4.21288I$	$2.38672+4.46762I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.250750+0.066354I$ $a=-0.073988-0.215665I$ $b=-1.152920-0.317190I$	$1.41682-6.19666I$	$4.72969+6.81735I$
$u=-1.250750-0.066354I$ $a=-0.073988+0.215665I$ $b=-1.152920+0.317190I$	$1.41682+6.19666I$	$4.72969-6.81735I$
$u=-1.284700+0.159063I$ $a=0.941075-0.385333I$ $b=1.054270+0.306052I$	$0.19355-3.89178I$	$2.00000+2.50362I$
$u=-1.284700-0.159063I$ $a=0.941075+0.385333I$ $b=1.054270-0.306052I$	$0.19355+3.89178I$	$2.00000-2.50362I$
$u=1.331670+0.231893I$ $a=-0.422062+0.851905I$ $b=0.823576+0.245895I$	$1.14054+1.60622I$	$-2.50242+0.I$
$u=1.331670-0.231893I$ $a=-0.422062-0.851905I$ $b=0.823576-0.245895I$	$1.14054-1.60622I$	$-2.50242+0.I$
$u=-0.109844+0.592866I$ $a=-1.00351+1.39190I$ $b=-0.921703+0.346676I$	$-3.36734+1.41923I$	$-6.06389-0.47143I$
$u=-0.109844-0.592866I$ $a=-1.00351-1.39190I$ $b=-0.921703-0.346676I$	$-3.36734-1.41923I$	$-6.06389+0.47143I$
$u=0.501084+0.247454I$ $a=-0.46279+3.56984I$ $b=0.647644-0.228760I$	$0.68591-2.77162I$	$5.96833-2.65828I$
$u=0.501084-0.247454I$ $a=-0.46279-3.56984I$ $b=0.647644+0.228760I$	$0.68591+2.77162I$	$5.96833+2.65828I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44081 + 0.14512I$ $a = -0.48645 + 1.82864I$ $b = 1.06820 - 0.96421I$	$8.61139 + 5.32683I$	$7.34287 - 6.36655I$
$u = 1.44081 - 0.14512I$ $a = -0.48645 - 1.82864I$ $b = 1.06820 + 0.96421I$	$8.61139 - 5.32683I$	$7.34287 + 6.36655I$
$u = -0.464219 + 0.029319I$ $a = -1.04008 + 2.30995I$ $b = 1.131700 - 0.427011I$	$-1.36908 + 5.66549I$	$1.76337 - 5.56166I$
$u = -0.464219 - 0.029319I$ $a = -1.04008 - 2.30995I$ $b = 1.131700 + 0.427011I$	$-1.36908 - 5.66549I$	$1.76337 + 5.56166I$
$u = -1.54390 + 0.08683I$ $a = -0.437146 + 1.308350I$ $b = 0.571375 - 1.007390I$	$9.97917 + 1.85409I$	0
$u = -1.54390 - 0.08683I$ $a = -0.437146 - 1.308350I$ $b = 0.571375 + 1.007390I$	$9.97917 - 1.85409I$	0
$u = 1.55180 + 0.09269I$ $a = 0.49340 - 1.57704I$ $b = -1.185780 + 0.630177I$	$5.90343 + 6.49247I$	0
$u = 1.55180 - 0.09269I$ $a = 0.49340 + 1.57704I$ $b = -1.185780 - 0.630177I$	$5.90343 - 6.49247I$	0
$u = 0.121239 + 0.343078I$ $a = -0.823676 + 0.494341I$ $b = -0.847913 - 0.952252I$	$3.85757 - 3.46773I$	$-10.92260 - 0.41543I$
$u = 0.121239 - 0.343078I$ $a = -0.823676 - 0.494341I$ $b = -0.847913 + 0.952252I$	$3.85757 + 3.46773I$	$-10.92260 + 0.41543I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.63782+0.00403I$ $a=\quad 0.642615+0.909308I$ $b=-0.449660-0.347435I$	$8.74898+2.00355I$	0
$u=-1.63782-0.00403I$ $a=\quad 0.642615-0.909308I$ $b=-0.449660+0.347435I$	$8.74898-2.00355I$	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{32}-16u^{31}+\cdots-19u+1)$ $\cdot(u^{125}+49u^{124}+\cdots+9905408u+295936)$
c_2	$(u^{32}-8u^{30}+\cdots+u+1)(u^{125}+u^{124}+\cdots-1072u-544)$
c_3, c_4	$(u^{32}-18u^{30}+\cdots-4u^2+1)(u^{125}+u^{124}+\cdots-39u-1)$
c_5	$(u^{32}-3u^{31}+\cdots+10u^2+1)(u^{125}-2u^{124}+\cdots-10915u+1369)$
c_6	$(u^{32}+12u^{30}+\cdots-u+1)(u^{125}+u^{124}+\cdots-614u-129)$
c_7	$(u^{32}-8u^{30}+\cdots-u+1)(u^{125}+u^{124}+\cdots-1072u-544)$
c_8	$(u^{32}+3u^{31}+\cdots+10u^2+1)(u^{125}-2u^{124}+\cdots-10915u+1369)$
c_9	$(u^{32}-2u^{30}+\cdots-3u^2+1)$ $\cdot(u^{125}-7u^{124}+\cdots-597974523u+137487799)$
c_{10}	$(u^{32}-18u^{30}+\cdots-4u^2+1)(u^{125}+u^{124}+\cdots-39u-1)$
c_{11}	$(u^{32}+12u^{30}+\cdots+u+1)(u^{125}+u^{124}+\cdots-614u-129)$
c_{12}	$(u^{32}-9u^{29}+\cdots+8u^2+1)(u^{125}-5u^{124}+\cdots+2718423u-646429)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{32}+16y^{31}+\cdots+17y+1)$ $\cdot(y^{125}+71y^{124}+\cdots-2183472283648y-87578116096)$
c_2, c_7	$(y^{32}-16y^{31}+\cdots-19y+1)$ $\cdot(y^{125}-49y^{124}+\cdots+9905408y-295936)$
c_3, c_4, c_{10}	$(y^{32}-36y^{31}+\cdots-8y+1)(y^{125}-129y^{124}+\cdots+123y-1)$
c_5, c_8	$(y^{32}+17y^{31}+\cdots+20y+1)$ $\cdot(y^{125}+76y^{124}+\cdots-60105945y-1874161)$
c_6, c_{11}	$(y^{32}+24y^{31}+\cdots+29y+1)$ $\cdot(y^{125}+67y^{124}+\cdots-1021106y-16641)$
c_9	$(y^{32}-4y^{31}+\cdots-6y+1)$ $\cdot(y^{125}-53y^{124}+\cdots+628976017143595697y-18902894873864401)$
c_{12}	$(y^{32}+2y^{30}+\cdots+16y+1)$ $\cdot(y^{125}-25y^{124}+\cdots+4561628210455y-417870452041)$