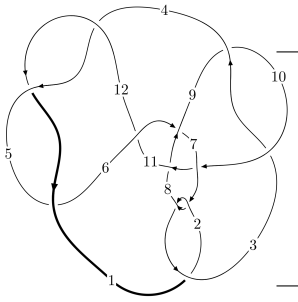
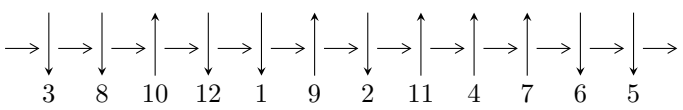
$12a_{0776}$ $(K12a_{0776})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 6.98170 \times 10^{214} u^{129} + 4.61169 \times 10^{214} u^{128} + \cdots + 5.45825 \times 10^{214} b - 8.94276 \times 10^{215}, \\ & 6.48861 \times 10^{215} u^{129} + 6.31891 \times 10^{215} u^{128} + \cdots + 1.03707 \times 10^{216} a + 1.53636 \times 10^{215}, \\ & u^{130} + 2u^{129} + \cdots + 107u - 19 \rangle \\ I_2^u = \langle & -u^{22} + 11u^{20} + \cdots + b + 1,\ 4u^{22} + u^{21} + \cdots + a - 6,\ u^{23} - u^{22} + \cdots - u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 153 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. $\boldsymbol{I_1^u = \langle 6.98 \times 10^{214} u^{129} + 4.61 \times 10^{214} u^{128} + \cdots + 5.46 \times 10^{214} b - 8.94 \times 10^{215},\ 6.49 \times 10^{215} u^{129} + 6.32 \times 10^{215} u^{128} + \cdots + 1.04 \times 10^{216} a + 1.54 \times 10^{215},\ u^{130} + 2u^{129} + \cdots + 107u - 19 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -0.625668u^{129} - 0.609305u^{128} + \cdots - 27.4160u - 0.148144 \\ -1.27911u^{129} - 0.844901u^{128} + \cdots - 95.2397u + 16.3839 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1.90478u^{129} - 1.45421u^{128} + \cdots - 122.656u + 16.2358 \\ -1.27911u^{129} - 0.844901u^{128} + \cdots - 95.2397u + 16.3839 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 2.56893u^{129} + 2.78359u^{128} + \cdots + 230.909u - 39.9412 \\ 0.412250u^{129} + 0.950242u^{128} + \cdots + 44.8273u - 6.37800 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 3.56700u^{129} + 2.55922u^{128} + \cdots + 345.494u - 54.3475 \\ 4.11991u^{129} + 3.15276u^{128} + \cdots + 415.557u - 63.9594 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.64224u^{129} - 0.895692u^{128} + \cdots - 84.3781u + 10.1577 \\ -1.83002u^{129} - 1.24918u^{128} + \cdots - 126.166u + 21.6069 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -3.81368u^{129} - 1.73033u^{128} + \cdots - 160.211u + 30.0156 \\ -2.52627u^{129} - 1.03451u^{128} + \cdots - 186.927u + 28.6906 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4.84806u^{129} + 2.00475u^{128} + \cdots + 371.144u - 52.0264$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{130} + 57u^{129} + \cdots + 113740u + 5776$
c_2, c_7	$u^{130} + u^{129} + \cdots + 90u + 76$
c_3, c_9	$u^{130} + u^{129} + \cdots + 7u - 1$
c_4, c_5, c_{12}	$u^{130} + 2u^{129} + \cdots + 107u - 19$
c_6	$u^{130} + 12u^{129} + \cdots - 270u - 19$
c_8	$u^{130} + 18u^{129} + \cdots - 2103u + 1217$
c_{10}	$u^{130} + u^{129} + \cdots - 49u - 1$
c_{11}	$u^{130} - 6u^{129} + \cdots + 1396235u - 512411$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{130} + 43y^{129} + \cdots - 401377392y + 33362176$
c_2, c_7	$y^{130} - 57y^{129} + \cdots - 113740y + 5776$
c_3, c_9	$y^{130} + 87y^{129} + \cdots + 41y + 1$
c_4, c_5, c_{12}	$y^{130} - 116y^{129} + \cdots + 4815y + 361$
c_6	$y^{130} + 4y^{129} + \cdots + 53792y + 361$
c_8	$y^{130} - 28y^{129} + \cdots - 151952217y + 1481089$
c_{10}	$y^{130} + y^{129} + \cdots - 73y + 1$
c_{11}	$y^{130} + 28y^{129} + \cdots - 9070292069281y + 262565032921$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.858387 + 0.531211I$ $a = -0.000790 + 0.509860I$ $b = -0.582173 - 1.234630I$	$-1.99971 + 9.85947I$	0
$u = 0.858387 - 0.531211I$ $a = -0.000790 - 0.509860I$ $b = -0.582173 + 1.234630I$	$-1.99971 - 9.85947I$	0
$u = -0.898768 + 0.468623I$ $a = -0.081360 + 0.538066I$ $b = 0.521121 - 1.115890I$	$-0.11864 - 4.16240I$	0
$u = -0.898768 - 0.468623I$ $a = -0.081360 - 0.538066I$ $b = 0.521121 + 1.115890I$	$-0.11864 + 4.16240I$	0
$u = -0.083322 + 0.963348I$ $a = -0.084625 - 0.382231I$ $b = 0.037380 + 0.621768I$	$2.83683 + 2.67689I$	0
$u = -0.083322 - 0.963348I$ $a = -0.084625 + 0.382231I$ $b = 0.037380 - 0.621768I$	$2.83683 - 2.67689I$	0
$u = -1.004880 + 0.290209I$ $a = 0.865674 - 0.893082I$ $b = -1.030620 - 0.343395I$	$0.91394 - 4.12561I$	0
$u = -1.004880 - 0.290209I$ $a = 0.865674 + 0.893082I$ $b = -1.030620 + 0.343395I$	$0.91394 + 4.12561I$	0
$u = 0.420538 + 0.836988I$ $a = 0.873483 - 0.065030I$ $b = -0.284296 + 1.068210I$	$0.87806 - 4.73563I$	0
$u = 0.420538 - 0.836988I$ $a = 0.873483 + 0.065030I$ $b = -0.284296 - 1.068210I$	$0.87806 + 4.73563I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.335113+0.836804I$ $a=-0.931730-0.080138I$ $b=\ \ 0.441840+0.934661I$	$1.33578+0.56403I$	0
$u=-0.335113-0.836804I$ $a=-0.931730+0.080138I$ $b=\ \ 0.441840-0.934661I$	$1.33578-0.56403I$	0
$u=-1.10302$ $a=\ \ 0.775817$ $b=-0.789416$	-1.76903	0
$u=\ \ 0.285462+0.825901I$ $a=-1.81147+0.60588I$ $b=\ \ 0.64553-1.32946I$	$-0.1981-14.6031I$	0
$u=\ \ 0.285462-0.825901I$ $a=-1.81147-0.60588I$ $b=\ \ 0.64553+1.32946I$	$-0.1981+14.6031I$	0
$u=-0.987953+0.541065I$ $a=-0.571922-0.059134I$ $b=\ \ 0.266608+0.830546I$	$0.09367+2.56827I$	0
$u=-0.987953-0.541065I$ $a=-0.571922+0.059134I$ $b=\ \ 0.266608-0.830546I$	$0.09367-2.56827I$	0
$u=\ \ 0.541925+0.684342I$ $a=\ \ 0.652657+0.110887I$ $b=\ \ 0.166422+0.851085I$	$0.333452-0.252683I$	0
$u=\ \ 0.541925-0.684342I$ $a=\ \ 0.652657-0.110887I$ $b=\ \ 0.166422-0.851085I$	$0.333452+0.252683I$	0
$u=\ \ 1.102160+0.253758I$ $a=-1.066500-0.898377I$ $b=\ \ 0.851738-0.518125I$	$1.86982-0.83103I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.102160 - 0.253758I$ $a = -1.066500 + 0.898377I$ $b = 0.851738 + 0.518125I$	$1.86982 + 0.83103I$	0
$u = 1.136000 + 0.030176I$ $a = 0.981440 - 0.667637I$ $b = -0.042634 + 1.045810I$	$-6.23069 - 2.66080I$	0
$u = 1.136000 - 0.030176I$ $a = 0.981440 + 0.667637I$ $b = -0.042634 - 1.045810I$	$-6.23069 + 2.66080I$	0
$u = -0.251176 + 0.814299I$ $a = 1.79456 + 0.70713I$ $b = -0.610782 - 1.215540I$	$1.91441 + 8.72257I$	0
$u = -0.251176 - 0.814299I$ $a = 1.79456 - 0.70713I$ $b = -0.610782 + 1.215540I$	$1.91441 - 8.72257I$	0
$u = -0.037572 + 0.806192I$ $a = -0.399881 + 0.366390I$ $b = 0.291035 + 0.079569I$	$2.95991 + 2.80966I$	0
$u = -0.037572 - 0.806192I$ $a = -0.399881 - 0.366390I$ $b = 0.291035 - 0.079569I$	$2.95991 - 2.80966I$	0
$u = -0.647077 + 0.466955I$ $a = -0.221642 + 0.331704I$ $b = -0.496804 + 0.477870I$	$0.13637 + 4.01955I$	0
$u = -0.647077 - 0.466955I$ $a = -0.221642 - 0.331704I$ $b = -0.496804 - 0.477870I$	$0.13637 - 4.01955I$	0
$u = -0.183392 + 0.749630I$ $a = -1.87602 + 0.53667I$ $b = 1.255920 - 0.197610I$	$3.40227 + 8.02397I$	$0. - 8.23743I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.183392-0.749630I$ $a=-1.87602-0.53667I$ $b=\ \ 1.255920+0.197610I$	$3.40227-8.02397I$	$0.+8.23743I$
$u=-1.191740+0.311840I$ $a=\ \ 0.024118+1.067890I$ $b=\ \ 0.161195-0.679089I$	$-0.171796+0.563010I$	0
$u=-1.191740-0.311840I$ $a=\ \ 0.024118-1.067890I$ $b=\ \ 0.161195+0.679089I$	$-0.171796-0.563010I$	0
$u=-0.070853+0.764239I$ $a=\ \ 1.06562+1.55913I$ $b=-0.280012-0.707308I$	$3.24360+3.35091I$	$6.53466-8.76240I$
$u=-0.070853-0.764239I$ $a=\ \ 1.06562-1.55913I$ $b=-0.280012+0.707308I$	$3.24360-3.35091I$	$6.53466+8.76240I$
$u=\ \ 0.246615+0.720604I$ $a=-2.13436+0.83952I$ $b=\ \ 0.337598-1.206740I$	$-4.66475-5.87886I$	$-6.12270+7.07846I$
$u=\ \ 0.246615-0.720604I$ $a=-2.13436-0.83952I$ $b=\ \ 0.337598+1.206740I$	$-4.66475+5.87886I$	$-6.12270-7.07846I$
$u=\ \ 1.23931$ $a=-1.85412$ $b=\ \ 0.145370$	-1.16737	0
$u=\ \ 1.134870+0.535688I$ $a=\ \ 0.626428+0.107886I$ $b=-0.394333+0.864051I$	$-0.82512-7.90541I$	0
$u=\ \ 1.134870-0.535688I$ $a=\ \ 0.626428-0.107886I$ $b=-0.394333-0.864051I$	$-0.82512+7.90541I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.245080 + 0.173938I$ $a = 1.021120 - 0.397967I$ $b = -0.492548 - 1.109200I$	$-3.46073 + 3.05016I$	0
$u = 1.245080 - 0.173938I$ $a = 1.021120 + 0.397967I$ $b = -0.492548 + 1.109200I$	$-3.46073 - 3.05016I$	0
$u = 0.143744 + 0.721391I$ $a = 1.87656 + 0.52922I$ $b = -1.061160 - 0.341838I$	$4.71433 - 2.79991I$	$3.67971 + 2.47559I$
$u = 0.143744 - 0.721391I$ $a = 1.87656 - 0.52922I$ $b = -1.061160 + 0.341838I$	$4.71433 + 2.79991I$	$3.67971 - 2.47559I$
$u = 0.649728 + 0.327883I$ $a = 0.253720 + 0.133156I$ $b = -0.204354 - 1.251600I$	$-6.29212 + 2.13876I$	$-10.09902 - 1.16229I$
$u = 0.649728 - 0.327883I$ $a = 0.253720 - 0.133156I$ $b = -0.204354 + 1.251600I$	$-6.29212 - 2.13876I$	$-10.09902 + 1.16229I$
$u = -1.251240 + 0.302585I$ $a = 0.536351 + 0.071547I$ $b = -0.613211 - 0.091360I$	$-0.796656 + 1.165520I$	0
$u = -1.251240 - 0.302585I$ $a = 0.536351 - 0.071547I$ $b = -0.613211 + 0.091360I$	$-0.796656 - 1.165520I$	0
$u = -0.265715 + 0.657057I$ $a = -1.77184 + 0.24968I$ $b = 0.790079 + 0.494585I$	$-0.07306 + 2.71892I$	$-4.07089 - 6.67892I$
$u = -0.265715 - 0.657057I$ $a = -1.77184 - 0.24968I$ $b = 0.790079 - 0.494585I$	$-0.07306 - 2.71892I$	$-4.07089 + 6.67892I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.289740+0.091959I$ $a=\ \ 0.487671-0.497441I$ $b=-0.919604+0.424918I$	$-2.79729-0.29925I$	0
$u=-1.289740-0.091959I$ $a=\ \ 0.487671+0.497441I$ $b=-0.919604-0.424918I$	$-2.79729+0.29925I$	0
$u=-1.286060+0.217213I$ $a=-0.942728+0.296382I$ $b=\ \ 0.602910-0.732975I$	$-1.14693+3.01047I$	0
$u=-1.286060-0.217213I$ $a=-0.942728-0.296382I$ $b=\ \ 0.602910+0.732975I$	$-1.14693-3.01047I$	0
$u=\ \ 1.297020+0.168197I$ $a=\ \ 0.803997+0.674909I$ $b=\ \ 0.06844+1.75600I$	$-7.43887-0.64726I$	0
$u=\ \ 1.297020-0.168197I$ $a=\ \ 0.803997-0.674909I$ $b=\ \ 0.06844-1.75600I$	$-7.43887+0.64726I$	0
$u=\ \ 1.314830+0.065784I$ $a=-0.432923-0.952214I$ $b=\ \ 1.027710+0.621020I$	$-4.97328+5.01201I$	0
$u=\ \ 1.314830-0.065784I$ $a=-0.432923+0.952214I$ $b=\ \ 1.027710-0.621020I$	$-4.97328-5.01201I$	0
$u=\ \ 1.309110+0.220391I$ $a=-1.69121-1.55482I$ $b=\ \ 0.272681-0.998474I$	$-1.34053-2.82972I$	0
$u=\ \ 1.309110-0.220391I$ $a=-1.69121+1.55482I$ $b=\ \ 0.272681+0.998474I$	$-1.34053+2.82972I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.226503+0.629720I$ $a=-1.82895-0.59609I$ $b=\ \ 0.595575+0.950772I$	$-0.17888+2.24153I$	$-2.03920-4.83013I$
$u=-0.226503-0.629720I$ $a=-1.82895+0.59609I$ $b=\ \ 0.595575-0.950772I$	$-0.17888-2.24153I$	$-2.03920+4.83013I$
$u=\ \ 1.309960+0.318270I$ $a=-1.308210+0.373986I$ $b=\ \ 0.402858-0.719122I$	$-1.07582-7.25709I$	0
$u=\ \ 1.309960-0.318270I$ $a=-1.308210-0.373986I$ $b=\ \ 0.402858+0.719122I$	$-1.07582+7.25709I$	0
$u=-1.338960+0.174442I$ $a=\ \ 2.24878-1.21891I$ $b=-0.024251-0.916418I$	$-5.56464-2.29092I$	0
$u=-1.338960-0.174442I$ $a=\ \ 2.24878+1.21891I$ $b=-0.024251+0.916418I$	$-5.56464+2.29092I$	0
$u=-1.340680+0.210493I$ $a=-0.877607+0.528762I$ $b=-0.30500+1.81718I$	$-8.12771+4.44289I$	0
$u=-1.340680-0.210493I$ $a=-0.877607-0.528762I$ $b=-0.30500-1.81718I$	$-8.12771-4.44289I$	0
$u=\ \ 1.318240+0.347178I$ $a=-0.302737+0.449145I$ $b=\ \ 0.0350078-0.1026420I$	$-1.33416-6.99228I$	0
$u=\ \ 1.318240-0.347178I$ $a=-0.302737-0.449145I$ $b=\ \ 0.0350078+0.1026420I$	$-1.33416+6.99228I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.342730+0.240858I$ $a=\ \ 1.20491-1.89788I$ $b=-0.256076-1.209960I$	$-4.66530+8.85846I$	0
$u=-1.342730-0.240858I$ $a=\ \ 1.20491+1.89788I$ $b=-0.256076+1.209960I$	$-4.66530-8.85846I$	0
$u=-1.349190+0.211300I$ $a=-1.83931+0.52479I$ $b=\ \ 0.57970+1.46511I$	$-8.08214+2.22669I$	0
$u=-1.349190-0.211300I$ $a=-1.83931-0.52479I$ $b=\ \ 0.57970-1.46511I$	$-8.08214-2.22669I$	0
$u=\ \ 0.277760+0.559975I$ $a=\ \ 2.75484-0.37789I$ $b=-0.83736+1.18337I$	$-2.26658-6.27963I$	$-6.34357+11.22337I$
$u=\ \ 0.277760-0.559975I$ $a=\ \ 2.75484+0.37789I$ $b=-0.83736-1.18337I$	$-2.26658+6.27963I$	$-6.34357-11.22337I$
$u=\ \ 1.371230+0.136561I$ $a=\ \ 0.096261-0.232470I$ $b=\ \ 0.629399+0.641989I$	$-6.90132-2.06770I$	0
$u=\ \ 1.371230-0.136561I$ $a=\ \ 0.096261+0.232470I$ $b=\ \ 0.629399-0.641989I$	$-6.90132+2.06770I$	0
$u=-1.350410+0.292276I$ $a=-0.574263+0.744951I$ $b=\ \ 1.203480-0.246195I$	$-0.00337+6.46781I$	0
$u=-1.350410-0.292276I$ $a=-0.574263-0.744951I$ $b=\ \ 1.203480+0.246195I$	$-0.00337-6.46781I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.109627 + 0.601306I$ $a = -2.02450 - 0.50174I$ $b = 0.351609 - 1.133120I$	$-0.05515 - 5.77718I$	$2.75164 + 8.40546I$
$u = 0.109627 - 0.601306I$ $a = -2.02450 + 0.50174I$ $b = 0.351609 + 1.133120I$	$-0.05515 + 5.77718I$	$2.75164 - 8.40546I$
$u = 1.374500 + 0.260783I$ $a = 1.36759 + 0.71622I$ $b = -0.653101 + 1.173240I$	$-5.24269 - 5.52378I$	0
$u = 1.374500 - 0.260783I$ $a = 1.36759 - 0.71622I$ $b = -0.653101 - 1.173240I$	$-5.24269 + 5.52378I$	0
$u = -0.479566 + 0.355001I$ $a = -0.436840 - 0.693374I$ $b = -0.215840 + 0.910078I$	$-1.29796 + 0.90199I$	$-5.18087 - 4.06045I$
$u = -0.479566 - 0.355001I$ $a = -0.436840 + 0.693374I$ $b = -0.215840 - 0.910078I$	$-1.29796 - 0.90199I$	$-5.18087 + 4.06045I$
$u = 1.370910 + 0.305032I$ $a = 0.533182 + 0.876918I$ $b = -1.382640 - 0.102108I$	$-1.51815 - 11.83770I$	0
$u = 1.370910 - 0.305032I$ $a = 0.533182 - 0.876918I$ $b = -1.382640 + 0.102108I$	$-1.51815 + 11.83770I$	0
$u = -0.013333 + 0.592223I$ $a = 2.42975 + 0.29872I$ $b = -0.392539 - 0.807900I$	$2.82904 - 0.08807I$	$5.60147 + 0.37026I$
$u = -0.013333 - 0.592223I$ $a = 2.42975 - 0.29872I$ $b = -0.392539 + 0.807900I$	$2.82904 + 0.08807I$	$5.60147 - 0.37026I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.397730 + 0.189525I$ $a = 0.958506 + 0.724031I$ $b = -0.177783 + 0.029116I$	$-5.89100 - 6.15905I$	0
$u = 1.397730 - 0.189525I$ $a = 0.958506 - 0.724031I$ $b = -0.177783 - 0.029116I$	$-5.89100 + 6.15905I$	0
$u = 0.362563 + 0.457638I$ $a = 0.208409 - 1.271840I$ $b = 0.569372 + 1.258850I$	$-2.66428 + 3.24443I$	$-6.17705 - 2.02777I$
$u = 0.362563 - 0.457638I$ $a = 0.208409 + 1.271840I$ $b = 0.569372 - 1.258850I$	$-2.66428 - 3.24443I$	$-6.17705 + 2.02777I$
$u = -1.39806 + 0.22871I$ $a = -1.58146 + 1.09204I$ $b = 0.94345 + 1.32751I$	$-7.59586 + 9.21921I$	0
$u = -1.39806 - 0.22871I$ $a = -1.58146 - 1.09204I$ $b = 0.94345 - 1.32751I$	$-7.59586 - 9.21921I$	0
$u = -1.40906 + 0.18020I$ $a = -0.736086 + 0.285567I$ $b = -0.55498 + 1.46645I$	$-8.27139 - 0.86389I$	0
$u = -1.40906 - 0.18020I$ $a = -0.736086 - 0.285567I$ $b = -0.55498 - 1.46645I$	$-8.27139 + 0.86389I$	0
$u = 1.41549 + 0.13332I$ $a = 0.418946 + 0.403074I$ $b = 0.214404 + 1.204350I$	$-7.22098 - 2.65469I$	0
$u = 1.41549 - 0.13332I$ $a = 0.418946 - 0.403074I$ $b = 0.214404 - 1.204350I$	$-7.22098 + 2.65469I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.39810+0.29350I$ $a=\ \ 1.93006-0.63919I$ $b=-0.405049-1.248080I$	$-9.89266+9.57242I$	0
$u=-1.39810-0.29350I$ $a=\ \ 1.93006+0.63919I$ $b=-0.405049+1.248080I$	$-9.89266-9.57242I$	0
$u=\ \ 1.40689+0.25940I$ $a=\ \ 1.025100+0.918783I$ $b=-0.815266+0.674857I$	$-5.41669-6.06942I$	0
$u=\ \ 1.40689-0.25940I$ $a=\ \ 1.025100-0.918783I$ $b=-0.815266-0.674857I$	$-5.41669+6.06942I$	0
$u=-0.486120+0.286145I$ $a=\ \ 0.185350-0.667609I$ $b=-0.568095+0.418020I$	$-1.31003+0.54175I$	$-6.81683-1.31516I$
$u=-0.486120-0.286145I$ $a=\ \ 0.185350+0.667609I$ $b=-0.568095-0.418020I$	$-1.31003-0.54175I$	$-6.81683+1.31516I$
$u=\ \ 0.133677+0.536129I$ $a=\ \ 2.10326-2.26270I$ $b=-0.392636+1.317170I$	$-3.37384+0.52133I$	$-4.26987+2.66669I$
$u=\ \ 0.133677-0.536129I$ $a=\ \ 2.10326+2.26270I$ $b=-0.392636-1.317170I$	$-3.37384-0.52133I$	$-4.26987-2.66669I$
$u=\ \ 1.41088+0.33302I$ $a=-1.59820-0.69108I$ $b=\ \ 0.63561-1.29752I$	$-3.36834-12.86740I$	0
$u=\ \ 1.41088-0.33302I$ $a=-1.59820+0.69108I$ $b=\ \ 0.63561+1.29752I$	$-3.36834+12.86740I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.45618+0.07653I$ $a=-0.039806-1.092760I$ $b=\ 0.212168-1.380370I$	$-12.94690-0.82105I$	0
$u=-1.45618-0.07653I$ $a=-0.039806+1.092760I$ $b=\ 0.212168+1.380370I$	$-12.94690+0.82105I$	0
$u=\ 1.42202+0.35852I$ $a=\ 0.998334+0.626365I$ $b=-0.413990+1.173780I$	$-4.21413-4.94470I$	0
$u=\ 1.42202-0.35852I$ $a=\ 0.998334-0.626365I$ $b=-0.413990-1.173780I$	$-4.21413+4.94470I$	0
$u=-1.42895+0.33404I$ $a=\ 1.58291-0.81065I$ $b=-0.65275-1.40414I$	$-5.6600+18.7966I$	0
$u=-1.42895-0.33404I$ $a=\ 1.58291+0.81065I$ $b=-0.65275+1.40414I$	$-5.6600-18.7966I$	0
$u=\ 0.076022+0.521366I$ $a=\ 0.08077-1.73568I$ $b=\ 0.15097+1.72552I$	$-3.58802-1.74131I$	$-1.39572+5.92415I$
$u=\ 0.076022-0.521366I$ $a=\ 0.08077+1.73568I$ $b=\ 0.15097-1.72552I$	$-3.58802+1.74131I$	$-1.39572-5.92415I$
$u=\ 1.49460+0.01515I$ $a=\ 0.054877+0.764810I$ $b=-0.241243+1.238930I$	$-8.21426-3.52836I$	0
$u=\ 1.49460-0.01515I$ $a=\ 0.054877-0.764810I$ $b=-0.241243-1.238930I$	$-8.21426+3.52836I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.48241+0.26739I$ $a=-1.011520+0.728457I$ $b=\ \ 0.054138+0.901494I$	$-6.09411+3.76031I$	0
$u=-1.48241-0.26739I$ $a=-1.011520-0.728457I$ $b=\ \ 0.054138-0.901494I$	$-6.09411-3.76031I$	0
$u=-1.47562+0.34827I$ $a=-0.982200+0.694474I$ $b=\ \ 0.264731+1.228100I$	$-5.16016+9.09654I$	0
$u=-1.47562-0.34827I$ $a=-0.982200-0.694474I$ $b=\ \ 0.264731-1.228100I$	$-5.16016-9.09654I$	0
$u=-1.54342+0.01292I$ $a=\ \ 0.097509-0.778763I$ $b=\ \ 0.356165-1.265910I$	$-10.29580-8.53203I$	0
$u=-1.54342-0.01292I$ $a=\ \ 0.097509+0.778763I$ $b=\ \ 0.356165+1.265910I$	$-10.29580+8.53203I$	0
$u=\ \ 0.076394+0.385183I$ $a=-3.85398+1.50660I$ $b=-0.219834-0.730621I$	$-1.02291+4.47699I$	$-1.50211-1.73310I$
$u=\ \ 0.076394-0.385183I$ $a=-3.85398-1.50660I$ $b=-0.219834+0.730621I$	$-1.02291-4.47699I$	$-1.50211+1.73310I$
$u=\ \ 0.221791+0.154271I$ $a=-1.16786+2.68312I$ $b=\ \ 0.406142-0.079977I$	$1.50967-0.46289I$	$6.10398-0.66773I$
$u=\ \ 0.221791-0.154271I$ $a=-1.16786-2.68312I$ $b=\ \ 0.406142+0.079977I$	$1.50967+0.46289I$	$6.10398+0.66773I$

II.

$\boldsymbol{I_2^u = \langle -u^{22}+11u^{20}+\cdots+b+1,\ 4u^{22}+u^{21}+\cdots+a-6,\ u^{23}-u^{22}+\cdots-u+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -4u^{22} - u^{21} + \cdots - 11u + 6 \\ u^{22} - 11u^{20} + \cdots + 5u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -3u^{22} - u^{21} + \cdots - 6u + 5 \\ u^{22} - 11u^{20} + \cdots + 5u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 2u^{22} - 19u^{20} + \cdots - 4u - 3 \\ -u^{22} + 11u^{20} + \cdots + 7u^2 + 2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{22} - u^{21} + \cdots + 10u + 3 \\ 3u^{22} - 30u^{20} + \cdots - 2u - 4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -6u^{22} - 3u^{21} + \cdots - 10u + 8 \\ -u^{22} - 2u^{21} + \cdots + 5u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{19} + 2u^{18} + \cdots + 2u + 4 \\ 6u^{22} + u^{21} + \cdots + 4u - 7 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= u^{22}-5u^{21}+3u^{20}+46u^{19}-73u^{18}-181u^{17}+312u^{16}+403u^{15}-562u^{14}-569u^{13}+326u^{12}+517u^{11}+332u^{10}-226u^9-544u^8-79u^7+201u^6+115u^5-45u^4-10u^3+67u^2-6u-3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23} - 12u^{22} + \cdots + 15u - 1$
c_2	$u^{23} - 6u^{21} + \cdots + u + 1$
c_3	$u^{23} + 12u^{21} + \cdots + u + 1$
c_4, c_5	$u^{23} - u^{22} + \cdots - u + 1$
c_6	$u^{23} - u^{22} + \cdots + 2u + 1$
c_7	$u^{23} - 6u^{21} + \cdots + u - 1$
c_8	$u^{23} - u^{22} + \cdots + 11u + 1$
c_9	$u^{23} + 12u^{21} + \cdots + u - 1$
c_{10}	$u^{23} - 2u^{22} + \cdots - u - 1$
c_{11}	$u^{23} - 3u^{22} + \cdots + u + 1$
c_{12}	$u^{23} + u^{22} + \cdots - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} + 8y^{22} + \cdots + 15y - 1$
c_2, c_7	$y^{23} - 12y^{22} + \cdots + 15y - 1$
c_3, c_9	$y^{23} + 24y^{22} + \cdots - 19y - 1$
c_4, c_5, c_{12}	$y^{23} - 23y^{22} + \cdots - 17y - 1$
c_6	$y^{23} - 3y^{22} + \cdots + 2y - 1$
c_8	$y^{23} - 11y^{22} + \cdots + 11y - 1$
c_{10}	$y^{23} - 2y^{22} + \cdots + 3y - 1$
c_{11}	$y^{23} + 5y^{22} + \cdots - 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.136765+0.886584I$ $a=-0.464886-0.768538I$ $b=\ \ 0.074383+0.711970I$	$2.48459+2.92368I$	$-5.95131-7.29773I$
$u=-0.136765-0.886584I$ $a=-0.464886+0.768538I$ $b=\ \ 0.074383-0.711970I$	$2.48459-2.92368I$	$-5.95131+7.29773I$
$u=-1.137400+0.237603I$ $a=\ \ 0.598332-0.648516I$ $b=-0.001655+0.543381I$	$-0.135533+1.181210I$	$-0.14945-3.84915I$
$u=-1.137400-0.237603I$ $a=\ \ 0.598332+0.648516I$ $b=-0.001655-0.543381I$	$-0.135533-1.181210I$	$-0.14945+3.84915I$
$u=-1.18937$ $a=\ \ 1.57849$ $b=-0.595455$	-0.649623	4.33110
$u=-0.464086+0.619189I$ $a=-0.780759+0.520096I$ $b=\ \ 0.322899+0.676984I$	$0.86827+1.45338I$	$0.49234-5.72010I$
$u=-0.464086-0.619189I$ $a=-0.780759-0.520096I$ $b=\ \ 0.322899-0.676984I$	$0.86827-1.45338I$	$0.49234+5.72010I$
$u=\ \ 1.260330+0.119748I$ $a=-1.46115-0.66855I$ $b=\ \ 0.525408+0.828935I$	$-4.41882+3.57519I$	$-5.80927-5.34802I$
$u=\ \ 1.260330-0.119748I$ $a=-1.46115+0.66855I$ $b=\ \ 0.525408-0.828935I$	$-4.41882-3.57519I$	$-5.80927+5.34802I$
$u=\ \ 1.280310+0.369130I$ $a=\ \ 0.577225-0.404945I$ $b=-0.234517+0.714938I$	$-1.81288-7.46568I$	$-10.12623+9.56548I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.280310 - 0.369130I$ $a = 0.577225 + 0.404945I$ $b = -0.234517 - 0.714938I$	$-1.81288 + 7.46568I$	$-10.12623 - 9.56548I$
$u = 1.353890 + 0.130129I$ $a = 0.751565 + 0.094140I$ $b = 0.27703 + 1.62075I$	$-8.53828 - 2.94002I$	$-13.49393 + 2.30648I$
$u = 1.353890 - 0.130129I$ $a = 0.751565 - 0.094140I$ $b = 0.27703 - 1.62075I$	$-8.53828 + 2.94002I$	$-13.49393 - 2.30648I$
$u = -1.369740 + 0.143102I$ $a = -1.139000 + 0.741405I$ $b = -0.04448 + 1.63544I$	$-8.77933 + 0.50052I$	$-12.97044 + 0.14608I$
$u = -1.369740 - 0.143102I$ $a = -1.139000 - 0.741405I$ $b = -0.04448 - 1.63544I$	$-8.77933 - 0.50052I$	$-12.97044 - 0.14608I$
$u = -1.41992 + 0.22958I$ $a = -1.22821 + 1.25746I$ $b = 0.457852 + 1.150840I$	$-6.70083 + 8.08144I$	$-8.35369 - 6.88540I$
$u = -1.41992 - 0.22958I$ $a = -1.22821 - 1.25746I$ $b = 0.457852 - 1.150840I$	$-6.70083 - 8.08144I$	$-8.35369 + 6.88540I$
$u = 1.44924 + 0.28311I$ $a = 0.875266 + 0.848679I$ $b = -0.526388 + 0.943193I$	$-5.19446 - 4.96649I$	$-7.36181 + 3.19745I$
$u = 1.44924 - 0.28311I$ $a = 0.875266 - 0.848679I$ $b = -0.526388 - 0.943193I$	$-5.19446 + 4.96649I$	$-7.36181 - 3.19745I$
$u = 0.252157 + 0.442817I$ $a = 2.36364 + 1.41634I$ $b = -0.437807 + 0.961477I$	$-1.18000 - 5.38216I$	$-3.42253 + 8.35444I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.252157 - 0.442817I$ $a = 2.36364 - 1.41634I$ $b = -0.437807 - 0.961477I$	$-1.18000 + 5.38216I$	$-3.42253 - 8.35444I$
$u = 0.026666 + 0.331345I$ $a = 1.61873 - 3.31404I$ $b = -0.11499 + 1.57789I$	$-4.10141 + 1.27066I$	$-11.01927 + 0.35294I$
$u = 0.026666 - 0.331345I$ $a = 1.61873 + 3.31404I$ $b = -0.11499 - 1.57789I$	$-4.10141 - 1.27066I$	$-11.01927 - 0.35294I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{23}-12u^{22}+\cdots+15u-1)(u^{130}+57u^{129}+\cdots+113740u+5776)$
c_2	$(u^{23}-6u^{21}+\cdots+u+1)(u^{130}+u^{129}+\cdots+90u+76)$
c_3	$(u^{23}+12u^{21}+\cdots+u+1)(u^{130}+u^{129}+\cdots+7u-1)$
c_4, c_5	$(u^{23}-u^{22}+\cdots-u+1)(u^{130}+2u^{129}+\cdots+107u-19)$
c_6	$(u^{23}-u^{22}+\cdots+2u+1)(u^{130}+12u^{129}+\cdots-270u-19)$
c_7	$(u^{23}-6u^{21}+\cdots+u-1)(u^{130}+u^{129}+\cdots+90u+76)$
c_8	$(u^{23}-u^{22}+\cdots+11u+1)(u^{130}+18u^{129}+\cdots-2103u+1217)$
c_9	$(u^{23}+12u^{21}+\cdots+u-1)(u^{130}+u^{129}+\cdots+7u-1)$
c_{10}	$(u^{23}-2u^{22}+\cdots-u-1)(u^{130}+u^{129}+\cdots-49u-1)$
c_{11}	$(u^{23}-3u^{22}+\cdots+u+1)(u^{130}-6u^{129}+\cdots+1396235u-512411)$
c_{12}	$(u^{23}+u^{22}+\cdots-u-1)(u^{130}+2u^{129}+\cdots+107u-19)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{23}+8y^{22}+\cdots+15y-1)$ $\cdot(y^{130}+43y^{129}+\cdots-401377392y+33362176)$
c_2, c_7	$(y^{23}-12y^{22}+\cdots+15y-1)(y^{130}-57y^{129}+\cdots-113740y+5776)$
c_3, c_9	$(y^{23}+24y^{22}+\cdots-19y-1)(y^{130}+87y^{129}+\cdots+41y+1)$
c_4, c_5, c_{12}	$(y^{23}-23y^{22}+\cdots-17y-1)(y^{130}-116y^{129}+\cdots+4815y+361)$
c_6	$(y^{23}-3y^{22}+\cdots+2y-1)(y^{130}+4y^{129}+\cdots+53792y+361)$
c_8	$(y^{23}-11y^{22}+\cdots+11y-1)$ $\cdot(y^{130}-28y^{129}+\cdots-151952217y+1481089)$
c_{10}	$(y^{23}-2y^{22}+\cdots+3y-1)(y^{130}+y^{129}+\cdots-73y+1)$
c_{11}	$(y^{23}+5y^{22}+\cdots-13y-1)$ $\cdot(y^{130}+28y^{129}+\cdots-9070292069281y+262565032921)$