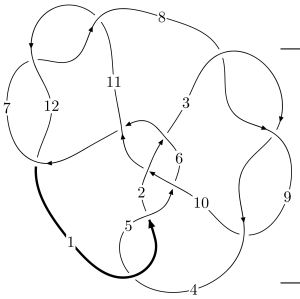
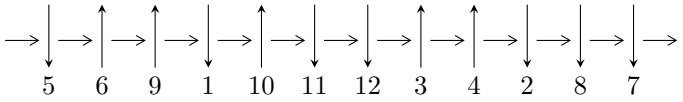
$12a_{1239}$ $(K12a_{1239})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -2.16293 \times 10^{238} u^{108} + 4.57466 \times 10^{237} u^{107} + \cdots + 6.35674 \times 10^{238} b + 6.92303 \times 10^{239}, \\ & 7.38011 \times 10^{240} u^{108} + 2.03785 \times 10^{240} u^{107} + \cdots + 9.09013 \times 10^{240} a - 5.28559 \times 10^{242}, \\ & u^{109} - u^{108} + \cdots - 702u + 77 \rangle \\ I_2^u = \langle & -2u^{20} - u^{19} + \cdots + b + 1,\ 2u^{20} + u^{19} + \cdots + a - 2,\ u^{21} - 12u^{19} + \cdots - 6u^2 + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 130 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. $\boldsymbol{I_1^u = \langle -2.16 \times 10^{238} u^{108} + 4.57 \times 10^{237} u^{107} + \cdots + 6.36 \times 10^{238} b + 6.92 \times 10^{239},\ 7.38 \times 10^{240} u^{108} + 2.04 \times 10^{240} u^{107} + \cdots + 9.09 \times 10^{240} a - 5.29 \times 10^{242},\ u^{109} - u^{108} + \cdots - 702u + 77 \rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.811882u^{108} - 0.224183u^{107} + \cdots - 454.989u + 58.1464 \\ 0.340258u^{108} - 0.0719655u^{107} + \cdots + 91.1539u - 10.8909 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.269423u^{108} + 0.00887088u^{107} + \cdots + 230.443u - 22.9965 \\ 0.146266u^{108} - 0.00239065u^{107} + \cdots + 70.3322u - 6.96378 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.461750u^{108} + 0.259214u^{107} + \cdots + 364.820u - 44.4482 \\ -0.0841838u^{108} - 0.307556u^{107} + \cdots - 178.076u + 19.9457 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.471623u^{108} - 0.296148u^{107} + \cdots - 363.835u + 47.2556 \\ 0.340258u^{108} - 0.0719655u^{107} + \cdots + 91.1539u - 10.8909 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.203576u^{108} + 0.00498689u^{107} + \cdots + 159.911u - 17.2909 \\ -0.235376u^{108} - 0.228601u^{107} + \cdots - 161.577u + 19.6613 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.438650u^{108} - 0.253632u^{107} + \cdots - 318.988u + 43.9323 \\ 0.160932u^{108} - 0.103965u^{107} + \cdots + 3.80476u - 0.189305 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.391839u^{108} + 0.143609u^{107} + \cdots + 269.772u - 30.1477 \\ -0.109641u^{108} - 0.134993u^{107} + \cdots - 92.6369u + 11.6066 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.377168u^{108} - 0.939926u^{107} + \cdots - 782.643u + 90.1335$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{109} - 2u^{108} + \cdots + 1917u + 82$
c_2	$u^{109} - 7u^{108} + \cdots - 18586u + 1549$
c_3, c_8, c_9	$u^{109} - u^{108} + \cdots - 702u + 77$
c_5	$u^{109} + 3u^{108} + \cdots - 4u - 1$
c_6	$u^{109} - 11u^{107} + \cdots + 485349u + 49014$
c_7, c_{11}, c_{12}	$u^{109} + 49u^{107} + \cdots + 86u + 7$
c_{10}	$u^{109} + 2u^{108} + \cdots - 33482u - 3797$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{109} - 68y^{108} + \cdots + 688121y - 6724$
c_2	$y^{109} - 7y^{108} + \cdots + 266973252y - 2399401$
c_3, c_8, c_9	$y^{109} - 107y^{108} + \cdots - 49892y - 5929$
c_5	$y^{109} + y^{108} + \cdots + 276y - 1$
c_6	$y^{109} - 22y^{108} + \cdots + 45167886549y - 2402372196$
c_7, c_{11}, c_{12}	$y^{109} + 98y^{108} + \cdots + 1866y - 49$
c_{10}	$y^{109} - 28y^{108} + \cdots + 893011692y - 14417209$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.402166 + 0.903386I$ $a = -0.645464 - 0.395709I$ $b = -0.779161 + 0.223079I$	$-4.97037 + 8.83338I$	0
$u = 0.402166 - 0.903386I$ $a = -0.645464 + 0.395709I$ $b = -0.779161 - 0.223079I$	$-4.97037 - 8.83338I$	0
$u = 0.409660 + 0.939407I$ $a = 1.37430 + 0.42777I$ $b = 0.141105 - 1.335290I$	$2.90773 + 0.15092I$	0
$u = 0.409660 - 0.939407I$ $a = 1.37430 - 0.42777I$ $b = 0.141105 + 1.335290I$	$2.90773 - 0.15092I$	0
$u = -0.479093 + 0.959436I$ $a = -1.27070 + 0.95386I$ $b = -0.31750 - 1.39255I$	$0.15694 - 12.79750I$	0
$u = -0.479093 - 0.959436I$ $a = -1.27070 - 0.95386I$ $b = -0.31750 + 1.39255I$	$0.15694 + 12.79750I$	0
$u = 0.888136 + 0.221520I$ $a = -0.434492 + 0.515899I$ $b = 0.076175 - 1.337740I$	$4.61771 + 4.78282I$	0
$u = 0.888136 - 0.221520I$ $a = -0.434492 - 0.515899I$ $b = 0.076175 + 1.337740I$	$4.61771 - 4.78282I$	0
$u = -0.012761 + 0.871508I$ $a = 1.055820 - 0.620238I$ $b = 0.205778 + 1.378580I$	$4.06152 - 3.86430I$	0
$u = -0.012761 - 0.871508I$ $a = 1.055820 + 0.620238I$ $b = 0.205778 - 1.378580I$	$4.06152 + 3.86430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.723802+0.420986I$ $a=\ \ 0.58615-1.57520I$ $b=-0.094032+1.368090I$	$6.35292-0.00652I$	0
$u=-0.723802-0.420986I$ $a=\ \ 0.58615+1.57520I$ $b=-0.094032-1.368090I$	$6.35292+0.00652I$	0
$u=-0.302564+0.777666I$ $a=-0.439464-0.257334I$ $b=-0.376279+0.918943I$	$-2.78988-4.61220I$	0
$u=-0.302564-0.777666I$ $a=-0.439464+0.257334I$ $b=-0.376279-0.918943I$	$-2.78988+4.61220I$	0
$u=-1.004910+0.610298I$ $a=\ \ 1.24202-1.50121I$ $b=\ \ 0.206815+1.140270I$	$-0.757207-0.159867I$	0
$u=-1.004910-0.610298I$ $a=\ \ 1.24202+1.50121I$ $b=\ \ 0.206815-1.140270I$	$-0.757207+0.159867I$	0
$u=\ \ 0.876916+0.797051I$ $a=\ \ 0.239792+0.275895I$ $b=\ \ 0.675277+0.146480I$	$-3.65883-3.10618I$	0
$u=\ \ 0.876916-0.797051I$ $a=\ \ 0.239792-0.275895I$ $b=\ \ 0.675277-0.146480I$	$-3.65883+3.10618I$	0
$u=-0.065013+0.785502I$ $a=\ \ 0.813491+0.209447I$ $b=\ \ 0.461186-0.247431I$	$-1.06660+1.28575I$	$0.-4.36944I$
$u=-0.065013-0.785502I$ $a=\ \ 0.813491-0.209447I$ $b=\ \ 0.461186+0.247431I$	$-1.06660-1.28575I$	$0.+4.36944I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.706186 + 0.310193I$ $a = -0.458785 + 0.915601I$ $b = 0.057777 - 1.389560I$	$4.60557 + 4.78957I$	$3.27657 - 7.06300I$
$u = 0.706186 - 0.310193I$ $a = -0.458785 - 0.915601I$ $b = 0.057777 + 1.389560I$	$4.60557 - 4.78957I$	$3.27657 + 7.06300I$
$u = 1.229600 + 0.042886I$ $a = 0.868263 + 0.659453I$ $b = 0.373419 - 1.260200I$	$1.35403 + 4.32888I$	0
$u = 1.229600 - 0.042886I$ $a = 0.868263 - 0.659453I$ $b = 0.373419 + 1.260200I$	$1.35403 - 4.32888I$	0
$u = -1.23501$ $a = 0.566495$ $b = 0.830761$	-2.55153	0
$u = -1.237070 + 0.045221I$ $a = 0.349532 + 1.329470I$ $b = 0.475480 - 0.101342I$	$0.84742 - 2.96547I$	0
$u = -1.237070 - 0.045221I$ $a = 0.349532 - 1.329470I$ $b = 0.475480 + 0.101342I$	$0.84742 + 2.96547I$	0
$u = -0.845077 + 0.926171I$ $a = 0.038004 + 1.007000I$ $b = 0.269827 - 1.355260I$	$1.09925 + 6.53748I$	0
$u = -0.845077 - 0.926171I$ $a = 0.038004 - 1.007000I$ $b = 0.269827 + 1.355260I$	$1.09925 - 6.53748I$	0
$u = 0.387936 + 0.629916I$ $a = -2.16003 - 0.35618I$ $b = -0.271893 + 1.371710I$	$4.02135 + 7.40202I$	$1.48621 - 8.34449I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.387936 - 0.629916I$ $a = -2.16003 + 0.35618I$ $b = -0.271893 - 1.371710I$	$4.02135 - 7.40202I$	$1.48621 + 8.34449I$
$u = -1.271310 + 0.063914I$ $a = 0.312411 - 1.082760I$ $b = -0.725766 + 0.514272I$	$0.83894 + 1.77988I$	0
$u = -1.271310 - 0.063914I$ $a = 0.312411 + 1.082760I$ $b = -0.725766 - 0.514272I$	$0.83894 - 1.77988I$	0
$u = -1.28616$ $a = 0.447895$ $b = -1.09734$	-1.88852	0
$u = 0.199830 + 0.671170I$ $a = 0.568605 - 0.410665I$ $b = -0.264456 - 1.270140I$	$-1.01524 - 1.96553I$	$-6.38016 + 0.12406I$
$u = 0.199830 - 0.671170I$ $a = 0.568605 + 0.410665I$ $b = -0.264456 + 1.270140I$	$-1.01524 + 1.96553I$	$-6.38016 - 0.12406I$
$u = 0.215861 + 0.660226I$ $a = 0.696973 - 0.315430I$ $b = 0.222402 + 1.384000I$	$3.94108 - 3.85885I$	$3.50122 - 0.26371I$
$u = 0.215861 - 0.660226I$ $a = 0.696973 + 0.315430I$ $b = 0.222402 - 1.384000I$	$3.94108 + 3.85885I$	$3.50122 + 0.26371I$
$u = 1.312440 + 0.058338I$ $a = -1.03261 - 2.67872I$ $b = -0.27777 + 1.48571I$	$7.22104 + 5.46339I$	0
$u = 1.312440 - 0.058338I$ $a = -1.03261 + 2.67872I$ $b = -0.27777 - 1.48571I$	$7.22104 - 5.46339I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.314640 + 0.115295I$ $a = -0.039631 - 1.372770I$ $b = -0.622814 + 1.146730I$	$1.57876 + 5.92457I$	0
$u = 1.314640 - 0.115295I$ $a = -0.039631 + 1.372770I$ $b = -0.622814 - 1.146730I$	$1.57876 - 5.92457I$	0
$u = 0.498353 + 0.438479I$ $a = 1.22480 + 1.23190I$ $b = 0.358009 - 1.365210I$	$0.24196 + 5.33437I$	$-2.60697 - 8.66869I$
$u = 0.498353 - 0.438479I$ $a = 1.22480 - 1.23190I$ $b = 0.358009 + 1.365210I$	$0.24196 - 5.33437I$	$-2.60697 + 8.66869I$
$u = 1.341430 + 0.039329I$ $a = 1.99786 + 3.00047I$ $b = 0.193376 - 1.347340I$	$5.48826 - 0.46976I$	0
$u = 1.341430 - 0.039329I$ $a = 1.99786 - 3.00047I$ $b = 0.193376 + 1.347340I$	$5.48826 + 0.46976I$	0
$u = -0.366704 + 0.534973I$ $a = 1.48531 + 0.45009I$ $b = 0.140708 + 0.096859I$	$-1.56031 + 1.32922I$	$-2.76084 + 3.85029I$
$u = -0.366704 - 0.534973I$ $a = 1.48531 - 0.45009I$ $b = 0.140708 - 0.096859I$	$-1.56031 - 1.32922I$	$-2.76084 - 3.85029I$
$u = -1.340090 + 0.290087I$ $a = -0.97196 + 1.07562I$ $b = 0.171881 - 1.249210I$	$3.81193 - 1.57029I$	0
$u = -1.340090 - 0.290087I$ $a = -0.97196 - 1.07562I$ $b = 0.171881 + 1.249210I$	$3.81193 + 1.57029I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.351555+0.519947I$ $a=-1.39467+0.74443I$ $b=-0.668954-0.194817I$	$-0.94509-3.96567I$	$-3.76250+8.34585I$
$u=-0.351555-0.519947I$ $a=-1.39467-0.74443I$ $b=-0.668954+0.194817I$	$-0.94509+3.96567I$	$-3.76250-8.34585I$
$u=0.526085+0.316443I$ $a=2.28973-0.10814I$ $b=0.050084-1.190630I$	$1.43570+1.35410I$	$-2.21511-4.75341I$
$u=0.526085-0.316443I$ $a=2.28973+0.10814I$ $b=0.050084+1.190630I$	$1.43570-1.35410I$	$-2.21511+4.75341I$
$u=1.386830+0.165924I$ $a=0.359079-0.885169I$ $b=-0.832950+0.454638I$	$0.54555+3.28560I$	0
$u=1.386830-0.165924I$ $a=0.359079+0.885169I$ $b=-0.832950-0.454638I$	$0.54555-3.28560I$	0
$u=1.395460+0.201113I$ $a=-0.230205+1.033450I$ $b=0.579701-0.107176I$	$0.34831+4.21288I$	0
$u=1.395460-0.201113I$ $a=-0.230205-1.033450I$ $b=0.579701+0.107176I$	$0.34831-4.21288I$	0
$u=-1.412100+0.005572I$ $a=-0.368823+0.723200I$ $b=-0.216358-0.896293I$	$6.75578-2.21309I$	0
$u=-1.412100-0.005572I$ $a=-0.368823-0.723200I$ $b=-0.216358+0.896293I$	$6.75578+2.21309I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.255083+0.522829I$ $a=-0.56447+1.37469I$ $b=-0.706122-0.003147I$	$-4.92917-1.53125I$	$-11.49746+4.59325I$
$u=-0.255083-0.522829I$ $a=-0.56447-1.37469I$ $b=-0.706122+0.003147I$	$-4.92917+1.53125I$	$-11.49746-4.59325I$
$u=1.40333+0.26342I$ $a=0.072123+0.454527I$ $b=-0.477583-0.476051I$	$3.94288+2.18839I$	0
$u=1.40333-0.26342I$ $a=0.072123-0.454527I$ $b=-0.477583+0.476051I$	$3.94288-2.18839I$	0
$u=-1.42510+0.11645I$ $a=-0.276315+0.568667I$ $b=0.337968-0.861510I$	$6.84573-2.50887I$	0
$u=-1.42510-0.11645I$ $a=-0.276315-0.568667I$ $b=0.337968+0.861510I$	$6.84573+2.50887I$	0
$u=0.468042+0.324213I$ $a=0.424108-0.048597I$ $b=-0.150328-0.479453I$	$0.815027+1.022850I$	$3.02919-3.25441I$
$u=0.468042-0.324213I$ $a=0.424108+0.048597I$ $b=-0.150328+0.479453I$	$0.815027-1.022850I$	$3.02919+3.25441I$
$u=-0.268724+0.498523I$ $a=0.902578-0.112241I$ $b=0.570966-0.198366I$	$-1.12964+0.95097I$	$-4.40235-0.17666I$
$u=-0.268724-0.498523I$ $a=0.902578+0.112241I$ $b=0.570966+0.198366I$	$-1.12964-0.95097I$	$-4.40235+0.17666I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.39044+0.38463I$ $a=-0.359755+0.855120I$ $b=-0.624840-0.325101I$	$3.32026-5.78123I$	0
$u=-1.39044-0.38463I$ $a=-0.359755-0.855120I$ $b=-0.624840+0.325101I$	$3.32026+5.78123I$	0
$u=1.43421+0.20052I$ $a=0.286900+0.880032I$ $b=0.775807-0.235290I$	$4.79964+6.65469I$	0
$u=1.43421-0.20052I$ $a=0.286900-0.880032I$ $b=0.775807+0.235290I$	$4.79964-6.65469I$	0
$u=1.45126+0.17482I$ $a=-0.350683-0.497655I$ $b=-0.660874+0.191423I$	$4.56693+1.18183I$	0
$u=1.45126-0.17482I$ $a=-0.350683+0.497655I$ $b=-0.660874-0.191423I$	$4.56693-1.18183I$	0
$u=-1.46485+0.15689I$ $a=1.16123-3.16291I$ $b=0.231074+1.346100I$	$4.97716-7.18249I$	0
$u=-1.46485-0.15689I$ $a=1.16123+3.16291I$ $b=0.231074-1.346100I$	$4.97716+7.18249I$	0
$u=-0.057313+0.522945I$ $a=-0.151813-0.255917I$ $b=0.465107+0.874491I$	$-2.55513-3.73158I$	$-8.70339+7.84333I$
$u=-0.057313-0.522945I$ $a=-0.151813+0.255917I$ $b=0.465107-0.874491I$	$-2.55513+3.73158I$	$-8.70339-7.84333I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44683 + 0.28962I$ $a = -0.297664 - 0.751662I$ $b = 0.561893 + 0.861763I$	$2.86009 + 8.45184I$	0
$u = 1.44683 - 0.28962I$ $a = -0.297664 + 0.751662I$ $b = 0.561893 - 0.861763I$	$2.86009 - 8.45184I$	0
$u = -1.46109 + 0.24052I$ $a = 1.58791 - 1.91112I$ $b = 0.31802 + 1.40080I$	$9.9995 - 10.6187I$	0
$u = -1.46109 - 0.24052I$ $a = 1.58791 + 1.91112I$ $b = 0.31802 - 1.40080I$	$9.9995 + 10.6187I$	0
$u = -0.257351 + 0.449604I$ $a = 0.352827 - 0.610460I$ $b = 0.855234 + 0.210318I$	$-4.68867 - 0.97102I$	$-13.3723 + 6.4240I$
$u = -0.257351 - 0.449604I$ $a = 0.352827 + 0.610460I$ $b = 0.855234 - 0.210318I$	$-4.68867 + 0.97102I$	$-13.3723 - 6.4240I$
$u = -1.48988 + 0.17115I$ $a = -0.18079 + 2.56300I$ $b = 0.01048 - 1.55879I$	$11.34460 - 6.97363I$	0
$u = -1.48988 - 0.17115I$ $a = -0.18079 - 2.56300I$ $b = 0.01048 + 1.55879I$	$11.34460 + 6.97363I$	0
$u = -1.49162 + 0.16869I$ $a = -0.69571 + 2.37449I$ $b = -0.34801 - 1.48421I$	$6.72009 - 7.65156I$	0
$u = -1.49162 - 0.16869I$ $a = -0.69571 - 2.37449I$ $b = -0.34801 + 1.48421I$	$6.72009 + 7.65156I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.335283 + 0.366575I$ $a = -2.76096 - 2.87597I$ $b = -0.292158 + 1.267780I$	$-0.99137 + 5.14839I$	$-5.97316 - 9.02612I$
$u = 0.335283 - 0.366575I$ $a = -2.76096 + 2.87597I$ $b = -0.292158 - 1.267780I$	$-0.99137 - 5.14839I$	$-5.97316 + 9.02612I$
$u = 1.45480 + 0.43655I$ $a = -1.44926 - 2.00390I$ $b = -0.24491 + 1.41953I$	$8.88562 + 8.97574I$	0
$u = 1.45480 - 0.43655I$ $a = -1.44926 + 2.00390I$ $b = -0.24491 - 1.41953I$	$8.88562 - 8.97574I$	0
$u = -1.48994 + 0.33995I$ $a = 0.079255 - 0.848166I$ $b = 0.837072 + 0.296873I$	$1.10152 - 13.31460I$	0
$u = -1.48994 - 0.33995I$ $a = 0.079255 + 0.848166I$ $b = 0.837072 - 0.296873I$	$1.10152 + 13.31460I$	0
$u = -1.51254 + 0.23164I$ $a = -0.12120 - 2.24691I$ $b = -0.16243 + 1.44020I$	$10.05140 + 0.10640I$	0
$u = -1.51254 - 0.23164I$ $a = -0.12120 + 2.24691I$ $b = -0.16243 - 1.44020I$	$10.05140 - 0.10640I$	0
$u = -1.52922 + 0.27611I$ $a = -1.29031 + 1.71734I$ $b = -0.252493 - 1.365950I$	$9.49480 - 4.48007I$	0
$u = -1.52922 - 0.27611I$ $a = -1.29031 - 1.71734I$ $b = -0.252493 + 1.365950I$	$9.49480 + 4.48007I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.55785 + 0.09503I$ $a = -0.33657 - 2.57920I$ $b = 0.03854 + 1.45816I$	$13.95690 + 1.81696I$	0
$u = 1.55785 - 0.09503I$ $a = -0.33657 + 2.57920I$ $b = 0.03854 - 1.45816I$	$13.95690 - 1.81696I$	0
$u = 1.53265 + 0.35483I$ $a = 1.27460 + 2.05127I$ $b = 0.33695 - 1.43594I$	$6.6262 + 17.5573I$	0
$u = 1.53265 - 0.35483I$ $a = 1.27460 - 2.05127I$ $b = 0.33695 + 1.43594I$	$6.6262 - 17.5573I$	0
$u = 0.183641 + 0.225251I$ $a = 1.03198 - 4.98737I$ $b = -0.095671 - 1.198460I$	$1.51818 + 1.16554I$	$-1.88500 - 5.55795I$
$u = 0.183641 - 0.225251I$ $a = 1.03198 + 4.98737I$ $b = -0.095671 + 1.198460I$	$1.51818 - 1.16554I$	$-1.88500 + 5.55795I$
$u = -1.72887$ $a = 0.0331435$ $b = -0.449454$	6.32375	0
$u = 1.77079 + 0.10526I$ $a = -0.22227 + 2.10518I$ $b = -0.176744 - 1.335810I$	$10.68110 - 2.27846I$	0
$u = 1.77079 - 0.10526I$ $a = -0.22227 - 2.10518I$ $b = -0.176744 + 1.335810I$	$10.68110 + 2.27846I$	0

II.

$\boldsymbol{I_2^u = \langle -2u^{20}-u^{19}+\cdots+b+1,\ 2u^{20}+u^{19}+\cdots+a-2,\ u^{21}-12u^{19}+\cdots-6u^2+1\rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -2u^{20}-u^{19}+\cdots+4u+2 \\ 2u^{20}+u^{19}+\cdots-3u-1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{20}-12u^{18}+\cdots-5u-1 \\ 2u^{18}-20u^{16}+\cdots+3u+1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{20}+11u^{18}+\cdots-10u^3+5u \\ u^{20}-u^{19}+\cdots-3u+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{18}-10u^{16}+\cdots+u+1 \\ 2u^{20}+u^{19}+\cdots-3u-1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{19}+11u^{17}+\cdots-2u+1 \\ -u^{19}+u^{18}+\cdots-u^2+3u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{19}-10u^{17}+\cdots-4u^3+u^2 \\ u^{20}+3u^{19}+\cdots+u-3 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{19}-u^{18}+\cdots-4u+1 \\ -u^{19}+u^{18}+\cdots-u^2+4u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -6u^{20}+65u^{18}+4u^{17}-285u^{16}-34u^{15}+644u^{14}+114u^{13}-788u^{12}-195u^{11}+$
$509u^{10}+186u^9-187u^8-108u^7+77u^6+42u^5-28u^4-12u^3+15u^2+7u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21}+3u^{20}+\cdots-3u-1$
c_2	$u^{21}+2u^{19}+\cdots-4u^3+1$
c_3	$u^{21}-12u^{19}+\cdots+6u^2-1$
c_4	$u^{21}-3u^{20}+\cdots-3u+1$
c_5	$u^{21}+4u^{18}+\cdots+2u^2+1$
c_6	$u^{21}-u^{20}+\cdots+5u^2-1$
c_7	$u^{21}+u^{20}+\cdots-2u-1$
c_8, c_9	$u^{21}-12u^{19}+\cdots-6u^2+1$
c_{10}	$u^{21}+3u^{20}+\cdots+6u^2-1$
c_{11}, c_{12}	$u^{21}-u^{20}+\cdots-2u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{21} - 17y^{20} + \cdots + 21y - 1$
c_2	$y^{21} + 4y^{20} + \cdots + 4y^2 - 1$
c_3, c_8, c_9	$y^{21} - 24y^{20} + \cdots + 12y - 1$
c_5	$y^{21} - 8y^{19} + \cdots - 4y - 1$
c_6	$y^{21} - 7y^{20} + \cdots + 10y - 1$
c_7, c_{11}, c_{12}	$y^{21} + 21y^{20} + \cdots + 14y - 1$
c_{10}	$y^{21} - 9y^{20} + \cdots + 12y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.566384+0.496972I$ $a=\ \ 3.02528-0.66447I$ $b=\ \ 0.118068+1.275040I$	$1.63926+0.08626I$	$-1.301348+0.318760I$
$u=-0.566384-0.496972I$ $a=\ \ 3.02528+0.66447I$ $b=\ \ 0.118068-1.275040I$	$1.63926-0.08626I$	$-1.301348-0.318760I$
$u=-1.243910+0.203080I$ $a=\ \ 1.303970-0.410642I$ $b=-0.094643+1.210930I$	$4.17287-2.59275I$	$0.87542+5.07430I$
$u=-1.243910-0.203080I$ $a=\ \ 1.303970+0.410642I$ $b=-0.094643-1.210930I$	$4.17287+2.59275I$	$0.87542-5.07430I$
$u=\ \ 1.265450+0.078216I$ $a=-0.082073-0.771166I$ $b=-0.400308+1.163200I$	$1.97955+5.01003I$	$1.80881-5.40503I$
$u=\ \ 1.265450-0.078216I$ $a=-0.082073+0.771166I$ $b=-0.400308-1.163200I$	$1.97955-5.01003I$	$1.80881+5.40503I$
$u=-1.29372$ $a=\ \ 0.0962644$ $b=-0.984366$	-1.46311	4.12380
$u=-0.273763+0.622169I$ $a=\ \ 1.141210+0.256775I$ $b=\ \ 0.197775-1.398750I$	$3.36706+4.31329I$	$-5.11414-5.72301I$
$u=-0.273763-0.622169I$ $a=\ \ 1.141210-0.256775I$ $b=\ \ 0.197775+1.398750I$	$3.36706-4.31329I$	$-5.11414+5.72301I$
$u=\ \ 1.326810+0.169805I$ $a=\ \ 0.271075-1.190820I$ $b=-0.470586+0.411070I$	$1.64802+4.21985I$	$-0.03014-6.34461I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.326810 - 0.169805I$ $a = 0.271075 + 1.190820I$ $b = -0.470586 - 0.411070I$	$1.64802 - 4.21985I$	$-0.03014 + 6.34461I$
$u = 0.397507 + 0.494888I$ $a = 1.63977 + 0.04899I$ $b = 0.426638 + 0.185914I$	$-1.84535 - 1.88456I$	$-9.29763 + 6.87121I$
$u = 0.397507 - 0.494888I$ $a = 1.63977 - 0.04899I$ $b = 0.426638 - 0.185914I$	$-1.84535 + 1.88456I$	$-9.29763 - 6.87121I$
$u = 0.555572 + 0.152875I$ $a = 0.04568 - 2.41036I$ $b = 0.334075 + 1.250500I$	$-0.72441 - 4.14061I$	$-4.08467 + 2.20420I$
$u = 0.555572 - 0.152875I$ $a = 0.04568 + 2.41036I$ $b = 0.334075 - 1.250500I$	$-0.72441 + 4.14061I$	$-4.08467 - 2.20420I$
$u = -1.42772 + 0.20404I$ $a = -1.02867 + 2.61430I$ $b = -0.26074 - 1.46036I$	$7.76493 - 7.28682I$	$4.21292 + 5.62890I$
$u = -1.42772 - 0.20404I$ $a = -1.02867 - 2.61430I$ $b = -0.26074 + 1.46036I$	$7.76493 + 7.28682I$	$4.21292 - 5.62890I$
$u = -0.483520$ $a = -0.562123$ $b = 0.815366$	-4.54133	-10.0310
$u = -1.67287$ $a = -0.276615$ $b = -0.289165$	6.65866	12.4220
$u = 1.69150 + 0.06247I$ $a = -0.44500 + 2.13250I$ $b = -0.121197 - 1.370090I$	$11.27980 - 1.51430I$	$6.67341 - 0.66697I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.69150 - 0.06247I$		
$a = -0.44500 - 2.13250I$	$11.27980 + 1.51430I$	$6.67341 + 0.66697I$
$b = -0.121197 + 1.370090I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{21}+3u^{20}+\cdots-3u-1)(u^{109}-2u^{108}+\cdots+1917u+82)$
c_2	$(u^{21}+2u^{19}+\cdots-4u^3+1)(u^{109}-7u^{108}+\cdots-18586u+1549)$
c_3	$(u^{21}-12u^{19}+\cdots+6u^2-1)(u^{109}-u^{108}+\cdots-702u+77)$
c_4	$(u^{21}-3u^{20}+\cdots-3u+1)(u^{109}-2u^{108}+\cdots+1917u+82)$
c_5	$(u^{21}+4u^{18}+\cdots+2u^2+1)(u^{109}+3u^{108}+\cdots-4u-1)$
c_6	$(u^{21}-u^{20}+\cdots+5u^2-1)(u^{109}-11u^{107}+\cdots+485349u+49014)$
c_7	$(u^{21}+u^{20}+\cdots-2u-1)(u^{109}+49u^{107}+\cdots+86u+7)$
c_8, c_9	$(u^{21}-12u^{19}+\cdots-6u^2+1)(u^{109}-u^{108}+\cdots-702u+77)$
c_{10}	$(u^{21}+3u^{20}+\cdots+6u^2-1)(u^{109}+2u^{108}+\cdots-33482u-3797)$
c_{11}, c_{12}	$(u^{21}-u^{20}+\cdots-2u+1)(u^{109}+49u^{107}+\cdots+86u+7)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{21} - 17y^{20} + \cdots + 21y - 1)(y^{109} - 68y^{108} + \cdots + 688121y - 6724)$
c_2	$(y^{21} + 4y^{20} + \cdots + 4y^2 - 1)$ $\cdot (y^{109} - 7y^{108} + \cdots + 266973252y - 2399401)$
c_3, c_8, c_9	$(y^{21} - 24y^{20} + \cdots + 12y - 1)(y^{109} - 107y^{108} + \cdots - 49892y - 5929)$
c_5	$(y^{21} - 8y^{19} + \cdots - 4y - 1)(y^{109} + y^{108} + \cdots + 276y - 1)$
c_6	$(y^{21} - 7y^{20} + \cdots + 10y - 1)$ $\cdot (y^{109} - 22y^{108} + \cdots + 45167886549y - 2402372196)$
c_7, c_{11}, c_{12}	$(y^{21} + 21y^{20} + \cdots + 14y - 1)(y^{109} + 98y^{108} + \cdots + 1866y - 49)$
c_{10}	$(y^{21} - 9y^{20} + \cdots + 12y - 1)$ $\cdot (y^{109} - 28y^{108} + \cdots + 893011692y - 14417209)$