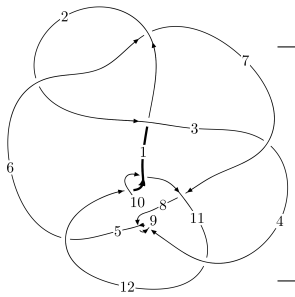
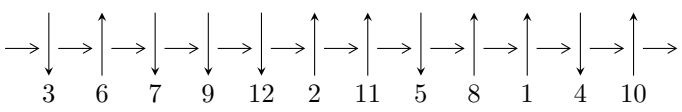
$12a_{0233}$ $(K12a_{0233})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 4.18488 \times 10^{227} u^{127} + 5.48646 \times 10^{227} u^{126} + \cdots + 2.24973 \times 10^{228} b + 1.02313 \times 10^{228},$
$1.34465 \times 10^{228} u^{127} + 5.19412 \times 10^{228} u^{126} + \cdots + 7.31163 \times 10^{228} a + 8.12721 \times 10^{228},\ u^{128} + 2u^{127} + \cdots +$
$I_2^u = \langle b,\ 21u^3 - 14u^2 + 13a + 54u - 24,\ u^4 - u^3 + 3u^2 - 2u + 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 132 representations.

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

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

I. $\boldsymbol{I_1^u = \langle 4.18 \times 10^{227} u^{127} + 5.49 \times 10^{227} u^{126} + \cdots + 2.25 \times 10^{228} b + 1.02 \times 10^{228},\ 1.34 \times 10^{228} u^{127} + 5.19 \times 10^{228} u^{126} + \cdots + 7.31 \times 10^{228} a + 8.13 \times 10^{228},\ u^{128} + 2u^{127} + \cdots + 4u + 1 \rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.183906u^{127} - 0.710391u^{126} + \cdots - 2.82573u - 1.11155 \\ -0.186017u^{127} - 0.243872u^{126} + \cdots + 0.364001u - 0.454777 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.12621u^{127} + 7.12324u^{126} + \cdots + 18.8467u + 7.04245 \\ -0.141375u^{127} - 0.0767156u^{126} + \cdots + 0.384787u + 0.310717 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0809780u^{127} - 0.414723u^{126} + \cdots - 2.39257u - 0.955381 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.369923u^{127} - 0.954263u^{126} + \cdots - 2.46172u - 1.56632 \\ -0.186017u^{127} - 0.243872u^{126} + \cdots + 0.364001u - 0.454777 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.272534u^{127} - 4.23409u^{126} + \cdots - 10.9206u - 2.04342 \\ 0.306137u^{127} + 0.382329u^{126} + \cdots + 1.78713u + 0.793514 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2.12817u^{127} - 3.27752u^{126} + \cdots - 6.67846u - 1.39973 \\ 0.0958762u^{127} + 0.310460u^{126} + \cdots + 2.02656u + 0.685172 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.289840u^{127} + 0.491603u^{126} + \cdots + 2.31147u + 0.795233 \\ 0.413994u^{127} + 0.479323u^{126} + \cdots + 1.65330u + 0.537177 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.987890u^{127} - 5.81033u^{126} + \cdots - 41.3925u - 15.5122$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{128}+62u^{127}+\cdots+4u+1$
c_2, c_6	$u^{128}-2u^{127}+\cdots-2u+1$
c_3	$u^{128}+2u^{127}+\cdots+4224656u+1446152$
c_4, c_8	$u^{128}+2u^{127}+\cdots+4u+1$
c_5	$13(13u^{128}-13u^{127}+\cdots-23585u+12601)$
c_7	$13(13u^{128}+104u^{127}+\cdots+257066u+17686)$
c_9	$u^{128}-58u^{127}+\cdots-4u+1$
c_{10}, c_{12}	$u^{128}+5u^{127}+\cdots+1642u+169$
c_{11}	$u^{128}+5u^{127}+\cdots+25272u+2704$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{128} + 10y^{127} + \cdots + 16y + 1$
c_2, c_6	$y^{128} + 62y^{127} + \cdots + 4y + 1$
c_3	$y^{128} - 42y^{127} + \cdots - 15693533191440y + 2091355607104$
c_4, c_8	$y^{128} + 58y^{127} + \cdots + 4y + 1$
c_5	$169(169y^{128} + 5603y^{127} + \cdots - 9.11953 \times 10^8 y + 1.58785 \times 10^8)$
c_7	$169(169y^{128} + 11180y^{127} + \cdots + 1.65779 \times 10^{10} y + 3.12795 \times 10^8)$
c_9	$y^{128} + 26y^{127} + \cdots + 64y + 1$
c_{10}, c_{12}	$y^{128} - 75y^{127} + \cdots + 85914y + 28561$
c_{11}	$y^{128} - 27y^{127} + \cdots + 238719936y + 7311616$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.632351+0.776627I$ $a=\ 0.384670+0.174926I$ $b=\ 0.468234+0.140402I$	$-0.40228+1.86126I$	0
$u=-0.632351-0.776627I$ $a=\ 0.384670-0.174926I$ $b=\ 0.468234-0.140402I$	$-0.40228-1.86126I$	0
$u=\ 0.898979+0.430780I$ $a=\ 0.129023+0.106373I$ $b=\ 1.16662-0.85267I$	$-0.07280+8.63391I$	0
$u=\ 0.898979-0.430780I$ $a=\ 0.129023-0.106373I$ $b=\ 1.16662+0.85267I$	$-0.07280-8.63391I$	0
$u=-0.895363+0.438019I$ $a=-0.156897+0.105804I$ $b=-1.24502-0.90117I$	$-2.65354-13.84350I$	0
$u=-0.895363-0.438019I$ $a=-0.156897-0.105804I$ $b=-1.24502+0.90117I$	$-2.65354+13.84350I$	0
$u=\ 0.929547+0.405477I$ $a=\ 0.0413716+0.0807925I$ $b=\ 0.848325-0.738830I$	$2.38568+6.03387I$	0
$u=\ 0.929547-0.405477I$ $a=\ 0.0413716-0.0807925I$ $b=\ 0.848325+0.738830I$	$2.38568-6.03387I$	0
$u=-0.885131+0.421262I$ $a=-0.115650+0.156423I$ $b=-1.221290-0.694121I$	$-4.91627-5.37289I$	0
$u=-0.885131-0.421262I$ $a=-0.115650-0.156423I$ $b=-1.221290+0.694121I$	$-4.91627+5.37289I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.952929+0.376629I$ $a=\ 0.0036938+0.0791327I$ $b=-0.702715-0.596805I$	$2.00855-0.71097I$	0
$u=-0.952929-0.376629I$ $a=\ 0.0036938-0.0791327I$ $b=-0.702715+0.596805I$	$2.00855+0.71097I$	0
$u=\ 0.818015+0.622461I$ $a=-0.186819+0.231456I$ $b=-1.110050-0.108095I$	$-6.18849-1.43861I$	0
$u=\ 0.818015-0.622461I$ $a=-0.186819-0.231456I$ $b=-1.110050+0.108095I$	$-6.18849+1.43861I$	0
$u=-0.274045+0.926878I$ $a=-0.92575-2.27337I$ $b=-0.602160+1.228960I$	$1.73156+2.55640I$	0
$u=-0.274045-0.926878I$ $a=-0.92575+2.27337I$ $b=-0.602160-1.228960I$	$1.73156-2.55640I$	0
$u=-0.322986+0.983840I$ $a=-0.41115-2.42512I$ $b=-1.34793+1.14806I$	$2.69083-3.89242I$	0
$u=-0.322986-0.983840I$ $a=-0.41115+2.42512I$ $b=-1.34793-1.14806I$	$2.69083+3.89242I$	0
$u=\ 0.346007+0.977002I$ $a=\ 0.31122-2.15276I$ $b=\ 1.36159+0.83379I$	$4.67825-0.54660I$	0
$u=\ 0.346007-0.977002I$ $a=\ 0.31122+2.15276I$ $b=\ 1.36159-0.83379I$	$4.67825+0.54660I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.426686+0.862947I$ $a=-2.03486-3.06355I$ $b=-0.329659+0.305677I$	$1.78616+1.80735I$	0
$u=-0.426686-0.862947I$ $a=-2.03486+3.06355I$ $b=-0.329659-0.305677I$	$1.78616-1.80735I$	0
$u=0.526025+0.894900I$ $a=-3.64824+6.31543I$ $b=-0.057519-0.285480I$	$-0.91250+1.67927I$	0
$u=0.526025-0.894900I$ $a=-3.64824-6.31543I$ $b=-0.057519+0.285480I$	$-0.91250-1.67927I$	0
$u=-0.500220+0.917179I$ $a=-0.90698+3.81295I$ $b=-0.208222-0.324824I$	$1.63645+2.27841I$	0
$u=-0.500220-0.917179I$ $a=-0.90698-3.81295I$ $b=-0.208222+0.324824I$	$1.63645-2.27841I$	0
$u=0.384306+0.990713I$ $a=-0.11804-1.66145I$ $b=1.57928+0.30620I$	$4.93867-1.81136I$	0
$u=0.384306-0.990713I$ $a=-0.11804+1.66145I$ $b=1.57928-0.30620I$	$4.93867+1.81136I$	0
$u=-0.037841+0.932887I$ $a=-1.66931-1.32141I$ $b=0.613399+1.108330I$	$-0.95705-6.55438I$	0
$u=-0.037841-0.932887I$ $a=-1.66931+1.32141I$ $b=0.613399-1.108330I$	$-0.95705+6.55438I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.535878 + 0.927976I$ $a = -2.05775 + 2.73591I$ $b = 0.015290 - 0.533756I$	$-1.26429 - 5.66383I$	0
$u = 0.535878 - 0.927976I$ $a = -2.05775 - 2.73591I$ $b = 0.015290 + 0.533756I$	$-1.26429 + 5.66383I$	0
$u = -0.745382 + 0.545622I$ $a = 0.077721 + 0.386047I$ $b = 1.42048 + 0.54522I$	$-7.27264 + 0.58083I$	0
$u = -0.745382 - 0.545622I$ $a = 0.077721 - 0.386047I$ $b = 1.42048 - 0.54522I$	$-7.27264 - 0.58083I$	0
$u = 0.883502 + 0.625066I$ $a = -0.191745 + 0.163487I$ $b = -0.948287 - 0.428041I$	$-3.74142 - 9.48538I$	0
$u = 0.883502 - 0.625066I$ $a = -0.191745 - 0.163487I$ $b = -0.948287 + 0.428041I$	$-3.74142 + 9.48538I$	0
$u = -0.400087 + 1.007720I$ $a = 0.57220 - 1.45592I$ $b = -1.80895 - 0.00572I$	$3.23788 + 6.12295I$	0
$u = -0.400087 - 1.007720I$ $a = 0.57220 + 1.45592I$ $b = -1.80895 + 0.00572I$	$3.23788 - 6.12295I$	0
$u = -0.873555 + 0.658407I$ $a = 0.163345 + 0.182698I$ $b = 0.860741 - 0.290075I$	$-1.37571 + 4.26938I$	0
$u = -0.873555 - 0.658407I$ $a = 0.163345 - 0.182698I$ $b = 0.860741 + 0.290075I$	$-1.37571 - 4.26938I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.096379 + 0.890392I$ $a = -1.36267 - 0.83058I$ $b = 0.566969 + 0.647022I$	$-2.01309 + 1.15458I$	0
$u = 0.096379 - 0.890392I$ $a = -1.36267 + 0.83058I$ $b = 0.566969 - 0.647022I$	$-2.01309 - 1.15458I$	0
$u = 0.718201 + 0.533561I$ $a = 0.019695 + 0.390470I$ $b = -1.30885 + 0.75980I$	$-3.18770 + 2.76839I$	0
$u = 0.718201 - 0.533561I$ $a = 0.019695 - 0.390470I$ $b = -1.30885 - 0.75980I$	$-3.18770 - 2.76839I$	0
$u = -0.727223 + 0.517544I$ $a = -0.015327 + 0.459392I$ $b = 1.44559 + 0.83679I$	$-5.85757 - 7.54109I$	0
$u = -0.727223 - 0.517544I$ $a = -0.015327 - 0.459392I$ $b = 1.44559 - 0.83679I$	$-5.85757 + 7.54109I$	0
$u = 0.200788 + 0.867511I$ $a = 1.08886 - 1.93715I$ $b = 0.099058 + 1.157480I$	$2.81820 + 1.20231I$	0
$u = 0.200788 - 0.867511I$ $a = 1.08886 + 1.93715I$ $b = 0.099058 - 1.157480I$	$2.81820 - 1.20231I$	0
$u = 0.492212 + 0.740960I$ $a = -2.20367 - 1.81776I$ $b = -0.101543 + 0.598383I$	$-1.38202 - 5.91758I$	0
$u = 0.492212 - 0.740960I$ $a = -2.20367 + 1.81776I$ $b = -0.101543 - 0.598383I$	$-1.38202 + 5.91758I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.448235+1.016420I$ $a=\ \ 1.120110-0.326616I$ $b=-1.52198-0.89095I$	$2.92272+0.14341I$	0
$u=-0.448235-1.016420I$ $a=\ \ 1.120110+0.326616I$ $b=-1.52198+0.89095I$	$2.92272-0.14341I$	0
$u=\ \ 0.471306+1.015550I$ $a=-1.220560+0.267213I$ $b=\ \ 1.16705-1.18281I$	$4.35010-4.32900I$	0
$u=\ \ 0.471306-1.015550I$ $a=-1.220560-0.267213I$ $b=\ \ 1.16705+1.18281I$	$4.35010+4.32900I$	0
$u=\ \ 0.054445+0.874045I$ $a=\ \ 1.38644-1.39055I$ $b=-0.390969+1.030140I$	$1.56973+2.00866I$	0
$u=\ \ 0.054445-0.874045I$ $a=\ \ 1.38644+1.39055I$ $b=-0.390969-1.030140I$	$1.56973-2.00866I$	0
$u=-0.449444+0.749502I$ $a=\ \ 1.16998-2.30692I$ $b=-0.000337+0.566212I$	$1.08929+1.73625I$	0
$u=-0.449444-0.749502I$ $a=\ \ 1.16998+2.30692I$ $b=-0.000337-0.566212I$	$1.08929-1.73625I$	0
$u=-0.578952+0.966012I$ $a=\ \ 0.95852+1.19777I$ $b=\ \ 0.373143-0.693459I$	$0.30632+2.86178I$	0
$u=-0.578952-0.966012I$ $a=\ \ 0.95852-1.19777I$ $b=\ \ 0.373143+0.693459I$	$0.30632-2.86178I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.793240 + 0.356284I$ $a = -0.107941 + 0.280203I$ $b = 1.071670 - 0.042848I$	$-6.33619 + 3.32794I$	0
$u = 0.793240 - 0.356284I$ $a = -0.107941 - 0.280203I$ $b = 1.071670 + 0.042848I$	$-6.33619 - 3.32794I$	0
$u = 0.497702 + 1.025980I$ $a = -1.52817 + 0.84837I$ $b = 0.77404 - 1.61636I$	$3.64882 - 5.60532I$	0
$u = 0.497702 - 1.025980I$ $a = -1.52817 - 0.84837I$ $b = 0.77404 + 1.61636I$	$3.64882 + 5.60532I$	0
$u = -0.528951 + 1.014510I$ $a = 1.29255 + 1.35472I$ $b = -0.12714 - 1.48116I$	$0.08476 + 3.28264I$	0
$u = -0.528951 - 1.014510I$ $a = 1.29255 - 1.35472I$ $b = -0.12714 + 1.48116I$	$0.08476 - 3.28264I$	0
$u = 0.630037 + 0.571249I$ $a = 0.119204 + 0.091100I$ $b = -0.731769 + 0.766308I$	$-1.01345 + 1.95971I$	0
$u = 0.630037 - 0.571249I$ $a = 0.119204 - 0.091100I$ $b = -0.731769 - 0.766308I$	$-1.01345 - 1.95971I$	0
$u = -0.504744 + 1.035910I$ $a = 1.72928 + 1.01611I$ $b = -0.67860 - 1.87767I$	$1.48535 + 10.17420I$	0
$u = -0.504744 - 1.035910I$ $a = 1.72928 - 1.01611I$ $b = -0.67860 + 1.87767I$	$1.48535 - 10.17420I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.464624 + 0.685655I$ $a = -1.27292 - 0.93048I$ $b = 0.025724 + 0.647128I$	$-1.99473 + 1.41613I$	0
$u = 0.464624 - 0.685655I$ $a = -1.27292 + 0.93048I$ $b = 0.025724 - 0.647128I$	$-1.99473 - 1.41613I$	0
$u = 0.589028 + 1.017350I$ $a = -0.78540 + 1.70504I$ $b = -0.83917 - 1.14462I$	$0.31608 - 6.78721I$	0
$u = 0.589028 - 1.017350I$ $a = -0.78540 - 1.70504I$ $b = -0.83917 + 1.14462I$	$0.31608 + 6.78721I$	0
$u = 0.707936 + 0.362323I$ $a = -0.275552 + 0.323362I$ $b = 0.974206 + 0.241415I$	$-5.25090 - 5.17198I$	0
$u = 0.707936 - 0.362323I$ $a = -0.275552 - 0.323362I$ $b = 0.974206 - 0.241415I$	$-5.25090 + 5.17198I$	0
$u = -0.760118 + 0.936366I$ $a = 0.003216 + 0.528381I$ $b = 0.672054 + 0.027651I$	$-0.49600 + 1.69688I$	0
$u = -0.760118 - 0.936366I$ $a = 0.003216 - 0.528381I$ $b = 0.672054 - 0.027651I$	$-0.49600 - 1.69688I$	0
$u = -0.734325 + 0.300986I$ $a = 0.224525 + 0.220536I$ $b = -0.872585 + 0.091595I$	$-2.28361 + 0.47581I$	0
$u = -0.734325 - 0.300986I$ $a = 0.224525 - 0.220536I$ $b = -0.872585 - 0.091595I$	$-2.28361 - 0.47581I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.610855 + 1.041230I$ $a = -0.40502 + 2.02467I$ $b = -1.41825 - 1.06966I$	$-1.68060 - 7.86822I$	0
$u = \quad 0.610855 - 1.041230I$ $a = -0.40502 - 2.02467I$ $b = -1.41825 + 1.06966I$	$-1.68060 + 7.86822I$	0
$u = -0.625131 + 1.041040I$ $a = \quad 0.16613 + 1.93058I$ $b = \quad 1.50137 - 0.80100I$	$-5.79503 + 4.63683I$	0
$u = -0.625131 - 1.041040I$ $a = \quad 0.16613 - 1.93058I$ $b = \quad 1.50137 + 0.80100I$	$-5.79503 - 4.63683I$	0
$u = -0.611400 + 1.049250I$ $a = \quad 0.35391 + 2.17037I$ $b = \quad 1.58312 - 1.12574I$	$-4.28254 + 12.66350I$	0
$u = -0.611400 - 1.049250I$ $a = \quad 0.35391 - 2.17037I$ $b = \quad 1.58312 + 1.12574I$	$-4.28254 - 12.66350I$	0
$u = \quad 0.679144 + 1.007210I$ $a = \quad 0.086544 + 1.125410I$ $b = -1.051820 - 0.135293I$	$-5.02581 - 4.14807I$	0
$u = \quad 0.679144 - 1.007210I$ $a = \quad 0.086544 - 1.125410I$ $b = -1.051820 + 0.135293I$	$-5.02581 + 4.14807I$	0
$u = -0.065310 + 1.260480I$ $a = \quad 1.10987 + 1.17405I$ $b = -0.904424 - 0.933478I$	$3.43285 - 11.15210I$	0
$u = -0.065310 - 1.260480I$ $a = \quad 1.10987 - 1.17405I$ $b = -0.904424 + 0.933478I$	$3.43285 + 11.15210I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.101203+1.262340I$ $a=\ \ 1.072270+0.805770I$ $b=-0.831818-0.644666I$	$0.97764-2.56762I$	0
$u=-0.101203-1.262340I$ $a=\ \ 1.072270-0.805770I$ $b=-0.831818+0.644666I$	$0.97764+2.56762I$	0
$u=\ \ 0.763272+1.016450I$ $a=\ \ 0.302516+0.578936I$ $b=-0.761657+0.212115I$	$-2.57086+3.46847I$	0
$u=\ \ 0.763272-1.016450I$ $a=\ \ 0.302516-0.578936I$ $b=-0.761657-0.212115I$	$-2.57086-3.46847I$	0
$u=\ \ 0.071409+1.271830I$ $a=-0.97930+1.09070I$ $b=\ \ 0.789462-0.879460I$	$6.01140+5.85590I$	0
$u=\ \ 0.071409-1.271830I$ $a=-0.97930-1.09070I$ $b=\ \ 0.789462+0.879460I$	$6.01140-5.85590I$	0
$u=\ \ 0.528327+1.163720I$ $a=-0.728580-0.906768I$ $b=\ \ 0.746221+0.117323I$	$-2.85021+0.40649I$	0
$u=\ \ 0.528327-1.163720I$ $a=-0.728580+0.906768I$ $b=\ \ 0.746221-0.117323I$	$-2.85021-0.40649I$	0
$u=\ \ 0.594955+1.152750I$ $a=-0.41766-1.37163I$ $b=\ \ 0.959140+0.350193I$	$-3.95846-8.56048I$	0
$u=\ \ 0.594955-1.152750I$ $a=-0.41766+1.37163I$ $b=\ \ 0.959140-0.350193I$	$-3.95846+8.56048I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.643161+1.137780I$ $a=-0.21745-1.93403I$ $b=-1.26228+0.86867I$	$-2.75261+11.00610I$	0
$u=-0.643161-1.137780I$ $a=-0.21745+1.93403I$ $b=-1.26228-0.86867I$	$-2.75261-11.00610I$	0
$u=-0.651207+1.135620I$ $a=-0.42713-2.03646I$ $b=-1.31308+1.04434I$	$-0.5375+19.5357I$	0
$u=-0.651207-1.135620I$ $a=-0.42713+2.03646I$ $b=-1.31308-1.04434I$	$-0.5375-19.5357I$	0
$u=0.650004+1.138880I$ $a=0.40382-1.93633I$ $b=1.23809+1.01206I$	$2.0745-14.3290I$	0
$u=0.650004-1.138880I$ $a=0.40382+1.93633I$ $b=1.23809-1.01206I$	$2.0745+14.3290I$	0
$u=-0.575489+1.189130I$ $a=0.389298-1.000600I$ $b=-0.736345+0.304703I$	$0.38762+4.55179I$	0
$u=-0.575489-1.189130I$ $a=0.389298+1.000600I$ $b=-0.736345-0.304703I$	$0.38762-4.55179I$	0
$u=0.651021+1.154090I$ $a=0.41737-1.56021I$ $b=0.946995+0.959821I$	$4.66018-11.80060I$	0
$u=0.651021-1.154090I$ $a=0.41737+1.56021I$ $b=0.946995-0.959821I$	$4.66018+11.80060I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.649273+1.165840I$ $a=-0.340607-1.351870I$ $b=-0.806556+0.860138I$	$4.40266+6.51601I$	0
$u=-0.649273-1.165840I$ $a=-0.340607+1.351870I$ $b=-0.806556-0.860138I$	$4.40266-6.51601I$	0
$u=0.051760+1.351390I$ $a=-0.323387+0.865265I$ $b=0.256174-0.739354I$	$8.69485+2.85046I$	0
$u=0.051760-1.351390I$ $a=-0.323387-0.865265I$ $b=0.256174+0.739354I$	$8.69485-2.85046I$	0
$u=-0.485376+0.423733I$ $a=-1.006980-0.316764I$ $b=0.020564+1.180970I$	$-1.48749+0.97090I$	$-3.81000-0.30668I$
$u=-0.485376-0.423733I$ $a=-1.006980+0.316764I$ $b=0.020564-1.180970I$	$-1.48749-0.97090I$	$-3.81000+0.30668I$
$u=-0.480842+0.307056I$ $a=-1.66540-0.20548I$ $b=-0.439562+1.314170I$	$-0.38770-6.08787I$	$-1.35496+6.52586I$
$u=-0.480842-0.307056I$ $a=-1.66540+0.20548I$ $b=-0.439562-1.314170I$	$-0.38770+6.08787I$	$-1.35496-6.52586I$
$u=0.421069+0.301666I$ $a=1.75107-0.54964I$ $b=0.443775+1.063820I$	$1.85296+1.65232I$	$2.94839-2.48371I$
$u=0.421069-0.301666I$ $a=1.75107+0.54964I$ $b=0.443775-1.063820I$	$1.85296-1.65232I$	$2.94839+2.48371I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.305943+0.360032I$ $a=\ \ 0.456966-0.223325I$ $b=-0.297089+0.365052I$	$-0.348286+1.187860I$	$-3.96956-5.64798I$
$u=-0.305943-0.360032I$ $a=\ \ 0.456966+0.223325I$ $b=-0.297089-0.365052I$	$-0.348286-1.187860I$	$-3.96956+5.64798I$
$u=-0.14095+1.53124I$ $a=\ \ 0.200951+0.272306I$ $b=-0.165297-0.276738I$	$8.49675+3.09124I$	0
$u=-0.14095-1.53124I$ $a=\ \ 0.200951-0.272306I$ $b=-0.165297+0.276738I$	$8.49675-3.09124I$	0
$u=-0.394568+0.069063I$ $a=-2.99712-0.25955I$ $b=-1.056850+0.326869I$	$0.80465+3.21848I$	$-1.53035-4.61809I$
$u=-0.394568-0.069063I$ $a=-2.99712+0.25955I$ $b=-1.056850-0.326869I$	$0.80465-3.21848I$	$-1.53035+4.61809I$
$u=\ \ 0.348442+0.164860I$ $a=\ \ 2.69769-0.80106I$ $b=\ \ 0.711422+0.592619I$	$2.47813+0.76089I$	$3.69985-0.16469I$
$u=\ \ 0.348442-0.164860I$ $a=\ \ 2.69769+0.80106I$ $b=\ \ 0.711422-0.592619I$	$2.47813-0.76089I$	$3.69985+0.16469I$

II. $I_2^u = \langle b,\ 21u^3 - 14u^2 + 13a + 54u - 24,\ u^4 - u^3 + 3u^2 - 2u + 1 \rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -1.61538u^3 + 1.07692u^2 - 4.15385u + 1.84615 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.06509u^3 - 1.01775u^2 + 2.72781u - 0.964497 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ -u^3 - u^2 + 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.61538u^3 + 1.07692u^2 - 4.15385u + 1.84615 \\ u^3 + u^2 - 2u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.61538u^3 + 1.07692u^2 - 4.15385u + 1.84615 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2.01183u^3 - 1.36686u^2 + 6.04142u - 2.26627 \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.11834u^3 + 2.66864u^2 - 2.41420u + 3.66272 \\ u^3 - 2u^2 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.06509u^3 + 2.01775u^2 - 2.72781u + 2.96450 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{1555}{169}u^3 + \frac{2575}{169}u^2 - \frac{626}{169}u - \frac{80}{169}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^4 - u^3 + 3u^2 - 2u + 1$
c_2	$u^4 - u^3 + u^2 + 1$
c_3	$u^4 + u^3 + 5u^2 - u + 2$
c_5	$13(13u^4 + 16u^3 + 7u^2 + u + 1)$
c_6	$u^4 + u^3 + u^2 + 1$
c_7	$13(13u^4 + 23u^3 - 9u + 2)$
c_8	$u^4 + u^3 + 3u^2 + 2u + 1$
c_9	$u^4 - 5u^3 + 7u^2 - 2u + 1$
c_{10}	$(u + 1)^4$
c_{11}	u^4
c_{12}	$(u - 1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_8	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_2, c_6	$y^4 + y^3 + 3y^2 + 2y + 1$
c_3	$y^4 + 9y^3 + 31y^2 + 19y + 4$
c_5	$169(169y^4 - 74y^3 + 43y^2 + 13y + 1)$
c_7	$169(169y^4 - 529y^3 + 466y^2 - 81y + 4)$
c_9	$y^4 - 11y^3 + 31y^2 + 10y + 1$
c_{10}, c_{12}	$(y - 1)^4$
c_{11}	y^4

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.395123+0.506844I$		
$a=$	$0.48860-1.84716I$	$1.43393-1.41510I$	$-1.23808+3.23912I$
$b=$	0		
$u=$	$0.395123-0.506844I$		
$a=$	$0.48860+1.84716I$	$1.43393+1.41510I$	$-1.23808-3.23912I$
$b=$	0		
$u=$	$0.10488+1.55249I$		
$a=$	$0.049857-0.136327I$	$8.43568-3.16396I$	$-30.4513+33.1692I$
$b=$	0		
$u=$	$0.10488-1.55249I$		
$a=$	$0.049857+0.136327I$	$8.43568+3.16396I$	$-30.4513-33.1692I$
$b=$	0		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4-u^3+3u^2-2u+1)(u^{128}+62u^{127}+\cdots+4u+1)$
c_2	$(u^4-u^3+u^2+1)(u^{128}-2u^{127}+\cdots-2u+1)$
c_3	$(u^4+u^3+5u^2-u+2)(u^{128}+2u^{127}+\cdots+4224656u+1446152)$
c_4	$(u^4-u^3+3u^2-2u+1)(u^{128}+2u^{127}+\cdots+4u+1)$
c_5	$169(13u^4+16u^3+7u^2+u+1)$ $\cdot(13u^{128}-13u^{127}+\cdots-23585u+12601)$
c_6	$(u^4+u^3+u^2+1)(u^{128}-2u^{127}+\cdots-2u+1)$
c_7	$169(13u^4+23u^3-9u+2)$ $\cdot(13u^{128}+104u^{127}+\cdots+257066u+17686)$
c_8	$(u^4+u^3+3u^2+2u+1)(u^{128}+2u^{127}+\cdots+4u+1)$
c_9	$(u^4-5u^3+7u^2-2u+1)(u^{128}-58u^{127}+\cdots-4u+1)$
c_{10}	$((u+1)^4)(u^{128}+5u^{127}+\cdots+1642u+169)$
c_{11}	$u^4(u^{128}+5u^{127}+\cdots+25272u+2704)$
c_{12}	$((u-1)^4)(u^{128}+5u^{127}+\cdots+1642u+169)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+5y^3+7y^2+2y+1)(y^{128}+10y^{127}+\cdots+16y+1)$
c_2, c_6	$(y^4+y^3+3y^2+2y+1)(y^{128}+62y^{127}+\cdots+4y+1)$
c_3	$(y^4+9y^3+31y^2+19y+4)$ $\cdot(y^{128}-42y^{127}+\cdots-15693533191440y+2091355607104)$
c_4, c_8	$(y^4+5y^3+7y^2+2y+1)(y^{128}+58y^{127}+\cdots+4y+1)$
c_5	$28561(169y^4-74y^3+43y^2+13y+1)$ $\cdot(169y^{128}+5603y^{127}+\cdots-911953253y+158785201)$
c_7	$28561(169y^4-529y^3+466y^2-81y+4)$ $\cdot(169y^{128}+11180y^{127}+\cdots+16577933816y+312794596)$
c_9	$(y^4-11y^3+31y^2+10y+1)(y^{128}+26y^{127}+\cdots+64y+1)$
c_{10}, c_{12}	$((y-1)^4)(y^{128}-75y^{127}+\cdots+85914y+28561)$
c_{11}	$y^4(y^{128}-27y^{127}+\cdots+2.38720\times10^8y+7311616)$