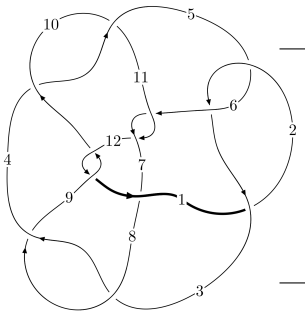
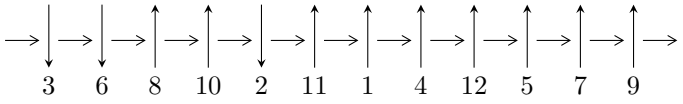
$12a_{0294}$ $(K12a_{0294})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.17496 \times 10^{616} u^{134} + 5.13470 \times 10^{616} u^{133} + \cdots + 6.19398 \times 10^{616} b - 1.62760 \times 10^{620},$$
$$5.51099 \times 10^{619} u^{134} + 1.88007 \times 10^{620} u^{133} + \cdots + 3.10752 \times 10^{620} a - 8.57469 \times 10^{623},$$
$$u^{135} + u^{134} + \cdots + 7750u + 5017 \rangle$$

$$I_2^u = \langle 2.08927 \times 10^{22} u^{36} + 2.56204 \times 10^{22} u^{35} + \cdots + 7.67580 \times 10^{21} b + 3.76326 \times 10^{22},$$
$$- 1.91416 \times 10^{21} u^{36} + 1.69304 \times 10^{22} u^{35} + \cdots + 7.67580 \times 10^{21} a + 1.86496 \times 10^{22},\ u^{37} - 12u^{35} + \cdots - u -$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 172 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. $\boldsymbol{I_1^u = \langle 3.17 \times 10^{616} u^{134} + 5.13 \times 10^{616} u^{133} + \cdots + 6.19 \times 10^{616} b - 1.63 \times 10^{620},\ 5.51 \times 10^{619} u^{134} + 1.88 \times 10^{620} u^{133} + \cdots + 3.11 \times 10^{620} a - 8.57 \times 10^{623},\ u^{135} + u^{134} + \cdots + 7750u + 5017 \rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.177344u^{134} - 0.605006u^{133} + \cdots + 5950.95u + 2759.34 \\ -0.512588u^{134} - 0.828983u^{133} + \cdots + 7681.07u + 2627.71 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.263657u^{134} + 0.0494544u^{133} + \cdots - 169.075u + 811.076 \\ -0.628647u^{134} - 1.07304u^{133} + \cdots + 9934.28u + 3505.05 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00826351u^{134} + 0.878969u^{133} + \cdots - 9133.12u - 5182.63 \\ -0.0243474u^{134} - 0.117595u^{133} + \cdots + 955.457u + 433.067 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.335244u^{134} + 0.223977u^{133} + \cdots - 1730.12u + 131.626 \\ -0.512588u^{134} - 0.828983u^{133} + \cdots + 7681.07u + 2627.71 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.492155u^{134} - 0.951052u^{133} + \cdots + 8453.57u + 3107.01 \\ -0.933148u^{134} - 1.74478u^{133} + \cdots + 16041.9u + 5941.16 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.646521u^{134} + 0.778334u^{133} + \cdots - 6570.11u - 1518.83 \\ 0.661129u^{134} + 1.13677u^{133} + \cdots - 10388.5u - 3620.31 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.843358u^{134} - 0.644526u^{133} + \cdots + 4347.49u - 75.8403 \\ -0.455535u^{134} - 0.874228u^{133} + \cdots + 8006.36u + 3044.37 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.593592u^{134} + 0.536821u^{133} + \cdots - 4315.52u - 495.398 \\ -0.347295u^{134} - 0.644904u^{133} + \cdots + 5736.93u + 2132.87 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.96894u^{134} + 3.28735u^{133} + \cdots - 28454.3u - 9458.29$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{135} + 48u^{134} + \cdots + 4u + 1$
c_2, c_5	$u^{135} + 4u^{134} + \cdots - 18u + 1$
c_3, c_8	$u^{135} + u^{134} + \cdots + 7750u + 5017$
c_4, c_{10}	$u^{135} - u^{134} + \cdots + 5678572u + 1040987$
c_6, c_{11}	$u^{135} + 2u^{134} + \cdots - 535831u - 76529$
c_7	$u^{135} - 2u^{134} + \cdots - 1565265u - 501775$
c_9, c_{12}	$u^{135} + 6u^{134} + \cdots + 26u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{135} + 92y^{134} + \cdots + 33596y - 1$
c_2, c_5	$y^{135} - 48y^{134} + \cdots + 4y - 1$
c_3, c_8	$y^{135} - 91y^{134} + \cdots + 1438372876y - 25170289$
c_4, c_{10}	$y^{135} - 119y^{134} + \cdots + 42184843029686y - 1083653934169$
c_6, c_{11}	$y^{135} - 98y^{134} + \cdots + 100193084177y - 5856687841$
c_7	$y^{135} - 38y^{134} + \cdots - 6333962430975y - 251778150625$
c_9, c_{12}	$y^{135} + 74y^{134} + \cdots + 132y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.954640+0.318925I$ $a=\ \ 1.022950+0.479534I$ $b=\ \ 0.409133+0.567557I$	$0.43783-4.31705I$	0
$u=-0.954640-0.318925I$ $a=\ \ 1.022950-0.479534I$ $b=\ \ 0.409133-0.567557I$	$0.43783+4.31705I$	0
$u=-1.016170+0.093526I$ $a=-0.504006+0.995437I$ $b=-0.27251+1.98430I$	$2.61261-5.62917I$	0
$u=-1.016170-0.093526I$ $a=-0.504006-0.995437I$ $b=-0.27251-1.98430I$	$2.61261+5.62917I$	0
$u=\ \ 1.021340+0.033322I$ $a=-0.966207+0.288532I$ $b=-0.44325+1.52596I$	$1.64985+1.10466I$	0
$u=\ \ 1.021340-0.033322I$ $a=-0.966207-0.288532I$ $b=-0.44325-1.52596I$	$1.64985-1.10466I$	0
$u=\ \ 0.045443+1.044390I$ $a=\ \ 0.206992+0.575475I$ $b=-0.153999-0.852553I$	$-2.34746+1.63033I$	0
$u=\ \ 0.045443-1.044390I$ $a=\ \ 0.206992-0.575475I$ $b=-0.153999+0.852553I$	$-2.34746-1.63033I$	0
$u=-1.053430+0.017888I$ $a=\ \ 1.96645+0.94497I$ $b=\ \ 0.407511-1.031440I$	$8.16331-1.60493I$	0
$u=-1.053430-0.017888I$ $a=\ \ 1.96645-0.94497I$ $b=\ \ 0.407511+1.031440I$	$8.16331+1.60493I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.366593 + 0.867646I$ $a = 0.021724 + 0.959308I$ $b = 0.609946 - 0.326417I$	$6.32559 + 7.59825I$	0
$u = 0.366593 - 0.867646I$ $a = 0.021724 - 0.959308I$ $b = 0.609946 + 0.326417I$	$6.32559 - 7.59825I$	0
$u = -0.340482 + 1.001910I$ $a = 0.0761110 + 0.0320509I$ $b = 0.577563 + 1.081620I$	$-1.49987 + 5.25116I$	0
$u = -0.340482 - 1.001910I$ $a = 0.0761110 - 0.0320509I$ $b = 0.577563 - 1.081620I$	$-1.49987 - 5.25116I$	0
$u = 0.926531 + 0.122035I$ $a = -1.022900 + 0.634029I$ $b = -0.949437 + 0.519992I$	$0.989756 + 0.788732I$	0
$u = 0.926531 - 0.122035I$ $a = -1.022900 - 0.634029I$ $b = -0.949437 - 0.519992I$	$0.989756 - 0.788732I$	0
$u = 0.981987 + 0.420245I$ $a = 0.107399 + 0.859771I$ $b = -0.331020 + 1.374450I$	$2.10320 + 2.45744I$	0
$u = 0.981987 - 0.420245I$ $a = 0.107399 - 0.859771I$ $b = -0.331020 - 1.374450I$	$2.10320 - 2.45744I$	0
$u = 1.075440 + 0.013274I$ $a = 1.144210 + 0.391008I$ $b = 0.340818 + 0.757547I$	$1.85665 + 0.45415I$	0
$u = 1.075440 - 0.013274I$ $a = 1.144210 - 0.391008I$ $b = 0.340818 - 0.757547I$	$1.85665 - 0.45415I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.328439+1.041220I$ $a=\ 0.323246-0.415650I$ $b=\ 0.115260+0.974194I$	$-3.71401+2.08606I$	0
$u=-0.328439-1.041220I$ $a=\ 0.323246+0.415650I$ $b=\ 0.115260-0.974194I$	$-3.71401-2.08606I$	0
$u=-0.978375+0.488563I$ $a=\ 1.44781-0.31474I$ $b=\ 0.315948-0.980472I$	$-3.56580-1.03017I$	0
$u=-0.978375-0.488563I$ $a=\ 1.44781+0.31474I$ $b=\ 0.315948+0.980472I$	$-3.56580+1.03017I$	0
$u=-0.800525+0.421653I$ $a=\ 0.599308+1.110760I$ $b=\ 0.89496+1.15377I$	$1.63032-3.52071I$	0
$u=-0.800525-0.421653I$ $a=\ 0.599308-1.110760I$ $b=\ 0.89496-1.15377I$	$1.63032+3.52071I$	0
$u=-0.803341+0.388664I$ $a=\ 1.06597+1.26585I$ $b=\ 0.477105-1.057170I$	$5.47134-3.37942I$	0
$u=-0.803341-0.388664I$ $a=\ 1.06597-1.26585I$ $b=\ 0.477105+1.057170I$	$5.47134+3.37942I$	0
$u=\ 1.060180+0.351103I$ $a=\ 1.93172+0.28529I$ $b=\ 1.17905+1.23783I$	$6.39857+5.83677I$	0
$u=\ 1.060180-0.351103I$ $a=\ 1.93172-0.28529I$ $b=\ 1.17905-1.23783I$	$6.39857-5.83677I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.498013+0.702051I$ $a=-0.354922-0.896451I$ $b=\ \ 0.580572+0.322418I$	$7.64173-1.70956I$	0
$u=-0.498013-0.702051I$ $a=-0.354922+0.896451I$ $b=\ \ 0.580572-0.322418I$	$7.64173+1.70956I$	0
$u=-1.129260+0.169822I$ $a=-1.45636+0.25196I$ $b=-0.65385+1.34140I$	$3.05271-5.01411I$	0
$u=-1.129260-0.169822I$ $a=-1.45636-0.25196I$ $b=-0.65385-1.34140I$	$3.05271+5.01411I$	0
$u=\ \ 1.155020+0.033424I$ $a=\ \ 1.94958-0.72796I$ $b=\ \ 0.403614+1.012110I$	$7.77279+6.93659I$	0
$u=\ \ 1.155020-0.033424I$ $a=\ \ 1.94958+0.72796I$ $b=\ \ 0.403614-1.012110I$	$7.77279-6.93659I$	0
$u=-0.545023+0.637806I$ $a=\ \ 0.042747-0.188833I$ $b=\ \ 0.022084+1.256470I$	$-5.04744-3.41143I$	0
$u=-0.545023-0.637806I$ $a=\ \ 0.042747+0.188833I$ $b=\ \ 0.022084-1.256470I$	$-5.04744+3.41143I$	0
$u=\ \ 0.834362+0.002369I$ $a=-2.38438-0.35600I$ $b=-0.971622-0.629846I$	$0.078046-0.408426I$	0
$u=\ \ 0.834362-0.002369I$ $a=-2.38438+0.35600I$ $b=-0.971622+0.629846I$	$0.078046+0.408426I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.818052+0.120704I$ $a=-1.74314-1.47278I$ $b=\ \ 0.125304-0.347815I$	$7.31926-1.58600I$	0
$u=-0.818052-0.120704I$ $a=-1.74314+1.47278I$ $b=\ \ 0.125304+0.347815I$	$7.31926+1.58600I$	0
$u=\ \ 1.086350+0.476264I$ $a=-1.29461+0.78264I$ $b=-0.646687-0.048956I$	$5.92842+6.96503I$	0
$u=\ \ 1.086350-0.476264I$ $a=-1.29461-0.78264I$ $b=-0.646687+0.048956I$	$5.92842-6.96503I$	0
$u=\ \ 0.776366+0.241907I$ $a=-1.93972+1.89576I$ $b=\ \ 0.004136+0.356197I$	$5.99324+7.26808I$	0
$u=\ \ 0.776366-0.241907I$ $a=-1.93972-1.89576I$ $b=\ \ 0.004136-0.356197I$	$5.99324-7.26808I$	0
$u=-0.017793+1.188140I$ $a=\ \ 0.150013+0.321516I$ $b=\ \ 0.558235-1.096620I$	$5.47564-6.37114I$	0
$u=-0.017793-1.188140I$ $a=\ \ 0.150013-0.321516I$ $b=\ \ 0.558235+1.096620I$	$5.47564+6.37114I$	0
$u=\ \ 0.085695+0.805479I$ $a=\ \ 0.162751+0.609323I$ $b=-0.144643-1.008910I$	$-2.21134+1.64026I$	0
$u=\ \ 0.085695-0.805479I$ $a=\ \ 0.162751-0.609323I$ $b=-0.144643+1.008910I$	$-2.21134-1.64026I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.146760 + 0.343908I$ $a = -1.62910 - 0.73914I$ $b = -0.572216 - 1.071540I$	$-1.66219 + 5.65655I$	0
$u = 1.146760 - 0.343908I$ $a = -1.62910 + 0.73914I$ $b = -0.572216 + 1.071540I$	$-1.66219 - 5.65655I$	0
$u = 0.073056 + 0.799254I$ $a = -0.696832 - 0.588441I$ $b = -0.354850 + 1.227410I$	$-0.84591 - 6.66630I$	0
$u = 0.073056 - 0.799254I$ $a = -0.696832 + 0.588441I$ $b = -0.354850 - 1.227410I$	$-0.84591 + 6.66630I$	0
$u = -1.199230 + 0.037550I$ $a = -1.075130 + 0.804898I$ $b = -0.75485 + 1.21965I$	$3.47495 - 4.36587I$	0
$u = -1.199230 - 0.037550I$ $a = -1.075130 - 0.804898I$ $b = -0.75485 - 1.21965I$	$3.47495 + 4.36587I$	0
$u = -1.204740 + 0.210079I$ $a = -0.273983 + 0.754365I$ $b = 0.376121 + 0.529314I$	$7.21042 + 0.43135I$	0
$u = -1.204740 - 0.210079I$ $a = -0.273983 - 0.754365I$ $b = 0.376121 - 0.529314I$	$7.21042 - 0.43135I$	0
$u = -1.181180 + 0.337932I$ $a = -1.36591 - 0.54634I$ $b = -0.743455 + 0.035130I$	$6.99082 - 1.16731I$	0
$u = -1.181180 - 0.337932I$ $a = -1.36591 + 0.54634I$ $b = -0.743455 - 0.035130I$	$6.99082 + 1.16731I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618926 + 1.061280I$ $a = 0.190901 - 0.125372I$ $b = -0.350949 + 1.005310I$	$-3.33552 - 0.69088I$	0
$u = 0.618926 - 1.061280I$ $a = 0.190901 + 0.125372I$ $b = -0.350949 - 1.005310I$	$-3.33552 + 0.69088I$	0
$u = 0.085830 + 0.757982I$ $a = -0.707780 + 0.757507I$ $b = -0.364628 - 1.172950I$	$-0.46524 + 1.51647I$	0
$u = 0.085830 - 0.757982I$ $a = -0.707780 - 0.757507I$ $b = -0.364628 + 1.172950I$	$-0.46524 - 1.51647I$	0
$u = 0.110124 + 0.751924I$ $a = -0.506523 + 0.036217I$ $b = -0.784393 + 0.029656I$	$3.03685 - 2.59231I$	0
$u = 0.110124 - 0.751924I$ $a = -0.506523 - 0.036217I$ $b = -0.784393 - 0.029656I$	$3.03685 + 2.59231I$	0
$u = 1.099620 + 0.592482I$ $a = -1.343520 + 0.130959I$ $b = -0.616344 - 1.192720I$	$-1.52443 + 6.62250I$	0
$u = 1.099620 - 0.592482I$ $a = -1.343520 - 0.130959I$ $b = -0.616344 + 1.192720I$	$-1.52443 - 6.62250I$	0
$u = -0.670835 + 0.267149I$ $a = 1.03893 - 1.55456I$ $b = 0.16201 - 1.42363I$	$1.97161 + 4.17594I$	0
$u = -0.670835 - 0.267149I$ $a = 1.03893 + 1.55456I$ $b = 0.16201 + 1.42363I$	$1.97161 - 4.17594I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.248030 + 0.339213I$ $a = 1.35352 - 0.53397I$ $b = 0.463130 + 0.981232I$	$4.16663 + 2.76856I$	0
$u = 1.248030 - 0.339213I$ $a = 1.35352 + 0.53397I$ $b = 0.463130 - 0.981232I$	$4.16663 - 2.76856I$	0
$u = -0.057520 + 1.305510I$ $a = 0.221046 - 0.269379I$ $b = 0.556090 + 1.097680I$	$4.16357 + 12.28470I$	0
$u = -0.057520 - 1.305510I$ $a = 0.221046 + 0.269379I$ $b = 0.556090 - 1.097680I$	$4.16357 - 12.28470I$	0
$u = -1.166530 + 0.590664I$ $a = 1.62830 - 0.01371I$ $b = 0.86405 - 1.15542I$	$1.10197 - 10.93990I$	0
$u = -1.166530 - 0.590664I$ $a = 1.62830 + 0.01371I$ $b = 0.86405 + 1.15542I$	$1.10197 + 10.93990I$	0
$u = -1.31941$ $a = -1.26332$ $b = -0.929967$	5.55269	0
$u = 1.249810 + 0.423782I$ $a = 1.310290 + 0.187469I$ $b = 0.396114 + 0.914800I$	$1.36572 + 2.83945I$	0
$u = 1.249810 - 0.423782I$ $a = 1.310290 - 0.187469I$ $b = 0.396114 - 0.914800I$	$1.36572 - 2.83945I$	0
$u = -1.298070 + 0.296134I$ $a = -1.360160 + 0.280784I$ $b = -0.604488 + 1.211900I$	$2.15466 - 5.46034I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.298070-0.296134I$ $a=-1.360160-0.280784I$ $b=-0.604488-1.211900I$	$2.15466+5.46034I$	0
$u=1.300800+0.307473I$ $a=1.329500-0.451366I$ $b=1.38709-0.42975I$	$12.73450+5.05687I$	0
$u=1.300800-0.307473I$ $a=1.329500+0.451366I$ $b=1.38709+0.42975I$	$12.73450-5.05687I$	0
$u=1.298880+0.423032I$ $a=-1.82059-0.41547I$ $b=-0.498197-1.136970I$	$3.02034+11.19720I$	0
$u=1.298880-0.423032I$ $a=-1.82059+0.41547I$ $b=-0.498197+1.136970I$	$3.02034-11.19720I$	0
$u=-1.317950+0.373625I$ $a=-1.72566+0.35705I$ $b=-0.512546+1.160790I$	$3.88460-5.67759I$	0
$u=-1.317950-0.373625I$ $a=-1.72566-0.35705I$ $b=-0.512546-1.160790I$	$3.88460+5.67759I$	0
$u=0.622354+0.045822I$ $a=-0.436758-1.255640I$ $b=-0.525781-0.579751I$	$0.979130-0.632124I$	$9.84605+0.I$
$u=0.622354-0.045822I$ $a=-0.436758+1.255640I$ $b=-0.525781+0.579751I$	$0.979130+0.632124I$	$9.84605+0.I$
$u=-1.344500+0.385467I$ $a=1.225180+0.422218I$ $b=1.276030+0.388643I$	$11.3606-11.9126I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.344500-0.385467I$ $a=\ \ 1.225180-0.422218I$ $b=\ \ 1.276030-0.388643I$	$11.3606+11.9126I$	0
$u=-1.282610+0.561653I$ $a=\ \ 1.357460-0.132402I$ $b=\ \ 0.420339-0.943750I$	$-0.49644-7.87026I$	0
$u=-1.282610-0.561653I$ $a=\ \ 1.357460+0.132402I$ $b=\ \ 0.420339+0.943750I$	$-0.49644+7.87026I$	0
$u=-1.409590+0.028451I$ $a=\ \ 0.37037-1.41879I$ $b=\ \ 0.297929-0.666588I$	$9.53256-1.57438I$	0
$u=-1.409590-0.028451I$ $a=\ \ 0.37037+1.41879I$ $b=\ \ 0.297929+0.666588I$	$9.53256+1.57438I$	0
$u=-1.42409+0.21233I$ $a=-1.030960-0.005193I$ $b=-0.977527-0.165450I$	$7.65750-0.58902I$	0
$u=-1.42409-0.21233I$ $a=-1.030960+0.005193I$ $b=-0.977527+0.165450I$	$7.65750+0.58902I$	0
$u=\ \ 1.40629+0.32566I$ $a=-0.975854+0.040849I$ $b=-0.975841+0.187470I$	$6.80870+6.30526I$	0
$u=\ \ 1.40629-0.32566I$ $a=-0.975854-0.040849I$ $b=-0.975841-0.187470I$	$6.80870-6.30526I$	0
$u=\ \ 0.269153+0.476261I$ $a=-0.944603-0.688052I$ $b=\ \ 0.588619-1.176620I$	$4.17085-2.44633I$	$8.78478+2.14755I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.269153 - 0.476261I$ $a = -0.944603 + 0.688052I$ $b = 0.588619 + 1.176620I$	$4.17085 + 2.44633I$	$8.78478 - 2.14755I$
$u = -1.22598 + 0.81052I$ $a = 0.826768 + 0.544146I$ $b = 0.541901 - 1.003310I$	$9.23685 - 4.51705I$	0
$u = -1.22598 - 0.81052I$ $a = 0.826768 - 0.544146I$ $b = 0.541901 + 1.003310I$	$9.23685 + 4.51705I$	0
$u = 1.47023 + 0.01762I$ $a = 0.59650 + 1.32725I$ $b = 0.314668 + 0.696933I$	$8.95415 - 3.75498I$	0
$u = 1.47023 - 0.01762I$ $a = 0.59650 - 1.32725I$ $b = 0.314668 - 0.696933I$	$8.95415 + 3.75498I$	0
$u = -0.224340 + 0.467691I$ $a = 1.207990 + 0.536436I$ $b = 0.160603 + 0.050600I$	$-1.54497 + 0.95371I$	$-0.72705 - 2.44882I$
$u = -0.224340 - 0.467691I$ $a = 1.207990 - 0.536436I$ $b = 0.160603 - 0.050600I$	$-1.54497 - 0.95371I$	$-0.72705 + 2.44882I$
$u = 0.518137$ $a = -4.13492$ $b = 0.0908048$	1.00231	-0.767990
$u = 1.38332 + 0.55183I$ $a = 1.44512 + 0.08441I$ $b = 0.76996 + 1.29547I$	$9.8865 + 12.4224I$	0
$u = 1.38332 - 0.55183I$ $a = 1.44512 - 0.08441I$ $b = 0.76996 - 1.29547I$	$9.8865 - 12.4224I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.26803+1.46651I$ $a=-0.014028+0.375503I$ $b=-0.398119-0.851557I$	$0.198012-0.942296I$	0
$u=-0.26803-1.46651I$ $a=-0.014028-0.375503I$ $b=-0.398119+0.851557I$	$0.198012+0.942296I$	0
$u=-0.406108+0.254970I$ $a=3.23976+1.32405I$ $b=1.045350-0.273646I$	$0.658119+0.043507I$	$6.16916+1.22417I$
$u=-0.406108-0.254970I$ $a=3.23976-1.32405I$ $b=1.045350+0.273646I$	$0.658119-0.043507I$	$6.16916-1.22417I$
$u=0.351894+0.324168I$ $a=-0.552806-0.277941I$ $b=-0.269642+1.323580I$	$-4.34526-2.61796I$	$3.76862-10.99788I$
$u=0.351894-0.324168I$ $a=-0.552806+0.277941I$ $b=-0.269642-1.323580I$	$-4.34526+2.61796I$	$3.76862+10.99788I$
$u=0.41133+1.46911I$ $a=-0.013847-0.308079I$ $b=-0.415500+0.890485I$	$0.04370-4.35843I$	0
$u=0.41133-1.46911I$ $a=-0.013847+0.308079I$ $b=-0.415500-0.890485I$	$0.04370+4.35843I$	0
$u=-1.41128+0.60551I$ $a=1.42796-0.04215I$ $b=0.73715-1.28137I$	$8.4921-18.9052I$	0
$u=-1.41128-0.60551I$ $a=1.42796+0.04215I$ $b=0.73715+1.28137I$	$8.4921+18.9052I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.52830 + 0.15956I$ $a = 0.497251 - 0.699857I$ $b = 0.420813 - 0.679037I$	$5.19359 - 0.98092I$	0
$u = 1.52830 - 0.15956I$ $a = 0.497251 + 0.699857I$ $b = 0.420813 + 0.679037I$	$5.19359 + 0.98092I$	0
$u = 1.34454 + 0.74655I$ $a = 0.880057 - 0.467093I$ $b = 0.540708 + 0.983870I$	$8.85975 - 1.11909I$	0
$u = 1.34454 - 0.74655I$ $a = 0.880057 + 0.467093I$ $b = 0.540708 - 0.983870I$	$8.85975 + 1.11909I$	0
$u = -1.45178 + 0.59117I$ $a = -1.112410 + 0.007592I$ $b = -0.614404 + 1.221490I$	$4.55748 - 6.26390I$	0
$u = -1.45178 - 0.59117I$ $a = -1.112410 - 0.007592I$ $b = -0.614404 - 1.221490I$	$4.55748 + 6.26390I$	0
$u = 1.43211 + 0.69162I$ $a = -1.105450 + 0.054070I$ $b = -0.609416 - 1.221970I$	$3.73815 + 11.96640I$	0
$u = 1.43211 - 0.69162I$ $a = -1.105450 - 0.054070I$ $b = -0.609416 + 1.221970I$	$3.73815 - 11.96640I$	0
$u = -0.386930 + 0.064980I$ $a = 1.19259 + 2.50460I$ $b = -0.287333 + 0.718290I$	$0.74093 - 3.92926I$	$9.27224 + 7.12527I$
$u = -0.386930 - 0.064980I$ $a = 1.19259 - 2.50460I$ $b = -0.287333 - 0.718290I$	$0.74093 + 3.92926I$	$9.27224 - 7.12527I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.57250+0.47371I$ $a=\ 0.269318+0.256751I$ $b=\ 0.529541+0.612262I$	$10.46630-0.14329I$	0
$u=-1.57250-0.47371I$ $a=\ 0.269318-0.256751I$ $b=\ 0.529541-0.612262I$	$10.46630+0.14329I$	0
$u=\ 0.330170$ $a=\ 0.203123$ $b=-0.368568$	0.660268	15.3900
$u=\ 1.65623+0.40911I$ $a=\ 0.370608-0.265809I$ $b=\ 0.531913-0.645291I$	$9.93153-5.47915I$	0
$u=\ 1.65623-0.40911I$ $a=\ 0.370608+0.265809I$ $b=\ 0.531913+0.645291I$	$9.93153+5.47915I$	0

II.

$\boldsymbol{I_2^u = \langle 2.09\times10^{22}u^{36}+2.56\times10^{22}u^{35}+\cdots+7.68\times10^{21}b+3.76\times10^{22},\ -1.91\times10^{21}u^{36}+1.69\times10^{22}u^{35}+\cdots+7.68\times10^{21}a+1.86\times10^{22},\ u^{37}-12u^{35}+\cdots-u-1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.249376u^{36} - 2.20569u^{35} + \cdots + 0.695665u - 2.42966 \\ -2.72190u^{36} - 3.33781u^{35} + \cdots - 10.7028u - 4.90276 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.04204u^{36} + 0.867788u^{35} + \cdots + 6.46551u + 1.16648 \\ -3.43496u^{36} - 4.13136u^{35} + \cdots - 11.6065u - 5.42543 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.47743u^{36} - 0.00601281u^{35} + \cdots - 7.58490u - 1.08264 \\ 1.84676u^{36} + 1.00070u^{35} + \cdots + 4.11989u + 1.03965 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2.97127u^{36} + 1.13213u^{35} + \cdots + 11.3984u + 2.47310 \\ -2.72190u^{36} - 3.33781u^{35} + \cdots - 10.7028u - 4.90276 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.05654u^{36} + 0.276059u^{35} + \cdots - 1.25731u - 0.198647 \\ -3.64746u^{36} - 4.15924u^{35} + \cdots - 13.7071u - 4.92284 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.39045u^{36} + 1.49384u^{35} + \cdots + 5.12016u + 2.42308 \\ 0.276059u^{36} + 0.0385152u^{35} + \cdots + 0.744813u - 1.05654 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1.74573u^{36} - 0.934118u^{35} + \cdots - 1.90313u - 1.95692 \\ -5.31079u^{36} - 4.39899u^{35} + \cdots - 13.9931u - 5.76792 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.70308u^{36} - 0.312790u^{35} + \cdots - 7.18489u - 0.829446 \\ -3.33814u^{36} - 5.19307u^{35} + \cdots - 11.4892u - 6.83171 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{8151650212720905904431}{767580159637085080121 3}u^{36} - \frac{3298491166263171978839 6}{76758015963708508012 13}u^{35} + \cdots - \frac{87214248616827886512675}{767580159637085080121 3}u + \frac{3000797936677771545389 8}{76758015963708508012 13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{37} - 17u^{36} + \cdots + 17u - 1$
c_2	$u^{37} + 3u^{36} + \cdots - 3u - 1$
c_3	$u^{37} - 12u^{35} + \cdots - u + 1$
c_4	$u^{37} - 20u^{35} + \cdots - u - 1$
c_5	$u^{37} - 3u^{36} + \cdots - 3u + 1$
c_6	$u^{37} + u^{36} + \cdots + 4u + 1$
c_7	$u^{37} - u^{36} + \cdots + 18u + 1$
c_8	$u^{37} - 12u^{35} + \cdots - u - 1$
c_9	$u^{37} + 7u^{36} + \cdots - 9u - 1$
c_{10}	$u^{37} - 20u^{35} + \cdots - u + 1$
c_{11}	$u^{37} - u^{36} + \cdots + 4u - 1$
c_{12}	$u^{37} - 7u^{36} + \cdots - 9u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{37} + 19y^{36} + \cdots - 19y - 1$
c_2, c_5	$y^{37} - 17y^{36} + \cdots + 17y - 1$
c_3, c_8	$y^{37} - 24y^{36} + \cdots - 3y - 1$
c_4, c_{10}	$y^{37} - 40y^{36} + \cdots + 27y - 1$
c_6, c_{11}	$y^{37} - 23y^{36} + \cdots + 14y - 1$
c_7	$y^{37} - 7y^{36} + \cdots + 286y - 1$
c_9, c_{12}	$y^{37} + 29y^{36} + \cdots + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.202193+0.974130I$ $a=\ 0.668946+0.060892I$ $b=-0.223017-1.004520I$	$-0.97782-1.61437I$	$3.86106+2.47512I$
$u=-0.202193-0.974130I$ $a=\ 0.668946-0.060892I$ $b=-0.223017+1.004520I$	$-0.97782+1.61437I$	$3.86106-2.47512I$
$u=-0.904846+0.442772I$ $a=\ 1.38636+1.48435I$ $b=\ 0.370726-0.898766I$	$6.80483-2.72423I$	$9.29813+3.72151I$
$u=-0.904846-0.442772I$ $a=\ 1.38636-1.48435I$ $b=\ 0.370726+0.898766I$	$6.80483+2.72423I$	$9.29813-3.72151I$
$u=-0.947391+0.261441I$ $a=-0.88979-1.12635I$ $b=-0.92192-1.35431I$	$0.57551-2.26134I$	$3.08864+4.33324I$
$u=-0.947391-0.261441I$ $a=-0.88979+1.12635I$ $b=-0.92192+1.35431I$	$0.57551+2.26134I$	$3.08864-4.33324I$
$u=-1.004790+0.290236I$ $a=\ 1.25571+0.66758I$ $b=\ 0.536352-1.124580I$	$6.25081-3.49797I$	$13.5575+4.6400I$
$u=-1.004790-0.290236I$ $a=\ 1.25571-0.66758I$ $b=\ 0.536352+1.124580I$	$6.25081+3.49797I$	$13.5575-4.6400I$
$u=\ 0.222401+1.024760I$ $a=\ 0.710320-0.358879I$ $b=-0.209049+0.961152I$	$-0.81030-3.31141I$	$4.24962+3.25679I$
$u=\ 0.222401-1.024760I$ $a=\ 0.710320+0.358879I$ $b=-0.209049-0.961152I$	$-0.81030+3.31141I$	$4.24962-3.25679I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.787907 + 0.498980I$ $a = 1.55179 - 1.89631I$ $b = 0.300104 + 0.782942I$	$5.50127 + 7.99893I$	$6.44259 - 10.31994I$
$u = 0.787907 - 0.498980I$ $a = 1.55179 + 1.89631I$ $b = 0.300104 - 0.782942I$	$5.50127 - 7.99893I$	$6.44259 + 10.31994I$
$u = 0.238579 + 1.049900I$ $a = 0.109150 - 0.705688I$ $b = -0.277545 + 0.873021I$	$-2.39968 + 0.17604I$	$4.96016 - 0.58890I$
$u = 0.238579 - 1.049900I$ $a = 0.109150 + 0.705688I$ $b = -0.277545 - 0.873021I$	$-2.39968 - 0.17604I$	$4.96016 + 0.58890I$
$u = -0.337932 + 1.092110I$ $a = -0.096638 + 0.275644I$ $b = -0.347705 - 0.927317I$	$-2.75440 + 2.86668I$	$5.34542 - 6.58301I$
$u = -0.337932 - 1.092110I$ $a = -0.096638 - 0.275644I$ $b = -0.347705 + 0.927317I$	$-2.75440 - 2.86668I$	$5.34542 + 6.58301I$
$u = 1.155320 + 0.151520I$ $a = -1.37220 - 0.71298I$ $b = -0.75879 - 1.55996I$	$3.61864 + 5.73161I$	$14.9162 - 10.6715I$
$u = 1.155320 - 0.151520I$ $a = -1.37220 + 0.71298I$ $b = -0.75879 + 1.55996I$	$3.61864 - 5.73161I$	$14.9162 + 10.6715I$
$u = 0.797281 + 0.035038I$ $a = 0.06802 - 1.85966I$ $b = -0.12710 - 1.86213I$	$1.85490 + 5.14243I$	$3.51490 - 7.53938I$
$u = 0.797281 - 0.035038I$ $a = 0.06802 + 1.85966I$ $b = -0.12710 + 1.86213I$	$1.85490 - 5.14243I$	$3.51490 + 7.53938I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.261730+0.218873I$ $a=\ 0.124147+1.013570I$ $b=\ 0.446965+0.703313I$	$7.28772+1.03748I$	$10.57687-7.80594I$
$u=-1.261730-0.218873I$ $a=\ 0.124147-1.013570I$ $b=\ 0.446965-0.703313I$	$7.28772-1.03748I$	$10.57687+7.80594I$
$u=\ 0.688782$ $a=\ 3.70278$ $b=\ 0.750926$	1.40912	20.6250
$u=-0.671727$ $a=-2.62288$ $b=-1.24395$	-0.625296	-3.19660
$u=-1.258780+0.522894I$ $a=-1.48069+0.10562I$ $b=-0.644458+1.020230I$	$0.44708-8.47566I$	$8.91414+7.87235I$
$u=-1.258780-0.522894I$ $a=-1.48069-0.10562I$ $b=-0.644458-1.020230I$	$0.44708+8.47566I$	$8.91414-7.87235I$
$u=\ 1.40186$ $a=-1.04225$ $b=-0.631559$	4.93040	6.00000
$u=\ 1.360690+0.339877I$ $a=-1.374180-0.207786I$ $b=-0.554811-1.141860I$	$2.08994+4.75300I$	$6.00000+0.I$
$u=\ 1.360690-0.339877I$ $a=-1.374180+0.207786I$ $b=-0.554811+1.141860I$	$2.08994-4.75300I$	$6.00000+0.I$
$u=\ 1.43713$ $a=-0.684568$ $b=-0.176951$	4.99871	6.00000

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.45171+0.23192I$ $a=-0.536957+0.972199I$ $b=\ \ 0.118709+0.663243I$	$9.18809-0.62253I$	$6.00000+0.I$
$u=-1.45171-0.23192I$ $a=-0.536957-0.972199I$ $b=\ \ 0.118709-0.663243I$	$9.18809+0.62253I$	$6.00000+0.I$
$u=\ \ 1.50104+0.19241I$ $a=-0.699439-0.841593I$ $b=\ \ 0.030924-0.635420I$	$8.64807-4.62211I$	$0.+6.28193I$
$u=\ \ 1.50104-0.19241I$ $a=-0.699439+0.841593I$ $b=\ \ 0.030924+0.635420I$	$8.64807+4.62211I$	$0.-6.28193I$
$u=-0.363326$ $a=-2.98674$ $b=-0.777663$	-0.679362	1.52540
$u=\ \ 0.059793+0.267004I$ $a=\ \ 0.392279-1.094540I$ $b=-0.199782-1.280950I$	$-4.28330+2.96100I$	$7.57434-10.64698I$
$u=\ \ 0.059793-0.267004I$ $a=\ \ 0.392279+1.094540I$ $b=-0.199782+1.280950I$	$-4.28330-2.96100I$	$7.57434+10.64698I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{37}-17u^{36}+\cdots+17u-1)(u^{135}+48u^{134}+\cdots+4u+1)$
c_2	$(u^{37}+3u^{36}+\cdots-3u-1)(u^{135}+4u^{134}+\cdots-18u+1)$
c_3	$(u^{37}-12u^{35}+\cdots-u+1)(u^{135}+u^{134}+\cdots+7750u+5017)$
c_4	$(u^{37}-20u^{35}+\cdots-u-1)(u^{135}-u^{134}+\cdots+5678572u+1040987)$
c_5	$(u^{37}-3u^{36}+\cdots-3u+1)(u^{135}+4u^{134}+\cdots-18u+1)$
c_6	$(u^{37}+u^{36}+\cdots+4u+1)(u^{135}+2u^{134}+\cdots-535831u-76529)$
c_7	$(u^{37}-u^{36}+\cdots+18u+1)(u^{135}-2u^{134}+\cdots-1565265u-501775)$
c_8	$(u^{37}-12u^{35}+\cdots-u-1)(u^{135}+u^{134}+\cdots+7750u+5017)$
c_9	$(u^{37}+7u^{36}+\cdots-9u-1)(u^{135}+6u^{134}+\cdots+26u+1)$
c_{10}	$(u^{37}-20u^{35}+\cdots-u+1)(u^{135}-u^{134}+\cdots+5678572u+1040987)$
c_{11}	$(u^{37}-u^{36}+\cdots+4u-1)(u^{135}+2u^{134}+\cdots-535831u-76529)$
c_{12}	$(u^{37}-7u^{36}+\cdots-9u+1)(u^{135}+6u^{134}+\cdots+26u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{37}+19y^{36}+\cdots-19y-1)(y^{135}+92y^{134}+\cdots+33596y-1)$
c_2, c_5	$(y^{37}-17y^{36}+\cdots+17y-1)(y^{135}-48y^{134}+\cdots+4y-1)$
c_3, c_8	$(y^{37}-24y^{36}+\cdots-3y-1)$ $\cdot(y^{135}-91y^{134}+\cdots+1438372876y-25170289)$
c_4, c_{10}	$(y^{37}-40y^{36}+\cdots+27y-1)$ $\cdot(y^{135}-119y^{134}+\cdots+42184843029686y-1083653934169)$
c_6, c_{11}	$(y^{37}-23y^{36}+\cdots+14y-1)$ $\cdot(y^{135}-98y^{134}+\cdots+100193084177y-5856687841)$
c_7	$(y^{37}-7y^{36}+\cdots+286y-1)$ $\cdot(y^{135}-38y^{134}+\cdots-6333962430975y-251778150625)$
c_9, c_{12}	$(y^{37}+29y^{36}+\cdots+13y-1)(y^{135}+74y^{134}+\cdots+132y-1)$