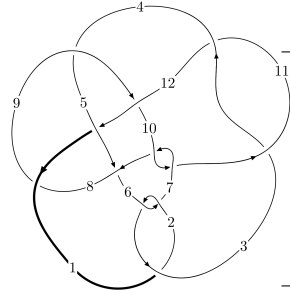
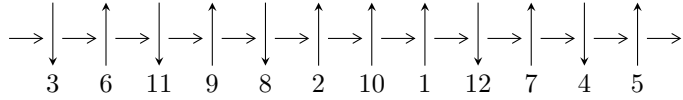


12a₀₄₇₉ (K12a₀₄₇₉)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 2.96804 \times 10^{545} u^{169} + 2.05449 \times 10^{545} u^{168} + \dots + 3.04382 \times 10^{547} b - 9.96636 \times 10^{547}, \\ 7.76117 \times 10^{548} u^{169} + 3.65178 \times 10^{548} u^{168} + \dots + 1.18100 \times 10^{550} a - 1.73137 \times 10^{551}, \\ u^{170} + u^{169} + \dots - 161u + 97 \rangle$$

$$I_2^u = \langle 188679637611u^{37} + 583203930928u^{36} + \dots + 19303084121b - 114942573145, \\ -162853256113u^{37} - 474271015058u^{36} + \dots + 19303084121a + 168572690127, \\ u^{38} + 4u^{37} + \dots - u + 1 \rangle$$

$$I_3^u = \langle b + 1, 2a^2 - 4au + 5a - 4u + 2, u^2 - u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 212 representations.

¹The 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>).

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

$$\mathbf{I. } I_1^u = \langle 2.97 \times 10^{545} u^{169} + 2.05 \times 10^{545} u^{168} + \dots + 3.04 \times 10^{547} b - 9.97 \times 10^{547}, 7.76 \times 10^{548} u^{169} + 3.65 \times 10^{548} u^{168} + \dots + 1.18 \times 10^{550} a - 1.73 \times 10^{551}, u^{170} + u^{169} + \dots - 161u + 97 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} -0.0657169u^{169} - 0.0309210u^{168} + \dots - 14.6441u + 14.6602 \\ -0.00975105u^{169} - 0.00674973u^{168} + \dots - 10.8483u + 3.27430 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.130093u^{169} - 0.0228900u^{168} + \dots + 38.5644u - 25.8712 \\ -0.0700178u^{169} - 0.0639308u^{168} + \dots - 16.7075u + 4.79517 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0983533u^{169} - 0.457517u^{168} + \dots + 16.4302u - 26.7107 \\ -0.0737470u^{169} - 0.0592229u^{168} + \dots - 23.1395u + 9.10530 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0559659u^{169} - 0.0241713u^{168} + \dots - 3.79580u + 11.3859 \\ -0.00975105u^{169} - 0.00674973u^{168} + \dots - 10.8483u + 3.27430 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0613740u^{169} - 0.198434u^{168} + \dots + 7.60465u - 16.2775 \\ 0.0182553u^{169} + 0.0776958u^{168} + \dots + 5.25855u + 5.73569 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0756754u^{169} - 0.177887u^{168} + \dots + 1.02654u - 11.6728 \\ 0.0239517u^{169} + 0.0570506u^{168} + \dots + 10.1931u + 1.76379 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.119936u^{169} + 0.0216596u^{168} + \dots + 43.5327u - 20.6550 \\ -0.0368181u^{169} - 0.0402453u^{168} + \dots - 15.5079u + 7.91941 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $0.238835u^{169} + 0.220894u^{168} + \dots + 102.782u - 13.6065$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{170} + 87u^{169} + \dots + 301939u + 9409$
c_2, c_6	$u^{170} + u^{169} + \dots - 161u + 97$
c_3, c_{11}	$4(4u^{170} + 14u^{169} + \dots + 1.07793 \times 10^8 u + 1.77021 \times 10^7)$
c_4	$u^{170} - 2u^{169} + \dots + 117766u + 85948$
c_5	$4(4u^{170} - 38u^{169} + \dots - 373833u + 44333)$
c_7, c_{10}	$u^{170} - 10u^{169} + \dots + 214205u + 28225$
c_8	$u^{170} - 4u^{169} + \dots + 550206u + 30733$
c_9	$u^{170} - 10u^{169} + \dots - 1952u + 256$
c_{12}	$4(4u^{170} - 2u^{169} + \dots - 30u + 25)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{170} + 7y^{169} + \dots - 8189301629y + 88529281$
c_2, c_6	$y^{170} + 87y^{169} + \dots + 301939y + 9409$
c_3, c_{11}	16 $\cdot (16y^{170} - 1900y^{169} + \dots - 9315973042219045y + 313365654366769)$
c_4	$y^{170} + 30y^{169} + \dots + 522801654484y + 7387058704$
c_5	$16(16y^{170} - 188y^{169} + \dots + 1.20542 \times 10^{11}y + 1.96541 \times 10^9)$
c_7, c_{10}	$y^{170} + 100y^{169} + \dots - 20975614675y + 796650625$
c_8	$y^{170} + 58y^{168} + \dots + 46008453280y + 944517289$
c_9	$y^{170} - 44y^{169} + \dots - 1694720y + 65536$
c_{12}	$16(16y^{170} + 116y^{169} + \dots - 32800y + 625)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.797900 + 0.612016I$ $a = -1.205320 - 0.076243I$ $b = -0.594567 - 0.841349I$	$1.98698 + 5.39543I$	0
$u = 0.797900 - 0.612016I$ $a = -1.205320 + 0.076243I$ $b = -0.594567 + 0.841349I$	$1.98698 - 5.39543I$	0
$u = -0.581441 + 0.789817I$ $a = 0.740097 + 0.999529I$ $b = 1.026310 + 0.233750I$	$3.21054 - 0.83988I$	0
$u = -0.581441 - 0.789817I$ $a = 0.740097 - 0.999529I$ $b = 1.026310 - 0.233750I$	$3.21054 + 0.83988I$	0
$u = 0.324167 + 0.967193I$ $a = 1.287070 - 0.516048I$ $b = 0.539961 - 0.833775I$	$-4.57220 + 0.78663I$	0
$u = 0.324167 - 0.967193I$ $a = 1.287070 + 0.516048I$ $b = 0.539961 + 0.833775I$	$-4.57220 - 0.78663I$	0
$u = -0.578263 + 0.842304I$ $a = 1.33417 + 0.49401I$ $b = 1.033130 - 0.495421I$	$3.04326 - 3.77390I$	0
$u = -0.578263 - 0.842304I$ $a = 1.33417 - 0.49401I$ $b = 1.033130 + 0.495421I$	$3.04326 + 3.77390I$	0
$u = -0.938898 + 0.270582I$ $a = -0.478572 - 0.776400I$ $b = 0.057674 - 0.971978I$	$-3.95788 - 0.27759I$	0
$u = -0.938898 - 0.270582I$ $a = -0.478572 + 0.776400I$ $b = 0.057674 + 0.971978I$	$-3.95788 + 0.27759I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.904837 + 0.493495I$	$-2.59121 - 5.15101I$	0
$a = 0.396656 - 1.299930I$		
$b = 0.570927 - 1.291670I$		
$u = 0.904837 - 0.493495I$	$-2.59121 + 5.15101I$	0
$a = 0.396656 + 1.299930I$		
$b = 0.570927 + 1.291670I$		
$u = 0.984340 + 0.309300I$	$-4.1593 - 14.7457I$	0
$a = -0.830632 + 0.932118I$		
$b = -0.61999 + 1.30754I$		
$u = 0.984340 - 0.309300I$	$-4.1593 + 14.7457I$	0
$a = -0.830632 - 0.932118I$		
$b = -0.61999 - 1.30754I$		
$u = -0.993607 + 0.292160I$	$-5.10233 + 6.25376I$	0
$a = -0.806373 - 0.762874I$		
$b = -0.479331 - 1.176830I$		
$u = -0.993607 - 0.292160I$	$-5.10233 - 6.25376I$	0
$a = -0.806373 + 0.762874I$		
$b = -0.479331 + 1.176830I$		
$u = -0.753025 + 0.590818I$	$3.50957 + 3.67877I$	0
$a = -1.153680 + 0.005001I$		
$b = -0.783785 + 0.318003I$		
$u = -0.753025 - 0.590818I$	$3.50957 - 3.67877I$	0
$a = -1.153680 - 0.005001I$		
$b = -0.783785 - 0.318003I$		
$u = -0.189212 + 1.033370I$	$-3.87988 + 6.39379I$	0
$a = 0.86744 + 2.00621I$		
$b = -0.214291 - 0.906920I$		
$u = -0.189212 - 1.033370I$	$-3.87988 - 6.39379I$	0
$a = 0.86744 - 2.00621I$		
$b = -0.214291 + 0.906920I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.764709 + 0.724926I$ $a = 0.516850 + 0.808220I$ $b = 0.312404 + 0.909118I$	$0.18493 + 3.40108I$	0
$u = 0.764709 - 0.724926I$ $a = 0.516850 - 0.808220I$ $b = 0.312404 - 0.909118I$	$0.18493 - 3.40108I$	0
$u = 0.071613 + 1.051820I$ $a = -0.065299 - 0.411624I$ $b = -0.504294 + 0.182751I$	$-2.26689 + 3.03836I$	0
$u = 0.071613 - 1.051820I$ $a = -0.065299 + 0.411624I$ $b = -0.504294 - 0.182751I$	$-2.26689 - 3.03836I$	0
$u = 0.298186 + 0.890547I$ $a = 1.11379 - 2.41741I$ $b = 0.184850 + 1.131910I$	$-4.27666 + 1.72259I$	0
$u = 0.298186 - 0.890547I$ $a = 1.11379 + 2.41741I$ $b = 0.184850 - 1.131910I$	$-4.27666 - 1.72259I$	0
$u = 0.589456 + 0.885556I$ $a = -0.566367 + 0.185220I$ $b = -0.0880594 - 0.0569484I$	$0.18288 + 2.30892I$	0
$u = 0.589456 - 0.885556I$ $a = -0.566367 - 0.185220I$ $b = -0.0880594 + 0.0569484I$	$0.18288 - 2.30892I$	0
$u = 0.443066 + 0.970162I$ $a = 3.32701 - 1.34685I$ $b = 0.133369 + 1.031810I$	$-3.88542 + 2.24997I$	0
$u = 0.443066 - 0.970162I$ $a = 3.32701 + 1.34685I$ $b = 0.133369 - 1.031810I$	$-3.88542 - 2.24997I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.558615 + 0.911835I$ $a = 0.110603 - 1.344980I$ $b = 0.903116 - 0.240646I$	$1.69401 + 1.61828I$	0
$u = 0.558615 - 0.911835I$ $a = 0.110603 + 1.344980I$ $b = 0.903116 + 0.240646I$	$1.69401 - 1.61828I$	0
$u = 0.108200 + 1.073210I$ $a = -0.99497 + 1.66194I$ $b = -0.537616 - 0.876960I$	$-3.95331 + 6.69101I$	0
$u = 0.108200 - 1.073210I$ $a = -0.99497 - 1.66194I$ $b = -0.537616 + 0.876960I$	$-3.95331 - 6.69101I$	0
$u = -0.563078 + 0.924351I$ $a = -0.933560 - 0.706105I$ $b = -0.186770 + 0.972896I$	$-0.73731 + 1.67258I$	0
$u = -0.563078 - 0.924351I$ $a = -0.933560 + 0.706105I$ $b = -0.186770 - 0.972896I$	$-0.73731 - 1.67258I$	0
$u = -0.245185 + 1.055610I$ $a = 1.85232 + 1.00050I$ $b = 0.137125 + 0.134857I$	$-4.32005 - 7.61029I$	0
$u = -0.245185 - 1.055610I$ $a = 1.85232 - 1.00050I$ $b = 0.137125 - 0.134857I$	$-4.32005 + 7.61029I$	0
$u = 0.744599 + 0.500802I$ $a = 0.727076 - 0.905652I$ $b = 0.582794 + 0.114236I$	$-0.743385 - 0.403774I$	0
$u = 0.744599 - 0.500802I$ $a = 0.727076 + 0.905652I$ $b = 0.582794 - 0.114236I$	$-0.743385 + 0.403774I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.355278 + 1.045980I$ $a = 0.748821 - 0.183089I$ $b = -0.29888 + 1.82417I$	$-9.94153 + 6.24861I$	0
$u = 0.355278 - 1.045980I$ $a = 0.748821 + 0.183089I$ $b = -0.29888 - 1.82417I$	$-9.94153 - 6.24861I$	0
$u = -0.837717 + 0.310157I$ $a = 0.84255 + 1.18542I$ $b = 0.62352 + 1.38908I$	$-2.14879 + 6.34317I$	0
$u = -0.837717 - 0.310157I$ $a = 0.84255 - 1.18542I$ $b = 0.62352 - 1.38908I$	$-2.14879 - 6.34317I$	0
$u = -0.256258 + 1.080230I$ $a = -1.39431 - 1.00857I$ $b = -0.244455 + 1.151430I$	$-5.99643 + 0.32024I$	0
$u = -0.256258 - 1.080230I$ $a = -1.39431 + 1.00857I$ $b = -0.244455 - 1.151430I$	$-5.99643 - 0.32024I$	0
$u = -0.664018 + 0.588943I$ $a = -0.340450 + 0.366155I$ $b = -0.527929 - 0.695118I$	$0.24571 - 6.49472I$	0
$u = -0.664018 - 0.588943I$ $a = -0.340450 - 0.366155I$ $b = -0.527929 + 0.695118I$	$0.24571 + 6.49472I$	0
$u = 0.143835 + 0.875414I$ $a = -0.748366 + 0.585575I$ $b = 0.11127 - 1.76500I$	$-8.70323 - 4.14735I$	0
$u = 0.143835 - 0.875414I$ $a = -0.748366 - 0.585575I$ $b = 0.11127 + 1.76500I$	$-8.70323 + 4.14735I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.479555 + 1.005950I$		
$a = 1.07109 - 1.05115I$	$-0.51289 + 2.95844I$	0
$b = 1.62018 - 0.29861I$		
$u = 0.479555 - 1.005950I$		
$a = 1.07109 + 1.05115I$	$-0.51289 - 2.95844I$	0
$b = 1.62018 + 0.29861I$		
$u = -0.303965 + 1.072290I$		
$a = -0.305215 - 0.832564I$	$-10.45690 + 3.20666I$	0
$b = 0.19823 + 1.58941I$		
$u = -0.303965 - 1.072290I$		
$a = -0.305215 + 0.832564I$	$-10.45690 - 3.20666I$	0
$b = 0.19823 - 1.58941I$		
$u = -0.788641 + 0.398272I$		
$a = -0.787345 - 0.304279I$	$0.98548 + 8.52323I$	0
$b = -0.512828 - 1.139320I$		
$u = -0.788641 - 0.398272I$		
$a = -0.787345 + 0.304279I$	$0.98548 - 8.52323I$	0
$b = -0.512828 + 1.139320I$		
$u = 0.556138 + 0.684405I$		
$a = 1.307330 + 0.368778I$	$2.36020 + 2.87396I$	0
$b = 0.932492 + 0.460634I$		
$u = 0.556138 - 0.684405I$		
$a = 1.307330 - 0.368778I$	$2.36020 - 2.87396I$	0
$b = 0.932492 - 0.460634I$		
$u = 0.287574 + 1.086040I$		
$a = -0.86628 + 1.20483I$	$-4.88675 - 5.93955I$	0
$b = -1.108920 + 0.300498I$		
$u = 0.287574 - 1.086040I$		
$a = -0.86628 - 1.20483I$	$-4.88675 + 5.93955I$	0
$b = -1.108920 - 0.300498I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.288955 + 1.095430I$ $a = -0.770376 - 0.680749I$ $b = -0.711728 - 0.397811I$	$-6.23313 - 0.89417I$	0
$u = -0.288955 - 1.095430I$ $a = -0.770376 + 0.680749I$ $b = -0.711728 + 0.397811I$	$-6.23313 + 0.89417I$	0
$u = -0.524531 + 1.009390I$ $a = 1.71125 + 0.72969I$ $b = 0.616518 - 1.234030I$	$0.08133 - 6.72252I$	0
$u = -0.524531 - 1.009390I$ $a = 1.71125 - 0.72969I$ $b = 0.616518 + 1.234030I$	$0.08133 + 6.72252I$	0
$u = 1.092180 + 0.322014I$ $a = 0.425727 - 0.799626I$ $b = 0.425931 - 1.219640I$	$-4.06426 - 4.39890I$	0
$u = 1.092180 - 0.322014I$ $a = 0.425727 + 0.799626I$ $b = 0.425931 + 1.219640I$	$-4.06426 + 4.39890I$	0
$u = 0.782014 + 0.350182I$ $a = -0.829518 + 0.253720I$ $b = -0.507864 + 0.687456I$	$2.36709 + 0.93458I$	0
$u = 0.782014 - 0.350182I$ $a = -0.829518 - 0.253720I$ $b = -0.507864 - 0.687456I$	$2.36709 - 0.93458I$	0
$u = -0.762838 + 0.370836I$ $a = -0.223357 + 0.417949I$ $b = 0.221175 + 1.120790I$	$-1.60542 + 2.72443I$	0
$u = -0.762838 - 0.370836I$ $a = -0.223357 - 0.417949I$ $b = 0.221175 - 1.120790I$	$-1.60542 - 2.72443I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.522825 + 1.036590I$ $a = -1.53788 + 1.27851I$ $b = -0.147718 - 1.191720I$	$-3.06127 + 3.60117I$	0
$u = 0.522825 - 1.036590I$ $a = -1.53788 - 1.27851I$ $b = -0.147718 + 1.191720I$	$-3.06127 - 3.60117I$	0
$u = 0.409625 + 1.089660I$ $a = -1.43363 + 0.67783I$ $b = 0.148888 - 1.056540I$	$-2.46022 + 0.64965I$	0
$u = 0.409625 - 1.089660I$ $a = -1.43363 - 0.67783I$ $b = 0.148888 + 1.056540I$	$-2.46022 - 0.64965I$	0
$u = 0.242632 + 0.799790I$ $a = -1.007850 - 0.182601I$ $b = 0.048707 + 0.305046I$	$-0.62661 + 1.66702I$	0
$u = 0.242632 - 0.799790I$ $a = -1.007850 + 0.182601I$ $b = 0.048707 - 0.305046I$	$-0.62661 - 1.66702I$	0
$u = 0.442524 + 0.707622I$ $a = 1.32453 - 3.09946I$ $b = 0.011320 - 0.859794I$	$-3.05624 + 1.44510I$	0
$u = 0.442524 - 0.707622I$ $a = 1.32453 + 3.09946I$ $b = 0.011320 + 0.859794I$	$-3.05624 - 1.44510I$	0
$u = -0.458777 + 1.072190I$ $a = 0.80972 + 1.32730I$ $b = 1.62176 + 0.25101I$	$-0.27857 - 3.46736I$	0
$u = -0.458777 - 1.072190I$ $a = 0.80972 - 1.32730I$ $b = 1.62176 - 0.25101I$	$-0.27857 + 3.46736I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.748052 + 0.913673I$ $a = -0.858198 - 0.618154I$ $b = 0.007963 - 0.816958I$	$-0.35136 + 2.23508I$	0
$u = 0.748052 - 0.913673I$ $a = -0.858198 + 0.618154I$ $b = 0.007963 + 0.816958I$	$-0.35136 - 2.23508I$	0
$u = 0.479375 + 1.097120I$ $a = 1.28384 - 1.19437I$ $b = 0.480936 + 1.318330I$	$-1.97390 + 6.64223I$	0
$u = 0.479375 - 1.097120I$ $a = 1.28384 + 1.19437I$ $b = 0.480936 - 1.318330I$	$-1.97390 - 6.64223I$	0
$u = 0.714579 + 0.967883I$ $a = -0.262494 + 0.333439I$ $b = -0.533574 + 0.650088I$	$0.939729 + 0.225698I$	0
$u = 0.714579 - 0.967883I$ $a = -0.262494 - 0.333439I$ $b = -0.533574 - 0.650088I$	$0.939729 - 0.225698I$	0
$u = -0.179060 + 1.189760I$ $a = -0.120570 + 0.500387I$ $b = 0.054796 - 1.383350I$	$-9.28621 - 3.63388I$	0
$u = -0.179060 - 1.189760I$ $a = -0.120570 - 0.500387I$ $b = 0.054796 + 1.383350I$	$-9.28621 + 3.63388I$	0
$u = 0.717469 + 0.345204I$ $a = -1.83471 + 0.62938I$ $b = -1.139240 - 0.253085I$	$-0.76389 - 8.50048I$	0
$u = 0.717469 - 0.345204I$ $a = -1.83471 - 0.62938I$ $b = -1.139240 + 0.253085I$	$-0.76389 + 8.50048I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.462478 + 0.645337I$ $a = 1.44516 - 1.77594I$ $b = 1.209640 + 0.408104I$	$0.686930 + 0.961529I$	0
$u = 0.462478 - 0.645337I$ $a = 1.44516 + 1.77594I$ $b = 1.209640 - 0.408104I$	$0.686930 - 0.961529I$	0
$u = -0.661629 + 1.012460I$ $a = -0.482788 - 0.784299I$ $b = -0.777423 - 0.186735I$	$2.27185 - 9.03357I$	0
$u = -0.661629 - 1.012460I$ $a = -0.482788 + 0.784299I$ $b = -0.777423 + 0.186735I$	$2.27185 + 9.03357I$	0
$u = -0.350654 + 1.160670I$ $a = 0.151097 - 0.031051I$ $b = -0.46850 - 1.34770I$	$-8.89411 - 1.87108I$	0
$u = -0.350654 - 1.160670I$ $a = 0.151097 + 0.031051I$ $b = -0.46850 + 1.34770I$	$-8.89411 + 1.87108I$	0
$u = 0.533003 + 1.090760I$ $a = -2.03061 + 0.02914I$ $b = -0.58769 - 1.44456I$	$-8.62938 + 0.69379I$	0
$u = 0.533003 - 1.090760I$ $a = -2.03061 - 0.02914I$ $b = -0.58769 + 1.44456I$	$-8.62938 - 0.69379I$	0
$u = -0.673946 + 0.391869I$ $a = 0.87840 + 1.62790I$ $b = 0.161699 + 1.298780I$	$-6.59860 + 5.56666I$	0
$u = -0.673946 - 0.391869I$ $a = 0.87840 - 1.62790I$ $b = 0.161699 - 1.298780I$	$-6.59860 - 5.56666I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.222326 + 1.200120I$ $a = -0.544275 - 0.426823I$ $b = 0.35792 + 1.49414I$	$-7.09677 + 3.17427I$	0
$u = -0.222326 - 1.200120I$ $a = -0.544275 + 0.426823I$ $b = 0.35792 - 1.49414I$	$-7.09677 - 3.17427I$	0
$u = 0.584103 + 1.072360I$ $a = 0.912962 - 0.148431I$ $b = 0.889643 + 0.122228I$	$-2.49541 + 5.46082I$	0
$u = 0.584103 - 1.072360I$ $a = 0.912962 + 0.148431I$ $b = 0.889643 - 0.122228I$	$-2.49541 - 5.46082I$	0
$u = -0.524962 + 0.573769I$ $a = 0.559200 + 0.933208I$ $b = 0.719452 + 1.021720I$	$1.42052 + 2.39897I$	0
$u = -0.524962 - 0.573769I$ $a = 0.559200 - 0.933208I$ $b = 0.719452 - 1.021720I$	$1.42052 - 2.39897I$	0
$u = -0.558283 + 1.096640I$ $a = 2.14941 + 0.02531I$ $b = 0.352932 - 1.321870I$	$-8.66214 - 10.36990I$	0
$u = -0.558283 - 1.096640I$ $a = 2.14941 - 0.02531I$ $b = 0.352932 + 1.321870I$	$-8.66214 + 10.36990I$	0
$u = 0.444330 + 1.150580I$ $a = 0.550454 - 0.908765I$ $b = 0.235584 + 0.910250I$	$-1.31002 + 4.00614I$	0
$u = 0.444330 - 1.150580I$ $a = 0.550454 + 0.908765I$ $b = 0.235584 - 0.910250I$	$-1.31002 - 4.00614I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.698563 + 0.303559I$ $a = -1.52209 - 0.43684I$ $b = -0.642632 + 0.169033I$	$-2.18273 + 1.84806I$	0
$u = -0.698563 - 0.303559I$ $a = -1.52209 + 0.43684I$ $b = -0.642632 - 0.169033I$	$-2.18273 - 1.84806I$	0
$u = -0.542878 + 1.113960I$ $a = -0.846315 - 0.574391I$ $b = -0.951921 - 0.157781I$	$-4.51043 - 6.60063I$	0
$u = -0.542878 - 1.113960I$ $a = -0.846315 + 0.574391I$ $b = -0.951921 + 0.157781I$	$-4.51043 + 6.60063I$	0
$u = -0.488115 + 1.142720I$ $a = 0.116192 + 0.566810I$ $b = 1.018510 + 0.706879I$	$-2.49162 - 1.01562I$	0
$u = -0.488115 - 1.142720I$ $a = 0.116192 - 0.566810I$ $b = 1.018510 - 0.706879I$	$-2.49162 + 1.01562I$	0
$u = 0.555676 + 1.113830I$ $a = -0.828629 + 0.882820I$ $b = -1.40069 + 0.19538I$	$-3.01242 + 13.36920I$	0
$u = 0.555676 - 1.113830I$ $a = -0.828629 - 0.882820I$ $b = -1.40069 - 0.19538I$	$-3.01242 - 13.36920I$	0
$u = -0.507903 + 1.143950I$ $a = -1.78311 - 0.40038I$ $b = -0.745818 + 1.091680I$	$-7.81300 - 6.22272I$	0
$u = -0.507903 - 1.143950I$ $a = -1.78311 + 0.40038I$ $b = -0.745818 - 1.091680I$	$-7.81300 + 6.22272I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.568279 + 1.117740I$		
$a = 1.118960 + 0.429561I$	$-3.83582 - 7.74738I$	0
$b = 0.208459 - 1.395540I$		
$u = -0.568279 - 1.117740I$		
$a = 1.118960 - 0.429561I$	$-3.83582 + 7.74738I$	0
$b = 0.208459 + 1.395540I$		
$u = 0.572927 + 0.476617I$		
$a = -0.776462 - 0.195173I$	$-1.42999 + 0.80739I$	0
$b = -0.197361 + 1.005640I$		
$u = 0.572927 - 0.476617I$		
$a = -0.776462 + 0.195173I$	$-1.42999 - 0.80739I$	0
$b = -0.197361 - 1.005640I$		
$u = 0.633574 + 0.384989I$		
$a = -0.50721 + 2.06968I$	$-6.55594 + 3.90941I$	0
$b = -0.316108 + 1.361390I$		
$u = 0.633574 - 0.384989I$		
$a = -0.50721 - 2.06968I$	$-6.55594 - 3.90941I$	0
$b = -0.316108 - 1.361390I$		
$u = -0.590874 + 1.114470I$		
$a = -1.60894 - 0.89099I$	$-1.15200 - 13.70640I$	0
$b = -0.463338 + 1.264600I$		
$u = -0.590874 - 1.114470I$		
$a = -1.60894 + 0.89099I$	$-1.15200 + 13.70640I$	0
$b = -0.463338 - 1.264600I$		
$u = -0.711826 + 0.173312I$		
$a = -1.39519 - 1.35102I$	$-5.05072 + 1.64440I$	0
$b = -0.511951 - 1.061830I$		
$u = -0.711826 - 0.173312I$		
$a = -1.39519 + 1.35102I$	$-5.05072 - 1.64440I$	0
$b = -0.511951 + 1.061830I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.593114 + 1.146770I$ $a = -1.30748 + 0.58588I$ $b = -0.438195 - 0.963213I$	$-0.00598 + 4.24673I$	0
$u = 0.593114 - 1.146770I$ $a = -1.30748 - 0.58588I$ $b = -0.438195 + 0.963213I$	$-0.00598 - 4.24673I$	0
$u = -0.580835 + 1.158620I$ $a = 1.86499 + 0.46033I$ $b = 0.71219 - 1.51956I$	$-4.68585 - 11.59550I$	0
$u = -0.580835 - 1.158620I$ $a = 1.86499 - 0.46033I$ $b = 0.71219 + 1.51956I$	$-4.68585 + 11.59550I$	0
$u = 0.649848 + 1.121510I$ $a = 1.71533 - 0.08968I$ $b = 0.70949 + 1.44247I$	$-4.55524 + 10.87210I$	0
$u = 0.649848 - 1.121510I$ $a = 1.71533 + 0.08968I$ $b = 0.70949 - 1.44247I$	$-4.55524 - 10.87210I$	0
$u = -0.457191 + 1.225730I$ $a = 1.26129 + 0.99004I$ $b = 0.806811 - 0.832298I$	$-2.92576 - 7.55116I$	0
$u = -0.457191 - 1.225730I$ $a = 1.26129 - 0.99004I$ $b = 0.806811 + 0.832298I$	$-2.92576 + 7.55116I$	0
$u = -0.952578 + 0.897370I$ $a = -0.646386 + 0.554231I$ $b = -0.236070 + 0.945712I$	$-0.19585 - 9.51484I$	0
$u = -0.952578 - 0.897370I$ $a = -0.646386 - 0.554231I$ $b = -0.236070 - 0.945712I$	$-0.19585 + 9.51484I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.560458 + 1.192060I$ $a = -1.45389 - 0.12022I$ $b = -0.211335 + 0.913939I$	$-6.85253 - 5.11087I$	0
$u = -0.560458 - 1.192060I$ $a = -1.45389 + 0.12022I$ $b = -0.211335 - 0.913939I$	$-6.85253 + 5.11087I$	0
$u = -0.178963 + 0.657881I$ $a = -1.246090 - 0.567220I$ $b = 0.124400 + 0.680536I$	$-1.21731 + 1.71146I$	$-2.59849 - 2.72947I$
$u = -0.178963 - 0.657881I$ $a = -1.246090 + 0.567220I$ $b = 0.124400 - 0.680536I$	$-1.21731 - 1.71146I$	$-2.59849 + 2.72947I$
$u = -0.678705 + 0.021688I$ $a = 1.56894 + 0.40948I$ $b = 0.889409 + 0.774446I$	$0.51730 + 3.20764I$	$5.50633 - 6.34682I$
$u = -0.678705 - 0.021688I$ $a = 1.56894 - 0.40948I$ $b = 0.889409 - 0.774446I$	$0.51730 - 3.20764I$	$5.50633 + 6.34682I$
$u = -1.004630 + 0.884571I$ $a = 0.326637 - 0.640182I$ $b = -0.035148 - 0.925474I$	$-0.11220 + 2.55546I$	0
$u = -1.004630 - 0.884571I$ $a = 0.326637 + 0.640182I$ $b = -0.035148 + 0.925474I$	$-0.11220 - 2.55546I$	0
$u = 0.628013 + 1.211390I$ $a = -1.68884 + 0.43023I$ $b = -0.68524 - 1.40788I$	$-6.9278 + 20.5670I$	0
$u = 0.628013 - 1.211390I$ $a = -1.68884 - 0.43023I$ $b = -0.68524 + 1.40788I$	$-6.9278 - 20.5670I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.629043 + 1.216160I$ $a = -1.60896 - 0.38445I$ $b = -0.559328 + 1.269720I$	$-7.9270 - 12.0940I$	0
$u = -0.629043 - 1.216160I$ $a = -1.60896 + 0.38445I$ $b = -0.559328 - 1.269720I$	$-7.9270 + 12.0940I$	0
$u = 0.201713 + 1.379990I$ $a = 0.178311 - 0.286670I$ $b = -0.410584 + 1.334020I$	$-10.0134 - 10.7049I$	0
$u = 0.201713 - 1.379990I$ $a = 0.178311 + 0.286670I$ $b = -0.410584 - 1.334020I$	$-10.0134 + 10.7049I$	0
$u = 0.653808 + 1.247310I$ $a = 1.339580 - 0.271490I$ $b = 0.50724 + 1.35779I$	$-6.98360 + 10.61630I$	0
$u = 0.653808 - 1.247310I$ $a = 1.339580 + 0.271490I$ $b = 0.50724 - 1.35779I$	$-6.98360 - 10.61630I$	0
$u = -0.24801 + 1.43090I$ $a = 0.050756 + 0.315933I$ $b = -0.282247 - 1.199580I$	$-10.91830 + 1.91583I$	0
$u = -0.24801 - 1.43090I$ $a = 0.050756 - 0.315933I$ $b = -0.282247 + 1.199580I$	$-10.91830 - 1.91583I$	0
$u = -0.287870 + 0.421955I$ $a = 2.28244 + 1.53431I$ $b = 1.141450 - 0.300451I$	$1.76115 - 0.18975I$	$8.49328 - 2.29880I$
$u = -0.287870 - 0.421955I$ $a = 2.28244 - 1.53431I$ $b = 1.141450 + 0.300451I$	$1.76115 + 0.18975I$	$8.49328 + 2.29880I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.463498 + 0.134873I$ $a = 0.303907 + 0.104554I$ $b = 0.562066 - 1.026170I$	$0.45196 - 2.64971I$	$3.01854 + 5.02250I$
$u = 0.463498 - 0.134873I$ $a = 0.303907 - 0.104554I$ $b = 0.562066 + 1.026170I$	$0.45196 + 2.64971I$	$3.01854 - 5.02250I$
$u = 0.18206 + 1.50775I$ $a = -0.168984 + 0.249401I$ $b = 0.170635 - 1.206820I$	$-10.58600 + 0.23175I$	0
$u = 0.18206 - 1.50775I$ $a = -0.168984 - 0.249401I$ $b = 0.170635 + 1.206820I$	$-10.58600 - 0.23175I$	0
$u = -0.03635 + 1.51887I$ $a = -0.188176 - 0.971188I$ $b = -0.024797 + 0.753778I$	$-8.38946 + 0.77666I$	0
$u = -0.03635 - 1.51887I$ $a = -0.188176 + 0.971188I$ $b = -0.024797 - 0.753778I$	$-8.38946 - 0.77666I$	0
$u = 0.426584 + 0.163967I$ $a = -0.103508 + 0.801666I$ $b = 0.551224 - 0.341184I$	$1.42248 - 0.26340I$	$8.41844 - 0.07658I$
$u = 0.426584 - 0.163967I$ $a = -0.103508 - 0.801666I$ $b = 0.551224 + 0.341184I$	$1.42248 + 0.26340I$	$8.41844 + 0.07658I$
$u = -0.025737 + 0.360134I$ $a = 1.68111 + 0.63003I$ $b = 0.754112 - 0.960374I$	$0.58216 - 2.71844I$	$-1.71807 + 7.77810I$
$u = -0.025737 - 0.360134I$ $a = 1.68111 - 0.63003I$ $b = 0.754112 + 0.960374I$	$0.58216 + 2.71844I$	$-1.71807 - 7.77810I$

II.

$$I_2^u = \langle 1.89 \times 10^{11} u^{37} + 5.83 \times 10^{11} u^{36} + \dots + 1.93 \times 10^{10} b - 1.15 \times 10^{11}, -1.63 \times 10^{11} u^{37} - 4.74 \times 10^{11} u^{36} + \dots + 1.93 \times 10^{10} a + 1.69 \times 10^{11}, u^{38} + 4u^{37} + \dots - u + 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 8.43664u^{37} + 24.5697u^{36} + \dots + 28.4592u - 8.73294 \\ -9.77459u^{37} - 30.2130u^{36} + \dots - 16.0489u + 5.95462 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 12.5707u^{37} + 45.2070u^{36} + \dots + 23.4488u - 4.07648 \\ -1.02109u^{37} - 11.8030u^{36} + \dots + 17.3027u - 11.1936 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -28.0164u^{37} - 109.157u^{36} + \dots - 19.3581u - 9.16279 \\ 8.37249u^{37} + 20.2754u^{36} + \dots + 22.3396u - 10.6110 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 18.2112u^{37} + 54.7827u^{36} + \dots + 44.5081u - 14.6876 \\ -9.77459u^{37} - 30.2130u^{36} + \dots - 16.0489u + 5.95462 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 14.3303u^{37} + 50.7289u^{36} + \dots + 13.5226u + 4.08922 \\ -7.41819u^{37} - 25.1003u^{36} + \dots - 13.2948u + 3.73538 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 15.3896u^{37} + 56.7790u^{36} + \dots + 10.6848u + 6.12977 \\ -7.72601u^{37} - 27.6317u^{36} + \dots - 11.4640u + 2.86954 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -7.66153u^{37} - 61.7631u^{36} + \dots + 48.7066u - 41.0008 \\ 9.39558u^{37} + 55.8961u^{36} + \dots - 24.4006u + 22.3580 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes

$$= -\frac{192505861283}{19303084121} u^{37} - \frac{325357159564}{19303084121} u^{36} + \dots - \frac{852917232762}{19303084121} u + \frac{345841353145}{19303084121}$$

(iv) u -Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} - 24u^{37} + \dots - 13u + 1$
c_2	$u^{38} - 4u^{37} + \dots + u + 1$
c_3	$u^{38} + 2u^{37} + \dots + 6u + 1$
c_4	$u^{38} + 4u^{36} + \dots + u + 1$
c_5	$u^{38} - 2u^{37} + \dots + 47u + 9$
c_6	$u^{38} + 4u^{37} + \dots - u + 1$
c_7	$u^{38} + 11u^{37} + \dots + 3u + 1$
c_8	$u^{38} - 5u^{37} + \dots - 12u^2 + 1$
c_9	$u^{38} - 9u^{37} + \dots - 902u + 57$
c_{10}	$u^{38} - 11u^{37} + \dots - 3u + 1$
c_{11}	$u^{38} - 2u^{37} + \dots - 6u + 1$
c_{12}	$u^{38} - 4u^{37} + \dots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38} - 8y^{37} + \dots + 25y + 1$
c_2, c_6	$y^{38} + 24y^{37} + \dots + 13y + 1$
c_3, c_{11}	$y^{38} - 18y^{37} + \dots + 6y + 1$
c_4	$y^{38} + 8y^{37} + \dots + 11y + 1$
c_5	$y^{38} - 20y^{37} + \dots + 149y + 81$
c_7, c_{10}	$y^{38} + 23y^{37} + \dots + 33y + 1$
c_8	$y^{38} - 17y^{37} + \dots - 24y + 1$
c_9	$y^{38} - 29y^{37} + \dots + 25094y + 3249$
c_{12}	$y^{38} + 20y^{37} + \dots - 13y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.227793 + 0.985214I$ $a = 0.830217 + 0.930866I$ $b = -0.09381 - 1.72519I$	$-9.28726 + 3.56187I$	$-5.47280 - 0.98431I$
$u = -0.227793 - 0.985214I$ $a = 0.830217 - 0.930866I$ $b = -0.09381 + 1.72519I$	$-9.28726 - 3.56187I$	$-5.47280 + 0.98431I$
$u = 0.400059 + 0.957646I$ $a = 2.54637 - 2.23076I$ $b = 0.102355 + 1.063050I$	$-3.92640 + 2.08247I$	$11.6566 + 12.8032I$
$u = 0.400059 - 0.957646I$ $a = 2.54637 + 2.23076I$ $b = 0.102355 - 1.063050I$	$-3.92640 - 2.08247I$	$11.6566 - 12.8032I$
$u = -0.180933 + 0.940870I$ $a = -0.196258 - 0.154934I$ $b = 0.10299 + 1.65898I$	$-9.04652 - 5.22398I$	$-2.79139 + 7.91230I$
$u = -0.180933 - 0.940870I$ $a = -0.196258 + 0.154934I$ $b = 0.10299 - 1.65898I$	$-9.04652 + 5.22398I$	$-2.79139 - 7.91230I$
$u = -0.963963 + 0.419573I$ $a = -0.439408 - 1.052020I$ $b = -0.456677 - 1.273830I$	$-3.32985 + 4.94645I$	$-2.27650 - 5.95229I$
$u = -0.963963 - 0.419573I$ $a = -0.439408 + 1.052020I$ $b = -0.456677 + 1.273830I$	$-3.32985 - 4.94645I$	$-2.27650 + 5.95229I$
$u = 0.569089 + 0.652504I$ $a = -1.108610 - 0.378795I$ $b = -0.689597 - 0.744577I$	$1.42768 + 3.36196I$	$4.93419 - 8.87590I$
$u = 0.569089 - 0.652504I$ $a = -1.108610 + 0.378795I$ $b = -0.689597 + 0.744577I$	$1.42768 - 3.36196I$	$4.93419 + 8.87590I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.471119 + 1.050120I$ $a = -0.93157 - 1.17263I$ $b = -1.61783 - 0.25427I$	$-1.00243 - 3.28323I$	$-6.45117 + 5.56716I$
$u = -0.471119 - 1.050120I$ $a = -0.93157 + 1.17263I$ $b = -1.61783 + 0.25427I$	$-1.00243 + 3.28323I$	$-6.45117 - 5.56716I$
$u = -0.296451 + 1.112850I$ $a = 2.04494 + 1.45880I$ $b = 0.464775 - 0.589623I$	$-4.37839 - 8.33722I$	$-5.1808 + 14.0733I$
$u = -0.296451 - 1.112850I$ $a = 2.04494 - 1.45880I$ $b = 0.464775 + 0.589623I$	$-4.37839 + 8.33722I$	$-5.1808 - 14.0733I$
$u = 0.633922 + 0.993073I$ $a = 0.179102 + 0.590690I$ $b = -0.459217 + 0.645451I$	$0.36684 + 1.45480I$	$2.00000 + 2.99858I$
$u = 0.633922 - 0.993073I$ $a = 0.179102 - 0.590690I$ $b = -0.459217 - 0.645451I$	$0.36684 - 1.45480I$	$2.00000 - 2.99858I$
$u = 0.380585 + 0.724786I$ $a = 1.56168 - 2.34831I$ $b = 0.075649 - 0.860612I$	$-3.15578 + 1.32386I$	$-18.5410 + 1.0007I$
$u = 0.380585 - 0.724786I$ $a = 1.56168 + 2.34831I$ $b = 0.075649 + 0.860612I$	$-3.15578 - 1.32386I$	$-18.5410 - 1.0007I$
$u = 0.437946 + 1.116520I$ $a = -1.14341 + 1.03051I$ $b = -0.555971 - 1.121700I$	$-1.34571 + 5.64971I$	$2.00000 - 5.92168I$
$u = 0.437946 - 1.116520I$ $a = -1.14341 - 1.03051I$ $b = -0.555971 + 1.121700I$	$-1.34571 - 5.64971I$	$2.00000 + 5.92168I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.793144 + 0.915710I$ $a = -0.067621 + 0.266521I$ $b = 0.124461 - 0.393754I$	$0.65406 - 8.60193I$	$2.00000 + 6.36713I$
$u = -0.793144 - 0.915710I$ $a = -0.067621 - 0.266521I$ $b = 0.124461 + 0.393754I$	$0.65406 + 8.60193I$	$2.00000 - 6.36713I$
$u = -0.895917 + 0.836843I$ $a = -0.289206 - 0.225937I$ $b = 0.010372 + 0.478701I$	$0.92266 + 2.38647I$	$5.65651 - 3.27621I$
$u = -0.895917 - 0.836843I$ $a = -0.289206 + 0.225937I$ $b = 0.010372 - 0.478701I$	$0.92266 - 2.38647I$	$5.65651 + 3.27621I$
$u = -0.222203 + 0.737834I$ $a = 0.91018 + 3.15056I$ $b = 0.442664 + 0.385099I$	$-2.87969 + 6.10346I$	$3.74850 - 3.36313I$
$u = -0.222203 - 0.737834I$ $a = 0.91018 - 3.15056I$ $b = 0.442664 - 0.385099I$	$-2.87969 - 6.10346I$	$3.74850 + 3.36313I$
$u = -0.430119 + 0.544778I$ $a = -1.66298 - 1.78875I$ $b = -1.226650 + 0.295172I$	$0.658678 - 0.575671I$	$3.17990 - 6.73035I$
$u = -0.430119 - 0.544778I$ $a = -1.66298 + 1.78875I$ $b = -1.226650 - 0.295172I$	$0.658678 + 0.575671I$	$3.17990 + 6.73035I$
$u = -0.634137 + 1.158870I$ $a = -1.65646 - 0.19354I$ $b = -0.56518 + 1.44412I$	$-5.65451 - 10.73770I$	$0. + 8.36519I$
$u = -0.634137 - 1.158870I$ $a = -1.65646 + 0.19354I$ $b = -0.56518 - 1.44412I$	$-5.65451 + 10.73770I$	$0. - 8.36519I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.340228 + 0.512922I$ $a = -0.533833 + 0.359461I$ $b = -0.749882 + 0.955481I$	$0.75547 - 2.16837I$	$1.08781 - 3.45424I$
$u = 0.340228 - 0.512922I$ $a = -0.533833 - 0.359461I$ $b = -0.749882 - 0.955481I$	$0.75547 + 2.16837I$	$1.08781 + 3.45424I$
$u = -0.10403 + 1.47220I$ $a = 0.033057 + 0.275699I$ $b = -0.161110 - 1.184180I$	$-10.17160 + 1.54934I$	0
$u = -0.10403 - 1.47220I$ $a = 0.033057 - 0.275699I$ $b = -0.161110 + 1.184180I$	$-10.17160 - 1.54934I$	0
$u = 0.448947 + 0.211092I$ $a = 1.97228 - 1.39068I$ $b = -0.167223 - 0.872510I$	$-3.02903 + 0.84919I$	$1.81938 - 1.88427I$
$u = 0.448947 - 0.211092I$ $a = 1.97228 + 1.39068I$ $b = -0.167223 + 0.872510I$	$-3.02903 - 0.84919I$	$1.81938 + 1.88427I$
$u = 0.00903 + 1.50680I$ $a = -0.048488 - 1.046900I$ $b = -0.080116 + 0.765784I$	$-8.44080 + 0.56887I$	0
$u = 0.00903 - 1.50680I$ $a = -0.048488 + 1.046900I$ $b = -0.080116 - 0.765784I$	$-8.44080 - 0.56887I$	0

$$\text{III. } I_3^u = \langle b + 1, 2a^2 - 4au + 5a - 4u + 2, u^2 - u + 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{3}{2}au - \frac{1}{2}a + 2u + 1 \\ au - a + 2u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{4}au + \frac{1}{2}u \\ -\frac{1}{2}au - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a + 1 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a + 2 \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a + 1 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{3}{2}au - \frac{5}{2}a + 3u - 2 \\ -au + a - u \end{pmatrix}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = -\frac{45}{8}au - \frac{15}{8}a - \frac{29}{4}u + \frac{7}{4}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^2 - u + 1)^2$
c_2	$(u^2 + u + 1)^2$
c_3	$4(4u^4 + 2u^3 - 3u^2 - u + 1)$
c_4	$u^4 - u^3 - 3u^2 + 2u + 4$
c_5	$4(4u^4 - 6u^3 + 3u^2 + 3)$
c_7, c_8	$(u + 1)^4$
c_9	u^4
c_{10}	$(u - 1)^4$
c_{11}, c_{12}	$4(4u^4 - 2u^3 - 3u^2 + u + 1)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$(y^2 + y + 1)^2$
c_3, c_{11}, c_{12}	$16(16y^4 - 28y^3 + 21y^2 - 7y + 1)$
c_4	$y^4 - 7y^3 + 21y^2 - 28y + 16$
c_5	$16(16y^4 - 12y^3 + 33y^2 + 18y + 9)$
c_7, c_8, c_{10}	$(y - 1)^4$
c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -1.127070 + 0.291846I$ $b = -1.000000$	$1.64493 + 2.02988I$	$4.82984 - 2.15631I$
$u = 0.500000 + 0.866025I$ $a = -0.37293 + 1.44021I$ $b = -1.000000$	$1.64493 + 2.02988I$	$6.88891 - 11.21296I$
$u = 0.500000 - 0.866025I$ $a = -1.127070 - 0.291846I$ $b = -1.000000$	$1.64493 - 2.02988I$	$4.82984 + 2.15631I$
$u = 0.500000 - 0.866025I$ $a = -0.37293 - 1.44021I$ $b = -1.000000$	$1.64493 - 2.02988I$	$6.88891 + 11.21296I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2 - u + 1)^2)(u^{38} - 24u^{37} + \dots - 13u + 1)$ $\cdot (u^{170} + 87u^{169} + \dots + 301939u + 9409)$
c_2	$((u^2 + u + 1)^2)(u^{38} - 4u^{37} + \dots + u + 1)(u^{170} + u^{169} + \dots - 161u + 97)$
c_3	$16(4u^4 + 2u^3 + \dots - u + 1)(u^{38} + 2u^{37} + \dots + 6u + 1)$ $\cdot (4u^{170} + 14u^{169} + \dots + 107793203u + 17702137)$
c_4	$(u^4 - u^3 - 3u^2 + 2u + 4)(u^{38} + 4u^{36} + \dots + u + 1)$ $\cdot (u^{170} - 2u^{169} + \dots + 117766u + 85948)$
c_5	$16(4u^4 - 6u^3 + 3u^2 + 3)(u^{38} - 2u^{37} + \dots + 47u + 9)$ $\cdot (4u^{170} - 38u^{169} + \dots - 373833u + 44333)$
c_6	$((u^2 - u + 1)^2)(u^{38} + 4u^{37} + \dots - u + 1)(u^{170} + u^{169} + \dots - 161u + 97)$
c_7	$((u + 1)^4)(u^{38} + 11u^{37} + \dots + 3u + 1)$ $\cdot (u^{170} - 10u^{169} + \dots + 214205u + 28225)$
c_8	$((u + 1)^4)(u^{38} - 5u^{37} + \dots - 12u^2 + 1)$ $\cdot (u^{170} - 4u^{169} + \dots + 550206u + 30733)$
c_9	$u^4(u^{38} - 9u^{37} + \dots - 902u + 57)(u^{170} - 10u^{169} + \dots - 1952u + 256)$
c_{10}	$((u - 1)^4)(u^{38} - 11u^{37} + \dots - 3u + 1)$ $\cdot (u^{170} - 10u^{169} + \dots + 214205u + 28225)$
c_{11}	$16(4u^4 - 2u^3 + \dots + u + 1)(u^{38} - 2u^{37} + \dots - 6u + 1)$ $\cdot (4u^{170} + 14u^{169} + \dots + 107793203u + 17702137)$
c_{12}	$16(4u^4 - 2u^3 + \dots + u + 1)(u^{38} - 4u^{37} + \dots - u + 1)$ $\cdot (4u^{170} - 2u^{169} + \dots - \frac{30}{35}u + 25)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2 + y + 1)^2)(y^{38} - 8y^{37} + \dots + 25y + 1)$ $\cdot (y^{170} + 7y^{169} + \dots - 8189301629y + 88529281)$
c_2, c_6	$((y^2 + y + 1)^2)(y^{38} + 24y^{37} + \dots + 13y + 1)$ $\cdot (y^{170} + 87y^{169} + \dots + 301939y + 9409)$
c_3, c_{11}	$256(16y^4 - 28y^3 + \dots - 7y + 1)(y^{38} - 18y^{37} + \dots + 6y + 1)$ $\cdot (16y^{170} - 1900y^{169} + \dots - 9315973042219045y + 313365654366769)$
c_4	$(y^4 - 7y^3 + 21y^2 - 28y + 16)(y^{38} + 8y^{37} + \dots + 11y + 1)$ $\cdot (y^{170} + 30y^{169} + \dots + 522801654484y + 7387058704)$
c_5	$256(16y^4 - 12y^3 + \dots + 18y + 9)(y^{38} - 20y^{37} + \dots + 149y + 81)$ $\cdot (16y^{170} - 188y^{169} + \dots + 120542117671y + 1965414889)$
c_7, c_{10}	$((y - 1)^4)(y^{38} + 23y^{37} + \dots + 33y + 1)$ $\cdot (y^{170} + 100y^{169} + \dots - 20975614675y + 796650625)$
c_8	$((y - 1)^4)(y^{38} - 17y^{37} + \dots - 24y + 1)$ $\cdot (y^{170} + 58y^{168} + \dots + 46008453280y + 944517289)$
c_9	$y^4(y^{38} - 29y^{37} + \dots + 25094y + 3249)$ $\cdot (y^{170} - 44y^{169} + \dots - 1694720y + 65536)$
c_{12}	$256(16y^4 - 28y^3 + \dots - 7y + 1)(y^{38} + 20y^{37} + \dots - 13y + 1)$ $\cdot (16y^{170} + 116y^{169} + \dots - 32800y + 625)$