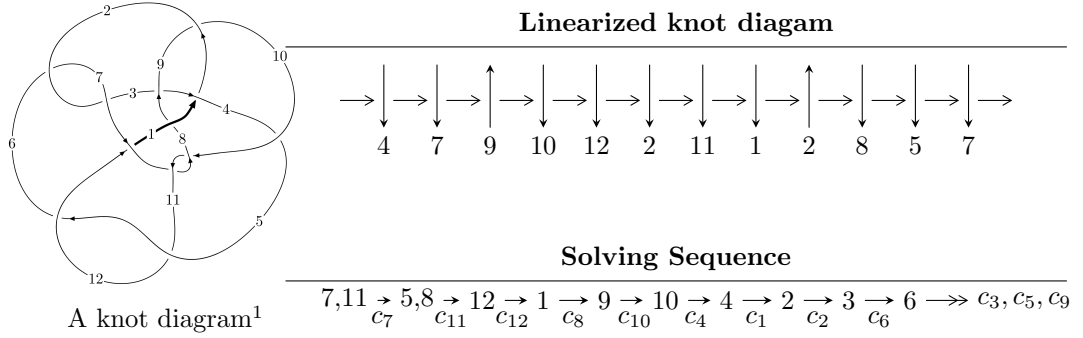


12n₀₇₇₀ (K12n₀₇₇₀)



Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 1.64367 \times 10^{347} u^{113} - 1.16814 \times 10^{348} u^{112} + \dots + 8.26301 \times 10^{347} b - 1.41159 \times 10^{349}, \\ - 1.42691 \times 10^{349} u^{113} + 8.15610 \times 10^{349} u^{112} + \dots + 3.47046 \times 10^{349} a + 1.77529 \times 10^{350}, \\ u^{114} - 5u^{113} + \dots - 28u + 28 \rangle$$

$$I_2^u = \langle 7.56683 \times 10^{20} u^{38} - 7.68268 \times 10^{21} u^{37} + \dots + 1.46846 \times 10^{20} b - 2.75750 \times 10^{21}, \\ - 1.42755 \times 10^{20} u^{38} + 2.29096 \times 10^{21} u^{37} + \dots + 5.87384 \times 10^{20} a - 8.95365 \times 10^{21}, \\ u^{39} - 11u^{38} + \dots + 44u - 4 \rangle$$

$$I_3^u = \langle b + 1, a + 1, u - 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 154 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.

$$\mathbf{I. } J_1^u = \langle 1.64 \times 10^{347} u^{113} - 1.17 \times 10^{348} u^{112} + \dots + 8.26 \times 10^{347} b - 1.41 \times 10^{349}, -1.43 \times 10^{349} u^{113} + 8.16 \times 10^{349} u^{112} + \dots + 3.47 \times 10^{349} a + 1.78 \times 10^{350}, u^{114} - 5u^{113} + \dots - 28u + 28 \rangle$$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.411157u^{113} - 2.35015u^{112} + \dots + 37.1094u - 5.11544 \\ -0.198919u^{113} + 1.41370u^{112} + \dots - 38.8486u + 17.0833 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.250042u^{113} + 1.26176u^{112} + \dots - 13.9324u - 0.971506 \\ -0.0132989u^{113} - 0.184376u^{112} + \dots + 31.7660u - 17.9686 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.236744u^{113} + 1.44614u^{112} + \dots - 45.6984u + 16.9971 \\ -0.0132989u^{113} - 0.184376u^{112} + \dots + 31.7660u - 17.9686 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.801265u^{113} + 3.88615u^{112} + \dots - 9.13740u - 25.0527 \\ 0.354616u^{113} - 1.85556u^{112} + \dots + 11.0496u + 4.41535 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.488225u^{113} - 3.03280u^{112} + \dots + 66.2774u - 19.6772 \\ -0.0385091u^{113} + 0.428468u^{112} + \dots - 20.1635u + 10.8463 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.734453u^{113} + 3.50787u^{112} + \dots + 0.813004u - 21.0445 \\ 0.102327u^{113} - 0.625191u^{112} + \dots + 8.52878u - 1.63632 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.836779u^{113} + 4.13306u^{112} + \dots - 7.71577u - 19.4082 \\ 0.102327u^{113} - 0.625191u^{112} + \dots + 8.52878u - 1.63632 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.407728u^{113} + 2.54127u^{112} + \dots - 50.8668u + 20.6255 \\ -0.136278u^{113} + 0.563144u^{112} + \dots + 12.2868u - 8.91297 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $1.09243u^{113} - 4.66473u^{112} + \dots - 40.0688u + 38.8157$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{114} - 7u^{113} + \dots - 6u + 1$
c_2, c_6	$u^{114} + 2u^{113} + \dots + 40u + 1$
c_3	$u^{114} - u^{113} + \dots + 2622u - 51$
c_4	$u^{114} + 2u^{113} + \dots + 36042u - 2819$
c_5, c_{11}	$u^{114} - 29u^{112} + \dots - 86783u - 21161$
c_7, c_{10}	$u^{114} + 5u^{113} + \dots + 28u + 28$
c_8	$u^{114} - 3u^{113} + \dots - 18432u - 4096$
c_9	$u^{114} - 3u^{112} + \dots - 2209436u - 262349$
c_{12}	$u^{114} + 8u^{113} + \dots + 711116424u - 32039577$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{114} - 21y^{113} + \dots - 24y + 1$
c_2, c_6	$y^{114} + 80y^{113} + \dots - 214y + 1$
c_3	$y^{114} - 15y^{113} + \dots + 13651086y + 2601$
c_4	$y^{114} + 10y^{113} + \dots - 1131278350y + 7946761$
c_5, c_{11}	$y^{114} - 58y^{113} + \dots - 10990689369y + 447787921$
c_7, c_{10}	$y^{114} + 65y^{113} + \dots - 3920y + 784$
c_8	$y^{114} + 25y^{113} + \dots + 1644167168y + 16777216$
c_9	$y^{114} - 6y^{113} + \dots - 470658669282y + 68826997801$
c_{12}	$y^{114} + 16y^{113} + \dots + 5314413482865162y + 1026534494338929$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.818099 + 0.532162I$	$0.328422 + 0.462677I$	0
$a = 0.472412 - 1.199790I$		
$b = 0.422644 + 0.059689I$		
$u = 0.818099 - 0.532162I$	$0.328422 - 0.462677I$	0
$a = 0.472412 + 1.199790I$		
$b = 0.422644 - 0.059689I$		
$u = -0.449141 + 0.924619I$	$-3.29175 - 0.83027I$	0
$a = 0.722724 + 0.463209I$		
$b = 1.132120 + 0.424803I$		
$u = -0.449141 - 0.924619I$	$-3.29175 + 0.83027I$	0
$a = 0.722724 - 0.463209I$		
$b = 1.132120 - 0.424803I$		
$u = 0.728416 + 0.601252I$	$-4.99624 - 2.74266I$	0
$a = -1.130000 + 0.764887I$		
$b = -1.62485 - 0.52082I$		
$u = 0.728416 - 0.601252I$	$-4.99624 + 2.74266I$	0
$a = -1.130000 - 0.764887I$		
$b = -1.62485 + 0.52082I$		
$u = 0.655193 + 0.841159I$	$1.16863 - 5.87092I$	0
$a = 1.193410 - 0.082262I$		
$b = 1.46588 + 0.07377I$		
$u = 0.655193 - 0.841159I$	$1.16863 + 5.87092I$	0
$a = 1.193410 + 0.082262I$		
$b = 1.46588 - 0.07377I$		
$u = 0.230146 + 1.049920I$	$6.51073 + 0.29692I$	0
$a = -1.21464 - 0.94528I$		
$b = -0.1186690 + 0.0768415I$		
$u = 0.230146 - 1.049920I$	$6.51073 - 0.29692I$	0
$a = -1.21464 + 0.94528I$		
$b = -0.1186690 - 0.0768415I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.317192 + 1.028380I$ $a = -0.567236 - 1.102330I$ $b = -2.79481 - 0.02014I$	$0.40066 + 5.93647I$	0
$u = -0.317192 - 1.028380I$ $a = -0.567236 + 1.102330I$ $b = -2.79481 + 0.02014I$	$0.40066 - 5.93647I$	0
$u = -0.398064 + 0.830871I$ $a = 0.84701 + 1.59525I$ $b = 1.98160 - 0.64550I$	$-8.67291 + 1.70726I$	0
$u = -0.398064 - 0.830871I$ $a = 0.84701 - 1.59525I$ $b = 1.98160 + 0.64550I$	$-8.67291 - 1.70726I$	0
$u = 1.070220 + 0.165485I$ $a = 0.699806 - 0.687492I$ $b = 1.278800 + 0.301934I$	$-0.84358 + 2.42749I$	0
$u = 1.070220 - 0.165485I$ $a = 0.699806 + 0.687492I$ $b = 1.278800 - 0.301934I$	$-0.84358 - 2.42749I$	0
$u = -0.497495 + 0.768200I$ $a = -1.18960 - 1.20996I$ $b = -1.43561 - 0.00653I$	$-1.56140 - 1.49501I$	0
$u = -0.497495 - 0.768200I$ $a = -1.18960 + 1.20996I$ $b = -1.43561 + 0.00653I$	$-1.56140 + 1.49501I$	0
$u = -0.411146 + 0.795027I$ $a = -0.94055 - 1.73146I$ $b = -1.033310 + 0.482510I$	$-1.54985 + 5.31929I$	0
$u = -0.411146 - 0.795027I$ $a = -0.94055 + 1.73146I$ $b = -1.033310 - 0.482510I$	$-1.54985 - 5.31929I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.613156 + 0.940244I$ $a = -0.390137 + 0.753374I$ $b = -0.71225 - 1.22658I$	$-1.73750 - 3.98044I$	0
$u = 0.613156 - 0.940244I$ $a = -0.390137 - 0.753374I$ $b = -0.71225 + 1.22658I$	$-1.73750 + 3.98044I$	0
$u = -1.015600 + 0.496700I$ $a = -0.524971 - 0.785875I$ $b = -1.381690 + 0.126492I$	$-2.38932 - 4.78544I$	0
$u = -1.015600 - 0.496700I$ $a = -0.524971 + 0.785875I$ $b = -1.381690 - 0.126492I$	$-2.38932 + 4.78544I$	0
$u = -0.509445 + 1.019500I$ $a = 0.930280 + 0.220948I$ $b = 1.44465 - 1.35754I$	$6.81305 + 3.72419I$	0
$u = -0.509445 - 1.019500I$ $a = 0.930280 - 0.220948I$ $b = 1.44465 + 1.35754I$	$6.81305 - 3.72419I$	0
$u = 0.508139 + 1.022120I$ $a = 0.096759 - 0.628882I$ $b = 1.75389 - 0.59313I$	$2.43215 - 0.85642I$	0
$u = 0.508139 - 1.022120I$ $a = 0.096759 + 0.628882I$ $b = 1.75389 + 0.59313I$	$2.43215 + 0.85642I$	0
$u = 0.026832 + 0.853750I$ $a = 0.89272 + 1.23952I$ $b = 1.24405 - 1.09702I$	$4.10024 + 2.73285I$	0
$u = 0.026832 - 0.853750I$ $a = 0.89272 - 1.23952I$ $b = 1.24405 + 1.09702I$	$4.10024 - 2.73285I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.064176 + 0.847207I$ $a = 1.82032 - 0.10024I$ $b = 0.677672 - 0.180211I$	$5.43615 - 1.68884I$	0
$u = 0.064176 - 0.847207I$ $a = 1.82032 + 0.10024I$ $b = 0.677672 + 0.180211I$	$5.43615 + 1.68884I$	0
$u = -1.124140 + 0.245655I$ $a = 0.944919 + 0.768627I$ $b = 1.67979 + 0.10944I$	$0.82590 - 12.63330I$	0
$u = -1.124140 - 0.245655I$ $a = 0.944919 - 0.768627I$ $b = 1.67979 - 0.10944I$	$0.82590 + 12.63330I$	0
$u = -0.354129 + 1.098750I$ $a = -1.027890 + 0.716351I$ $b = -0.221868 + 0.530085I$	$7.89785 + 3.20495I$	0
$u = -0.354129 - 1.098750I$ $a = -1.027890 - 0.716351I$ $b = -0.221868 - 0.530085I$	$7.89785 - 3.20495I$	0
$u = -0.804098 + 0.218721I$ $a = 1.21254 + 1.07019I$ $b = 1.48395 + 0.18164I$	$1.89868 - 5.66109I$	0
$u = -0.804098 - 0.218721I$ $a = 1.21254 - 1.07019I$ $b = 1.48395 - 0.18164I$	$1.89868 + 5.66109I$	0
$u = 1.119300 + 0.330406I$ $a = 0.676069 - 0.539140I$ $b = 1.54937 - 0.29821I$	$-0.75389 + 1.50754I$	0
$u = 1.119300 - 0.330406I$ $a = 0.676069 + 0.539140I$ $b = 1.54937 + 0.29821I$	$-0.75389 - 1.50754I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.300428 + 1.127830I$	$5.95235 - 6.78422I$	0
$a = 0.585291 - 0.718912I$		
$b = 2.41578 + 2.07339I$		
$u = 0.300428 - 1.127830I$	$5.95235 + 6.78422I$	0
$a = 0.585291 + 0.718912I$		
$b = 2.41578 - 2.07339I$		
$u = 0.390646 + 1.122960I$	$1.49134 - 3.17432I$	0
$a = 0.606005 + 0.118204I$		
$b = 0.570091 - 0.195779I$		
$u = 0.390646 - 1.122960I$	$1.49134 + 3.17432I$	0
$a = 0.606005 - 0.118204I$		
$b = 0.570091 + 0.195779I$		
$u = -0.388435 + 1.127010I$	$-2.21934 + 7.04828I$	0
$a = 0.510785 + 0.477478I$		
$b = 1.36952 + 0.62979I$		
$u = -0.388435 - 1.127010I$	$-2.21934 - 7.04828I$	0
$a = 0.510785 - 0.477478I$		
$b = 1.36952 - 0.62979I$		
$u = -0.319466 + 1.162990I$	$6.19183 - 2.18835I$	0
$a = -0.414309 + 0.895417I$		
$b = 0.554901 + 0.182017I$		
$u = -0.319466 - 1.162990I$	$6.19183 + 2.18835I$	0
$a = -0.414309 - 0.895417I$		
$b = 0.554901 - 0.182017I$		
$u = -0.422934 + 1.132040I$	$1.69509 + 3.05583I$	0
$a = -0.812763 - 0.756826I$		
$b = -1.69651 + 1.07844I$		
$u = -0.422934 - 1.132040I$	$1.69509 - 3.05583I$	0
$a = -0.812763 + 0.756826I$		
$b = -1.69651 - 1.07844I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.144422 + 1.209230I$ $a = -0.640187 + 0.323835I$ $b = 0.194668 + 0.450247I$	$5.60528 - 3.26259I$	0
$u = 0.144422 - 1.209230I$ $a = -0.640187 - 0.323835I$ $b = 0.194668 - 0.450247I$	$5.60528 + 3.26259I$	0
$u = -0.762656 + 0.121584I$ $a = 0.467482 - 1.252130I$ $b = 0.968158 - 0.461703I$	$3.95199 - 6.73660I$	$-8.00000 + 4.18516I$
$u = -0.762656 - 0.121584I$ $a = 0.467482 + 1.252130I$ $b = 0.968158 + 0.461703I$	$3.95199 + 6.73660I$	$-8.00000 - 4.18516I$
$u = 0.746246 + 0.180271I$ $a = 1.63492 + 0.23915I$ $b = 0.825825 + 1.003370I$	$0.20643 - 3.77461I$	$-12.9088 + 6.6671I$
$u = 0.746246 - 0.180271I$ $a = 1.63492 - 0.23915I$ $b = 0.825825 - 1.003370I$	$0.20643 + 3.77461I$	$-12.9088 - 6.6671I$
$u = -0.027164 + 1.235670I$ $a = 0.659406 - 0.216017I$ $b = 0.381894 - 0.068415I$	$4.44238 - 2.23504I$	0
$u = -0.027164 - 1.235670I$ $a = 0.659406 + 0.216017I$ $b = 0.381894 + 0.068415I$	$4.44238 + 2.23504I$	0
$u = -0.486807 + 1.148100I$ $a = 0.508004 - 0.791461I$ $b = -0.313740 - 0.154433I$	$1.19572 + 4.87991I$	0
$u = -0.486807 - 1.148100I$ $a = 0.508004 + 0.791461I$ $b = -0.313740 + 0.154433I$	$1.19572 - 4.87991I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.412166 + 1.204140I$ $a = 0.664366 + 0.370073I$ $b = 1.31885 - 1.62724I$	$7.72845 - 2.70528I$	0
$u = -0.412166 - 1.204140I$ $a = 0.664366 - 0.370073I$ $b = 1.31885 + 1.62724I$	$7.72845 + 2.70528I$	0
$u = -0.252217 + 0.672555I$ $a = 0.38036 + 1.73063I$ $b = -0.288411 - 0.976615I$	$-4.32871 + 4.18887I$	$-9.95246 + 0.64993I$
$u = -0.252217 - 0.672555I$ $a = 0.38036 - 1.73063I$ $b = -0.288411 + 0.976615I$	$-4.32871 - 4.18887I$	$-9.95246 - 0.64993I$
$u = 0.074656 + 0.714014I$ $a = -0.053857 - 0.784389I$ $b = 3.35157 + 0.00377I$	$4.01805 + 4.94347I$	$-9.95165 + 1.59105I$
$u = 0.074656 - 0.714014I$ $a = -0.053857 + 0.784389I$ $b = 3.35157 - 0.00377I$	$4.01805 - 4.94347I$	$-9.95165 - 1.59105I$
$u = -0.533583 + 1.174750I$ $a = 0.963414 + 0.718017I$ $b = 1.98217 - 1.06125I$	$4.73835 + 10.61460I$	0
$u = -0.533583 - 1.174750I$ $a = 0.963414 - 0.718017I$ $b = 1.98217 + 1.06125I$	$4.73835 - 10.61460I$	0
$u = -0.501399 + 1.189370I$ $a = -0.848477 + 0.714367I$ $b = -0.071372 + 0.427517I$	$7.06009 + 11.43460I$	0
$u = -0.501399 - 1.189370I$ $a = -0.848477 - 0.714367I$ $b = -0.071372 - 0.427517I$	$7.06009 - 11.43460I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.419766 + 0.560122I$ $a = -0.814503 + 0.355766I$ $b = -1.97757 + 0.37807I$	$-3.00105 - 0.43708I$	$-14.2497 + 9.3366I$
$u = 0.419766 - 0.560122I$ $a = -0.814503 - 0.355766I$ $b = -1.97757 - 0.37807I$	$-3.00105 + 0.43708I$	$-14.2497 - 9.3366I$
$u = -0.667314 + 0.184012I$ $a = -1.049230 + 0.478641I$ $b = -1.220840 + 0.386103I$	$-1.59570 - 0.46648I$	$-7.02975 + 0.94113I$
$u = -0.667314 - 0.184012I$ $a = -1.049230 - 0.478641I$ $b = -1.220840 - 0.386103I$	$-1.59570 + 0.46648I$	$-7.02975 - 0.94113I$
$u = -0.224138 + 0.654690I$ $a = -0.42225 - 2.02763I$ $b = -1.49893 + 1.73040I$	$-0.93724 - 3.32454I$	$-16.2220 - 1.3241I$
$u = -0.224138 - 0.654690I$ $a = -0.42225 + 2.02763I$ $b = -1.49893 - 1.73040I$	$-0.93724 + 3.32454I$	$-16.2220 + 1.3241I$
$u = 1.31331$ $a = -1.05853$ $b = -1.95512$	-7.31209	0
$u = 0.412036 + 1.257040I$ $a = -0.559537 + 0.822517I$ $b = -1.54749 - 0.72876I$	$-0.05067 - 6.24881I$	0
$u = 0.412036 - 1.257040I$ $a = -0.559537 - 0.822517I$ $b = -1.54749 + 0.72876I$	$-0.05067 + 6.24881I$	0
$u = 0.450732 + 1.259660I$ $a = 0.982575 - 0.673795I$ $b = 1.13588 + 0.85386I$	$4.32959 - 8.09259I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.450732 - 1.259660I$		
$a = 0.982575 + 0.673795I$	$4.32959 + 8.09259I$	0
$b = 1.13588 - 0.85386I$		
$u = 0.495342 + 1.272550I$		
$a = -0.394407 - 0.732886I$	$3.53932 - 2.69237I$	0
$b = -0.163962 + 0.017897I$		
$u = 0.495342 - 1.272550I$		
$a = -0.394407 + 0.732886I$	$3.53932 + 2.69237I$	0
$b = -0.163962 - 0.017897I$		
$u = -0.693279 + 1.184410I$		
$a = -0.848073 - 0.414394I$	$-0.18951 + 11.01020I$	0
$b = -1.83383 + 1.15568I$		
$u = -0.693279 - 1.184410I$		
$a = -0.848073 + 0.414394I$	$-0.18951 - 11.01020I$	0
$b = -1.83383 - 1.15568I$		
$u = 0.572749 + 1.255650I$		
$a = -0.439345 + 0.498559I$	$-1.21325 - 5.53621I$	0
$b = -1.323670 - 0.271475I$		
$u = 0.572749 - 1.255650I$		
$a = -0.439345 - 0.498559I$	$-1.21325 + 5.53621I$	0
$b = -1.323670 + 0.271475I$		
$u = 0.68240 + 1.23890I$		
$a = 0.789311 - 0.550734I$	$2.09002 - 7.92207I$	0
$b = 1.51174 + 1.39602I$		
$u = 0.68240 - 1.23890I$		
$a = 0.789311 + 0.550734I$	$2.09002 + 7.92207I$	0
$b = 1.51174 - 1.39602I$		
$u = 0.23730 + 1.40027I$		
$a = -0.254787 - 0.616168I$	$6.56365 - 2.95538I$	0
$b = -0.245891 - 0.867606I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.23730 - 1.40027I$ $a = -0.254787 + 0.616168I$ $b = -0.245891 + 0.867606I$	$6.56365 + 2.95538I$	0
$u = 0.26113 + 1.39896I$ $a = -0.245459 - 0.188955I$ $b = 0.463497 + 0.134977I$	$5.31196 - 3.15304I$	0
$u = 0.26113 - 1.39896I$ $a = -0.245459 + 0.188955I$ $b = 0.463497 - 0.134977I$	$5.31196 + 3.15304I$	0
$u = -0.64153 + 1.28633I$ $a = 0.898443 + 0.588880I$ $b = 2.02201 - 1.09560I$	$4.0857 + 18.8872I$	0
$u = -0.64153 - 1.28633I$ $a = 0.898443 - 0.588880I$ $b = 2.02201 + 1.09560I$	$4.0857 - 18.8872I$	0
$u = -0.520013 + 0.143978I$ $a = 0.06582 + 1.76449I$ $b = 0.765073 + 0.527821I$	$4.68778 + 0.15060I$	$-5.79597 - 0.26333I$
$u = -0.520013 - 0.143978I$ $a = 0.06582 - 1.76449I$ $b = 0.765073 - 0.527821I$	$4.68778 - 0.15060I$	$-5.79597 + 0.26333I$
$u = 0.64259 + 1.32039I$ $a = 0.749564 - 0.391692I$ $b = 2.02007 + 0.82853I$	$2.70536 - 8.64259I$	0
$u = 0.64259 - 1.32039I$ $a = 0.749564 + 0.391692I$ $b = 2.02007 - 0.82853I$	$2.70536 + 8.64259I$	0
$u = 1.09749 + 1.01545I$ $a = -0.401996 + 0.350171I$ $b = -1.91543 - 1.14205I$	$-4.36006 - 3.95166I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.09749 - 1.01545I$ $a = -0.401996 - 0.350171I$ $b = -1.91543 + 1.14205I$	$-4.36006 + 3.95166I$	0
$u = 0.434313 + 0.244812I$ $a = 0.652257 + 0.376947I$ $b = 0.152384 - 0.206477I$	$-0.666319 - 0.972878I$	$-8.94902 + 6.80871I$
$u = 0.434313 - 0.244812I$ $a = 0.652257 - 0.376947I$ $b = 0.152384 + 0.206477I$	$-0.666319 + 0.972878I$	$-8.94902 - 6.80871I$
$u = 0.70336 + 1.38403I$ $a = -0.573116 + 0.685767I$ $b = -1.71911 - 0.87522I$	$-3.13714 - 7.00519I$	0
$u = 0.70336 - 1.38403I$ $a = -0.573116 - 0.685767I$ $b = -1.71911 + 0.87522I$	$-3.13714 + 7.00519I$	0
$u = -0.27367 + 1.53607I$ $a = -0.242404 + 0.673656I$ $b = 0.293665 - 0.255664I$	$6.95303 - 7.40329I$	0
$u = -0.27367 - 1.53607I$ $a = -0.242404 - 0.673656I$ $b = 0.293665 + 0.255664I$	$6.95303 + 7.40329I$	0
$u = -0.336521 + 0.270404I$ $a = 1.69980 + 1.93484I$ $b = -0.139315 - 0.698839I$	$-4.75500 - 3.67331I$	$-10.92771 + 7.86915I$
$u = -0.336521 - 0.270404I$ $a = 1.69980 - 1.93484I$ $b = -0.139315 + 0.698839I$	$-4.75500 + 3.67331I$	$-10.92771 - 7.86915I$
$u = -0.010019 + 0.414939I$ $a = -0.31327 - 2.11117I$ $b = -0.875032 + 0.361032I$	$-1.060020 + 0.049400I$	$-8.05308 - 0.26941I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.010019 - 0.414939I$ $a = -0.31327 + 2.11117I$ $b = -0.875032 - 0.361032I$	$-1.060020 - 0.049400I$	$-8.05308 + 0.26941I$
$u = 1.21203 + 1.02939I$ $a = -0.485913 + 0.344211I$ $b = -1.49310 - 0.74121I$	$-4.93462 - 4.23614I$	0
$u = 1.21203 - 1.02939I$ $a = -0.485913 - 0.344211I$ $b = -1.49310 + 0.74121I$	$-4.93462 + 4.23614I$	0
$u = 0.171583$ $a = 4.00280$ $b = -0.574679$	-1.09069	-8.99320

$$\text{II. } I_2^u = \langle 7.57 \times 10^{20} u^{38} - 7.68 \times 10^{21} u^{37} + \dots + 1.47 \times 10^{20} b - 2.76 \times 10^{21}, -1.43 \times 10^{20} u^{38} + 2.29 \times 10^{21} u^{37} + \dots + 5.87 \times 10^{20} a - 8.95 \times 10^{21}, u^{39} - 11u^{38} + \dots + 44u - 4 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_7 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_5 &= \begin{pmatrix} 0.243035u^{38} - 3.90028u^{37} + \dots - 152.615u + 15.2433 \\ -5.15290u^{38} + 52.3179u^{37} + \dots - 186.952u + 18.7781 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} 7.28405u^{38} - 87.1265u^{37} + \dots - 526.958u + 44.6616 \\ -6.00199u^{38} + 58.7214u^{37} + \dots - 280.836u + 30.1362 \end{pmatrix} \\ a_1 &= \begin{pmatrix} 13.2860u^{38} - 145.848u^{37} + \dots - 246.122u + 14.5254 \\ -6.00199u^{38} + 58.7214u^{37} + \dots - 280.836u + 30.1362 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 5.72685u^{38} - 72.5702u^{37} + \dots - 704.647u + 63.3259 \\ 1.00070u^{38} - 9.30008u^{37} + \dots + 105.204u - 9.50616 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} u \\ u^3 + u \end{pmatrix} \\ a_4 &= \begin{pmatrix} 3.19078u^{38} - 32.2568u^{37} + \dots + 20.0481u - 2.83610 \\ -3.06468u^{38} + 29.8659u^{37} + \dots - 181.520u + 16.9735 \end{pmatrix} \\ a_2 &= \begin{pmatrix} 6.24418u^{38} - 77.9761u^{37} + \dots - 728.994u + 66.1467 \\ -1.55404u^{38} + 14.3729u^{37} + \dots - 72.0232u + 6.85412 \end{pmatrix} \\ a_3 &= \begin{pmatrix} 7.79822u^{38} - 92.3490u^{37} + \dots - 656.971u + 59.2926 \\ -1.55404u^{38} + 14.3729u^{37} + \dots - 72.0232u + 6.85412 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -21.6472u^{38} + 236.993u^{37} + \dots + 328.062u - 17.9437 \\ -3.32720u^{38} + 38.2247u^{37} + \dots + 242.840u - 23.0870 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = -\frac{8763649133162416713273}{293692090476642857770} u^{38} + \frac{87323166218638701411371}{293692090476642857770} u^{37} + \dots - \frac{27828963714502897014112}{146846045238321428885} u + \frac{4082268683703111025446}{146846045238321428885}$$

(iv) u -Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{39} - 11u^{38} + \dots + 9u - 1$
c_2	$u^{39} - 2u^{38} + \dots + 3u + 1$
c_3	$u^{39} + 6u^{37} + \dots + 3u + 1$
c_4	$u^{39} + 2u^{37} + \dots + 83u + 19$
c_5	$u^{39} - 14u^{37} + \dots - 8u + 1$
c_6	$u^{39} + 2u^{38} + \dots + 3u - 1$
c_7	$u^{39} - 11u^{38} + \dots + 44u - 4$
c_8	$u^{39} - u^{38} + \dots + 3u + 1$
c_9	$u^{39} + 8u^{37} + \dots + 15u + 1$
c_{10}	$u^{39} + 11u^{38} + \dots + 44u + 4$
c_{11}	$u^{39} - 14u^{37} + \dots - 8u - 1$
c_{12}	$u^{39} - 7u^{38} + \dots + 7u - 181$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{39} - 15y^{38} + \dots + 11y - 1$
c_2, c_6	$y^{39} + 14y^{38} + \dots + 17y - 1$
c_3	$y^{39} + 12y^{38} + \dots - 9y - 1$
c_4	$y^{39} + 4y^{38} + \dots + 14185y - 361$
c_5, c_{11}	$y^{39} - 28y^{38} + \dots + 100y - 1$
c_7, c_{10}	$y^{39} + 23y^{38} + \dots + 176y - 16$
c_8	$y^{39} + 7y^{38} + \dots - 25y - 1$
c_9	$y^{39} + 16y^{38} + \dots + 121y - 1$
c_{12}	$y^{39} - 29y^{38} + \dots - 297153y - 32761$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.515011 + 0.829523I$ $a = -0.804959 - 0.694343I$ $b = -1.52169 - 0.22252I$	$-4.21118 - 1.11225I$	$-15.5270 + 0.I$
$u = -0.515011 - 0.829523I$ $a = -0.804959 + 0.694343I$ $b = -1.52169 + 0.22252I$	$-4.21118 + 1.11225I$	$-15.5270 + 0.I$
$u = 1.044350 + 0.202847I$ $a = 0.756951 - 0.657087I$ $b = 1.280600 - 0.113979I$	$-0.22214 + 2.06984I$	0
$u = 1.044350 - 0.202847I$ $a = 0.756951 + 0.657087I$ $b = 1.280600 + 0.113979I$	$-0.22214 - 2.06984I$	0
$u = 0.415189 + 0.831322I$ $a = 0.84524 - 1.56276I$ $b = 1.97704 + 0.64409I$	$-8.71398 - 1.75740I$	$-48.7326 + 49.0797I$
$u = 0.415189 - 0.831322I$ $a = 0.84524 + 1.56276I$ $b = 1.97704 - 0.64409I$	$-8.71398 + 1.75740I$	$-48.7326 - 49.0797I$
$u = 0.172473 + 1.068330I$ $a = -1.236250 - 0.135897I$ $b = -0.0097803 - 0.0778283I$	$6.39609 - 2.11504I$	0
$u = 0.172473 - 1.068330I$ $a = -1.236250 + 0.135897I$ $b = -0.0097803 + 0.0778283I$	$6.39609 + 2.11504I$	0
$u = 0.123129 + 0.899449I$ $a = 1.53542 + 0.73033I$ $b = 0.844336 - 0.017979I$	$5.69724 + 0.93137I$	$-4.65983 + 1.78092I$
$u = 0.123129 - 0.899449I$ $a = 1.53542 - 0.73033I$ $b = 0.844336 + 0.017979I$	$5.69724 - 0.93137I$	$-4.65983 - 1.78092I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.387718 + 0.793881I$ $a = -0.51744 - 1.39965I$ $b = -0.457171 + 1.119410I$	$-4.45302 + 4.88333I$	$-12.6386 - 10.1235I$
$u = -0.387718 - 0.793881I$ $a = -0.51744 + 1.39965I$ $b = -0.457171 - 1.119410I$	$-4.45302 - 4.88333I$	$-12.6386 + 10.1235I$
$u = 0.299931 + 1.134250I$ $a = -0.591092 + 1.076820I$ $b = -1.93154 - 0.41735I$	$1.22869 - 5.42296I$	0
$u = 0.299931 - 1.134250I$ $a = -0.591092 - 1.076820I$ $b = -1.93154 + 0.41735I$	$1.22869 + 5.42296I$	0
$u = -0.427287 + 1.126120I$ $a = -0.488938 - 0.655788I$ $b = -1.70278 - 0.41205I$	$-2.94570 + 6.98107I$	0
$u = -0.427287 - 1.126120I$ $a = -0.488938 + 0.655788I$ $b = -1.70278 + 0.41205I$	$-2.94570 - 6.98107I$	0
$u = 0.133876 + 0.756473I$ $a = -0.20166 + 1.98208I$ $b = -1.44214 - 1.22409I$	$-0.46045 + 3.57548I$	$-2.13853 - 5.20343I$
$u = 0.133876 - 0.756473I$ $a = -0.20166 - 1.98208I$ $b = -1.44214 + 1.22409I$	$-0.46045 - 3.57548I$	$-2.13853 + 5.20343I$
$u = -0.121391 + 0.758185I$ $a = 0.646322 + 0.702329I$ $b = 3.23259 - 0.52965I$	$4.19183 + 5.46817I$	$-5.07202 - 11.53280I$
$u = -0.121391 - 0.758185I$ $a = 0.646322 - 0.702329I$ $b = 3.23259 + 0.52965I$	$4.19183 - 5.46817I$	$-5.07202 + 11.53280I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.457321 + 1.168370I$ $a = 0.347428 + 0.454509I$ $b = -0.002662 - 0.370620I$	$0.25942 - 3.96182I$	0
$u = 0.457321 - 1.168370I$ $a = 0.347428 - 0.454509I$ $b = -0.002662 + 0.370620I$	$0.25942 + 3.96182I$	0
$u = 0.010913 + 1.280680I$ $a = -0.176927 + 0.387156I$ $b = 1.57782 + 0.29139I$	$6.43520 - 4.94781I$	0
$u = 0.010913 - 1.280680I$ $a = -0.176927 - 0.387156I$ $b = 1.57782 - 0.29139I$	$6.43520 + 4.94781I$	0
$u = -0.526527 + 0.476851I$ $a = -1.03257 - 1.26362I$ $b = -0.571038 + 1.000240I$	$-5.09014 - 3.09291I$	$-16.5732 - 2.0562I$
$u = -0.526527 - 0.476851I$ $a = -1.03257 + 1.26362I$ $b = -0.571038 - 1.000240I$	$-5.09014 + 3.09291I$	$-16.5732 + 2.0562I$
$u = 1.35312$ $a = -1.00405$ $b = -1.97033$	-7.49260	0
$u = 0.563012 + 1.256880I$ $a = 0.815626 - 0.537286I$ $b = 1.63878 + 1.02985I$	$3.14790 - 7.77494I$	0
$u = 0.563012 - 1.256880I$ $a = 0.815626 + 0.537286I$ $b = 1.63878 - 1.02985I$	$3.14790 + 7.77494I$	0
$u = 0.28855 + 1.41409I$ $a = -0.263789 - 0.450792I$ $b = 0.090552 - 0.217636I$	$5.31260 - 2.58553I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.28855 - 1.41409I$ $a = -0.263789 + 0.450792I$ $b = 0.090552 + 0.217636I$	$5.31260 + 2.58553I$	0
$u = 1.11230 + 0.96225I$ $a = -0.610758 + 0.516977I$ $b = -1.75378 - 0.67321I$	$-5.81835 - 3.97474I$	0
$u = 1.11230 - 0.96225I$ $a = -0.610758 - 0.516977I$ $b = -1.75378 + 0.67321I$	$-5.81835 + 3.97474I$	0
$u = 1.11805 + 1.03159I$ $a = -0.379258 + 0.328138I$ $b = -1.67354 - 1.08382I$	$-4.14609 - 4.00373I$	0
$u = 1.11805 - 1.03159I$ $a = -0.379258 - 0.328138I$ $b = -1.67354 + 1.08382I$	$-4.14609 + 4.00373I$	0
$u = 0.462896$ $a = 0.256252$ $b = -1.19562$	-2.74275	-13.1350
$u = 0.72941 + 1.40467I$ $a = -0.542656 + 0.658948I$ $b = -1.68924 - 0.90207I$	$-3.26982 - 7.21782I$	0
$u = 0.72941 - 1.40467I$ $a = -0.542656 - 0.658948I$ $b = -1.68924 + 0.90207I$	$-3.26982 + 7.21782I$	0
$u = 0.202830$ $a = 1.54641$ $b = -1.60676$	-2.75978	-8.57070

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

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = -18

(iv) u -Polynomials at the component

Crossings	u -Polynomials at each crossing
c_1, c_7, c_8 c_9, c_{10}	$u + 1$
c_2, c_4, c_5 c_6, c_{11}	$u - 1$
c_3, c_{12}	u

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_5, c_6, c_7 c_8, c_9, c_{10} c_{11}	$y - 1$
c_3, c_{12}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$		
$a = -1.00000$	-4.93480	-18.0000
$b = -1.00000$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u + 1)(u^{39} - 11u^{38} + \dots + 9u - 1)(u^{114} - 7u^{113} + \dots - 6u + 1)$
c_2	$(u - 1)(u^{39} - 2u^{38} + \dots + 3u + 1)(u^{114} + 2u^{113} + \dots + 40u + 1)$
c_3	$u(u^{39} + 6u^{37} + \dots + 3u + 1)(u^{114} - u^{113} + \dots + 2622u - 51)$
c_4	$(u - 1)(u^{39} + 2u^{37} + \dots + 83u + 19)$ $\cdot (u^{114} + 2u^{113} + \dots + 36042u - 2819)$
c_5	$(u - 1)(u^{39} - 14u^{37} + \dots - 8u + 1)$ $\cdot (u^{114} - 29u^{112} + \dots - 86783u - 21161)$
c_6	$(u - 1)(u^{39} + 2u^{38} + \dots + 3u - 1)(u^{114} + 2u^{113} + \dots + 40u + 1)$
c_7	$(u + 1)(u^{39} - 11u^{38} + \dots + 44u - 4)(u^{114} + 5u^{113} + \dots + 28u + 28)$
c_8	$(u + 1)(u^{39} - u^{38} + \dots + 3u + 1)(u^{114} - 3u^{113} + \dots - 18432u - 4096)$
c_9	$(u + 1)(u^{39} + 8u^{37} + \dots + 15u + 1)$ $\cdot (u^{114} - 3u^{112} + \dots - 2209436u - 262349)$
c_{10}	$(u + 1)(u^{39} + 11u^{38} + \dots + 44u + 4)(u^{114} + 5u^{113} + \dots + 28u + 28)$
c_{11}	$(u - 1)(u^{39} - 14u^{37} + \dots - 8u - 1)$ $\cdot (u^{114} - 29u^{112} + \dots - 86783u - 21161)$
c_{12}	$u(u^{39} - 7u^{38} + \dots + 7u - 181)$ $\cdot (u^{114} + 8u^{113} + \dots + 711116424u - 32039577)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y - 1)(y^{39} - 15y^{38} + \dots + 11y - 1)(y^{114} - 21y^{113} + \dots - 24y + 1)$
c_2, c_6	$(y - 1)(y^{39} + 14y^{38} + \dots + 17y - 1)(y^{114} + 80y^{113} + \dots - 214y + 1)$
c_3	$y(y^{39} + 12y^{38} + \dots - 9y - 1)$ $\cdot (y^{114} - 15y^{113} + \dots + 13651086y + 2601)$
c_4	$(y - 1)(y^{39} + 4y^{38} + \dots + 14185y - 361)$ $\cdot (y^{114} + 10y^{113} + \dots - 1131278350y + 7946761)$
c_5, c_{11}	$(y - 1)(y^{39} - 28y^{38} + \dots + 100y - 1)$ $\cdot (y^{114} - 58y^{113} + \dots - 10990689369y + 447787921)$
c_7, c_{10}	$(y - 1)(y^{39} + 23y^{38} + \dots + 176y - 16)$ $\cdot (y^{114} + 65y^{113} + \dots - 3920y + 784)$
c_8	$(y - 1)(y^{39} + 7y^{38} + \dots - 25y - 1)$ $\cdot (y^{114} + 25y^{113} + \dots + 1644167168y + 16777216)$
c_9	$(y - 1)(y^{39} + 16y^{38} + \dots + 121y - 1)$ $\cdot (y^{114} - 6y^{113} + \dots - 470658669282y + 68826997801)$
c_{12}	$y(y^{39} - 29y^{38} + \dots - 297153y - 32761)$ $\cdot (y^{114} + 16y^{113} + \dots + 5314413482865162y + 1026534494338929)$