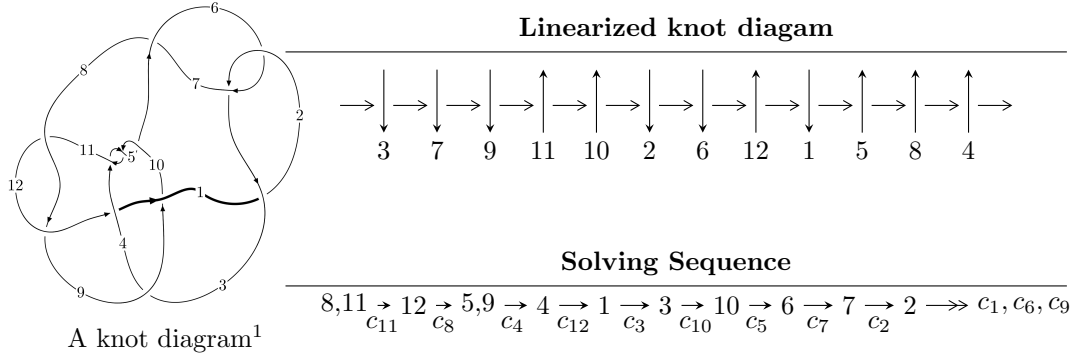


12a<sub>0593</sub> (K12a<sub>0593</sub>)



**Ideals for irreducible components<sup>2</sup> of  $X_{\text{par}}$**

$$I_1^u = \langle -1.32744 \times 10^{451} u^{113} - 2.40710 \times 10^{451} u^{112} + \dots + 1.44841 \times 10^{450} b + 2.58438 \times 10^{453}, \\ - 8.96722 \times 10^{451} u^{113} - 1.11752 \times 10^{452} u^{112} + \dots + 1.88293 \times 10^{451} a + 4.97987 \times 10^{454}, \\ u^{114} + u^{113} + \dots - 4199u + 169 \rangle$$

$$I_2^u = \langle -662u^{23} - 2292u^{22} + \dots + b - 1244, -62u^{23} - 199u^{22} + \dots + a - 70, u^{24} + 4u^{23} + \dots + 4u + 1 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 138 representations.

<sup>1</sup>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>).

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

$$\text{I. } I_1^u = \langle -1.33 \times 10^{451} u^{113} - 2.41 \times 10^{451} u^{112} + \dots + 1.45 \times 10^{450} b + 2.58 \times 10^{453}, -8.97 \times 10^{451} u^{113} - 1.12 \times 10^{452} u^{112} + \dots + 1.88 \times 10^{451} a + 4.98 \times 10^{454}, u^{114} + u^{113} + \dots - 4199u + 169 \rangle$$

(i) Arc colorings

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

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

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 4.76238u^{113} + 5.93498u^{112} + \dots + 57206.1u - 2644.75 \\ 9.16483u^{113} + 16.6189u^{112} + \dots + 42628.9u - 1784.29 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -4.40245u^{113} - 10.6840u^{112} + \dots + 14577.2u - 860.456 \\ 9.16483u^{113} + 16.6189u^{112} + \dots + 42628.9u - 1784.29 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -8.31120u^{113} - 14.8388u^{112} + \dots - 44660.2u + 1930.35 \\ 4.22266u^{113} + 6.63640u^{112} + \dots + 26248.2u - 1124.56 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2.46989u^{113} + 1.67905u^{112} + \dots + 47121.3u - 2220.56 \\ 11.7433u^{113} + 21.3506u^{112} + \dots + 53279.2u - 2216.47 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -8.93561u^{113} - 15.4866u^{112} + \dots - 39386.1u + 1582.13 \\ -1.09804u^{113} - 2.20449u^{112} + \dots - 4711.19u + 204.432 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 11.2147u^{113} + 17.7407u^{112} + \dots + 97403.9u - 4477.03 \\ -2.88475u^{113} - 5.30120u^{112} + \dots - 18279.9u + 817.749 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.86876u^{113} + 5.06983u^{112} + \dots - 27684.6u + 1575.82 \\ 1.21836u^{113} + 2.44360u^{112} + \dots + 9086.94u - 438.831 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 5.04895u^{113} + 7.19485u^{112} + \dots + 56490.8u - 2694.95 \\ 2.89155u^{113} + 5.23139u^{112} + \dots + 10317.1u - 384.702 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-6.63942u^{113} - 10.4925u^{112} + \dots - 42753.9u + 1828.66$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_7$	$u^{114} + 37u^{113} + \dots + 8270u + 361$
$c_2, c_6$	$u^{114} - u^{113} + \dots + 66u + 19$
$c_3$	$u^{114} - u^{113} + \dots - 27558u + 8597$
$c_4, c_5, c_{10}$	$u^{114} - u^{113} + \dots + 769u + 229$
$c_8, c_{11}$	$u^{114} + u^{113} + \dots - 4199u + 169$
$c_9$	$u^{114} + 7u^{113} + \dots - 5751u + 773$
$c_{12}$	$u^{114} + 10u^{113} + \dots + 31u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_7$	$y^{114} + 91y^{113} + \dots - 5195518y + 130321$
$c_2, c_6$	$y^{114} - 37y^{113} + \dots - 8270y + 361$
$c_3$	$y^{114} + 41y^{113} + \dots + 15099411114y + 73908409$
$c_4, c_5, c_{10}$	$y^{114} + 109y^{113} + \dots - 2438475y + 52441$
$c_8, c_{11}$	$y^{114} - 77y^{113} + \dots - 3410251y + 28561$
$c_9$	$y^{114} + 11y^{113} + \dots + 25933727y + 597529$
$c_{12}$	$y^{114} - 6y^{113} + \dots - 317y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.615929 + 0.781253I$		
$a = 0.497409 + 1.316430I$	$-2.19312 - 0.80286I$	0
$b = 0.229336 + 1.327200I$		
$u = -0.615929 - 0.781253I$		
$a = 0.497409 - 1.316430I$	$-2.19312 + 0.80286I$	0
$b = 0.229336 - 1.327200I$		
$u = -0.667133 + 0.720221I$		
$a = -0.55170 - 1.32547I$	$-2.80844 + 4.84374I$	0
$b = -0.29464 - 1.41181I$		
$u = -0.667133 - 0.720221I$		
$a = -0.55170 + 1.32547I$	$-2.80844 - 4.84374I$	0
$b = -0.29464 + 1.41181I$		
$u = -0.083165 + 0.969298I$		
$a = 0.30191 + 1.77802I$	$-5.73613 - 2.30783I$	0
$b = -0.05886 + 1.42621I$		
$u = -0.083165 - 0.969298I$		
$a = 0.30191 - 1.77802I$	$-5.73613 + 2.30783I$	0
$b = -0.05886 - 1.42621I$		
$u = 0.199303 + 1.011620I$		
$a = -0.482565 + 0.090171I$	$3.38338 + 1.88635I$	0
$b = -0.541287 - 0.234423I$		
$u = 0.199303 - 1.011620I$		
$a = -0.482565 - 0.090171I$	$3.38338 - 1.88635I$	0
$b = -0.541287 + 0.234423I$		
$u = 1.029690 + 0.157338I$		
$a = -1.40100 + 1.63477I$	$2.65526 + 2.33990I$	0
$b = 0.27627 + 1.39598I$		
$u = 1.029690 - 0.157338I$		
$a = -1.40100 - 1.63477I$	$2.65526 - 2.33990I$	0
$b = 0.27627 - 1.39598I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.024990 + 0.209320I$ $a = 1.35036 - 1.94885I$ $b = -0.25017 - 1.46124I$	$1.25171 + 8.39723I$	0
$u = 1.024990 - 0.209320I$ $a = 1.35036 + 1.94885I$ $b = -0.25017 + 1.46124I$	$1.25171 - 8.39723I$	0
$u = 0.928859 + 0.161698I$ $a = 2.40502 - 1.28354I$ $b = -0.108151 - 1.331770I$	$-4.21976 + 0.72634I$	0
$u = 0.928859 - 0.161698I$ $a = 2.40502 + 1.28354I$ $b = -0.108151 + 1.331770I$	$-4.21976 - 0.72634I$	0
$u = 0.104528 + 1.054820I$ $a = 0.545595 + 0.008895I$ $b = 0.609233 + 0.283850I$	$2.81497 + 7.66737I$	0
$u = 0.104528 - 1.054820I$ $a = 0.545595 - 0.008895I$ $b = 0.609233 - 0.283850I$	$2.81497 - 7.66737I$	0
$u = -1.046020 + 0.191255I$ $a = 1.44286 - 0.22886I$ $b = -0.363035 + 0.092587I$	$-0.151342 - 0.849057I$	0
$u = -1.046020 - 0.191255I$ $a = 1.44286 + 0.22886I$ $b = -0.363035 - 0.092587I$	$-0.151342 + 0.849057I$	0
$u = -0.970784 + 0.450095I$ $a = -1.30721 - 0.79450I$ $b = 0.32285 - 1.43982I$	$-6.68489 - 4.21065I$	0
$u = -0.970784 - 0.450095I$ $a = -1.30721 + 0.79450I$ $b = 0.32285 + 1.43982I$	$-6.68489 + 4.21065I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.810698 + 0.432954I$ $a = 0.202628 - 0.599458I$ $b = -0.920903 + 0.203095I$	$2.54075 - 0.71160I$	0
$u = 0.810698 - 0.432954I$ $a = 0.202628 + 0.599458I$ $b = -0.920903 - 0.203095I$	$2.54075 + 0.71160I$	0
$u = 1.023850 + 0.364256I$ $a = 0.196299 + 0.018138I$ $b = -0.805218 + 0.631865I$	$0.14301 + 2.72086I$	0
$u = 1.023850 - 0.364256I$ $a = 0.196299 - 0.018138I$ $b = -0.805218 - 0.631865I$	$0.14301 - 2.72086I$	0
$u = -0.932106 + 0.575161I$ $a = -1.35585 - 1.29963I$ $b = 0.47049 - 1.38973I$	$-1.99711 - 9.79161I$	0
$u = -0.932106 - 0.575161I$ $a = -1.35585 + 1.29963I$ $b = 0.47049 + 1.38973I$	$-1.99711 + 9.79161I$	0
$u = 0.886301 + 0.177904I$ $a = -0.958790 + 0.030176I$ $b = 0.299977 - 0.805869I$	$1.68530 + 0.81156I$	0
$u = 0.886301 - 0.177904I$ $a = -0.958790 - 0.030176I$ $b = 0.299977 + 0.805869I$	$1.68530 - 0.81156I$	0
$u = 1.096330 + 0.155777I$ $a = 0.349444 - 0.153091I$ $b = -0.640241 + 0.011767I$	$1.91412 + 0.14155I$	0
$u = 1.096330 - 0.155777I$ $a = 0.349444 + 0.153091I$ $b = -0.640241 - 0.011767I$	$1.91412 - 0.14155I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.204601 + 1.088700I$ $a = -0.04636 - 1.96191I$ $b = 0.14327 - 1.48251I$	$-9.21171 - 5.39206I$	0
$u = 0.204601 - 1.088700I$ $a = -0.04636 + 1.96191I$ $b = 0.14327 + 1.48251I$	$-9.21171 + 5.39206I$	0
$u = -0.890644 + 0.045100I$ $a = -0.052295 - 1.409990I$ $b = -0.02763 - 1.80702I$	$-4.82330 - 2.68816I$	0
$u = -0.890644 - 0.045100I$ $a = -0.052295 + 1.409990I$ $b = -0.02763 + 1.80702I$	$-4.82330 + 2.68816I$	0
$u = -1.082640 + 0.247300I$ $a = -0.700461 - 0.277527I$ $b = 0.14713 - 1.44843I$	$-3.73547 + 1.71379I$	0
$u = -1.082640 - 0.247300I$ $a = -0.700461 + 0.277527I$ $b = 0.14713 + 1.44843I$	$-3.73547 - 1.71379I$	0
$u = -0.974635 + 0.587800I$ $a = 1.19374 + 1.27520I$ $b = -0.446194 + 1.321150I$	$-1.09094 - 4.33755I$	0
$u = -0.974635 - 0.587800I$ $a = 1.19374 - 1.27520I$ $b = -0.446194 - 1.321150I$	$-1.09094 + 4.33755I$	0
$u = 1.022500 + 0.567747I$ $a = -0.357556 + 0.425706I$ $b = 0.241012 - 0.005798I$	$1.46762 + 2.55476I$	0
$u = 1.022500 - 0.567747I$ $a = -0.357556 - 0.425706I$ $b = 0.241012 + 0.005798I$	$1.46762 - 2.55476I$	0



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.124171 + 0.801237I$		
$a = 0.262300 + 0.368157I$	$-2.71400 + 3.15415I$	0
$b = 0.476108 + 0.506204I$		
$u = -0.124171 - 0.801237I$		
$a = 0.262300 - 0.368157I$	$-2.71400 - 3.15415I$	0
$b = 0.476108 - 0.506204I$		
$u = 0.691651 + 0.413017I$		
$a = -0.363132 + 0.872894I$	$2.22522 + 4.54137I$	0
$b = 0.921323 - 0.087008I$		
$u = 0.691651 - 0.413017I$		
$a = -0.363132 - 0.872894I$	$2.22522 - 4.54137I$	0
$b = 0.921323 + 0.087008I$		
$u = 1.172180 + 0.252851I$		
$a = -0.203883 - 0.552860I$	$6.13426 + 0.82735I$	0
$b = 0.822723 - 0.995024I$		
$u = 1.172180 - 0.252851I$		
$a = -0.203883 + 0.552860I$	$6.13426 - 0.82735I$	0
$b = 0.822723 + 0.995024I$		
$u = 0.784232 + 0.055760I$		
$a = -2.18183 + 0.04604I$	$1.69140 - 1.12954I$	0
$b = 0.009117 + 1.090960I$		
$u = 0.784232 - 0.055760I$		
$a = -2.18183 - 0.04604I$	$1.69140 + 1.12954I$	0
$b = 0.009117 - 1.090960I$		
$u = 1.179070 + 0.298050I$		
$a = 0.098624 + 0.486086I$	$5.65623 + 6.67467I$	0
$b = -0.888110 + 0.951245I$		
$u = 1.179070 - 0.298050I$		
$a = 0.098624 - 0.486086I$	$5.65623 - 6.67467I$	0
$b = -0.888110 - 0.951245I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.754770 + 0.158541I$	$0.25092 - 6.63234I$	0
$a = 2.81073 - 0.22429I$		
$b = 0.080471 - 1.203600I$		
$u = 0.754770 - 0.158541I$	$0.25092 + 6.63234I$	0
$a = 2.81073 + 0.22429I$		
$b = 0.080471 + 1.203600I$		
$u = -1.194920 + 0.315425I$	$3.74785 - 4.21859I$	0
$a = -0.765723 - 0.112792I$		
$b = 0.665832 - 0.198807I$		
$u = -1.194920 - 0.315425I$	$3.74785 + 4.21859I$	0
$a = -0.765723 + 0.112792I$		
$b = 0.665832 + 0.198807I$		
$u = -0.905263 + 0.845324I$	$0.73896 - 5.32672I$	0
$a = 1.14198 + 1.70026I$		
$b = 0.061598 + 1.135940I$		
$u = -0.905263 - 0.845324I$	$0.73896 + 5.32672I$	0
$a = 1.14198 - 1.70026I$		
$b = 0.061598 - 1.135940I$		
$u = -1.178950 + 0.435989I$	$-2.26307 - 2.78926I$	0
$a = 0.698407 + 0.819339I$		
$b = -0.206326 + 1.336860I$		
$u = -1.178950 - 0.435989I$	$-2.26307 + 2.78926I$	0
$a = 0.698407 - 0.819339I$		
$b = -0.206326 - 1.336860I$		
$u = -1.174080 + 0.456590I$	$0.41654 - 7.70311I$	0
$a = 0.702787 + 0.559510I$		
$b = -0.721070 + 0.449589I$		
$u = -1.174080 - 0.456590I$	$0.41654 + 7.70311I$	0
$a = 0.702787 - 0.559510I$		
$b = -0.721070 - 0.449589I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.285800 + 0.029533I$ $a = 0.378419 + 0.859867I$ $b = -0.613109 + 0.390837I$	$7.22528 - 5.16974I$	0
$u = -1.285800 - 0.029533I$ $a = 0.378419 - 0.859867I$ $b = -0.613109 - 0.390837I$	$7.22528 + 5.16974I$	0
$u = -1.287540 + 0.045869I$ $a = -0.448460 + 0.697875I$ $b = 0.652590 + 0.277393I$	$7.97695 - 1.09665I$	0
$u = -1.287540 - 0.045869I$ $a = -0.448460 - 0.697875I$ $b = 0.652590 - 0.277393I$	$7.97695 + 1.09665I$	0
$u = -0.945999 + 0.913659I$ $a = -1.06231 - 1.78119I$ $b = -0.079723 - 1.237490I$	$0.569141 + 0.005416I$	0
$u = -0.945999 - 0.913659I$ $a = -1.06231 + 1.78119I$ $b = -0.079723 + 1.237490I$	$0.569141 - 0.005416I$	0
$u = -0.615727 + 0.294761I$ $a = -0.428556 - 1.178290I$ $b = -0.11296 - 1.63413I$	$-8.02432 + 0.69207I$	0
$u = -0.615727 - 0.294761I$ $a = -0.428556 + 1.178290I$ $b = -0.11296 + 1.63413I$	$-8.02432 - 0.69207I$	0
$u = -0.544888 + 0.406488I$ $a = 0.047617 + 1.088720I$ $b = 0.120393 + 0.662308I$	$-1.37711 - 1.57834I$	0
$u = -0.544888 - 0.406488I$ $a = 0.047617 - 1.088720I$ $b = 0.120393 - 0.662308I$	$-1.37711 + 1.57834I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.284210 + 0.377176I$ $a = 1.41226 - 0.43185I$ $b = -0.156583 - 1.372570I$	$-4.97868 + 2.83272I$	0
$u = 1.284210 - 0.377176I$ $a = 1.41226 + 0.43185I$ $b = -0.156583 + 1.372570I$	$-4.97868 - 2.83272I$	0
$u = -1.146530 + 0.698950I$ $a = 0.76290 + 1.39305I$ $b = -0.230741 + 1.259890I$	$-1.91380 - 3.32813I$	0
$u = -1.146530 - 0.698950I$ $a = 0.76290 - 1.39305I$ $b = -0.230741 - 1.259890I$	$-1.91380 + 3.32813I$	0
$u = -1.324660 + 0.457621I$ $a = -0.285909 - 0.420142I$ $b = 0.973458 - 0.338991I$	$7.97752 - 6.87847I$	0
$u = -1.324660 - 0.457621I$ $a = -0.285909 + 0.420142I$ $b = 0.973458 + 0.338991I$	$7.97752 + 6.87847I$	0
$u = 0.123257 + 1.403550I$ $a = -0.10409 + 1.72150I$ $b = -0.221193 + 1.388120I$	$-1.79811 - 4.74077I$	0
$u = 0.123257 - 1.403550I$ $a = -0.10409 - 1.72150I$ $b = -0.221193 - 1.388120I$	$-1.79811 + 4.74077I$	0
$u = -1.321710 + 0.493510I$ $a = 0.261545 + 0.515648I$ $b = -0.997045 + 0.398376I$	$7.1713 - 12.9740I$	0
$u = -1.321710 - 0.493510I$ $a = 0.261545 - 0.515648I$ $b = -0.997045 - 0.398376I$	$7.1713 + 12.9740I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.151437 + 0.568541I$ $a = -0.70980 - 2.38780I$ $b = 0.01840 - 1.53012I$	$-8.58657 + 1.00373I$	$-9.67336 - 2.26580I$
$u = 0.151437 - 0.568541I$ $a = -0.70980 + 2.38780I$ $b = 0.01840 + 1.53012I$	$-8.58657 - 1.00373I$	$-9.67336 + 2.26580I$
$u = 0.21157 + 1.40467I$ $a = 0.15674 - 1.76722I$ $b = 0.24631 - 1.41394I$	$-2.62681 - 10.83900I$	0
$u = 0.21157 - 1.40467I$ $a = 0.15674 + 1.76722I$ $b = 0.24631 + 1.41394I$	$-2.62681 + 10.83900I$	0
$u = 0.578644$ $a = -1.42841$ $b = 0.789035$	$-1.61878$	$-8.56050$
$u = 1.30100 + 0.58654I$ $a = 1.21667 - 1.14541I$ $b = -0.27428 - 1.46985I$	$-5.71734 + 11.33810I$	0
$u = 1.30100 - 0.58654I$ $a = 1.21667 + 1.14541I$ $b = -0.27428 + 1.46985I$	$-5.71734 - 11.33810I$	0
$u = -1.12830 + 0.90283I$ $a = -0.80001 - 1.74731I$ $b = 0.089446 - 1.370280I$	$-3.09821 - 3.72510I$	0
$u = -1.12830 - 0.90283I$ $a = -0.80001 + 1.74731I$ $b = 0.089446 + 1.370280I$	$-3.09821 + 3.72510I$	0
$u = 1.36627 + 0.49296I$ $a = -1.081190 + 0.812807I$ $b = 0.255427 + 1.375260I$	$-1.24937 + 7.55347I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.36627 - 0.49296I$ $a = -1.081190 - 0.812807I$ $b = 0.255427 - 1.375260I$	$-1.24937 - 7.55347I$	0
$u = 1.37067 + 0.68598I$ $a = 0.93177 - 1.36528I$ $b = -0.38758 - 1.50301I$	$1.1049 + 17.9517I$	0
$u = 1.37067 - 0.68598I$ $a = 0.93177 + 1.36528I$ $b = -0.38758 + 1.50301I$	$1.1049 - 17.9517I$	0
$u = 1.38834 + 0.65934I$ $a = -0.90646 + 1.27871I$ $b = 0.38463 + 1.46884I$	$2.22638 + 11.73880I$	0
$u = 1.38834 - 0.65934I$ $a = -0.90646 - 1.27871I$ $b = 0.38463 - 1.46884I$	$2.22638 - 11.73880I$	0
$u = 1.48662 + 0.42897I$ $a = 0.064113 - 0.426733I$ $b = -0.621512 - 0.342282I$	$7.34917 - 1.48690I$	0
$u = 1.48662 - 0.42897I$ $a = 0.064113 + 0.426733I$ $b = -0.621512 + 0.342282I$	$7.34917 + 1.48690I$	0
$u = 0.056513 + 0.447666I$ $a = 0.498450 - 0.101396I$ $b = -0.309136 - 0.414941I$	$0.196435 + 1.158330I$	$2.50739 - 5.70797I$
$u = 0.056513 - 0.447666I$ $a = 0.498450 + 0.101396I$ $b = -0.309136 + 0.414941I$	$0.196435 - 1.158330I$	$2.50739 + 5.70797I$
$u = -1.29569 + 0.85412I$ $a = 0.52835 + 1.70685I$ $b = -0.26208 + 1.42777I$	$1.69472 - 1.80971I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.29569 - 0.85412I$ $a = 0.52835 - 1.70685I$ $b = -0.26208 - 1.42777I$	$1.69472 + 1.80971I$	0
$u = -1.28101 + 0.89628I$ $a = -0.56555 - 1.76675I$ $b = 0.22604 - 1.45907I$	$1.40397 - 7.43468I$	0
$u = -1.28101 - 0.89628I$ $a = -0.56555 + 1.76675I$ $b = 0.22604 + 1.45907I$	$1.40397 + 7.43468I$	0
$u = 1.47988 + 0.50605I$ $a = -0.106858 + 0.478864I$ $b = 0.540071 + 0.391729I$	$7.38699 + 4.52222I$	0
$u = 1.47988 - 0.50605I$ $a = -0.106858 - 0.478864I$ $b = 0.540071 - 0.391729I$	$7.38699 - 4.52222I$	0
$u = 1.60710 + 0.08084I$ $a = -0.151314 + 0.122056I$ $b = 0.040749 + 1.164810I$	$6.00938 + 3.46840I$	0
$u = 1.60710 - 0.08084I$ $a = -0.151314 - 0.122056I$ $b = 0.040749 - 1.164810I$	$6.00938 - 3.46840I$	0
$u = 0.243339 + 0.087278I$ $a = 2.74907 + 2.86676I$ $b = -0.557833 - 0.402134I$	$3.18391 + 1.00848I$	$3.69601 - 5.87181I$
$u = 0.243339 - 0.087278I$ $a = 2.74907 - 2.86676I$ $b = -0.557833 + 0.402134I$	$3.18391 - 1.00848I$	$3.69601 + 5.87181I$
$u = 0.223083 + 0.061158I$ $a = -3.99627 - 2.93106I$ $b = 0.626185 + 0.335656I$	$2.60115 - 4.47713I$	$1.031371 - 0.364225I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.223083 - 0.061158I$ $a = -3.99627 + 2.93106I$ $b = 0.626185 - 0.335656I$	$2.60115 + 4.47713I$	$1.031371 + 0.364225I$
$u = 0.160729$ $a = -4.42924$ $b = 0.521213$	$-1.68578$	$-5.65210$
$u = -2.05822 + 0.09386I$ $a = 0.018988 + 0.947390I$ $b = -0.009945 + 1.203210I$	$5.59629 - 3.22792I$	0
$u = -2.05822 - 0.09386I$ $a = 0.018988 - 0.947390I$ $b = -0.009945 - 1.203210I$	$5.59629 + 3.22792I$	0



$$\text{II. } I_2^u = \langle -662u^{23} - 2292u^{22} + \dots + b - 1244, -62u^{23} - 199u^{22} + \dots + a - 70, u^{24} + 4u^{23} + \dots + 4u + 1 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_8 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} 1 \\ -u^2 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 62u^{23} + 199u^{22} + \dots + 242u + 70 \\ 662u^{23} + 2292u^{22} + \dots + 2624u + 1244 \end{pmatrix} \\ a_9 &= \begin{pmatrix} u \\ -u^3 + u \end{pmatrix} \\ a_4 &= \begin{pmatrix} -600u^{23} - 2093u^{22} + \dots - 2382u - 1174 \\ 662u^{23} + 2292u^{22} + \dots + 2624u + 1244 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -10u^{23} - 34u^{22} + \dots - 34u - 25 \\ -u^{23} - 3u^{22} + \dots + 7u^2 - 4u \end{pmatrix} \\ a_3 &= \begin{pmatrix} -294u^{23} - 1034u^{22} + \dots - 1162u - 592 \\ 882u^{23} + 3055u^{22} + \dots + 3490u + 1661 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 19u^{23} + 71u^{22} + \dots + 58u + 56 \\ -u^{23} - 4u^{22} + \dots + 4u - 5 \end{pmatrix} \\ a_6 &= \begin{pmatrix} 592u^{23} + 2074u^{22} + \dots + 2426u + 1206 \\ -1244u^{23} - 4314u^{22} + \dots - 4945u - 2352 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 210u^{23} + 753u^{22} + \dots + 897u + 505 \\ -56u^{23} - 205u^{22} + \dots - 228u - 167 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -97u^{23} - 354u^{22} + \dots - 369u - 235 \\ 31u^{23} + 117u^{22} + \dots + 92u + 90 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes

$$\begin{aligned} &= 310u^{23} + 973u^{22} - 1792u^{21} - 8740u^{20} + 933u^{19} + 33304u^{18} + 17723u^{17} - 71662u^{16} - \\ &67759u^{15} + 96415u^{14} + 132375u^{13} - 82136u^{12} - 166039u^{11} + 39516u^{10} + 143802u^9 - \\ &3640u^8 - 87139u^7 - 8894u^6 + 36680u^5 + 5817u^4 - 9593u^3 - 1708u^2 + 1185u + 257 \end{aligned}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{24} - 10u^{23} + \dots - 15u + 1$
$c_2$	$u^{24} - 5u^{22} + \dots + u + 1$
$c_3$	$u^{24} + 6u^{22} + \dots + u + 1$
$c_4, c_5$	$u^{24} + 14u^{22} + \dots - 2u + 1$
$c_6$	$u^{24} - 5u^{22} + \dots - u + 1$
$c_7$	$u^{24} + 10u^{23} + \dots + 15u + 1$
$c_8$	$u^{24} - 4u^{23} + \dots - 4u + 1$
$c_9$	$u^{24} + u^{22} + \dots - 2u + 1$
$c_{10}$	$u^{24} + 14u^{22} + \dots + 2u + 1$
$c_{11}$	$u^{24} + 4u^{23} + \dots + 4u + 1$
$c_{12}$	$u^{24} - 3u^{23} + \dots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_7$	$y^{24} + 18y^{23} + \dots + 5y + 1$
$c_2, c_6$	$y^{24} - 10y^{23} + \dots - 15y + 1$
$c_3$	$y^{24} + 12y^{23} + \dots + 9y + 1$
$c_4, c_5, c_{10}$	$y^{24} + 28y^{23} + \dots + 8y + 1$
$c_8, c_{11}$	$y^{24} - 22y^{23} + \dots - 24y + 1$
$c_9$	$y^{24} + 2y^{23} + \dots + 14y + 1$
$c_{12}$	$y^{24} - 3y^{23} + \dots - 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.734779 + 0.615670I$ $a = 1.20071 + 2.53699I$ $b = -0.245629 + 1.363790I$	$-0.65264 - 8.29295I$	$-1.40268 + 7.66212I$
$u = -0.734779 - 0.615670I$ $a = 1.20071 - 2.53699I$ $b = -0.245629 - 1.363790I$	$-0.65264 + 8.29295I$	$-1.40268 - 7.66212I$
$u = 0.970679 + 0.424271I$ $a = -0.212657 + 0.089470I$ $b = 0.364977 - 0.517927I$	$1.10081 + 1.95260I$	$-1.00629 - 1.06556I$
$u = 0.970679 - 0.424271I$ $a = -0.212657 - 0.089470I$ $b = 0.364977 + 0.517927I$	$1.10081 - 1.95260I$	$-1.00629 + 1.06556I$
$u = 0.912951 + 0.147356I$ $a = 1.337870 + 0.126400I$ $b = -0.355393 + 0.242419I$	$-0.342607 + 0.335807I$	$-1.59920 + 2.95447I$
$u = 0.912951 - 0.147356I$ $a = 1.337870 - 0.126400I$ $b = -0.355393 - 0.242419I$	$-0.342607 - 0.335807I$	$-1.59920 - 2.95447I$
$u = -0.796166 + 0.753307I$ $a = -0.83899 - 2.24961I$ $b = 0.239069 - 1.311440I$	$0.29114 - 2.84510I$	$0.50461 + 2.79345I$
$u = -0.796166 - 0.753307I$ $a = -0.83899 + 2.24961I$ $b = 0.239069 + 1.311440I$	$0.29114 + 2.84510I$	$0.50461 - 2.79345I$
$u = -1.111070 + 0.411864I$ $a = 1.73055 + 1.11108I$ $b = -0.109220 + 1.342840I$	$-4.29792 - 1.85770I$	$-1.48208 + 2.04728I$
$u = -1.111070 - 0.411864I$ $a = 1.73055 - 1.11108I$ $b = -0.109220 - 1.342840I$	$-4.29792 + 1.85770I$	$-1.48208 - 2.04728I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.715260 + 0.355546I$ $a = -0.443872 + 1.223040I$ $b = 0.587944 - 0.473918I$	$3.44608 - 0.13330I$	$6.29284 - 1.62604I$
$u = 0.715260 - 0.355546I$ $a = -0.443872 - 1.223040I$ $b = 0.587944 + 0.473918I$	$3.44608 + 0.13330I$	$6.29284 + 1.62604I$
$u = 0.697997 + 0.282751I$ $a = 0.96679 - 1.36730I$ $b = -0.624523 + 0.399144I$	$2.98881 + 5.14667I$	$6.33048 - 8.26793I$
$u = 0.697997 - 0.282751I$ $a = 0.96679 + 1.36730I$ $b = -0.624523 - 0.399144I$	$2.98881 - 5.14667I$	$6.33048 + 8.26793I$
$u = -0.605144 + 0.046634I$ $a = 0.69008 + 1.47727I$ $b = -0.03893 + 1.62612I$	$-7.69203 - 1.26132I$	$0.28620 + 6.65774I$
$u = -0.605144 - 0.046634I$ $a = 0.69008 - 1.47727I$ $b = -0.03893 - 1.62612I$	$-7.69203 + 1.26132I$	$0.28620 - 6.65774I$
$u = -1.21569 + 0.84491I$ $a = -0.68313 - 1.43082I$ $b = 0.153427 - 1.256270I$	$-1.62771 - 3.81805I$	$3.13427 + 9.98891I$
$u = -1.21569 - 0.84491I$ $a = -0.68313 + 1.43082I$ $b = 0.153427 + 1.256270I$	$-1.62771 + 3.81805I$	$3.13427 - 9.98891I$
$u = -0.514337 + 0.015914I$ $a = 0.363430 - 0.216929I$ $b = -0.01752 + 1.71543I$	$-5.69682 + 2.48240I$	$-6.48286 - 2.40568I$
$u = -0.514337 - 0.015914I$ $a = 0.363430 + 0.216929I$ $b = -0.01752 - 1.71543I$	$-5.69682 - 2.48240I$	$-6.48286 + 2.40568I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.56102 + 0.09205I$ $a = -0.006524 - 0.615192I$ $b = 0.031257 - 0.602155I$	$7.45147 + 3.16786I$	$8.34392 + 0.I$
$u = 1.56102 - 0.09205I$ $a = -0.006524 + 0.615192I$ $b = 0.031257 + 0.602155I$	$7.45147 - 3.16786I$	$8.34392 + 0.I$
$u = -1.88073 + 0.12774I$ $a = -0.104260 - 0.645886I$ $b = 0.014533 - 1.236720I$	$5.03142 - 3.33718I$	0
$u = -1.88073 - 0.12774I$ $a = -0.104260 + 0.645886I$ $b = 0.014533 + 1.236720I$	$5.03142 + 3.33718I$	0

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$(u^{24} - 10u^{23} + \dots - 15u + 1)(u^{114} + 37u^{113} + \dots + 8270u + 361)$
$c_2$	$(u^{24} - 5u^{22} + \dots + u + 1)(u^{114} - u^{113} + \dots + 66u + 19)$
$c_3$	$(u^{24} + 6u^{22} + \dots + u + 1)(u^{114} - u^{113} + \dots - 27558u + 8597)$
$c_4, c_5$	$(u^{24} + 14u^{22} + \dots - 2u + 1)(u^{114} - u^{113} + \dots + 769u + 229)$
$c_6$	$(u^{24} - 5u^{22} + \dots - u + 1)(u^{114} - u^{113} + \dots + 66u + 19)$
$c_7$	$(u^{24} + 10u^{23} + \dots + 15u + 1)(u^{114} + 37u^{113} + \dots + 8270u + 361)$
$c_8$	$(u^{24} - 4u^{23} + \dots - 4u + 1)(u^{114} + u^{113} + \dots - 4199u + 169)$
$c_9$	$(u^{24} + u^{22} + \dots - 2u + 1)(u^{114} + 7u^{113} + \dots - 5751u + 773)$
$c_{10}$	$(u^{24} + 14u^{22} + \dots + 2u + 1)(u^{114} - u^{113} + \dots + 769u + 229)$
$c_{11}$	$(u^{24} + 4u^{23} + \dots + 4u + 1)(u^{114} + u^{113} + \dots - 4199u + 169)$
$c_{12}$	$(u^{24} - 3u^{23} + \dots + 2u + 1)(u^{114} + 10u^{113} + \dots + 31u + 1)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1, c_7$	$(y^{24} + 18y^{23} + \dots + 5y + 1)$ $\cdot (y^{114} + 91y^{113} + \dots - 5195518y + 130321)$
$c_2, c_6$	$(y^{24} - 10y^{23} + \dots - 15y + 1)(y^{114} - 37y^{113} + \dots - 8270y + 361)$
$c_3$	$(y^{24} + 12y^{23} + \dots + 9y + 1)$ $\cdot (y^{114} + 41y^{113} + \dots + 1509941114y + 73908409)$
$c_4, c_5, c_{10}$	$(y^{24} + 28y^{23} + \dots + 8y + 1)$ $\cdot (y^{114} + 109y^{113} + \dots - 2438475y + 52441)$
$c_8, c_{11}$	$(y^{24} - 22y^{23} + \dots - 24y + 1)$ $\cdot (y^{114} - 77y^{113} + \dots - 3410251y + 28561)$
$c_9$	$(y^{24} + 2y^{23} + \dots + 14y + 1)$ $\cdot (y^{114} + 11y^{113} + \dots + 25933727y + 597529)$
$c_{12}$	$(y^{24} - 3y^{23} + \dots - 2y + 1)(y^{114} - 6y^{113} + \dots - 317y + 1)$