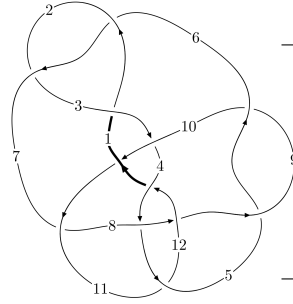
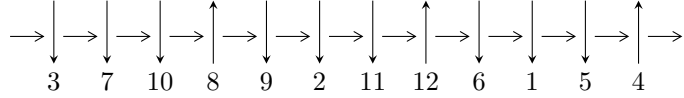


12a<sub>0620</sub> (K12a<sub>0620</sub>)



A knot diagram<sup>1</sup>

**Linearized knot diagram**



**Solving Sequence**

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

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

$$I_1^u = \langle -2.08101 \times 10^{510} u^{166} - 1.11697 \times 10^{510} u^{165} + \dots + 2.56234 \times 10^{507} b - 1.20192 \times 10^{512}, \\ - 6.65713 \times 10^{511} u^{166} - 3.56687 \times 10^{511} u^{165} + \dots + 7.94327 \times 10^{508} a - 3.84871 \times 10^{513}, \\ u^{167} - 37u^{165} + \dots + 29u - 31 \rangle$$

$$I_2^u = \langle 1594092397u^{32} + 83351656u^{31} + \dots + 135513403b + 2264420315, \\ 1580036566u^{32} + 229087797u^{31} + \dots + 135513403a + 1642262255, u^{33} - u^{32} + \dots + 4u - 1 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 200 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.

$$\text{I. } I_1^u = \langle -2.08 \times 10^{510} u^{166} - 1.12 \times 10^{510} u^{165} + \dots + 2.56 \times 10^{507} b - 1.20 \times 10^{512}, -6.66 \times 10^{511} u^{166} - 3.57 \times 10^{511} u^{165} + \dots + 7.94 \times 10^{508} a - 3.85 \times 10^{513}, u^{167} - 37u^{165} + \dots + 29u - 31 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 838.084u^{166} + 449.043u^{165} + \dots + 44952.3u + 48452.5 \\ 812.152u^{166} + 435.919u^{165} + \dots + 43482.7u + 46907.0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -238.456u^{166} - 127.353u^{165} + \dots - 13117.7u - 13893.0 \\ -623.598u^{166} - 334.543u^{165} + \dots - 33581.9u - 36074.6 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 377.436u^{166} + 201.932u^{165} + \dots + 20262.8u + 21837.5 \\ 865.582u^{166} + 464.572u^{165} + \dots + 46356.2u + 49996.8 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 831.803u^{166} + 446.225u^{165} + \dots + 44529.0u + 48045.6 \\ 805.870u^{166} + 433.100u^{165} + \dots + 43059.4u + 46500.2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 308.322u^{166} + 164.498u^{165} + \dots + 16672.3u + 17886.8 \\ 291.773u^{166} + 156.972u^{165} + \dots + 15574.2u + 16842.4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 616.362u^{166} + 331.540u^{165} + \dots + 32808.7u + 35502.4 \\ 1106.39u^{166} + 593.646u^{165} + \dots + 59276.4u + 63912.1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -189.071u^{166} - 99.8465u^{165} + \dots - 10407.2u - 11055.9 \\ -133.267u^{166} - 70.7867u^{165} + \dots - 7253.57u - 7765.33 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-1360.90u^{166} - 729.931u^{165} + \dots - 72748.9u - 78562.5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{167} + 74u^{166} + \dots + 31221u + 961$
$c_2, c_6$	$u^{167} - 37u^{165} + \dots + 29u - 31$
$c_3$	$u^{167} - 14u^{165} + \dots + 135699u + 7999$
$c_4$	$u^{167} + 2u^{166} + \dots - 13u - 1$
$c_5, c_9$	$u^{167} + 4u^{166} + \dots - 100431668u - 12620969$
$c_7$	$u^{167} - 4u^{166} + \dots - 42690283337u - 34553045579$
$c_8$	$u^{167} + 3u^{166} + \dots + 2613531u + 97585$
$c_{10}$	$u^{167} + 12u^{166} + \dots + 35u - 1$
$c_{11}$	$u^{167} + 5u^{166} + \dots - 119637u + 24543$
$c_{12}$	$u^{167} + 12u^{166} + \dots + 526426257314u + 56057085917$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{167} + 30y^{166} + \dots - 77198199y - 923521$
$c_2, c_6$	$y^{167} - 74y^{166} + \dots + 31221y - 961$
$c_3$	$y^{167} - 28y^{166} + \dots + 27826081971y - 63984001$
$c_4$	$y^{167} + 64y^{166} + \dots - 11y - 1$
$c_5, c_9$	$y^{167} - 102y^{166} + \dots + 847414145497076y - 159288858498961$
$c_7$	$y^{167} - 80y^{166} + \dots + 8.05 \times 10^{22}y - 1.19 \times 10^{21}$
$c_8$	$y^{167} + 49y^{166} + \dots - 1685246559y - 9522832225$
$c_{10}$	$y^{167} - 58y^{166} + \dots + 67y - 1$
$c_{11}$	$y^{167} - 41y^{166} + \dots + 36907101225y - 602358849$
$c_{12}$	$y^{167} + 76y^{166} + \dots - 1.98 \times 10^{23}y - 3.14 \times 10^{21}$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.408975 + 0.915806I$ $a = 1.14813 + 1.07154I$ $b = 1.056770 - 0.592885I$	$-4.85860 - 6.29115I$	0
$u = -0.408975 - 0.915806I$ $a = 1.14813 - 1.07154I$ $b = 1.056770 + 0.592885I$	$-4.85860 + 6.29115I$	0
$u = 0.992444 + 0.165700I$ $a = -1.04664 + 1.19512I$ $b = -0.702766 + 0.724377I$	$-4.74546 + 1.25465I$	0
$u = 0.992444 - 0.165700I$ $a = -1.04664 - 1.19512I$ $b = -0.702766 - 0.724377I$	$-4.74546 - 1.25465I$	0
$u = 0.749312 + 0.643529I$ $a = 0.598920 - 1.030590I$ $b = 1.142340 - 0.634546I$	$2.27307 - 2.26166I$	0
$u = 0.749312 - 0.643529I$ $a = 0.598920 + 1.030590I$ $b = 1.142340 + 0.634546I$	$2.27307 + 2.26166I$	0
$u = 0.619664 + 0.809985I$ $a = -1.79866 + 0.24946I$ $b = -1.21545 - 0.83450I$	$-0.97974 + 4.90783I$	0
$u = 0.619664 - 0.809985I$ $a = -1.79866 - 0.24946I$ $b = -1.21545 + 0.83450I$	$-0.97974 - 4.90783I$	0
$u = -0.215636 + 0.955936I$ $a = -0.462979 - 1.195860I$ $b = -0.459418 + 0.084270I$	$0.10022 - 6.05933I$	0
$u = -0.215636 - 0.955936I$ $a = -0.462979 + 1.195860I$ $b = -0.459418 - 0.084270I$	$0.10022 + 6.05933I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.556073 + 0.796049I$		
$a = 1.19285 + 0.81528I$	$-0.92725 - 1.10901I$	0
$b = 0.701546 - 0.348352I$		
$u = -0.556073 - 0.796049I$		
$a = 1.19285 - 0.81528I$	$-0.92725 + 1.10901I$	0
$b = 0.701546 + 0.348352I$		
$u = 0.404589 + 0.947213I$		
$a = 1.15466 - 0.99311I$	$-5.1206 + 15.0097I$	0
$b = 1.024780 + 0.535124I$		
$u = 0.404589 - 0.947213I$		
$a = 1.15466 + 0.99311I$	$-5.1206 - 15.0097I$	0
$b = 1.024780 - 0.535124I$		
$u = 0.860711 + 0.440907I$		
$a = -3.18176 + 2.75428I$	$-3.47103 - 1.84047I$	0
$b = -3.56155 - 0.47510I$		
$u = 0.860711 - 0.440907I$		
$a = -3.18176 - 2.75428I$	$-3.47103 + 1.84047I$	0
$b = -3.56155 + 0.47510I$		
$u = -0.442760 + 0.857409I$		
$a = 0.296060 - 0.978793I$	$0.30104 + 5.37087I$	0
$b = -0.425478 - 0.455941I$		
$u = -0.442760 - 0.857409I$		
$a = 0.296060 + 0.978793I$	$0.30104 - 5.37087I$	0
$b = -0.425478 + 0.455941I$		
$u = 0.946569 + 0.426333I$		
$a = -0.69093 + 1.64490I$	$-3.90035 - 1.31681I$	0
$b = -2.11899 + 1.73351I$		
$u = 0.946569 - 0.426333I$		
$a = -0.69093 - 1.64490I$	$-3.90035 + 1.31681I$	0
$b = -2.11899 - 1.73351I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.864166 + 0.406390I$ $a = 2.81837 + 2.98326I$ $b = 3.58600 - 0.33116I$	$-3.54493 + 1.73658I$	0
$u = -0.864166 - 0.406390I$ $a = 2.81837 - 2.98326I$ $b = 3.58600 + 0.33116I$	$-3.54493 - 1.73658I$	0
$u = -0.697874 + 0.648649I$ $a = -0.650486 + 0.406485I$ $b = 0.068524 + 1.225080I$	$-1.67902 + 3.41376I$	0
$u = -0.697874 - 0.648649I$ $a = -0.650486 - 0.406485I$ $b = 0.068524 - 1.225080I$	$-1.67902 - 3.41376I$	0
$u = -0.498692 + 0.804668I$ $a = 0.542602 + 1.108590I$ $b = 1.51627 + 0.09936I$	$0.59250 - 8.86800I$	0
$u = -0.498692 - 0.804668I$ $a = 0.542602 - 1.108590I$ $b = 1.51627 - 0.09936I$	$0.59250 + 8.86800I$	0
$u = 0.454082 + 0.829965I$ $a = -0.055302 + 0.654540I$ $b = -0.739473 + 0.422648I$	$3.52312 + 2.60647I$	0
$u = 0.454082 - 0.829965I$ $a = -0.055302 - 0.654540I$ $b = -0.739473 - 0.422648I$	$3.52312 - 2.60647I$	0
$u = 0.993976 + 0.351859I$ $a = 0.539564 + 1.197380I$ $b = 1.72459 + 0.59899I$	$-7.67265 - 0.06243I$	0
$u = 0.993976 - 0.351859I$ $a = 0.539564 - 1.197380I$ $b = 1.72459 - 0.59899I$	$-7.67265 + 0.06243I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.526130 + 0.776524I$	$4.04239 + 0.69020I$	0
$a = 0.812429 - 0.979816I$		
$b = 1.122510 - 0.055505I$		
$u = 0.526130 - 0.776524I$	$4.04239 - 0.69020I$	0
$a = 0.812429 + 0.979816I$		
$b = 1.122510 + 0.055505I$		
$u = -0.689476 + 0.635637I$	$3.22276 + 4.22927I$	0
$a = 0.078034 + 0.918970I$		
$b = 1.20343 + 1.01079I$		
$u = -0.689476 - 0.635637I$	$3.22276 - 4.22927I$	0
$a = 0.078034 - 0.918970I$		
$b = 1.20343 - 1.01079I$		
$u = 0.884738 + 0.588629I$	$1.87114 - 2.56904I$	0
$a = 0.727034 - 1.194640I$		
$b = 1.150710 - 0.616072I$		
$u = 0.884738 - 0.588629I$	$1.87114 + 2.56904I$	0
$a = 0.727034 + 1.194640I$		
$b = 1.150710 + 0.616072I$		
$u = 0.855549 + 0.378798I$	$-3.46851 - 1.97554I$	0
$a = -2.17087 + 1.40237I$		
$b = -1.59827 + 0.10369I$		
$u = 0.855549 - 0.378798I$	$-3.46851 + 1.97554I$	0
$a = -2.17087 - 1.40237I$		
$b = -1.59827 - 0.10369I$		
$u = -0.921820 + 0.137873I$	$-4.60848 - 1.66010I$	0
$a = 1.56303 + 0.73337I$		
$b = 0.88285 + 1.38800I$		
$u = -0.921820 - 0.137873I$	$-4.60848 + 1.66010I$	0
$a = 1.56303 - 0.73337I$		
$b = 0.88285 - 1.38800I$		



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.019870 + 0.349817I$ $a = -0.913366 - 0.898791I$ $b = -2.17373 - 0.60595I$	$-7.64882 - 1.90722I$	0
$u = 1.019870 - 0.349817I$ $a = -0.913366 + 0.898791I$ $b = -2.17373 + 0.60595I$	$-7.64882 + 1.90722I$	0
$u = 1.080420 + 0.046638I$ $a = 1.010540 + 0.093882I$ $b = 0.483342 - 0.605697I$	$-5.12765 - 7.43489I$	0
$u = 1.080420 - 0.046638I$ $a = 1.010540 - 0.093882I$ $b = 0.483342 + 0.605697I$	$-5.12765 + 7.43489I$	0
$u = -0.690578 + 0.594932I$ $a = -1.097880 - 0.676167I$ $b = -1.65908 - 0.40868I$	$2.26327 - 2.32744I$	0
$u = -0.690578 - 0.594932I$ $a = -1.097880 + 0.676167I$ $b = -1.65908 + 0.40868I$	$2.26327 + 2.32744I$	0
$u = 0.993007 + 0.447422I$ $a = 1.44097 - 2.24105I$ $b = 2.40451 - 2.82117I$	$-6.97001 + 3.98207I$	0
$u = 0.993007 - 0.447422I$ $a = 1.44097 + 2.24105I$ $b = 2.40451 + 2.82117I$	$-6.97001 - 3.98207I$	0
$u = -0.984930 + 0.466803I$ $a = -1.96925 + 0.44767I$ $b = -3.19490 + 0.06491I$	$-6.87021 + 9.78152I$	0
$u = -0.984930 - 0.466803I$ $a = -1.96925 - 0.44767I$ $b = -3.19490 - 0.06491I$	$-6.87021 - 9.78152I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.864087 + 0.665587I$ $a = 0.631534 - 0.854030I$ $b = -0.547121 - 1.086020I$	$-2.05490 + 1.52171I$	0
$u = -0.864087 - 0.665587I$ $a = 0.631534 + 0.854030I$ $b = -0.547121 + 1.086020I$	$-2.05490 - 1.52171I$	0
$u = -0.908803$ $a = 0.490964$ $b = -0.282990$	$-1.39035$	0
$u = -0.950993 + 0.537454I$ $a = -0.345636 - 0.754881I$ $b = -0.399014 + 0.078127I$	$-2.16732 + 2.92717I$	0
$u = -0.950993 - 0.537454I$ $a = -0.345636 + 0.754881I$ $b = -0.399014 - 0.078127I$	$-2.16732 - 2.92717I$	0
$u = 1.010240 + 0.435528I$ $a = -0.440879 + 0.651048I$ $b = 0.706780 - 0.042390I$	$-7.15352 - 4.30270I$	0
$u = 1.010240 - 0.435528I$ $a = -0.440879 - 0.651048I$ $b = 0.706780 + 0.042390I$	$-7.15352 + 4.30270I$	0
$u = -0.326578 + 0.834691I$ $a = -1.28465 - 1.19469I$ $b = -0.996908 + 0.188717I$	$-3.75108 - 5.85993I$	0
$u = -0.326578 - 0.834691I$ $a = -1.28465 + 1.19469I$ $b = -0.996908 - 0.188717I$	$-3.75108 + 5.85993I$	0
$u = -0.937076 + 0.586361I$ $a = 1.08822 + 0.94509I$ $b = 0.926072 - 0.003107I$	$2.47444 + 0.56441I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.937076 - 0.586361I$ $a = 1.08822 - 0.94509I$ $b = 0.926072 + 0.003107I$	$2.47444 - 0.56441I$	0
$u = 0.443686 + 1.014900I$ $a = -0.992790 + 0.515582I$ $b = -0.720901 - 0.566744I$	$-3.31534 + 5.30669I$	0
$u = 0.443686 - 1.014900I$ $a = -0.992790 - 0.515582I$ $b = -0.720901 + 0.566744I$	$-3.31534 - 5.30669I$	0
$u = -0.954086 + 0.573478I$ $a = -0.85860 - 1.76014I$ $b = -1.10567 - 1.15374I$	$1.44595 + 6.97528I$	0
$u = -0.954086 - 0.573478I$ $a = -0.85860 + 1.76014I$ $b = -1.10567 + 1.15374I$	$1.44595 - 6.97528I$	0
$u = -0.996595 + 0.496392I$ $a = 0.238622 + 0.626270I$ $b = 1.37233 + 1.26611I$	$-3.29798 + 4.25223I$	0
$u = -0.996595 - 0.496392I$ $a = 0.238622 - 0.626270I$ $b = 1.37233 - 1.26611I$	$-3.29798 - 4.25223I$	0
$u = -1.052830 + 0.370866I$ $a = 0.780419 - 0.061235I$ $b = -0.530367 - 0.896203I$	$-8.83519 - 4.38811I$	0
$u = -1.052830 - 0.370866I$ $a = 0.780419 + 0.061235I$ $b = -0.530367 + 0.896203I$	$-8.83519 + 4.38811I$	0
$u = -0.498424 + 0.727320I$ $a = -0.455437 - 0.357788I$ $b = -1.058810 - 0.223612I$	$-0.17876 - 2.65183I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.498424 - 0.727320I$		
$a = -0.455437 + 0.357788I$	$-0.17876 + 2.65183I$	0
$b = -1.058810 + 0.223612I$		
$u = -1.038820 + 0.454601I$		
$a = -0.04541 - 2.08421I$	$-6.96025 + 2.02094I$	0
$b = -1.12500 - 2.23825I$		
$u = -1.038820 - 0.454601I$		
$a = -0.04541 + 2.08421I$	$-6.96025 - 2.02094I$	0
$b = -1.12500 + 2.23825I$		
$u = -1.112170 + 0.256288I$		
$a = -0.305530 - 0.840061I$	$-4.14650 - 0.53401I$	0
$b = -0.278156 - 0.390042I$		
$u = -1.112170 - 0.256288I$		
$a = -0.305530 + 0.840061I$	$-4.14650 + 0.53401I$	0
$b = -0.278156 + 0.390042I$		
$u = -1.046270 + 0.481659I$		
$a = 1.12218 + 2.03431I$	$-6.78869 + 4.65509I$	0
$b = 1.98119 + 2.61638I$		
$u = -1.046270 - 0.481659I$		
$a = 1.12218 - 2.03431I$	$-6.78869 - 4.65509I$	0
$b = 1.98119 - 2.61638I$		
$u = -1.033180 + 0.512691I$		
$a = -0.80431 - 2.35521I$	$-6.57092 + 6.16455I$	0
$b = -1.90997 - 2.62193I$		
$u = -1.033180 - 0.512691I$		
$a = -0.80431 + 2.35521I$	$-6.57092 - 6.16455I$	0
$b = -1.90997 + 2.62193I$		
$u = 1.057810 + 0.484459I$		
$a = 0.07133 - 2.03736I$	$-8.08351 - 11.16280I$	0
$b = 1.58018 - 2.07223I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.057810 - 0.484459I$	$-8.08351 + 11.16280I$	0
$a = 0.07133 + 2.03736I$		
$b = 1.58018 + 2.07223I$		
$u = 1.015220 + 0.571823I$	$-1.66163 - 3.31912I$	0
$a = 1.38513 - 1.49180I$		
$b = 1.93913 - 0.01673I$		
$u = 1.015220 - 0.571823I$	$-1.66163 + 3.31912I$	0
$a = 1.38513 + 1.49180I$		
$b = 1.93913 + 0.01673I$		
$u = 0.083093 + 0.829616I$	$-3.84966 - 1.54095I$	0
$a = -0.420035 + 0.689123I$		
$b = -0.429961 - 0.766878I$		
$u = 0.083093 - 0.829616I$	$-3.84966 + 1.54095I$	0
$a = -0.420035 - 0.689123I$		
$b = -0.429961 + 0.766878I$		
$u = 1.008370 + 0.600469I$	$-1.85682 - 7.42531I$	0
$a = -0.821979 - 0.653365I$		
$b = -1.10454 - 0.88946I$		
$u = 1.008370 - 0.600469I$	$-1.85682 + 7.42531I$	0
$a = -0.821979 + 0.653365I$		
$b = -1.10454 + 0.88946I$		
$u = -1.135280 + 0.297755I$	$-7.94902 + 5.15592I$	0
$a = -0.550177 + 0.162876I$		
$b = 0.628464 + 0.534299I$		
$u = -1.135280 - 0.297755I$	$-7.94902 - 5.15592I$	0
$a = -0.550177 - 0.162876I$		
$b = 0.628464 - 0.534299I$		
$u = 0.538671 + 0.625979I$	$-0.26951 - 1.41374I$	0
$a = 0.023529 - 1.364500I$		
$b = 1.57099 - 0.52014I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.538671 - 0.625979I$ $a = 0.023529 + 1.364500I$ $b = 1.57099 + 0.52014I$	$-0.26951 + 1.41374I$	0
$u = 0.782567 + 0.248552I$ $a = 0.333460 - 0.100685I$ $b = -1.36330 + 0.45607I$	$-5.96017 + 1.21830I$	0
$u = 0.782567 - 0.248552I$ $a = 0.333460 + 0.100685I$ $b = -1.36330 - 0.45607I$	$-5.96017 - 1.21830I$	0
$u = 1.17932$ $a = -0.595575$ $b = -1.71227$	$-6.83476$	0
$u = -0.721183 + 0.342263I$ $a = -0.91972 - 2.69204I$ $b = 0.52109 - 1.63475I$	$-5.83861 - 6.20961I$	0
$u = -0.721183 - 0.342263I$ $a = -0.91972 + 2.69204I$ $b = 0.52109 + 1.63475I$	$-5.83861 + 6.20961I$	0
$u = 1.124900 + 0.450134I$ $a = -0.28356 + 1.41386I$ $b = -1.31575 + 1.51150I$	$-7.03755 - 2.77131I$	0
$u = 1.124900 - 0.450134I$ $a = -0.28356 - 1.41386I$ $b = -1.31575 - 1.51150I$	$-7.03755 + 2.77131I$	0
$u = 1.087660 + 0.536958I$ $a = -1.06400 + 1.10915I$ $b = -1.219470 + 0.593033I$	$-2.35375 - 7.84415I$	0
$u = 1.087660 - 0.536958I$ $a = -1.06400 - 1.10915I$ $b = -1.219470 - 0.593033I$	$-2.35375 + 7.84415I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.027660 + 0.663755I$		
$a = 0.05143 + 2.13219I$	$-2.23936 - 10.43540I$	0
$b = -0.94394 + 2.51413I$		
$u = 1.027660 - 0.663755I$		
$a = 0.05143 - 2.13219I$	$-2.23936 + 10.43540I$	0
$b = -0.94394 - 2.51413I$		
$u = -1.066020 + 0.603852I$		
$a = -0.636650 - 1.222320I$	$-1.87276 + 7.75654I$	0
$b = -0.854974 - 0.671533I$		
$u = -1.066020 - 0.603852I$		
$a = -0.636650 + 1.222320I$	$-1.87276 - 7.75654I$	0
$b = -0.854974 + 0.671533I$		
$u = 1.057330 + 0.629023I$		
$a = 0.68599 - 1.45253I$	$2.44979 - 5.99665I$	0
$b = 1.49704 - 1.21282I$		
$u = 1.057330 - 0.629023I$		
$a = 0.68599 + 1.45253I$	$2.44979 + 5.99665I$	0
$b = 1.49704 + 1.21282I$		
$u = -1.054460 + 0.636999I$		
$a = 0.37052 + 1.40350I$	$-2.45314 + 6.49976I$	0
$b = 1.42411 + 1.73575I$		
$u = -1.054460 - 0.636999I$		
$a = 0.37052 - 1.40350I$	$-2.45314 - 6.49976I$	0
$b = 1.42411 - 1.73575I$		
$u = 0.542197 + 0.541945I$		
$a = 0.49288 + 1.52236I$	$-0.60208 + 2.69511I$	0
$b = 0.060478 + 0.675879I$		
$u = 0.542197 - 0.541945I$		
$a = 0.49288 - 1.52236I$	$-0.60208 - 2.69511I$	0
$b = 0.060478 - 0.675879I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.079820 + 0.633849I$		
$a = 0.97860 + 1.55070I$	$-1.1544 + 14.2654I$	0
$b = 1.86549 + 0.77851I$		
$u = -1.079820 - 0.633849I$		
$a = 0.97860 - 1.55070I$	$-1.1544 - 14.2654I$	0
$b = 1.86549 - 0.77851I$		
$u = 1.231880 + 0.231892I$		
$a = 0.285157 + 0.688352I$	$-8.77110 + 2.63743I$	0
$b = 1.312550 + 0.390544I$		
$u = 1.231880 - 0.231892I$		
$a = 0.285157 - 0.688352I$	$-8.77110 - 2.63743I$	0
$b = 1.312550 - 0.390544I$		
$u = 1.101370 + 0.637335I$		
$a = -0.703533 + 0.752259I$	$1.59156 - 8.07395I$	0
$b = -1.018600 + 0.291158I$		
$u = 1.101370 - 0.637335I$		
$a = -0.703533 - 0.752259I$	$1.59156 + 8.07395I$	0
$b = -1.018600 - 0.291158I$		
$u = 0.471174 + 1.187870I$		
$a = -0.380162 + 0.254735I$	$-2.96561 + 1.26870I$	0
$b = -0.185522 - 0.633676I$		
$u = 0.471174 - 1.187870I$		
$a = -0.380162 - 0.254735I$	$-2.96561 - 1.26870I$	0
$b = -0.185522 + 0.633676I$		
$u = 0.674457 + 0.224099I$		
$a = 0.17122 + 1.75375I$	$-0.49221 + 2.63750I$	0
$b = 0.293942 + 0.709304I$		
$u = 0.674457 - 0.224099I$		
$a = 0.17122 - 1.75375I$	$-0.49221 - 2.63750I$	0
$b = 0.293942 - 0.709304I$		



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.151550 + 0.595217I$ $a = -0.77638 - 1.71814I$ $b = -1.76012 - 1.99208I$	$-6.19938 + 11.16370I$	0
$u = -1.151550 - 0.595217I$ $a = -0.77638 + 1.71814I$ $b = -1.76012 + 1.99208I$	$-6.19938 - 11.16370I$	0
$u = 1.295040 + 0.072334I$ $a = 0.055103 - 0.161996I$ $b = -1.099380 + 0.220408I$	$-10.99130 + 3.30054I$	0
$u = 1.295040 - 0.072334I$ $a = 0.055103 + 0.161996I$ $b = -1.099380 - 0.220408I$	$-10.99130 - 3.30054I$	0
$u = 0.776009 + 1.043510I$ $a = 0.420870 + 0.288162I$ $b = -0.343329 + 0.890466I$	$-3.06499 - 9.55465I$	0
$u = 0.776009 - 1.043510I$ $a = 0.420870 - 0.288162I$ $b = -0.343329 - 0.890466I$	$-3.06499 + 9.55465I$	0
$u = -1.207620 + 0.484415I$ $a = -0.137913 + 0.150625I$ $b = -0.471224 + 0.271900I$	$-2.15259 + 0.22056I$	0
$u = -1.207620 - 0.484415I$ $a = -0.137913 - 0.150625I$ $b = -0.471224 - 0.271900I$	$-2.15259 - 0.22056I$	0
$u = 0.273349 + 0.636729I$ $a = -0.249197 + 0.732579I$ $b = -0.872089 + 0.568471I$	$-0.14277 + 3.29139I$	0
$u = 0.273349 - 0.636729I$ $a = -0.249197 - 0.732579I$ $b = -0.872089 - 0.568471I$	$-0.14277 - 3.29139I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.150220 + 0.645545I$		
$a = 0.52858 + 1.74163I$	$-7.11211 + 12.00560I$	0
$b = 1.84171 + 1.95589I$		
$u = -1.150220 - 0.645545I$		
$a = 0.52858 - 1.74163I$	$-7.11211 - 12.00560I$	0
$b = 1.84171 - 1.95589I$		
$u = -1.330910 + 0.079776I$		
$a = 0.011750 + 0.297096I$	$-11.4055 - 11.7870I$	0
$b = -1.083300 - 0.034933I$		
$u = -1.330910 - 0.079776I$		
$a = 0.011750 - 0.297096I$	$-11.4055 + 11.7870I$	0
$b = -1.083300 + 0.034933I$		
$u = 1.165310 + 0.653743I$		
$a = 0.55493 - 1.69650I$	$-7.4490 - 20.8414I$	0
$b = 1.76407 - 1.93655I$		
$u = 1.165310 - 0.653743I$		
$a = 0.55493 + 1.69650I$	$-7.4490 + 20.8414I$	0
$b = 1.76407 + 1.93655I$		
$u = -0.509818 + 0.422380I$		
$a = 1.47455 + 1.02048I$	$-1.93217 - 0.27280I$	0
$b = 0.045791 - 0.151797I$		
$u = -0.509818 - 0.422380I$		
$a = 1.47455 - 1.02048I$	$-1.93217 + 0.27280I$	0
$b = 0.045791 + 0.151797I$		
$u = -1.348980 + 0.000882I$		
$a = -0.143470 - 0.242636I$	$-10.26910 - 2.13367I$	0
$b = 0.854804 - 0.222858I$		
$u = -1.348980 - 0.000882I$		
$a = -0.143470 + 0.242636I$	$-10.26910 + 2.13367I$	0
$b = 0.854804 + 0.222858I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.601337 + 0.222972I$		
$a = 3.44083 - 0.36880I$	$-5.66029 - 7.35743I$	0
$b = 1.52689 - 0.33762I$		
$u = 0.601337 - 0.222972I$		
$a = 3.44083 + 0.36880I$	$-5.66029 + 7.35743I$	0
$b = 1.52689 + 0.33762I$		
$u = 1.181010 + 0.678288I$		
$a = -0.31296 + 1.40674I$	$-5.63826 - 11.42330I$	0
$b = -1.23793 + 1.68482I$		
$u = 1.181010 - 0.678288I$		
$a = -0.31296 - 1.40674I$	$-5.63826 + 11.42330I$	0
$b = -1.23793 - 1.68482I$		
$u = -1.217780 + 0.610571I$		
$a = -0.763415 - 1.054950I$	$-2.88136 + 11.70590I$	0
$b = -1.74217 - 1.30122I$		
$u = -1.217780 - 0.610571I$		
$a = -0.763415 + 1.054950I$	$-2.88136 - 11.70590I$	0
$b = -1.74217 + 1.30122I$		
$u = -0.436221 + 0.449800I$		
$a = -2.61624 - 1.43896I$	$-4.89025 - 2.01449I$	0
$b = -1.49122 + 0.12033I$		
$u = -0.436221 - 0.449800I$		
$a = -2.61624 + 1.43896I$	$-4.89025 + 2.01449I$	0
$b = -1.49122 - 0.12033I$		
$u = 1.216660 + 0.645002I$		
$a = -0.290387 + 0.992257I$	$-5.78040 - 7.59314I$	0
$b = -1.24992 + 1.19744I$		
$u = 1.216660 - 0.645002I$		
$a = -0.290387 - 0.992257I$	$-5.78040 + 7.59314I$	0
$b = -1.24992 - 1.19744I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.39356$ $a = -0.154315$ $b = -0.354561$	-2.29063	0
$u = -1.210440 + 0.696345I$ $a = 0.061212 + 0.907463I$ $b = 0.81285 + 1.40050I$	$-5.43079 + 5.94797I$	0
$u = -1.210440 - 0.696345I$ $a = 0.061212 - 0.907463I$ $b = 0.81285 - 1.40050I$	$-5.43079 - 5.94797I$	0
$u = 0.536495 + 0.000198I$ $a = 0.28371 - 1.57844I$ $b = -0.40679 - 1.53085I$	$0.40019 - 3.39815I$	$-14.0030 + 2.5599I$
$u = 0.536495 - 0.000198I$ $a = 0.28371 + 1.57844I$ $b = -0.40679 + 1.53085I$	$0.40019 + 3.39815I$	$-14.0030 - 2.5599I$
$u = -0.297770 + 0.443979I$ $a = 0.355005 + 0.411016I$ $b = -0.343620 + 0.286445I$	$-0.919864 + 0.889130I$	$-6.00000 - 4.79287I$
$u = -0.297770 - 0.443979I$ $a = 0.355005 - 0.411016I$ $b = -0.343620 - 0.286445I$	$-0.919864 - 0.889130I$	$-6.00000 + 4.79287I$
$u = -0.186337 + 0.481770I$ $a = 2.39045 + 2.37933I$ $b = 0.730828 + 0.175010I$	$-4.66281 - 0.77155I$	$-13.19393 + 1.52961I$
$u = -0.186337 - 0.481770I$ $a = 2.39045 - 2.37933I$ $b = 0.730828 - 0.175010I$	$-4.66281 + 0.77155I$	$-13.19393 - 1.52961I$
$u = 1.42072 + 0.54039I$ $a = 0.375157 - 0.333730I$ $b = 1.104720 - 0.670838I$	$-4.87816 + 1.00981I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.42072 - 0.54039I$		
$a = 0.375157 + 0.333730I$	$-4.87816 - 1.00981I$	0
$b = 1.104720 + 0.670838I$		
$u = -0.53578 + 1.42262I$		
$a = 0.296792 + 0.104044I$	$-2.83824 + 0.76467I$	0
$b = -0.108922 - 0.500951I$		
$u = -0.53578 - 1.42262I$		
$a = 0.296792 - 0.104044I$	$-2.83824 - 0.76467I$	0
$b = -0.108922 + 0.500951I$		
$u = -0.323207 + 0.351993I$		
$a = -2.64512 - 1.03689I$	$-5.02341 + 1.63972I$	$-14.7527 - 4.5921I$
$b = -1.081800 + 0.839919I$		
$u = -0.323207 - 0.351993I$		
$a = -2.64512 + 1.03689I$	$-5.02341 - 1.63972I$	$-14.7527 + 4.5921I$
$b = -1.081800 - 0.839919I$		
$u = 0.201731 + 0.420454I$		
$a = 1.32367 - 2.41104I$	$-5.96473 + 7.25963I$	$-9.65741 - 5.19485I$
$b = 0.994115 + 0.830118I$		
$u = 0.201731 - 0.420454I$		
$a = 1.32367 + 2.41104I$	$-5.96473 - 7.25963I$	$-9.65741 + 5.19485I$
$b = 0.994115 - 0.830118I$		

II.  $I_2^u = \langle 1.59 \times 10^9 u^{32} + 8.34 \times 10^7 u^{31} + \dots + 1.36 \times 10^8 b + 2.26 \times 10^9, 1.58 \times 10^9 u^{32} + 2.29 \times 10^8 u^{31} + \dots + 1.36 \times 10^8 a + 1.64 \times 10^9, u^{33} - u^{32} + \dots + 4u - 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -11.6596u^{32} - 1.69052u^{31} + \dots + 38.8381u - 12.1188 \\ -11.7634u^{32} - 0.615081u^{31} + \dots + 53.9183u - 16.7099 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 25.2109u^{32} - 1.78219u^{31} + \dots - 83.7684u + 26.5045 \\ 12.9069u^{32} + 0.0379129u^{31} + \dots - 50.0348u + 14.8181 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -7.37951u^{32} - 0.825443u^{31} + \dots + 23.6176u - 8.01305 \\ -13.8437u^{32} + 1.00749u^{31} + \dots + 60.9266u - 19.7629 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -9.65274u^{32} - 2.49860u^{31} + \dots + 34.8475u - 11.1471 \\ -9.75646u^{32} - 1.42316u^{31} + \dots + 49.9277u - 15.7382 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 6.38372u^{32} - 1.35218u^{31} + \dots - 26.8158u + 10.3427 \\ 6.83048u^{32} + 4.40455u^{31} + \dots - 66.4278u + 20.5161 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0402593u^{32} + 1.51968u^{31} + \dots - 14.0880u + 6.64636 \\ -6.81062u^{32} + 5.39021u^{31} + \dots + 2.20976u + 0.395475 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -14.1122u^{32} + 7.19735u^{31} + \dots + 56.2163u - 23.0540 \\ -22.6719u^{32} + 9.95395u^{31} + \dots + 85.1150u - 31.8996 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes =  $\frac{450815627}{135513403}u^{32} + \frac{1339444568}{135513403}u^{31} + \dots + \frac{21731643226}{135513403}u - \frac{8094543300}{135513403}$

(iv)  $u$ -Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{33} - 15u^{32} + \dots + 12u - 1$
$c_2$	$u^{33} - u^{32} + \dots + 4u - 1$
$c_3$	$u^{33} - u^{32} + \dots - 8u - 1$
$c_4$	$u^{33} - 7u^{32} + \dots - 12u^2 - 1$
$c_5$	$u^{33} - 3u^{32} + \dots + 9u - 1$
$c_6$	$u^{33} + u^{32} + \dots + 4u + 1$
$c_7$	$u^{33} + 7u^{32} + \dots - 6u - 11$
$c_8$	$u^{33} + 8u^{31} + \dots + 6u + 1$
$c_9$	$u^{33} + 3u^{32} + \dots + 9u + 1$
$c_{10}$	$u^{33} - 3u^{32} + \dots + 14u - 1$
$c_{11}$	$u^{33} - 2u^{32} + \dots + 6u - 1$
$c_{12}$	$u^{33} - u^{32} + \dots - 7u - 1$





(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{33} - 3y^{32} + \dots - 20y - 1$
$c_2, c_6$	$y^{33} - 15y^{32} + \dots + 12y - 1$
$c_3$	$y^{33} - 13y^{32} + \dots + 14y - 1$
$c_4$	$y^{33} + 47y^{32} + \dots - 24y - 1$
$c_5, c_9$	$y^{33} + 9y^{32} + \dots + 3y - 1$
$c_7$	$y^{33} - 17y^{32} + \dots + 256y - 121$
$c_8$	$y^{33} + 16y^{32} + \dots + 20y - 1$
$c_{10}$	$y^{33} - 55y^{32} + \dots + 38y - 1$
$c_{11}$	$y^{33} - 10y^{32} + \dots - 8y - 1$
$c_{12}$	$y^{33} + 7y^{32} + \dots - 41y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.966960 + 0.204448I$ $a = -0.603207 - 0.289826I$ $b = -1.95190 - 0.59868I$	$-6.67278 - 0.99459I$	$-18.0134 + 3.9087I$
$u = -0.966960 - 0.204448I$ $a = -0.603207 + 0.289826I$ $b = -1.95190 + 0.59868I$	$-6.67278 + 0.99459I$	$-18.0134 - 3.9087I$
$u = 0.409709 + 0.926546I$ $a = -1.121000 + 0.748973I$ $b = -0.856092 - 0.445082I$	$-2.82485 + 4.98310I$	$-5.78226 - 2.21036I$
$u = 0.409709 - 0.926546I$ $a = -1.121000 - 0.748973I$ $b = -0.856092 + 0.445082I$	$-2.82485 - 4.98310I$	$-5.78226 + 2.21036I$
$u = -0.862031 + 0.457626I$ $a = 4.24623 + 4.25464I$ $b = 5.46695 - 0.77933I$	$-3.43416 + 1.89072I$	$84.1413 - 112.9232I$
$u = -0.862031 - 0.457626I$ $a = 4.24623 - 4.25464I$ $b = 5.46695 + 0.77933I$	$-3.43416 - 1.89072I$	$84.1413 + 112.9232I$
$u = -0.994592 + 0.326581I$ $a = -0.585834 - 0.856369I$ $b = 0.592434 - 0.421847I$	$-7.06796 + 3.06124I$	$-15.0493 - 4.1920I$
$u = -0.994592 - 0.326581I$ $a = -0.585834 + 0.856369I$ $b = 0.592434 + 0.421847I$	$-7.06796 - 3.06124I$	$-15.0493 + 4.1920I$
$u = 0.984410 + 0.416154I$ $a = 1.56291 - 0.66973I$ $b = 2.88463 - 0.92987I$	$-6.91510 - 9.00623I$	$-13.1144 + 5.3584I$
$u = 0.984410 - 0.416154I$ $a = 1.56291 + 0.66973I$ $b = 2.88463 + 0.92987I$	$-6.91510 + 9.00623I$	$-13.1144 - 5.3584I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.801238 + 0.361523I$ $a = 1.90300 - 2.35016I$ $b = 0.65065 - 1.33369I$	$-6.19449 + 5.76222I$	$-15.2282 + 0.2894I$
$u = 0.801238 - 0.361523I$ $a = 1.90300 + 2.35016I$ $b = 0.65065 + 1.33369I$	$-6.19449 - 5.76222I$	$-15.2282 - 0.2894I$
$u = -0.561549 + 0.606799I$ $a = -0.742679 - 0.216285I$ $b = -0.983936 - 0.417008I$	$1.63851 - 2.86867I$	$-4.81703 + 5.19570I$
$u = -0.561549 - 0.606799I$ $a = -0.742679 + 0.216285I$ $b = -0.983936 + 0.417008I$	$1.63851 + 2.86867I$	$-4.81703 - 5.19570I$
$u = 1.080610 + 0.485695I$ $a = -0.51856 + 1.58695I$ $b = -1.35793 + 1.90111I$	$-5.73751 - 3.73357I$	$-12.71646 + 3.71259I$
$u = 1.080610 - 0.485695I$ $a = -0.51856 - 1.58695I$ $b = -1.35793 - 1.90111I$	$-5.73751 + 3.73357I$	$-12.71646 - 3.71259I$
$u = -1.048900 + 0.584523I$ $a = -0.437920 - 1.109150I$ $b = -0.459694 - 0.955307I$	$0.12107 + 7.64468I$	$-7.29703 - 8.91724I$
$u = -1.048900 - 0.584523I$ $a = -0.437920 + 1.109150I$ $b = -0.459694 + 0.955307I$	$0.12107 - 7.64468I$	$-7.29703 + 8.91724I$
$u = -1.212670 + 0.159440I$ $a = 0.029470 - 0.626724I$ $b = 1.105020 - 0.380884I$	$-8.58034 - 2.15359I$	$-13.70753 - 1.53360I$
$u = -1.212670 - 0.159440I$ $a = 0.029470 + 0.626724I$ $b = 1.105020 + 0.380884I$	$-8.58034 + 2.15359I$	$-13.70753 + 1.53360I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.940064 + 0.795764I$		
$a = -0.734556 + 0.889097I$	$-3.73656 + 8.95381I$	$-12.0494 - 8.1833I$
$b = 0.171159 + 1.319740I$		
$u = -0.940064 - 0.795764I$		
$a = -0.734556 - 0.889097I$	$-3.73656 - 8.95381I$	$-12.0494 + 8.1833I$
$b = 0.171159 - 1.319740I$		
$u = 0.754396 + 0.046316I$		
$a = -2.02330 + 0.43545I$	$-3.38577 + 0.74341I$	$-9.11947 - 0.04018I$
$b = -1.123940 + 0.697515I$		
$u = 0.754396 - 0.046316I$		
$a = -2.02330 - 0.43545I$	$-3.38577 - 0.74341I$	$-9.11947 + 0.04018I$
$b = -1.123940 - 0.697515I$		
$u = 0.286418 + 1.220690I$		
$a = -0.345595 + 0.305070I$	$-2.83939 - 0.85117I$	$-24.7856 + 17.5846I$
$b = 0.027840 - 0.518278I$		
$u = 0.286418 - 1.220690I$		
$a = -0.345595 - 0.305070I$	$-2.83939 + 0.85117I$	$-24.7856 - 17.5846I$
$b = 0.027840 + 0.518278I$		
$u = 1.162580 + 0.635600I$		
$a = -0.52011 + 1.52417I$	$-5.16163 - 10.70090I$	$-9.07463 + 5.71346I$
$b = -1.49392 + 1.76878I$		
$u = 1.162580 - 0.635600I$		
$a = -0.52011 - 1.52417I$	$-5.16163 + 10.70090I$	$-9.07463 - 5.71346I$
$b = -1.49392 - 1.76878I$		
$u = 0.508233 + 0.377009I$		
$a = -0.53052 - 1.63843I$	$0.90912 - 3.74935I$	$-1.81727 + 9.11550I$
$b = 0.204546 - 1.289390I$		
$u = 0.508233 - 0.377009I$		
$a = -0.53052 + 1.63843I$	$0.90912 + 3.74935I$	$-1.81727 - 9.11550I$
$b = 0.204546 + 1.289390I$		

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.342757 + 0.493551I$ $a = -1.58913 + 1.08656I$ $b = -0.526822 - 1.020460I$	$-3.08637 - 1.15366I$	$-7.13817 + 2.69572I$
$u = 0.342757 - 0.493551I$ $a = -1.58913 - 1.08656I$ $b = -0.526822 + 1.020460I$	$-3.08637 + 1.15366I$	$-7.13817 - 2.69572I$
$u = 1.51282$ $a = 0.0216123$ $b = 0.301994$	$-2.36842$	$-78.8620$

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$(u^{33} - 15u^{32} + \dots + 12u - 1)(u^{167} + 74u^{166} + \dots + 31221u + 961)$
$c_2$	$(u^{33} - u^{32} + \dots + 4u - 1)(u^{167} - 37u^{165} + \dots + 29u - 31)$
$c_3$	$(u^{33} - u^{32} + \dots - 8u - 1)(u^{167} - 14u^{165} + \dots + 135699u + 7999)$
$c_4$	$(u^{33} - 7u^{32} + \dots - 12u^2 - 1)(u^{167} + 2u^{166} + \dots - 13u - 1)$
$c_5$	$(u^{33} - 3u^{32} + \dots + 9u - 1)$ $\cdot (u^{167} + 4u^{166} + \dots - 100431668u - 12620969)$
$c_6$	$(u^{33} + u^{32} + \dots + 4u + 1)(u^{167} - 37u^{165} + \dots + 29u - 31)$
$c_7$	$(u^{33} + 7u^{32} + \dots - 6u - 11)$ $\cdot (u^{167} - 4u^{166} + \dots - 42690283337u - 34553045579)$
$c_8$	$(u^{33} + 8u^{31} + \dots + 6u + 1)(u^{167} + 3u^{166} + \dots + 2613531u + 97585)$
$c_9$	$(u^{33} + 3u^{32} + \dots + 9u + 1)$ $\cdot (u^{167} + 4u^{166} + \dots - 100431668u - 12620969)$
$c_{10}$	$(u^{33} - 3u^{32} + \dots + 14u - 1)(u^{167} + 12u^{166} + \dots + 35u - 1)$
$c_{11}$	$(u^{33} - 2u^{32} + \dots + 6u - 1)(u^{167} + 5u^{166} + \dots - 119637u + 24543)$
$c_{12}$	$(u^{33} - u^{32} + \dots - 7u - 1)$ $\cdot (u^{167} + 12u^{166} + \dots + \frac{1}{31}526426257314u + 56057085917)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1$	$(y^{33} - 3y^{32} + \dots - 20y - 1)$ $\cdot (y^{167} + 30y^{166} + \dots - 77198199y - 923521)$
$c_2, c_6$	$(y^{33} - 15y^{32} + \dots + 12y - 1)(y^{167} - 74y^{166} + \dots + 31221y - 961)$
$c_3$	$(y^{33} - 13y^{32} + \dots + 14y - 1)$ $\cdot (y^{167} - 28y^{166} + \dots + 27826081971y - 63984001)$
$c_4$	$(y^{33} + 47y^{32} + \dots - 24y - 1)(y^{167} + 64y^{166} + \dots - 11y - 1)$
$c_5, c_9$	$(y^{33} + 9y^{32} + \dots + 3y - 1)$ $\cdot (y^{167} - 102y^{166} + \dots + 847414145497076y - 159288858498961)$
$c_7$	$(y^{33} - 17y^{32} + \dots + 256y - 121)$ $\cdot (y^{167} - 80y^{166} + \dots + 8.05 \times 10^{22}y - 1.19 \times 10^{21})$
$c_8$	$(y^{33} + 16y^{32} + \dots + 20y - 1)$ $\cdot (y^{167} + 49y^{166} + \dots - 1685246559y - 9522832225)$
$c_{10}$	$(y^{33} - 55y^{32} + \dots + 38y - 1)(y^{167} - 58y^{166} + \dots + 67y - 1)$
$c_{11}$	$(y^{33} - 10y^{32} + \dots - 8y - 1)$ $\cdot (y^{167} - 41y^{166} + \dots + 36907101225y - 602358849)$
$c_{12}$	$(y^{33} + 7y^{32} + \dots - 41y - 1)$ $\cdot (y^{167} + 76y^{166} + \dots - 1.98 \times 10^{23}y - 3.14 \times 10^{21})$