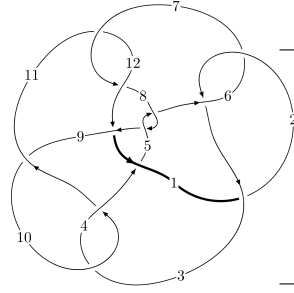
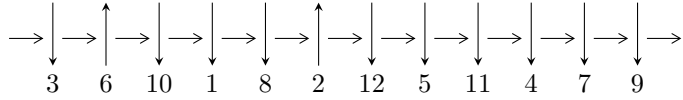


12a<sub>0461</sub> (K12a<sub>0461</sub>)



A knot diagram<sup>1</sup>

**Linearized knot diagram**



**Solving Sequence**

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

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

$$I_1^u = \langle -2.78345 \times 10^{428} u^{153} + 4.11856 \times 10^{427} u^{152} + \dots + 4.56915 \times 10^{427} b - 9.76978 \times 10^{430}, \\ 9.27335 \times 10^{430} u^{153} - 7.70278 \times 10^{430} u^{152} + \dots + 1.64946 \times 10^{430} a + 5.63983 \times 10^{433}, \\ u^{154} - u^{153} + \dots + 171u - 361 \rangle$$

$$I_2^u = \langle 63182u^{37} + 18834u^{36} + \dots + 9223b + 14567, -130140u^{37} + 149794u^{36} + \dots + 9223a - 397212, \\ u^{38} - 12u^{36} + \dots + 3u + 1 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 192 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.

$$\text{I. } I_1^u = \langle -2.78 \times 10^{428} u^{153} + 4.12 \times 10^{427} u^{152} + \dots + 4.57 \times 10^{427} b - 9.77 \times 10^{430}, 9.27 \times 10^{430} u^{153} - 7.70 \times 10^{430} u^{152} + \dots + 1.65 \times 10^{430} a + 5.64 \times 10^{433}, u^{154} - u^{153} + \dots + 171u - 361 \rangle$$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -5.62204u^{153} + 4.66987u^{152} + \dots - 2354.78u - 3419.19 \\ 6.09184u^{153} - 0.901385u^{152} + \dots + 568.938u + 2138.21 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -5.24596u^{153} + 9.36123u^{152} + \dots - 4581.17u - 4917.49 \\ 6.95746u^{153} - 3.20412u^{152} + \dots + 1434.58u + 3079.92 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -5.07748u^{153} + 4.33395u^{152} + \dots - 2100.13u - 3095.74 \\ 2.24063u^{153} - 1.35986u^{152} + \dots + 823.755u + 1352.76 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.71150u^{153} + 6.15711u^{152} + \dots - 3146.59u - 1837.57 \\ 6.95746u^{153} - 3.20412u^{152} + \dots + 1434.58u + 3079.92 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.38432u^{153} + 1.94270u^{152} + \dots - 904.514u - 960.807 \\ -0.598030u^{153} + 0.453949u^{152} + \dots - 271.071u - 321.745 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.43930u^{153} + 2.36182u^{152} + \dots - 1416.92u - 352.069 \\ 2.30804u^{153} - 0.840085u^{152} + \dots + 467.621u + 1009.50 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -5.77366u^{153} + 9.18108u^{152} + \dots - 4535.31u - 5011.51 \\ 6.24262u^{153} - 3.12187u^{152} + \dots + 1465.57u + 2852.48 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-3.50475u^{153} + 1.30202u^{152} + \dots + 90.3994u - 1206.07$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{154} + 64u^{153} + \dots + 54112666u + 1857769$
$c_2, c_6$	$u^{154} - 2u^{153} + \dots + 3074u + 1363$
$c_3, c_{10}$	$u^{154} - u^{153} + \dots + 171u - 361$
$c_4$	$u^{154} - 6u^{153} + \dots + 28566941u + 26372777$
$c_5, c_8$	$u^{154} - 3u^{153} + \dots + 4572u + 4921$
$c_7, c_{11}$	$u^{154} + 3u^{153} + \dots - 60545u - 9307$
$c_9$	$u^{154} + 71u^{153} + \dots + 2567071u + 130321$
$c_{12}$	$u^{154} - 3u^{153} + \dots - 9312u - 521$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{154} + 72y^{153} + \dots - 893114824048786y + 3451305657361$
$c_2, c_6$	$y^{154} + 64y^{153} + \dots + 54112666y + 1857769$
$c_3, c_{10}$	$y^{154} - 71y^{153} + \dots - 2567071y + 130321$
$c_4$	$y^{154} + 46y^{153} + \dots + 19716884500334309y + 695523366691729$
$c_5, c_8$	$y^{154} + 93y^{153} + \dots + 417233130y + 24216241$
$c_7, c_{11}$	$y^{154} - 89y^{153} + \dots - 3771070879y + 86620249$
$c_9$	$y^{154} + 45y^{153} + \dots - 127131132883y + 16983563041$
$c_{12}$	$y^{154} + 11y^{153} + \dots - 91631584y + 271441$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.822066 + 0.579429I$ $a = -0.444752 + 1.270860I$ $b = 1.167560 - 0.604263I$	$4.77078 - 1.29277I$	0
$u = -0.822066 - 0.579429I$ $a = -0.444752 - 1.270860I$ $b = 1.167560 + 0.604263I$	$4.77078 + 1.29277I$	0
$u = 0.894179 + 0.465461I$ $a = 2.58293 + 1.18423I$ $b = -0.544581 + 0.941019I$	$-2.03197 - 3.12428I$	0
$u = 0.894179 - 0.465461I$ $a = 2.58293 - 1.18423I$ $b = -0.544581 - 0.941019I$	$-2.03197 + 3.12428I$	0
$u = 0.574939 + 0.805385I$ $a = 1.265130 - 0.459295I$ $b = -0.826306 + 0.646658I$	$7.65595 + 1.31070I$	0
$u = 0.574939 - 0.805385I$ $a = 1.265130 + 0.459295I$ $b = -0.826306 - 0.646658I$	$7.65595 - 1.31070I$	0
$u = 0.947941 + 0.282051I$ $a = 0.30114 - 1.56279I$ $b = -0.479556 - 1.140250I$	$-3.60832 + 4.35982I$	0
$u = 0.947941 - 0.282051I$ $a = 0.30114 + 1.56279I$ $b = -0.479556 + 1.140250I$	$-3.60832 - 4.35982I$	0
$u = 0.987612 + 0.018641I$ $a = 0.00318 - 1.91294I$ $b = -0.217069 - 0.968326I$	$-3.71429 + 2.24347I$	0
$u = 0.987612 - 0.018641I$ $a = 0.00318 + 1.91294I$ $b = -0.217069 + 0.968326I$	$-3.71429 - 2.24347I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.668369 + 0.726264I$ $a = -0.718297 + 0.714281I$ $b = 0.551305 - 1.139770I$	$0.97716 - 2.43901I$	0
$u = -0.668369 - 0.726264I$ $a = -0.718297 - 0.714281I$ $b = 0.551305 + 1.139770I$	$0.97716 + 2.43901I$	0
$u = -0.579363 + 0.833528I$ $a = -1.173620 + 0.332681I$ $b = 0.591151 - 0.942502I$	$1.98078 - 2.74234I$	0
$u = -0.579363 - 0.833528I$ $a = -1.173620 - 0.332681I$ $b = 0.591151 + 0.942502I$	$1.98078 + 2.74234I$	0
$u = 0.871465 + 0.458008I$ $a = -1.35338 - 1.13202I$ $b = 0.682615 + 0.782945I$	$-1.94534 - 0.62809I$	0
$u = 0.871465 - 0.458008I$ $a = -1.35338 + 1.13202I$ $b = 0.682615 - 0.782945I$	$-1.94534 + 0.62809I$	0
$u = -0.918836 + 0.451681I$ $a = -0.605092 + 0.903934I$ $b = -0.175140 + 1.029180I$	$-1.93769 + 1.71433I$	0
$u = -0.918836 - 0.451681I$ $a = -0.605092 - 0.903934I$ $b = -0.175140 - 1.029180I$	$-1.93769 - 1.71433I$	0
$u = -0.729682 + 0.721684I$ $a = 0.486555 - 1.028990I$ $b = -0.79150 + 1.18399I$	$2.08567 - 3.75466I$	0
$u = -0.729682 - 0.721684I$ $a = 0.486555 + 1.028990I$ $b = -0.79150 - 1.18399I$	$2.08567 + 3.75466I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.520555 + 0.886692I$ $a = 1.54611 + 0.12124I$ $b = -0.953786 - 0.548158I$	$5.33324 - 7.64609I$	0
$u = -0.520555 - 0.886692I$ $a = 1.54611 - 0.12124I$ $b = -0.953786 + 0.548158I$	$5.33324 + 7.64609I$	0
$u = 0.917644 + 0.474316I$ $a = 1.07137 + 1.83095I$ $b = -0.568197 - 0.546614I$	$-0.18917 - 5.27709I$	0
$u = 0.917644 - 0.474316I$ $a = 1.07137 - 1.83095I$ $b = -0.568197 + 0.546614I$	$-0.18917 + 5.27709I$	0
$u = 0.850743 + 0.454824I$ $a = -3.54253 - 0.52996I$ $b = 0.433739 - 0.796809I$	$0.05968 + 1.50926I$	0
$u = 0.850743 - 0.454824I$ $a = -3.54253 + 0.52996I$ $b = 0.433739 + 0.796809I$	$0.05968 - 1.50926I$	0
$u = -0.497579 + 0.907977I$ $a = -1.54017 - 0.19865I$ $b = 0.775781 + 0.624816I$	$1.20572 - 1.73714I$	0
$u = -0.497579 - 0.907977I$ $a = -1.54017 + 0.19865I$ $b = 0.775781 - 0.624816I$	$1.20572 + 1.73714I$	0
$u = -0.876837 + 0.560697I$ $a = 1.66191 - 0.43835I$ $b = -1.21803 - 0.77054I$	$4.60760 + 5.83375I$	0
$u = -0.876837 - 0.560697I$ $a = 1.66191 + 0.43835I$ $b = -1.21803 + 0.77054I$	$4.60760 - 5.83375I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.878557 + 0.356936I$ $a = -0.899409 + 0.785346I$ $b = 0.511909 + 1.111000I$	$-3.76126 + 0.86569I$	0
$u = 0.878557 - 0.356936I$ $a = -0.899409 - 0.785346I$ $b = 0.511909 - 1.111000I$	$-3.76126 - 0.86569I$	0
$u = -0.892698 + 0.317318I$ $a = -0.142050 - 0.305134I$ $b = -0.651868 - 0.110332I$	$-0.748888 - 0.051632I$	0
$u = -0.892698 - 0.317318I$ $a = -0.142050 + 0.305134I$ $b = -0.651868 + 0.110332I$	$-0.748888 + 0.051632I$	0
$u = -0.923163 + 0.505766I$ $a = -0.780045 - 0.137098I$ $b = 0.759557 + 0.367110I$	$-1.46508 + 3.89283I$	0
$u = -0.923163 - 0.505766I$ $a = -0.780045 + 0.137098I$ $b = 0.759557 - 0.367110I$	$-1.46508 - 3.89283I$	0
$u = -0.906674 + 0.538347I$ $a = 0.95178 - 1.61428I$ $b = 0.083826 - 1.026110I$	$0.71731 + 5.70936I$	0
$u = -0.906674 - 0.538347I$ $a = 0.95178 + 1.61428I$ $b = 0.083826 + 1.026110I$	$0.71731 - 5.70936I$	0
$u = 0.820406 + 0.458403I$ $a = 0.647027 + 1.181240I$ $b = -1.05924 - 1.01980I$	$3.87296 + 2.04708I$	0
$u = 0.820406 - 0.458403I$ $a = 0.647027 - 1.181240I$ $b = -1.05924 + 1.01980I$	$3.87296 - 2.04708I$	0



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.491837 + 0.939919I$ $a = 1.149150 - 0.165391I$ $b = -0.665878 + 0.767357I$	$5.03680 + 3.07332I$	0
$u = -0.491837 - 0.939919I$ $a = 1.149150 + 0.165391I$ $b = -0.665878 - 0.767357I$	$5.03680 - 3.07332I$	0
$u = 0.945523 + 0.495565I$ $a = -1.99803 - 0.97327I$ $b = 0.882851 - 1.066330I$	$3.40570 - 5.90996I$	0
$u = 0.945523 - 0.495565I$ $a = -1.99803 + 0.97327I$ $b = 0.882851 + 1.066330I$	$3.40570 + 5.90996I$	0
$u = 0.770452 + 0.739156I$ $a = -1.248880 + 0.251459I$ $b = 0.594063 - 0.525342I$	$2.97747 - 1.79063I$	0
$u = 0.770452 - 0.739156I$ $a = -1.248880 - 0.251459I$ $b = 0.594063 + 0.525342I$	$2.97747 + 1.79063I$	0
$u = 0.462193 + 0.966845I$ $a = 1.176070 + 0.594409I$ $b = -0.713019 - 1.119190I$	$3.5607 + 13.7363I$	0
$u = 0.462193 - 0.966845I$ $a = 1.176070 - 0.594409I$ $b = -0.713019 + 1.119190I$	$3.5607 - 13.7363I$	0
$u = -0.470514 + 0.799319I$ $a = 1.355640 - 0.226669I$ $b = -0.701764 + 1.026230I$	$6.49583 - 7.02496I$	0
$u = -0.470514 - 0.799319I$ $a = 1.355640 + 0.226669I$ $b = -0.701764 - 1.026230I$	$6.49583 + 7.02496I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.815400 + 0.697882I$ $a = -1.089590 - 0.840715I$ $b = 1.078540 + 0.172318I$	$4.76065 - 2.44822I$	0
$u = 0.815400 - 0.697882I$ $a = -1.089590 + 0.840715I$ $b = 1.078540 - 0.172318I$	$4.76065 + 2.44822I$	0
$u = -0.754448 + 0.536803I$ $a = -0.392491 - 0.695246I$ $b = 0.146016 - 0.972184I$	$1.17020 - 1.35654I$	0
$u = -0.754448 - 0.536803I$ $a = -0.392491 + 0.695246I$ $b = 0.146016 + 0.972184I$	$1.17020 + 1.35654I$	0
$u = -1.083000 + 0.078736I$ $a = 0.174446 - 0.429268I$ $b = 0.610702 - 0.769764I$	$1.57089 + 0.38016I$	0
$u = -1.083000 - 0.078736I$ $a = 0.174446 + 0.429268I$ $b = 0.610702 + 0.769764I$	$1.57089 - 0.38016I$	0
$u = 1.022580 + 0.381336I$ $a = 0.89246 + 1.66749I$ $b = -0.375939 + 1.147050I$	$-4.26811 - 3.61828I$	0
$u = 1.022580 - 0.381336I$ $a = 0.89246 - 1.66749I$ $b = -0.375939 - 1.147050I$	$-4.26811 + 3.61828I$	0
$u = 0.423073 + 1.008590I$ $a = -1.198600 - 0.573364I$ $b = 0.673937 + 1.032060I$	$-0.02924 + 7.23734I$	0
$u = 0.423073 - 1.008590I$ $a = -1.198600 + 0.573364I$ $b = 0.673937 - 1.032060I$	$-0.02924 - 7.23734I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.691432 + 0.580549I$ $a = 0.46157 - 2.05865I$ $b = -0.496029 + 0.785846I$	$-1.45978 - 1.10196I$	0
$u = -0.691432 - 0.580549I$ $a = 0.46157 + 2.05865I$ $b = -0.496029 - 0.785846I$	$-1.45978 + 1.10196I$	0
$u = 1.093050 + 0.111168I$ $a = -0.06711 + 1.46631I$ $b = 0.591387 + 0.890936I$	$1.22073 + 5.13744I$	0
$u = 1.093050 - 0.111168I$ $a = -0.06711 - 1.46631I$ $b = 0.591387 - 0.890936I$	$1.22073 - 5.13744I$	0
$u = 0.333598 + 0.828789I$ $a = 1.32166 + 0.65256I$ $b = -0.786662 - 0.864514I$	$6.44245 + 1.96973I$	0
$u = 0.333598 - 0.828789I$ $a = 1.32166 - 0.65256I$ $b = -0.786662 + 0.864514I$	$6.44245 - 1.96973I$	0
$u = -0.957114 + 0.567759I$ $a = -2.30954 - 0.37752I$ $b = 0.624720 + 0.894756I$	$-2.28055 + 5.68893I$	0
$u = -0.957114 - 0.567759I$ $a = -2.30954 + 0.37752I$ $b = 0.624720 - 0.894756I$	$-2.28055 - 5.68893I$	0
$u = -0.415910 + 0.782812I$ $a = 1.68218 + 0.31117I$ $b = -0.803099 - 0.894750I$	$6.37596 + 3.98356I$	0
$u = -0.415910 - 0.782812I$ $a = 1.68218 - 0.31117I$ $b = -0.803099 + 0.894750I$	$6.37596 - 3.98356I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.880709 + 0.702773I$ $a = 1.34473 + 0.62320I$ $b = -1.070680 + 0.328745I$	$4.57020 - 2.91940I$	0
$u = 0.880709 - 0.702773I$ $a = 1.34473 - 0.62320I$ $b = -1.070680 - 0.328745I$	$4.57020 + 2.91940I$	0
$u = -0.639370 + 0.580078I$ $a = -1.55493 + 1.89990I$ $b = 0.478663 - 0.967647I$	$-0.59318 - 5.24593I$	0
$u = -0.639370 - 0.580078I$ $a = -1.55493 - 1.89990I$ $b = 0.478663 + 0.967647I$	$-0.59318 + 5.24593I$	0
$u = -0.991748 + 0.576448I$ $a = 2.80809 - 0.23504I$ $b = -0.565770 - 1.038220I$	$-1.68086 + 9.89233I$	0
$u = -0.991748 - 0.576448I$ $a = 2.80809 + 0.23504I$ $b = -0.565770 + 1.038220I$	$-1.68086 - 9.89233I$	0
$u = 1.15171$ $a = 0.872755$ $b = -0.557285$	$-5.43173$	0
$u = 1.116650 + 0.288251I$ $a = -0.551334 + 1.263380I$ $b = 0.009952 + 0.320767I$	$-1.03953 - 5.47135I$	0
$u = 1.116650 - 0.288251I$ $a = -0.551334 - 1.263380I$ $b = 0.009952 - 0.320767I$	$-1.03953 + 5.47135I$	0
$u = 0.842566 + 0.055109I$ $a = -0.43533 - 1.72832I$ $b = -0.341428 - 1.140430I$	$-3.91290 + 2.72338I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.842566 - 0.055109I$ $a = -0.43533 + 1.72832I$ $b = -0.341428 + 1.140430I$	$-3.91290 - 2.72338I$	0
$u = -1.137590 + 0.235343I$ $a = -1.22592 + 0.74369I$ $b = 0.167501 + 1.235820I$	$-6.05567 - 2.92910I$	0
$u = -1.137590 - 0.235343I$ $a = -1.22592 - 0.74369I$ $b = 0.167501 - 1.235820I$	$-6.05567 + 2.92910I$	0
$u = -0.948270 + 0.671042I$ $a = -2.00805 + 0.33990I$ $b = 0.75652 + 1.30385I$	$1.42242 + 9.08759I$	0
$u = -0.948270 - 0.671042I$ $a = -2.00805 - 0.33990I$ $b = 0.75652 - 1.30385I$	$1.42242 - 9.08759I$	0
$u = 0.948770 + 0.671579I$ $a = 0.447129 + 0.925716I$ $b = -0.676867 - 0.396420I$	$2.38838 - 3.60572I$	0
$u = 0.948770 - 0.671579I$ $a = 0.447129 - 0.925716I$ $b = -0.676867 + 0.396420I$	$2.38838 + 3.60572I$	0
$u = 1.121990 + 0.364900I$ $a = -0.27592 - 1.50625I$ $b = 0.447760 - 0.992496I$	$-4.54531 - 5.71755I$	0
$u = 1.121990 - 0.364900I$ $a = -0.27592 + 1.50625I$ $b = 0.447760 + 0.992496I$	$-4.54531 + 5.71755I$	0
$u = 0.639027 + 1.000420I$ $a = 1.242290 - 0.373765I$ $b = -0.632031 + 0.914157I$	$4.58793 - 8.11613I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.639027 - 1.000420I$ $a = 1.242290 + 0.373765I$ $b = -0.632031 - 0.914157I$	$4.58793 + 8.11613I$	0
$u = 1.055660 + 0.555609I$ $a = 0.986123 + 0.387552I$ $b = -0.05146 + 1.46074I$	$-4.01170 - 10.05950I$	0
$u = 1.055660 - 0.555609I$ $a = 0.986123 - 0.387552I$ $b = -0.05146 - 1.46074I$	$-4.01170 + 10.05950I$	0
$u = -0.993474 + 0.666991I$ $a = 2.02429 - 0.50756I$ $b = -0.533965 - 1.230380I$	$0.00033 + 7.78187I$	0
$u = -0.993474 - 0.666991I$ $a = 2.02429 + 0.50756I$ $b = -0.533965 + 1.230380I$	$0.00033 - 7.78187I$	0
$u = 0.807859 + 0.884061I$ $a = -1.293630 + 0.452149I$ $b = 0.498444 - 0.759435I$	$2.71484 - 1.73531I$	0
$u = 0.807859 - 0.884061I$ $a = -1.293630 - 0.452149I$ $b = 0.498444 + 0.759435I$	$2.71484 + 1.73531I$	0
$u = -0.706766 + 0.354686I$ $a = -0.282796 - 0.622551I$ $b = -0.524063 + 0.052177I$	$-0.798629 + 0.012049I$	0
$u = -0.706766 - 0.354686I$ $a = -0.282796 + 0.622551I$ $b = -0.524063 - 0.052177I$	$-0.798629 - 0.012049I$	0
$u = -1.110330 + 0.484386I$ $a = -1.112330 + 0.462518I$ $b = -0.294361 + 1.037930I$	$-3.47695 + 3.46248I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.110330 - 0.484386I$		
$a = -1.112330 - 0.462518I$	$-3.47695 - 3.46248I$	0
$b = -0.294361 - 1.037930I$		
$u = 1.211880 + 0.061782I$		
$a = -0.476042 + 0.600916I$	$-1.23772 - 5.74341I$	0
$b = 0.671000 + 0.365578I$		
$u = 1.211880 - 0.061782I$		
$a = -0.476042 - 0.600916I$	$-1.23772 + 5.74341I$	0
$b = 0.671000 - 0.365578I$		
$u = 0.106543 + 0.761246I$		
$a = -0.792451 + 0.559262I$	$-4.27716 + 1.18904I$	0
$b = 0.013347 - 1.023550I$		
$u = 0.106543 - 0.761246I$		
$a = -0.792451 - 0.559262I$	$-4.27716 - 1.18904I$	0
$b = 0.013347 + 1.023550I$		
$u = 0.913187 + 0.827058I$		
$a = 0.333766 + 0.974109I$	$2.41371 - 4.51701I$	0
$b = -0.321105 - 0.731793I$		
$u = 0.913187 - 0.827058I$		
$a = 0.333766 - 0.974109I$	$2.41371 + 4.51701I$	0
$b = -0.321105 + 0.731793I$		
$u = 1.122340 + 0.517563I$		
$a = -0.585144 - 0.582633I$	$-7.07290 - 5.73501I$	0
$b = 0.005654 - 1.207420I$		
$u = 1.122340 - 0.517563I$		
$a = -0.585144 + 0.582633I$	$-7.07290 + 5.73501I$	0
$b = 0.005654 + 1.207420I$		
$u = -1.142660 + 0.480684I$		
$a = 0.991446 - 0.372542I$	$-3.76575 + 2.18592I$	0
$b = 0.407802 - 0.786236I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.142660 - 0.480684I$		
$a = 0.991446 + 0.372542I$	$-3.76575 - 2.18592I$	0
$b = 0.407802 + 0.786236I$		
$u = 1.048440 + 0.669478I$		
$a = -0.157000 - 1.014550I$	$6.23300 - 6.84752I$	0
$b = 0.820539 + 0.548469I$		
$u = 1.048440 - 0.669478I$		
$a = -0.157000 + 1.014550I$	$6.23300 + 6.84752I$	0
$b = 0.820539 - 0.548469I$		
$u = -1.057340 + 0.665573I$		
$a = 1.97801 - 0.79727I$	$0.51473 + 8.33328I$	0
$b = -0.562818 - 1.051300I$		
$u = -1.057340 - 0.665573I$		
$a = 1.97801 + 0.79727I$	$0.51473 - 8.33328I$	0
$b = -0.562818 + 1.051300I$		
$u = -1.095860 + 0.627858I$		
$a = -1.97338 + 1.14086I$	$4.62438 + 12.39440I$	0
$b = 0.658073 + 1.076560I$		
$u = -1.095860 - 0.627858I$		
$a = -1.97338 - 1.14086I$	$4.62438 - 12.39440I$	0
$b = 0.658073 - 1.076560I$		
$u = -0.140721 + 0.720089I$		
$a = 0.182316 + 0.104872I$	$-0.87087 + 2.23864I$	0
$b = -0.558431 - 0.851273I$		
$u = -0.140721 - 0.720089I$		
$a = 0.182316 - 0.104872I$	$-0.87087 - 2.23864I$	0
$b = -0.558431 + 0.851273I$		
$u = -1.102930 + 0.679166I$		
$a = -0.562620 + 0.951998I$	$3.55762 + 13.43040I$	0
$b = 1.035360 - 0.490369I$		



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.102930 - 0.679166I$ $a = -0.562620 - 0.951998I$ $b = 1.035360 + 0.490369I$	$3.55762 - 13.43040I$	0
$u = -1.112230 + 0.676396I$ $a = 0.589980 - 0.830670I$ $b = -0.876411 + 0.545244I$	$-0.66666 + 7.55235I$	0
$u = -1.112230 - 0.676396I$ $a = 0.589980 + 0.830670I$ $b = -0.876411 - 0.545244I$	$-0.66666 - 7.55235I$	0
$u = -1.151800 + 0.621427I$ $a = -0.354074 + 0.613260I$ $b = 0.822266 - 0.822898I$	$4.15465 + 1.33498I$	0
$u = -1.151800 - 0.621427I$ $a = -0.354074 - 0.613260I$ $b = 0.822266 + 0.822898I$	$4.15465 - 1.33498I$	0
$u = -1.275870 + 0.297568I$ $a = 1.008550 - 0.654374I$ $b = -0.245337 - 1.054360I$	$-8.61445 + 2.72790I$	0
$u = -1.275870 - 0.297568I$ $a = 1.008550 + 0.654374I$ $b = -0.245337 + 1.054360I$	$-8.61445 - 2.72790I$	0
$u = -0.228727 + 0.640057I$ $a = -0.314354 - 0.294683I$ $b = 0.371470 + 1.033300I$	$-0.966729 + 0.859390I$	$-5.92499 + 0.I$
$u = -0.228727 - 0.640057I$ $a = -0.314354 + 0.294683I$ $b = 0.371470 - 1.033300I$	$-0.966729 - 0.859390I$	$-5.92499 + 0.I$
$u = -1.134690 + 0.716778I$ $a = -1.57546 + 0.75755I$ $b = 0.568922 + 0.878250I$	$3.09471 + 2.98427I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.134690 - 0.716778I$		
$a = -1.57546 - 0.75755I$	$3.09471 - 2.98427I$	0
$b = 0.568922 - 0.878250I$		
$u = 1.155860 + 0.686217I$		
$a = -1.91337 - 0.66981I$	$1.4255 - 19.7547I$	0
$b = 0.718805 - 1.172310I$		
$u = 1.155860 - 0.686217I$		
$a = -1.91337 + 0.66981I$	$1.4255 + 19.7547I$	0
$b = 0.718805 + 1.172310I$		
$u = 1.207910 + 0.591732I$		
$a = -1.61200 - 0.68765I$	$3.78528 - 7.29732I$	0
$b = 0.769951 - 0.938293I$		
$u = 1.207910 - 0.591732I$		
$a = -1.61200 + 0.68765I$	$3.78528 + 7.29732I$	0
$b = 0.769951 + 0.938293I$		
$u = -1.352950 + 0.028199I$		
$a = -0.380214 - 0.665078I$	$-3.19698 - 10.70540I$	0
$b = 0.598993 - 1.083700I$		
$u = -1.352950 - 0.028199I$		
$a = -0.380214 + 0.665078I$	$-3.19698 + 10.70540I$	0
$b = 0.598993 + 1.083700I$		
$u = 1.177610 + 0.689514I$		
$a = 1.84293 + 0.57964I$	$-2.34666 - 13.36180I$	0
$b = -0.689134 + 1.096760I$		
$u = 1.177610 - 0.689514I$		
$a = 1.84293 - 0.57964I$	$-2.34666 + 13.36180I$	0
$b = -0.689134 - 1.096760I$		
$u = 1.085870 + 0.835827I$		
$a = -0.274618 - 0.628927I$	$3.24985 + 1.50408I$	0
$b = 0.554690 + 0.833924I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.085870 - 0.835827I$ $a = -0.274618 + 0.628927I$ $b = 0.554690 - 0.833924I$	$3.24985 - 1.50408I$	0
$u = 0.267156 + 0.504152I$ $a = 1.28364 - 0.90605I$ $b = 0.163501 + 1.252410I$	$-2.12105 + 5.62580I$	$-8.69169 - 6.13312I$
$u = 0.267156 - 0.504152I$ $a = 1.28364 + 0.90605I$ $b = 0.163501 - 1.252410I$	$-2.12105 - 5.62580I$	$-8.69169 + 6.13312I$
$u = 0.522745 + 0.193253I$ $a = 1.71293 + 0.63012I$ $b = 0.326924 + 1.280390I$	$-2.07926 + 5.70484I$	$-8.22383 - 7.39573I$
$u = 0.522745 - 0.193253I$ $a = 1.71293 - 0.63012I$ $b = 0.326924 - 1.280390I$	$-2.07926 - 5.70484I$	$-8.22383 + 7.39573I$
$u = -0.534086$ $a = -0.703155$ $b = -0.362371$	$-0.932967$	$-10.1800$
$u = 1.47986 + 0.05680I$ $a = 0.858827 + 0.664018I$ $b = -0.533518 + 0.707425I$	$-5.87293 - 1.10773I$	0
$u = 1.47986 - 0.05680I$ $a = 0.858827 - 0.664018I$ $b = -0.533518 - 0.707425I$	$-5.87293 + 1.10773I$	0
$u = -1.48687 + 0.13620I$ $a = 0.476101 + 0.355357I$ $b = -0.562080 + 0.984677I$	$-6.81024 - 3.33209I$	0
$u = -1.48687 - 0.13620I$ $a = 0.476101 - 0.355357I$ $b = -0.562080 - 0.984677I$	$-6.81024 + 3.33209I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.055894 + 0.485909I$		
$a = -0.270436 + 1.037490I$	$1.80576 + 2.53513I$	$-2.13143 - 3.97247I$
$b = 0.612930 + 0.064066I$		
$u = 0.055894 - 0.485909I$		
$a = -0.270436 - 1.037490I$	$1.80576 - 2.53513I$	$-2.13143 + 3.97247I$
$b = 0.612930 - 0.064066I$		
$u = -0.176421 + 0.374536I$		
$a = -1.151760 + 0.139094I$	$-0.452145 + 1.312550I$	$-4.74769 - 4.89976I$
$b = 0.288238 + 0.794600I$		
$u = -0.176421 - 0.374536I$		
$a = -1.151760 - 0.139094I$	$-0.452145 - 1.312550I$	$-4.74769 + 4.89976I$
$b = 0.288238 - 0.794600I$		

$$\text{II. } I_2^u = \langle 63182u^{37} + 18834u^{36} + \dots + 9223b + 14567, -1.30 \times 10^5 u^{37} + 1.50 \times 10^5 u^{36} + \dots + 9223a - 3.97 \times 10^5, u^{38} - 12u^{36} + \dots + 3u + 1 \rangle$$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 14.1104u^{37} - 16.2414u^{36} + \dots + 92.0837u + 43.0675 \\ -6.85048u^{37} - 2.04207u^{36} + \dots + 20.1664u - 1.57942 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.94123u^{37} + 0.382305u^{36} + \dots - 3.13618u - 0.270519 \\ 3.14876u^{37} + 0.790632u^{36} + \dots - 4.18974u + 2.62149 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 11.4728u^{37} - 3.77263u^{36} + \dots + 30.8969u + 9.83259 \\ -1.89602u^{37} + 4.91998u^{36} + \dots - 19.2041u - 12.5248 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.207525u^{37} + 1.17294u^{36} + \dots - 7.32592u + 2.35097 \\ 3.14876u^{37} + 0.790632u^{36} + \dots - 4.18974u + 2.62149 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 6.50038u^{37} - 3.41635u^{36} + \dots + 60.6781u + 26.3995 \\ -0.171311u^{37} + 0.523908u^{36} + \dots + 3.46341u - 3.79443 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 27.6979u^{37} - 5.58506u^{36} + \dots - 11.7576u + 16.9625 \\ 5.27366u^{37} + 0.894720u^{36} + \dots - 23.8593u - 9.72840 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.792475u^{37} + 1.17294u^{36} + \dots - 7.32592u + 2.35097 \\ 3.14876u^{37} + 0.790632u^{36} + \dots - 3.18974u + 2.62149 \end{pmatrix}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = -\frac{125590}{9223}u^{37} + \frac{9092}{9223}u^{36} + \dots - \frac{355732}{9223}u - \frac{476456}{9223}$$

(iv)  $u$ -Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{38} - 19u^{37} + \dots - 24u + 1$
$c_2$	$u^{38} - u^{37} + \dots + 12u^2 + 1$
$c_3$	$u^{38} - 12u^{36} + \dots + 3u + 1$
$c_4$	$u^{38} + u^{37} + \dots - 5u + 1$
$c_5$	$u^{38} - 4u^{37} + \dots - 2u + 1$
$c_6$	$u^{38} + u^{37} + \dots + 12u^2 + 1$
$c_7$	$u^{38} + 2u^{37} + \dots + u + 1$
$c_8$	$u^{38} + 4u^{37} + \dots + 2u + 1$
$c_9$	$u^{38} - 24u^{37} + \dots - 21u + 1$
$c_{10}$	$u^{38} - 12u^{36} + \dots - 3u + 1$
$c_{11}$	$u^{38} - 2u^{37} + \dots - u + 1$
$c_{12}$	$u^{38} + 6u^{37} + \dots - 10u + 1$





(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{38} + 19y^{37} + \cdots + 12y + 1$
$c_2, c_6$	$y^{38} + 19y^{37} + \cdots + 24y + 1$
$c_3, c_{10}$	$y^{38} - 24y^{37} + \cdots - 21y + 1$
$c_4$	$y^{38} + 5y^{37} + \cdots + 19y + 1$
$c_5, c_8$	$y^{38} + 20y^{37} + \cdots + 36y + 1$
$c_7, c_{11}$	$y^{38} - 30y^{37} + \cdots - 33y + 1$
$c_9$	$y^{38} - 28y^{36} + \cdots - 21y + 1$
$c_{12}$	$y^{38} - 6y^{37} + \cdots - 42y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.991867 + 0.293008I$ $a = 0.088290 + 0.480131I$ $b = -0.341002 + 1.107610I$	$-3.11280 - 7.15236I$	$-11.2847 + 9.0430I$
$u = 0.991867 - 0.293008I$ $a = 0.088290 - 0.480131I$ $b = -0.341002 - 1.107610I$	$-3.11280 + 7.15236I$	$-11.2847 - 9.0430I$
$u = 0.732096 + 0.626334I$ $a = -1.67555 - 0.49709I$ $b = 1.036790 - 0.718459I$	$4.91223 - 4.80789I$	$-3.00260 + 3.79185I$
$u = 0.732096 - 0.626334I$ $a = -1.67555 + 0.49709I$ $b = 1.036790 + 0.718459I$	$4.91223 + 4.80789I$	$-3.00260 - 3.79185I$
$u = -0.748299 + 0.742347I$ $a = 0.711126 - 0.885387I$ $b = -0.582385 + 1.100190I$	$0.62663 - 3.36395I$	$-9.20426 + 4.94587I$
$u = -0.748299 - 0.742347I$ $a = 0.711126 + 0.885387I$ $b = -0.582385 - 1.100190I$	$0.62663 + 3.36395I$	$-9.20426 - 4.94587I$
$u = 0.839841 + 0.293635I$ $a = 1.06189 + 1.73136I$ $b = 0.358348 + 1.192970I$	$-2.56301 + 4.67338I$	$-10.21931 - 3.08914I$
$u = 0.839841 - 0.293635I$ $a = 1.06189 - 1.73136I$ $b = 0.358348 - 1.192970I$	$-2.56301 - 4.67338I$	$-10.21931 + 3.08914I$
$u = -1.075490 + 0.300288I$ $a = -0.14453 + 2.09621I$ $b = -0.205733 + 0.743835I$	$-1.56441 + 4.82049I$	$-14.5664 - 2.6540I$
$u = -1.075490 - 0.300288I$ $a = -0.14453 - 2.09621I$ $b = -0.205733 - 0.743835I$	$-1.56441 - 4.82049I$	$-14.5664 + 2.6540I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.854395 + 0.767581I$ $a = -0.682159 - 1.047860I$ $b = 0.281279 + 0.516482I$	$2.84860 - 4.96095I$	$-2.01482 + 8.52252I$
$u = 0.854395 - 0.767581I$ $a = -0.682159 + 1.047860I$ $b = 0.281279 - 0.516482I$	$2.84860 + 4.96095I$	$-2.01482 - 8.52252I$
$u = 1.075450 + 0.417540I$ $a = -0.16590 - 1.61326I$ $b = 0.290951 - 1.004320I$	$-5.01160 - 4.75346I$	$-15.3943 + 3.4825I$
$u = 1.075450 - 0.417540I$ $a = -0.16590 + 1.61326I$ $b = 0.290951 + 1.004320I$	$-5.01160 + 4.75346I$	$-15.3943 - 3.4825I$
$u = -0.943617 + 0.669429I$ $a = -2.23938 + 0.34377I$ $b = 0.552077 + 1.202540I$	$0.03099 + 8.74330I$	$-8.91907 - 10.84509I$
$u = -0.943617 - 0.669429I$ $a = -2.23938 - 0.34377I$ $b = 0.552077 - 1.202540I$	$0.03099 - 8.74330I$	$-8.91907 + 10.84509I$
$u = -0.686929 + 0.483998I$ $a = -0.62902 + 1.50618I$ $b = 1.027270 - 0.964833I$	$4.24690 - 2.58803I$	$-2.22978 + 7.46639I$
$u = -0.686929 - 0.483998I$ $a = -0.62902 - 1.50618I$ $b = 1.027270 + 0.964833I$	$4.24690 + 2.58803I$	$-2.22978 - 7.46639I$
$u = 0.895125 + 0.796856I$ $a = 1.375030 - 0.178060I$ $b = -0.393497 + 0.543408I$	$2.72633 - 0.91164I$	$-6.33413 - 3.56727I$
$u = 0.895125 - 0.796856I$ $a = 1.375030 + 0.178060I$ $b = -0.393497 - 0.543408I$	$2.72633 + 0.91164I$	$-6.33413 + 3.56727I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.068930 + 0.542210I$ $a = 1.82807 - 0.68045I$ $b = -0.868761 - 1.014880I$	$2.90354 + 6.79041I$	$-10.77255 - 7.64968I$
$u = -1.068930 - 0.542210I$ $a = 1.82807 + 0.68045I$ $b = -0.868761 + 1.014880I$	$2.90354 - 6.79041I$	$-10.77255 + 7.64968I$
$u = -1.104200 + 0.482481I$ $a = 1.41930 - 0.31782I$ $b = 0.256385 - 0.879117I$	$-4.49779 + 2.49920I$	$-17.5876 - 2.3366I$
$u = -1.104200 - 0.482481I$ $a = 1.41930 + 0.31782I$ $b = 0.256385 + 0.879117I$	$-4.49779 - 2.49920I$	$-17.5876 + 2.3366I$
$u = 1.008320 + 0.675509I$ $a = 0.585134 + 0.669247I$ $b = -0.868472 - 0.629081I$	$4.02350 - 0.28612I$	$-5.68627 + 0.I$
$u = 1.008320 - 0.675509I$ $a = 0.585134 - 0.669247I$ $b = -0.868472 + 0.629081I$	$4.02350 + 0.28612I$	$-5.68627 + 0.I$
$u = -0.750582 + 0.224491I$ $a = 2.48091 + 0.03823I$ $b = 0.130888 + 0.676207I$	$-0.27120 - 2.53382I$	$-11.47078 + 5.16775I$
$u = -0.750582 - 0.224491I$ $a = 2.48091 - 0.03823I$ $b = 0.130888 - 0.676207I$	$-0.27120 + 2.53382I$	$-11.47078 - 5.16775I$
$u = 0.697328 + 0.208539I$ $a = 0.39805 - 2.20775I$ $b = -0.387499 - 1.077190I$	$-3.23941 + 1.85645I$	$-10.13432 - 0.54316I$
$u = 0.697328 - 0.208539I$ $a = 0.39805 + 2.20775I$ $b = -0.387499 + 1.077190I$	$-3.23941 - 1.85645I$	$-10.13432 + 0.54316I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.188715 + 0.580646I$		
$a = -0.315921 + 0.452263I$	$-2.02228 + 1.65299I$	$-11.55346 - 2.70930I$
$b = -0.386853 - 0.873194I$		
$u = -0.188715 - 0.580646I$		
$a = -0.315921 - 0.452263I$	$-2.02228 - 1.65299I$	$-11.55346 + 2.70930I$
$b = -0.386853 + 0.873194I$		
$u = 1.400070 + 0.020540I$		
$a = -0.511954 + 0.412824I$	$-6.99257 + 2.83923I$	0
$b = 0.492777 + 0.991292I$		
$u = 1.400070 - 0.020540I$		
$a = -0.511954 - 0.412824I$	$-6.99257 - 2.83923I$	0
$b = 0.492777 - 0.991292I$		
$u = -1.43299 + 0.02985I$		
$a = -0.910284 + 0.776573I$	$-6.02241 + 1.20982I$	0
$b = 0.494779 + 0.709703I$		
$u = -1.43299 - 0.02985I$		
$a = -0.910284 - 0.776573I$	$-6.02241 - 1.20982I$	0
$b = 0.494779 - 0.709703I$		
$u = -0.494736 + 0.110162I$		
$a = -1.17311 + 1.64447I$	$-1.82565 + 1.31247I$	$-12.61929 - 3.30037I$
$b = -0.387344 - 0.683093I$		
$u = -0.494736 - 0.110162I$		
$a = -1.17311 - 1.64447I$	$-1.82565 - 1.31247I$	$-12.61929 + 3.30037I$
$b = -0.387344 + 0.683093I$		

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$(u^{38} - 19u^{37} + \dots - 24u + 1)$ $\cdot (u^{154} + 64u^{153} + \dots + 54112666u + 1857769)$
$c_2$	$(u^{38} - u^{37} + \dots + 12u^2 + 1)(u^{154} - 2u^{153} + \dots + 3074u + 1363)$
$c_3$	$(u^{38} - 12u^{36} + \dots + 3u + 1)(u^{154} - u^{153} + \dots + 171u - 361)$
$c_4$	$(u^{38} + u^{37} + \dots - 5u + 1)$ $\cdot (u^{154} - 6u^{153} + \dots + 28566941u + 26372777)$
$c_5$	$(u^{38} - 4u^{37} + \dots - 2u + 1)(u^{154} - 3u^{153} + \dots + 4572u + 4921)$
$c_6$	$(u^{38} + u^{37} + \dots + 12u^2 + 1)(u^{154} - 2u^{153} + \dots + 3074u + 1363)$
$c_7$	$(u^{38} + 2u^{37} + \dots + u + 1)(u^{154} + 3u^{153} + \dots - 60545u - 9307)$
$c_8$	$(u^{38} + 4u^{37} + \dots + 2u + 1)(u^{154} - 3u^{153} + \dots + 4572u + 4921)$
$c_9$	$(u^{38} - 24u^{37} + \dots - 21u + 1)$ $\cdot (u^{154} + 71u^{153} + \dots + 2567071u + 130321)$
$c_{10}$	$(u^{38} - 12u^{36} + \dots - 3u + 1)(u^{154} - u^{153} + \dots + 171u - 361)$
$c_{11}$	$(u^{38} - 2u^{37} + \dots - u + 1)(u^{154} + 3u^{153} + \dots - 60545u - 9307)$
$c_{12}$	$(u^{38} + 6u^{37} + \dots - 10u + 1)(u^{154} - 3u^{153} + \dots - 9312u - 521)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1$	$(y^{38} + 19y^{37} + \dots + 12y + 1)$ $\cdot (y^{154} + 72y^{153} + \dots - 893114824048786y + 3451305657361)$
$c_2, c_6$	$(y^{38} + 19y^{37} + \dots + 24y + 1)$ $\cdot (y^{154} + 64y^{153} + \dots + 54112666y + 1857769)$
$c_3, c_{10}$	$(y^{38} - 24y^{37} + \dots - 21y + 1)$ $\cdot (y^{154} - 71y^{153} + \dots - 2567071y + 130321)$
$c_4$	$(y^{38} + 5y^{37} + \dots + 19y + 1)$ $\cdot (y^{154} + 46y^{153} + \dots + 19716884500334309y + 695523366691729)$
$c_5, c_8$	$(y^{38} + 20y^{37} + \dots + 36y + 1)$ $\cdot (y^{154} + 93y^{153} + \dots + 417233130y + 24216241)$
$c_7, c_{11}$	$(y^{38} - 30y^{37} + \dots - 33y + 1)$ $\cdot (y^{154} - 89y^{153} + \dots - 3771070879y + 86620249)$
$c_9$	$(y^{38} - 28y^{36} + \dots - 21y + 1)$ $\cdot (y^{154} + 45y^{153} + \dots - 127131132883y + 16983563041)$
$c_{12}$	$(y^{38} - 6y^{37} + \dots - 42y + 1)$ $\cdot (y^{154} + 11y^{153} + \dots - 91631584y + 271441)$