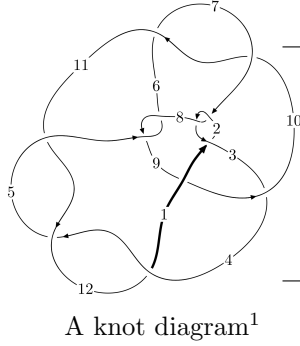
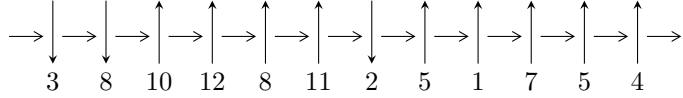


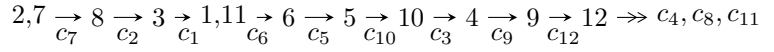
12n<sub>0656</sub> (K12n<sub>0656</sub>)



**Linearized knot diagram**



**Solving Sequence**



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

$$\begin{aligned}
 I_1^u &= \langle -5.04974 \times 10^{93}u^{65} - 9.74388 \times 10^{92}u^{64} + \dots + 4.92845 \times 10^{93}b + 3.58696 \times 10^{95}, \\
 &\quad 2.17687 \times 10^{95}u^{65} - 2.86390 \times 10^{95}u^{64} + \dots + 3.89347 \times 10^{95}a - 3.06729 \times 10^{97}, u^{66} - u^{65} + \dots - 51u + 7 \rangle \\
 I_2^u &= \langle u^{15} - 4u^{13} - u^{12} + 8u^{11} + 5u^{10} - 8u^9 - 13u^8 + 3u^7 + 21u^6 + u^5 - 19u^4 - u^3 + 7u^2 + b, \\
 &\quad - 5u^{16} + u^{15} + \dots + a - 1, \\
 &\quad u^{17} - 4u^{15} - u^{14} + 9u^{13} + 5u^{12} - 11u^{11} - 14u^{10} + 8u^9 + 25u^8 - 2u^7 - 28u^6 - u^5 + 19u^4 + u^3 - 7u^2 + 1 \rangle
 \end{aligned}$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 83 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.

$$\text{I. } I_1^u = \langle -5.05 \times 10^{93} u^{65} - 9.74 \times 10^{92} u^{64} + \dots + 4.93 \times 10^{93} b + 3.59 \times 10^{95}, 2.18 \times 10^{95} u^{65} - 2.86 \times 10^{95} u^{64} + \dots + 3.89 \times 10^{95} a - 3.07 \times 10^{97}, u^{66} - u^{65} + \dots - 51u + 79 \rangle$$

(i) Arc colorings

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

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

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

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

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

$$a_{11} = \begin{pmatrix} -0.559109u^{65} + 0.735565u^{64} + \dots + 114.511u + 78.7804 \\ 1.02461u^{65} + 0.197707u^{64} + \dots + 26.4996u - 72.7807 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.35020u^{65} + 0.204588u^{64} + \dots + 49.0040u + 156.891 \\ -2.94625u^{65} + 0.504266u^{64} + \dots + 106.949u + 284.585 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.48828u^{65} + 0.0869445u^{64} + \dots + 18.2941u + 41.8085 \\ -2.60902u^{65} + 0.363501u^{64} + \dots + 76.8159u + 225.788 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1.58372u^{65} + 0.537858u^{64} + \dots + 88.0118u + 151.561 \\ 1.02461u^{65} + 0.197707u^{64} + \dots + 26.4996u - 72.7807 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.833366u^{65} - 0.878185u^{64} + \dots - 147.529u - 89.3505 \\ -1.62313u^{65} + 0.338423u^{64} + \dots + 76.6054u + 160.632 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.86117u^{65} + 0.899303u^{64} + \dots + 144.315u + 201.743 \\ 0.488512u^{65} + 0.502843u^{64} + \dots + 75.8217u - 8.74372 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.606622u^{65} - 0.258104u^{64} + \dots - 12.2197u + 16.0020 \\ -0.770254u^{65} - 0.0843692u^{64} + \dots - 0.510519u + 38.6892 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-4.68718u^{65} + 2.07367u^{64} + \dots + 423.125u + 473.176$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{66} + 25u^{65} + \dots + 108619u + 6241$
$c_2, c_7$	$u^{66} + u^{65} + \dots + 51u + 79$
$c_3$	$u^{66} + u^{65} + \dots - 320u - 32$
$c_4, c_{11}, c_{12}$	$u^{66} + 2u^{65} + \dots - 135u - 19$
$c_5, c_8$	$u^{66} + 6u^{65} + \dots + 256u - 112$
$c_6, c_{10}$	$u^{66} - u^{65} + \dots - 22u - 1$
$c_9$	$u^{66} + u^{65} + \dots + 9183u + 1252$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{66} + 35y^{65} + \dots - 251925111y + 38950081$
$c_2, c_7$	$y^{66} - 25y^{65} + \dots - 108619y + 6241$
$c_3$	$y^{66} + 27y^{65} + \dots - 115712y + 1024$
$c_4, c_{11}, c_{12}$	$y^{66} + 56y^{65} + \dots - 7357y + 361$
$c_5, c_8$	$y^{66} - 50y^{65} + \dots - 1254528y + 12544$
$c_6, c_{10}$	$y^{66} + 11y^{65} + \dots - 78y + 1$
$c_9$	$y^{66} - 13y^{65} + \dots - 59172305y + 1567504$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.257112 + 0.947624I$ $a = 0.071468 - 0.219305I$ $b = -0.934003 - 0.145624I$	$0.1053660 + 0.0685567I$	$6.00000 + 0.I$
$u = -0.257112 - 0.947624I$ $a = 0.071468 + 0.219305I$ $b = -0.934003 + 0.145624I$	$0.1053660 - 0.0685567I$	$6.00000 + 0.I$
$u = 0.707502 + 0.680828I$ $a = 0.510614 + 0.653841I$ $b = -0.410733 + 0.515754I$	$0.03346 - 2.05159I$	$6.00000 + 4.98115I$
$u = 0.707502 - 0.680828I$ $a = 0.510614 - 0.653841I$ $b = -0.410733 - 0.515754I$	$0.03346 + 2.05159I$	$6.00000 - 4.98115I$
$u = -0.775544 + 0.661698I$ $a = -0.65118 + 2.11101I$ $b = 1.02196 + 1.17957I$	$0.84171 - 1.91050I$	$6.00000 + 0.I$
$u = -0.775544 - 0.661698I$ $a = -0.65118 - 2.11101I$ $b = 1.02196 - 1.17957I$	$0.84171 + 1.91050I$	$6.00000 + 0.I$
$u = 0.855134 + 0.471238I$ $a = 0.28210 + 2.12553I$ $b = 0.203001 + 1.196910I$	$-6.43277 - 1.93176I$	$0. + 3.96327I$
$u = 0.855134 - 0.471238I$ $a = 0.28210 - 2.12553I$ $b = 0.203001 - 1.196910I$	$-6.43277 + 1.93176I$	$0. - 3.96327I$
$u = -0.695152 + 0.756763I$ $a = -0.285265 + 0.382734I$ $b = -1.096470 + 0.816570I$	$2.92421 - 2.75395I$	$6.00000 + 0.I$
$u = -0.695152 - 0.756763I$ $a = -0.285265 - 0.382734I$ $b = -1.096470 - 0.816570I$	$2.92421 + 2.75395I$	$6.00000 + 0.I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.832084 + 0.479093I$ $a = -0.964406 - 0.722252I$ $b = 0.388483 + 0.305721I$	$-6.35326 + 1.92286I$	$0.61610 - 3.80019I$
$u = -0.832084 - 0.479093I$ $a = -0.964406 + 0.722252I$ $b = 0.388483 - 0.305721I$	$-6.35326 - 1.92286I$	$0.61610 + 3.80019I$
$u = 0.831367 + 0.696653I$ $a = -0.595869 - 0.242192I$ $b = -1.29532 - 0.88221I$	$5.68298 - 2.17633I$	0
$u = 0.831367 - 0.696653I$ $a = -0.595869 + 0.242192I$ $b = -1.29532 + 0.88221I$	$5.68298 + 2.17633I$	0
$u = 0.887020 + 0.687260I$ $a = -0.53117 - 2.06451I$ $b = 0.94726 - 1.09875I$	$5.51025 - 3.14310I$	0
$u = 0.887020 - 0.687260I$ $a = -0.53117 + 2.06451I$ $b = 0.94726 + 1.09875I$	$5.51025 + 3.14310I$	0
$u = 0.839142 + 0.235261I$ $a = 0.610217 + 0.679297I$ $b = -1.303620 + 0.043632I$	$-2.21197 + 2.72682I$	$-0.929885 + 0.873234I$
$u = 0.839142 - 0.235261I$ $a = 0.610217 - 0.679297I$ $b = -1.303620 - 0.043632I$	$-2.21197 - 2.72682I$	$-0.929885 - 0.873234I$
$u = -0.928111 + 0.642178I$ $a = -0.913757 + 0.186542I$ $b = -1.43369 + 1.01259I$	$0.36496 + 6.98411I$	0
$u = -0.928111 - 0.642178I$ $a = -0.913757 - 0.186542I$ $b = -1.43369 - 1.01259I$	$0.36496 - 6.98411I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.838382 + 0.213695I$ $a = -1.40107 - 2.19862I$ $b = 0.09948 - 1.79877I$	$-11.89330 - 0.93560I$	$-4.33716 - 3.52776I$
$u = 0.838382 - 0.213695I$ $a = -1.40107 + 2.19862I$ $b = 0.09948 + 1.79877I$	$-11.89330 + 0.93560I$	$-4.33716 + 3.52776I$
$u = -0.899982 + 0.708778I$ $a = 1.09863 - 0.90483I$ $b = -0.16265 - 1.57424I$	$-9.01530 + 2.75120I$	0
$u = -0.899982 - 0.708778I$ $a = 1.09863 + 0.90483I$ $b = -0.16265 + 1.57424I$	$-9.01530 - 2.75120I$	0
$u = 0.526272 + 1.019400I$ $a = 0.318206 + 0.066951I$ $b = 1.05853 + 0.95213I$	$1.45735 + 9.54908I$	0
$u = 0.526272 - 1.019400I$ $a = 0.318206 - 0.066951I$ $b = 1.05853 - 0.95213I$	$1.45735 - 9.54908I$	0
$u = -1.102590 + 0.320589I$ $a = 0.33068 - 1.61344I$ $b = 0.266522 - 0.929330I$	$-6.22093 + 0.10686I$	0
$u = -1.102590 - 0.320589I$ $a = 0.33068 + 1.61344I$ $b = 0.266522 + 0.929330I$	$-6.22093 - 0.10686I$	0
$u = -0.834282 + 0.117518I$ $a = -0.44582 - 2.20169I$ $b = 0.106930 - 1.272370I$	$-4.82653 + 0.53157I$	$0.07384 + 2.64833I$
$u = -0.834282 - 0.117518I$ $a = -0.44582 + 2.20169I$ $b = 0.106930 + 1.272370I$	$-4.82653 - 0.53157I$	$0.07384 - 2.64833I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.636597 + 1.006470I$		
$a = 0.458947 - 0.050429I$	$6.05616 - 4.04965I$	0
$b = 0.998665 - 0.921408I$		
$u = -0.636597 - 1.006470I$		
$a = 0.458947 + 0.050429I$	$6.05616 + 4.04965I$	0
$b = 0.998665 + 0.921408I$		
$u = -0.983398 + 0.684141I$		
$a = -0.51377 + 2.02937I$	$2.05072 + 8.22966I$	0
$b = 0.849833 + 1.042050I$		
$u = -0.983398 - 0.684141I$		
$a = -0.51377 - 2.02937I$	$2.05072 - 8.22966I$	0
$b = 0.849833 - 1.042050I$		
$u = 0.977568 + 0.708124I$		
$a = -0.209781 - 0.209812I$	$-0.90500 - 3.33318I$	0
$b = 0.606595 - 0.224505I$		
$u = 0.977568 - 0.708124I$		
$a = -0.209781 + 0.209812I$	$-0.90500 + 3.33318I$	0
$b = 0.606595 + 0.224505I$		
$u = 1.096460 + 0.507389I$		
$a = -1.14935 - 1.39168I$	$-4.99940 - 7.29186I$	0
$b = 0.501177 - 0.634307I$		
$u = 1.096460 - 0.507389I$		
$a = -1.14935 + 1.39168I$	$-4.99940 + 7.29186I$	0
$b = 0.501177 + 0.634307I$		
$u = -1.096320 + 0.542363I$		
$a = -0.483047 + 1.273850I$	$-1.06694 + 5.17758I$	0
$b = 0.710209 + 0.578523I$		
$u = -1.096320 - 0.542363I$		
$a = -0.483047 - 1.273850I$	$-1.06694 - 5.17758I$	0
$b = 0.710209 - 0.578523I$		



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.764652 + 0.955944I$ $a = 0.586188 + 0.078330I$ $b = 0.846583 + 0.894829I$	$2.53161 - 1.78458I$	0
$u = 0.764652 - 0.955944I$ $a = 0.586188 - 0.078330I$ $b = 0.846583 - 0.894829I$	$2.53161 + 1.78458I$	0
$u = 0.393732 + 1.163820I$ $a = 0.284564 + 0.124345I$ $b = 0.243672 + 0.002661I$	$0.89352 - 2.40317I$	0
$u = 0.393732 - 1.163820I$ $a = 0.284564 - 0.124345I$ $b = 0.243672 - 0.002661I$	$0.89352 + 2.40317I$	0
$u = 0.763441 + 0.052004I$ $a = 2.67743 + 1.41213I$ $b = 0.283142 + 0.043659I$	$-2.06277 + 3.79226I$	$-1.58367 - 5.91104I$
$u = 0.763441 - 0.052004I$ $a = 2.67743 - 1.41213I$ $b = 0.283142 - 0.043659I$	$-2.06277 - 3.79226I$	$-1.58367 + 5.91104I$
$u = 1.237200 + 0.275538I$ $a = -0.149817 + 1.097540I$ $b = -0.115179 + 0.814116I$	$-2.61077 - 2.63613I$	0
$u = 1.237200 - 0.275538I$ $a = -0.149817 - 1.097540I$ $b = -0.115179 - 0.814116I$	$-2.61077 + 2.63613I$	0
$u = -0.728667$ $a = 2.69016$ $b = 0.228552$	1.95571	2.70420
$u = 1.211310 + 0.434932I$ $a = 0.216289 - 1.388270I$ $b = 0.908237 - 0.547503I$	$-4.31364 - 4.41545I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.211310 - 0.434932I$ $a = 0.216289 + 1.388270I$ $b = 0.908237 + 0.547503I$	$-4.31364 + 4.41545I$	0
$u = -0.368903 + 0.599292I$ $a = 0.551631 + 0.006032I$ $b = -0.543091 + 0.225358I$	$1.044430 - 0.587332I$	$8.98331 + 3.47323I$
$u = -0.368903 - 0.599292I$ $a = 0.551631 - 0.006032I$ $b = -0.543091 - 0.225358I$	$1.044430 + 0.587332I$	$8.98331 - 3.47323I$
$u = 1.028890 + 0.791131I$ $a = 0.45447 + 1.39568I$ $b = -0.90585 + 1.21148I$	$1.64235 - 4.60831I$	0
$u = 1.028890 - 0.791131I$ $a = 0.45447 - 1.39568I$ $b = -0.90585 - 1.21148I$	$1.64235 + 4.60831I$	0
$u = 0.192509 + 0.631326I$ $a = 1.095920 - 0.610070I$ $b = -0.227382 - 0.678722I$	$-2.56446 + 2.95191I$	$1.85269 - 4.42524I$
$u = 0.192509 - 0.631326I$ $a = 1.095920 + 0.610070I$ $b = -0.227382 + 0.678722I$	$-2.56446 - 2.95191I$	$1.85269 + 4.42524I$
$u = -1.110370 + 0.768499I$ $a = 0.37175 - 1.58877I$ $b = -1.04037 - 1.21889I$	$4.54605 + 10.49520I$	0
$u = -1.110370 - 0.768499I$ $a = 0.37175 + 1.58877I$ $b = -1.04037 + 1.21889I$	$4.54605 - 10.49520I$	0
$u = -0.639532$ $a = 0.572453$ $b = -1.15533$	2.36942	-1.84080

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.156750 + 0.728414I$	$-0.5174 - 15.8754I$	0
$a = 0.35107 + 1.71491I$		
$b = -1.10396 + 1.21839I$		
$u = 1.156750 - 0.728414I$	$-0.5174 + 15.8754I$	0
$a = 0.35107 - 1.71491I$		
$b = -1.10396 - 1.21839I$		
$u = -1.396300 + 0.095553I$	$-6.23593 + 6.65763I$	0
$a = -0.539554 - 0.929625I$		
$b = -0.390433 - 0.822365I$		
$u = -1.396300 - 0.095553I$	$-6.23593 - 6.65763I$	0
$a = -0.539554 + 0.929625I$		
$b = -0.390433 + 0.822365I$		
$u = -1.206480 + 0.716734I$	$-2.62837 + 5.98510I$	0
$a = 0.198206 + 0.687413I$		
$b = 0.885867 + 0.292505I$		
$u = -1.206480 - 0.716734I$	$-2.62837 - 5.98510I$	0
$a = 0.198206 - 0.687413I$		
$b = 0.885867 - 0.292505I$		

**II.**

$$I_2^u = \langle u^{15} - 4u^{13} + \dots + 7u^2 + b, -5u^{16} + u^{15} + \dots + a - 1, u^{17} - 4u^{15} + \dots - 7u^2 + 1 \rangle$$

**(i) Arc colorings**

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

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

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

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

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

$$a_{11} = \begin{pmatrix} 5u^{16} - u^{15} + \dots - 6u + 1 \\ -u^{15} + 4u^{13} + \dots + u^3 - 7u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{15} - u^{14} + \dots - 27u^2 + 4 \\ 2u^{15} - u^{14} + \dots - u + 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{16} - u^{15} + \dots + u + 3 \\ -u^{16} + 2u^{15} + \dots - 4u^2 + 2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 5u^{16} - 16u^{14} + \dots - 6u + 1 \\ -u^{15} + 4u^{13} + \dots + u^3 - 7u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 7u^{15} - 25u^{13} + \dots + 66u^2 - 12 \\ u^{14} - 3u^{12} - u^{11} + 5u^{10} + 4u^9 - 3u^8 - 9u^7 + 12u^5 + u^4 - 8u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 7u^{16} - u^{15} + \dots - 9u + 2 \\ 2u^{16} - u^{15} + \dots - 5u^2 - 3u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -4u^{16} + 17u^{14} + \dots + 13u + 4 \\ -2u^{16} + 2u^{15} + \dots + 3u - 5 \end{pmatrix}$$

**(ii) Obstruction class = 1**

**(iii) Cusp Shapes** =  $16u^{16} - 15u^{15} - 53u^{14} + 38u^{13} + 120u^{12} - 41u^{11} - 166u^{10} - 61u^9 + 228u^8 + 210u^7 - 284u^6 - 240u^5 + 269u^4 + 129u^3 - 141u^2 - 24u + 36$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1$	$u^{17} - 8u^{16} + \dots + 14u - 1$
$c_2$	$u^{17} - 4u^{15} + \dots + 7u^2 - 1$
$c_3$	$u^{17} + 8u^{15} + \dots - 6u^2 - 1$
$c_4$	$u^{17} - u^{16} + \dots - 10u^2 - 1$
$c_5$	$u^{17} + u^{16} + \dots + 6u^2 + 1$
$c_6$	$u^{17} + 6u^{15} + \dots + u + 1$
$c_7$	$u^{17} - 4u^{15} + \dots - 7u^2 + 1$
$c_8$	$u^{17} - u^{16} + \dots - 6u^2 - 1$
$c_9$	$u^{17} - 2u^{15} + \dots + 4u + 13$
$c_{10}$	$u^{17} + 6u^{15} + \dots + u - 1$
$c_{11}, c_{12}$	$u^{17} + u^{16} + \dots + 10u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1$	$y^{17} + 4y^{16} + \dots + 22y - 1$
$c_2, c_7$	$y^{17} - 8y^{16} + \dots + 14y - 1$
$c_3$	$y^{17} + 16y^{16} + \dots - 12y - 1$
$c_4, c_{11}, c_{12}$	$y^{17} + 21y^{16} + \dots - 20y - 1$
$c_5, c_8$	$y^{17} - 5y^{16} + \dots - 12y - 1$
$c_6, c_{10}$	$y^{17} + 12y^{16} + \dots + 5y - 1$
$c_9$	$y^{17} - 4y^{16} + \dots + 276y - 169$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.935454 + 0.285621I$ $a = -0.74965 - 2.16184I$ $b = 0.134278 - 0.894052I$	$-7.54669 + 1.17742I$	$-6.67270 - 0.38814I$
$u = -0.935454 - 0.285621I$ $a = -0.74965 + 2.16184I$ $b = 0.134278 + 0.894052I$	$-7.54669 - 1.17742I$	$-6.67270 + 0.38814I$
$u = 0.912131 + 0.328638I$ $a = 0.30968 + 2.00614I$ $b = 0.147743 + 1.270230I$	$-4.60840 - 1.36971I$	$3.49419 + 5.08345I$
$u = 0.912131 - 0.328638I$ $a = 0.30968 - 2.00614I$ $b = 0.147743 - 1.270230I$	$-4.60840 + 1.36971I$	$3.49419 - 5.08345I$
$u = -0.889395 + 0.372697I$ $a = 1.29749 - 2.05795I$ $b = 0.11611 - 1.91684I$	$-11.58440 + 1.56045I$	$1.25948 - 6.47821I$
$u = -0.889395 - 0.372697I$ $a = 1.29749 + 2.05795I$ $b = 0.11611 + 1.91684I$	$-11.58440 - 1.56045I$	$1.25948 + 6.47821I$
$u = 0.938625 + 0.706892I$ $a = -1.030120 - 0.743145I$ $b = 0.181857 - 1.388630I$	$-9.53882 - 2.78092I$	$-6.42091 + 3.83492I$
$u = 0.938625 - 0.706892I$ $a = -1.030120 + 0.743145I$ $b = 0.181857 + 1.388630I$	$-9.53882 + 2.78092I$	$-6.42091 - 3.83492I$
$u = -0.430993 + 1.143370I$ $a = -0.247474 - 0.064001I$ $b = -0.515702 + 0.275227I$	$0.99848 + 2.09379I$	$7.49851 + 6.90388I$
$u = -0.430993 - 1.143370I$ $a = -0.247474 + 0.064001I$ $b = -0.515702 - 0.275227I$	$0.99848 - 2.09379I$	$7.49851 - 6.90388I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.193420 + 0.475980I$ $a = -0.017645 - 1.033010I$ $b = 0.711571 - 0.148908I$	$-4.07323 - 6.22059I$	$1.13082 + 6.76795I$
$u = 1.193420 - 0.475980I$ $a = -0.017645 + 1.033010I$ $b = 0.711571 + 0.148908I$	$-4.07323 + 6.22059I$	$1.13082 - 6.76795I$
$u = -1.151330 + 0.648836I$ $a = -0.250827 + 0.900595I$ $b = 0.603765 + 0.579563I$	$-1.51682 + 4.20012I$	$2.90139 - 4.71038I$
$u = -1.151330 - 0.648836I$ $a = -0.250827 - 0.900595I$ $b = 0.603765 - 0.579563I$	$-1.51682 - 4.20012I$	$2.90139 + 4.71038I$
$u = 0.611850 + 0.172842I$ $a = 2.15280 + 1.56179I$ $b = -0.917330 + 0.207226I$	$-1.40459 + 3.27513I$	$7.35874 - 1.79494I$
$u = 0.611850 - 0.172842I$ $a = 2.15280 - 1.56179I$ $b = -0.917330 - 0.207226I$	$-1.40459 - 3.27513I$	$7.35874 + 1.79494I$
$u = -0.497718$ $a = 2.07149$ $b = -0.924578$	2.88191	15.9010



### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1$	$(u^{17} - 8u^{16} + \dots + 14u - 1)(u^{66} + 25u^{65} + \dots + 108619u + 6241)$
$c_2$	$(u^{17} - 4u^{15} + \dots + 7u^2 - 1)(u^{66} + u^{65} + \dots + 51u + 79)$
$c_3$	$(u^{17} + 8u^{15} + \dots - 6u^2 - 1)(u^{66} + u^{65} + \dots - 320u - 32)$
$c_4$	$(u^{17} - u^{16} + \dots - 10u^2 - 1)(u^{66} + 2u^{65} + \dots - 135u - 19)$
$c_5$	$(u^{17} + u^{16} + \dots + 6u^2 + 1)(u^{66} + 6u^{65} + \dots + 256u - 112)$
$c_6$	$(u^{17} + 6u^{15} + \dots + u + 1)(u^{66} - u^{65} + \dots - 22u - 1)$
$c_7$	$(u^{17} - 4u^{15} + \dots - 7u^2 + 1)(u^{66} + u^{65} + \dots + 51u + 79)$
$c_8$	$(u^{17} - u^{16} + \dots - 6u^2 - 1)(u^{66} + 6u^{65} + \dots + 256u - 112)$
$c_9$	$(u^{17} - 2u^{15} + \dots + 4u + 13)(u^{66} + u^{65} + \dots + 9183u + 1252)$
$c_{10}$	$(u^{17} + 6u^{15} + \dots + u - 1)(u^{66} - u^{65} + \dots - 22u - 1)$
$c_{11}, c_{12}$	$(u^{17} + u^{16} + \dots + 10u^2 + 1)(u^{66} + 2u^{65} + \dots - 135u - 19)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1$	$(y^{17} + 4y^{16} + \dots + 22y - 1)$ $\cdot (y^{66} + 35y^{65} + \dots - 251925111y + 38950081)$
$c_2, c_7$	$(y^{17} - 8y^{16} + \dots + 14y - 1)(y^{66} - 25y^{65} + \dots - 108619y + 6241)$
$c_3$	$(y^{17} + 16y^{16} + \dots - 12y - 1)(y^{66} + 27y^{65} + \dots - 115712y + 1024)$
$c_4, c_{11}, c_{12}$	$(y^{17} + 21y^{16} + \dots - 20y - 1)(y^{66} + 56y^{65} + \dots - 7357y + 361)$
$c_5, c_8$	$(y^{17} - 5y^{16} + \dots - 12y - 1)(y^{66} - 50y^{65} + \dots - 1254528y + 12544)$
$c_6, c_{10}$	$(y^{17} + 12y^{16} + \dots + 5y - 1)(y^{66} + 11y^{65} + \dots - 78y + 1)$
$c_9$	$(y^{17} - 4y^{16} + \dots + 276y - 169)$ $\cdot (y^{66} - 13y^{65} + \dots - 59172305y + 1567504)$