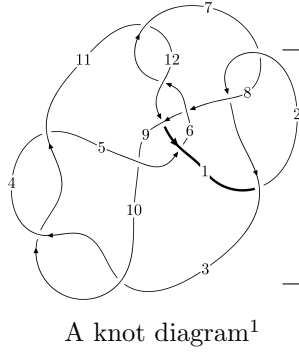
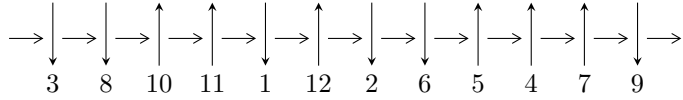


12a₀₇₆₆ (K12a₀₇₆₆)



Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 2.13361 \times 10^{216} u^{128} - 2.24626 \times 10^{216} u^{127} + \dots + 5.09830 \times 10^{216} b + 8.25708 \times 10^{217}, \\ - 5.76761 \times 10^{217} u^{128} + 1.76555 \times 10^{218} u^{127} + \dots + 2.19227 \times 10^{218} a - 3.76892 \times 10^{218}, \\ u^{129} - 57u^{127} + \dots + 378u + 43 \rangle$$

$$I_2^u = \langle 2u^{22} - 20u^{20} + \dots - 7u^2 + b, -3u^{23} - 3u^{22} + \dots + a + 4, u^{24} - 12u^{22} + \dots - 2u + 1 \rangle$$

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

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

¹The image of knot diagram is generated by the software “**Draw programme**” developed by Andrew Bartholomew(<http://www.layer8.co.uk/maths/draw/index.htm#Running-draw>), where we modified some parts for our purpose(<https://github.com/CATsTAILs/LinksPainter>).

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

$$\mathbf{I. } J_1^u = \langle 2.13 \times 10^{216} u^{128} - 2.25 \times 10^{216} u^{127} + \dots + 5.10 \times 10^{216} b + 8.26 \times 10^{217}, -5.77 \times 10^{217} u^{128} + 1.77 \times 10^{218} u^{127} + \dots + 2.19 \times 10^{218} a - 3.77 \times 10^{218}, u^{129} - 57u^{127} + \dots + 378u + 43 \rangle$$

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.263089u^{128} - 0.805353u^{127} + \dots + 42.7132u + 1.71919 \\ -0.418495u^{128} + 0.440590u^{127} + \dots - 138.953u - 16.1957 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.467938u^{128} - 0.812760u^{127} + \dots + 28.7148u + 7.66234 \\ -0.705149u^{128} + 0.785581u^{127} + \dots - 30.0980u - 6.28193 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.237211u^{128} - 0.0271790u^{127} + \dots - 1.38322u + 1.38042 \\ -0.705149u^{128} + 0.785581u^{127} + \dots - 30.0980u - 6.28193 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.755620u^{128} - 0.177142u^{127} + \dots + 47.3681u + 1.03645 \\ -0.0305009u^{128} - 0.0755006u^{127} + \dots - 2.33441u + 1.39110 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0733243u^{128} - 0.511720u^{127} + \dots + 60.5543u + 8.77827 \\ 0.587856u^{128} - 0.0941282u^{127} + \dots + 75.5430u + 9.18933 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} 0.448679u^{128} - 0.802998u^{127} + \dots + 8.13708u + 4.46535 \\ -0.545577u^{128} + 0.686006u^{127} + \dots - 3.01559u - 2.16240 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-0.688840u^{128} - 1.19440u^{127} + \dots - 15.5285u - 16.6790$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{129} + 58u^{128} + \dots + 1112505u + 85849$
c_2, c_7	$u^{129} - 29u^{127} + \dots + 259u + 293$
c_3, c_4, c_{10}	$u^{129} - 57u^{127} + \dots + 378u + 43$
c_5	$u^{129} + 3u^{128} + \dots - 40u + 1$
c_6, c_{11}	$u^{129} + u^{128} + \dots + 76623u + 52995$
c_8	$u^{129} - 9u^{128} + \dots - 40u + 1$
c_9	$u^{129} - 3u^{128} + \dots + 20927496u + 1128105$
c_{12}	$u^{129} + 4u^{128} + \dots - 146894u - 14831$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{129} + 38y^{128} + \dots + 16755519645y - 7370050801$
c_2, c_7	$y^{129} - 58y^{128} + \dots + 1112505y - 85849$
c_3, c_4, c_{10}	$y^{129} - 114y^{128} + \dots - 32126y - 1849$
c_5	$y^{129} - 5y^{128} + \dots + 90y - 1$
c_6, c_{11}	$y^{129} + 89y^{128} + \dots - 89198342211y - 2808470025$
c_8	$y^{129} - 13y^{128} + \dots + 10y - 1$
c_9	$y^{129} + 41y^{128} + \dots + 17191577913966y - 1272620891025$
c_{12}	$y^{129} - 34y^{128} + \dots + 16675400862y - 219958561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.949751 + 0.312486I$ $a = -0.245150 - 1.217980I$ $b = -0.053229 + 0.489319I$	$-1.37418 - 3.62180I$	0
$u = -0.949751 - 0.312486I$ $a = -0.245150 + 1.217980I$ $b = -0.053229 - 0.489319I$	$-1.37418 + 3.62180I$	0
$u = 0.381049 + 0.913700I$ $a = -0.512439 - 1.315800I$ $b = -1.031630 + 0.528294I$	$-5.02675 + 4.64385I$	0
$u = 0.381049 - 0.913700I$ $a = -0.512439 + 1.315800I$ $b = -1.031630 - 0.528294I$	$-5.02675 - 4.64385I$	0
$u = -0.866089 + 0.420234I$ $a = -0.442386 + 1.197430I$ $b = -0.333734 - 0.814259I$	$-1.03335 + 4.34050I$	0
$u = -0.866089 - 0.420234I$ $a = -0.442386 - 1.197430I$ $b = -0.333734 + 0.814259I$	$-1.03335 - 4.34050I$	0
$u = 0.683065 + 0.677856I$ $a = -0.361680 - 0.409401I$ $b = 1.013710 + 0.399081I$	$-3.98667 + 0.69907I$	0
$u = 0.683065 - 0.677856I$ $a = -0.361680 + 0.409401I$ $b = 1.013710 - 0.399081I$	$-3.98667 - 0.69907I$	0
$u = -1.012930 + 0.246613I$ $a = 0.575278 + 0.469381I$ $b = 0.972479 - 0.530189I$	$1.40813 + 4.17445I$	0
$u = -1.012930 - 0.246613I$ $a = 0.575278 - 0.469381I$ $b = 0.972479 + 0.530189I$	$1.40813 - 4.17445I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.120180 + 1.042100I$		
$a = 0.587260 - 0.370386I$	$-6.36332 - 1.31649I$	0
$b = 0.951327 + 0.351873I$		
$u = 0.120180 - 1.042100I$		
$a = 0.587260 + 0.370386I$	$-6.36332 + 1.31649I$	0
$b = 0.951327 - 0.351873I$		
$u = 0.930564 + 0.535062I$		
$a = 0.232044 + 0.420312I$	$-3.39947 - 9.60540I$	0
$b = -1.139950 - 0.597740I$		
$u = 0.930564 - 0.535062I$		
$a = 0.232044 - 0.420312I$	$-3.39947 + 9.60540I$	0
$b = -1.139950 + 0.597740I$		
$u = 0.258275 + 0.852940I$		
$a = 1.04567 + 1.25372I$	$-5.4770 + 14.4708I$	0
$b = 1.173070 - 0.639730I$		
$u = 0.258275 - 0.852940I$		
$a = 1.04567 - 1.25372I$	$-5.4770 - 14.4708I$	0
$b = 1.173070 + 0.639730I$		
$u = 1.137320 + 0.022675I$		
$a = -0.161520 - 0.175917I$	$2.31439 + 0.13029I$	0
$b = 0.596067 + 0.326746I$		
$u = 1.137320 - 0.022675I$		
$a = -0.161520 + 0.175917I$	$2.31439 - 0.13029I$	0
$b = 0.596067 - 0.326746I$		
$u = 1.102490 + 0.358833I$		
$a = 0.052065 + 1.356020I$	$-6.13755 - 1.11746I$	0
$b = 1.263830 - 0.200178I$		
$u = 1.102490 - 0.358833I$		
$a = 0.052065 - 1.356020I$	$-6.13755 + 1.11746I$	0
$b = 1.263830 + 0.200178I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.246164 + 0.794294I$ $a = -0.386614 + 0.196484I$ $b = 0.370391 - 0.944177I$	$-3.02843 - 8.71041I$	0
$u = -0.246164 - 0.794294I$ $a = -0.386614 - 0.196484I$ $b = 0.370391 + 0.944177I$	$-3.02843 + 8.71041I$	0
$u = -0.283413 + 0.756145I$ $a = 0.266452 - 0.756504I$ $b = -0.452930 + 0.551945I$	$-3.38000 - 0.26645I$	0
$u = -0.283413 - 0.756145I$ $a = 0.266452 + 0.756504I$ $b = -0.452930 - 0.551945I$	$-3.38000 + 0.26645I$	0
$u = -0.034989 + 0.800453I$ $a = 1.36090 - 0.58764I$ $b = 0.996535 - 0.319770I$	$-6.92317 + 1.00814I$	$-12.18026 + 0.I$
$u = -0.034989 - 0.800453I$ $a = 1.36090 + 0.58764I$ $b = 0.996535 + 0.319770I$	$-6.92317 - 1.00814I$	$-12.18026 + 0.I$
$u = 0.126930 + 0.784165I$ $a = -1.149040 - 0.097972I$ $b = -1.342670 - 0.116692I$	$-9.11009 + 5.26813I$	$-8.05145 - 5.13781I$
$u = 0.126930 - 0.784165I$ $a = -1.149040 + 0.097972I$ $b = -1.342670 + 0.116692I$	$-9.11009 - 5.26813I$	$-8.05145 + 5.13781I$
$u = -0.187496 + 0.764059I$ $a = -1.73126 + 1.16904I$ $b = -1.055730 - 0.571772I$	$-1.05862 - 8.07165I$	$0. + 8.98454I$
$u = -0.187496 - 0.764059I$ $a = -1.73126 - 1.16904I$ $b = -1.055730 + 0.571772I$	$-1.05862 + 8.07165I$	$0. - 8.98454I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.030500 + 0.640829I$ $a = -0.216380 - 1.198020I$ $b = -1.027760 + 0.456095I$	$-3.59587 + 7.09073I$	0
$u = 1.030500 - 0.640829I$ $a = -0.216380 + 1.198020I$ $b = -1.027760 - 0.456095I$	$-3.59587 - 7.09073I$	0
$u = -1.220350 + 0.209824I$ $a = 0.240259 + 1.184820I$ $b = 1.132200 - 0.505673I$	$-2.05649 + 2.37182I$	0
$u = -1.220350 - 0.209824I$ $a = 0.240259 - 1.184820I$ $b = 1.132200 + 0.505673I$	$-2.05649 - 2.37182I$	0
$u = -1.239870 + 0.079195I$ $a = 0.079776 + 0.181516I$ $b = -1.308510 + 0.359200I$	$-0.76367 + 4.11159I$	0
$u = -1.239870 - 0.079195I$ $a = 0.079776 - 0.181516I$ $b = -1.308510 - 0.359200I$	$-0.76367 - 4.11159I$	0
$u = -0.305571 + 0.691387I$ $a = 1.31729 - 1.56690I$ $b = 0.935225 + 0.280011I$	$-3.19789 - 3.11388I$	$-6.21792 + 5.42458I$
$u = -0.305571 - 0.691387I$ $a = 1.31729 + 1.56690I$ $b = 0.935225 - 0.280011I$	$-3.19789 + 3.11388I$	$-6.21792 - 5.42458I$
$u = 1.237240 + 0.189888I$ $a = -0.121801 - 0.109652I$ $b = 0.987710 + 0.333102I$	$2.27384 + 0.38414I$	0
$u = 1.237240 - 0.189888I$ $a = -0.121801 + 0.109652I$ $b = 0.987710 - 0.333102I$	$2.27384 - 0.38414I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.235239 + 0.703017I$ $a = 0.404597 - 0.343920I$ $b = -0.473645 - 0.664736I$	$0.65019 + 3.24933I$	$1.31667 - 4.26581I$
$u = 0.235239 - 0.703017I$ $a = 0.404597 + 0.343920I$ $b = -0.473645 + 0.664736I$	$0.65019 - 3.24933I$	$1.31667 + 4.26581I$
$u = -1.233480 + 0.335060I$ $a = -0.732802 + 0.658777I$ $b = -1.062360 - 0.337000I$	$-3.23505 - 5.10584I$	0
$u = -1.233480 - 0.335060I$ $a = -0.732802 - 0.658777I$ $b = -1.062360 + 0.337000I$	$-3.23505 + 5.10584I$	0
$u = 0.641954 + 0.273036I$ $a = -0.142359 + 0.908731I$ $b = 0.640329 - 0.603514I$	$2.32665 + 0.32348I$	$5.25845 - 1.82103I$
$u = 0.641954 - 0.273036I$ $a = -0.142359 - 0.908731I$ $b = 0.640329 + 0.603514I$	$2.32665 - 0.32348I$	$5.25845 + 1.82103I$
$u = -1.285400 + 0.213367I$ $a = -0.93465 + 2.85309I$ $b = -0.934262 - 0.427913I$	$0.654419 - 1.065000I$	0
$u = -1.285400 - 0.213367I$ $a = -0.93465 - 2.85309I$ $b = -0.934262 + 0.427913I$	$0.654419 + 1.065000I$	0
$u = -1.288580 + 0.195899I$ $a = 1.43230 - 1.20557I$ $b = -0.982426 + 0.963915I$	$3.71266 + 0.80569I$	0
$u = -1.288580 - 0.195899I$ $a = 1.43230 + 1.20557I$ $b = -0.982426 - 0.963915I$	$3.71266 - 0.80569I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.285080 + 0.242605I$ $a = -0.325908 + 0.834995I$ $b = 0.254221 - 0.713807I$	$0.53289 + 2.24449I$	0
$u = 1.285080 - 0.242605I$ $a = -0.325908 - 0.834995I$ $b = 0.254221 + 0.713807I$	$0.53289 - 2.24449I$	0
$u = -1.288460 + 0.230065I$ $a = -1.86772 + 1.35606I$ $b = 0.605807 - 0.633999I$	$0.45040 - 4.03098I$	0
$u = -1.288460 - 0.230065I$ $a = -1.86772 - 1.35606I$ $b = 0.605807 + 0.633999I$	$0.45040 + 4.03098I$	0
$u = -0.232760 + 0.633710I$ $a = 1.50550 - 1.36661I$ $b = 1.270070 + 0.569449I$	$-3.18629 - 6.33519I$	$-3.14862 + 12.03347I$
$u = -0.232760 - 0.633710I$ $a = 1.50550 + 1.36661I$ $b = 1.270070 - 0.569449I$	$-3.18629 + 6.33519I$	$-3.14862 - 12.03347I$
$u = -1.303760 + 0.250568I$ $a = 0.42423 - 2.11325I$ $b = 1.101360 + 0.686491I$	$2.99432 - 6.05078I$	0
$u = -1.303760 - 0.250568I$ $a = 0.42423 + 2.11325I$ $b = 1.101360 - 0.686491I$	$2.99432 + 6.05078I$	0
$u = 0.051728 + 0.663678I$ $a = -1.51687 - 0.44769I$ $b = -1.024090 + 0.575987I$	$-1.22613 + 2.75786I$	$-2.65450 - 2.60934I$
$u = 0.051728 - 0.663678I$ $a = -1.51687 + 0.44769I$ $b = -1.024090 - 0.575987I$	$-1.22613 - 2.75786I$	$-2.65450 + 2.60934I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.107918 + 0.656610I$		
$a = -1.25879 + 2.14517I$	$-5.38016 - 5.47743I$	$-9.82084 + 6.44409I$
$b = -1.061850 - 0.537149I$		
$u = -0.107918 - 0.656610I$		
$a = -1.25879 - 2.14517I$	$-5.38016 + 5.47743I$	$-9.82084 - 6.44409I$
$b = -1.061850 + 0.537149I$		
$u = -0.660616 + 0.073556I$		
$a = 0.618520 - 1.253390I$	$1.57071 - 4.30992I$	$4.28889 + 6.85006I$
$b = 0.895989 + 0.597110I$		
$u = -0.660616 - 0.073556I$		
$a = 0.618520 + 1.253390I$	$1.57071 + 4.30992I$	$4.28889 - 6.85006I$
$b = 0.895989 - 0.597110I$		
$u = 1.313710 + 0.241466I$		
$a = -0.780841 - 0.440678I$	$1.08249 + 4.90601I$	0
$b = -1.068580 - 0.182131I$		
$u = 1.313710 - 0.241466I$		
$a = -0.780841 + 0.440678I$	$1.08249 - 4.90601I$	0
$b = -1.068580 + 0.182131I$		
$u = 1.289040 + 0.356639I$		
$a = -0.041263 - 0.873175I$	$-2.79875 + 3.16373I$	0
$b = -0.943221 - 0.301307I$		
$u = 1.289040 - 0.356639I$		
$a = -0.041263 + 0.873175I$	$-2.79875 - 3.16373I$	0
$b = -0.943221 + 0.301307I$		
$u = 1.331160 + 0.228298I$		
$a = 0.12635 - 2.10173I$	$4.30701 + 6.39294I$	0
$b = -0.783896 + 1.071910I$		
$u = 1.331160 - 0.228298I$		
$a = 0.12635 + 2.10173I$	$4.30701 - 6.39294I$	0
$b = -0.783896 - 1.071910I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.340690 + 0.174728I$ $a = -1.074840 - 0.818066I$ $b = 0.441055 + 0.970931I$	$4.93415 + 0.07314I$	0
$u = 1.340690 - 0.174728I$ $a = -1.074840 + 0.818066I$ $b = 0.441055 - 0.970931I$	$4.93415 - 0.07314I$	0
$u = 1.347990 + 0.123766I$ $a = 2.47858 + 0.55625I$ $b = -0.829918 - 0.381993I$	$1.08424 - 2.31644I$	0
$u = 1.347990 - 0.123766I$ $a = 2.47858 - 0.55625I$ $b = -0.829918 + 0.381993I$	$1.08424 + 2.31644I$	0
$u = -1.264160 + 0.488046I$ $a = -0.149323 - 0.190707I$ $b = -0.827861 + 0.220619I$	$-2.13885 - 4.09392I$	0
$u = -1.264160 - 0.488046I$ $a = -0.149323 + 0.190707I$ $b = -0.827861 - 0.220619I$	$-2.13885 + 4.09392I$	0
$u = 1.338380 + 0.267903I$ $a = -0.30424 + 2.95672I$ $b = 1.015670 - 0.585199I$	$-0.80604 + 8.84631I$	0
$u = 1.338380 - 0.267903I$ $a = -0.30424 - 2.95672I$ $b = 1.015670 + 0.585199I$	$-0.80604 - 8.84631I$	0
$u = -0.014498 + 0.634879I$ $a = 0.965550 + 0.059490I$ $b = -0.411697 - 0.598157I$	$-3.51388 + 0.94620I$	$-5.93034 - 0.85000I$
$u = -0.014498 - 0.634879I$ $a = 0.965550 - 0.059490I$ $b = -0.411697 + 0.598157I$	$-3.51388 - 0.94620I$	$-5.93034 + 0.85000I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.341020 + 0.325292I$ $a = -0.319508 - 0.763984I$ $b = 1.399080 - 0.055416I$	$-4.49309 - 9.26298I$	0
$u = -1.341020 - 0.325292I$ $a = -0.319508 + 0.763984I$ $b = 1.399080 + 0.055416I$	$-4.49309 + 9.26298I$	0
$u = -0.046328 + 0.601989I$ $a = 3.03271 + 0.58825I$ $b = 0.957541 - 0.270349I$	$-3.21632 - 1.82438I$	$-7.37850 + 2.56071I$
$u = -0.046328 - 0.601989I$ $a = 3.03271 - 0.58825I$ $b = 0.957541 + 0.270349I$	$-3.21632 + 1.82438I$	$-7.37850 - 2.56071I$
$u = -1.383490 + 0.203364I$ $a = 0.77665 - 1.26093I$ $b = -0.068033 + 0.886656I$	$5.67947 - 3.84340I$	0
$u = -1.383490 - 0.203364I$ $a = 0.77665 + 1.26093I$ $b = -0.068033 - 0.886656I$	$5.67947 + 3.84340I$	0
$u = 0.286197 + 0.523035I$ $a = -0.693003 - 0.555111I$ $b = -0.343974 + 0.639364I$	$0.27805 + 1.47291I$	$2.31189 - 3.55895I$
$u = 0.286197 - 0.523035I$ $a = -0.693003 + 0.555111I$ $b = -0.343974 - 0.639364I$	$0.27805 - 1.47291I$	$2.31189 + 3.55895I$
$u = 1.398270 + 0.126201I$ $a = -1.31607 - 0.81801I$ $b = 1.055110 + 0.696789I$	$3.72771 - 1.60223I$	0
$u = 1.398270 - 0.126201I$ $a = -1.31607 + 0.81801I$ $b = 1.055110 - 0.696789I$	$3.72771 + 1.60223I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.385930 + 0.258089I$ $a = 0.08055 - 2.26566I$ $b = -1.30652 + 0.64174I$	$1.95632 + 9.61573I$	0
$u = 1.385930 - 0.258089I$ $a = 0.08055 + 2.26566I$ $b = -1.30652 - 0.64174I$	$1.95632 - 9.61573I$	0
$u = 1.376150 + 0.318704I$ $a = 0.62793 + 2.22037I$ $b = 1.090750 - 0.600637I$	$3.89259 + 11.99520I$	0
$u = 1.376150 - 0.318704I$ $a = 0.62793 - 2.22037I$ $b = 1.090750 + 0.600637I$	$3.89259 - 11.99520I$	0
$u = -1.397690 + 0.206523I$ $a = 0.23606 - 1.56090I$ $b = 0.382058 + 0.827988I$	$5.64023 - 4.18276I$	0
$u = -1.397690 - 0.206523I$ $a = 0.23606 + 1.56090I$ $b = 0.382058 - 0.827988I$	$5.64023 + 4.18276I$	0
$u = -1.38908 + 0.28476I$ $a = -1.119860 + 0.514843I$ $b = 0.446373 - 0.753770I$	$5.80637 - 6.84590I$	0
$u = -1.38908 - 0.28476I$ $a = -1.119860 - 0.514843I$ $b = 0.446373 + 0.753770I$	$5.80637 + 6.84590I$	0
$u = 1.42371 + 0.02338I$ $a = 0.81141 + 1.82550I$ $b = -0.959007 - 0.705674I$	$7.97409 - 4.11261I$	0
$u = 1.42371 - 0.02338I$ $a = 0.81141 - 1.82550I$ $b = -0.959007 + 0.705674I$	$7.97409 + 4.11261I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.42793 + 0.07169I$ $a = 0.83963 + 1.73453I$ $b = -0.708158 - 0.760697I$	$8.71683 - 1.42435I$	0
$u = -1.42793 - 0.07169I$ $a = 0.83963 - 1.73453I$ $b = -0.708158 + 0.760697I$	$8.71683 + 1.42435I$	0
$u = -0.462513 + 0.332703I$ $a = 0.380139 + 0.296075I$ $b = -1.120650 + 0.546857I$	$-2.04857 + 3.24927I$	$-1.31395 - 2.13875I$
$u = -0.462513 - 0.332703I$ $a = 0.380139 - 0.296075I$ $b = -1.120650 - 0.546857I$	$-2.04857 - 3.24927I$	$-1.31395 + 2.13875I$
$u = -0.062807 + 0.564581I$ $a = 0.447226 - 0.373579I$ $b = 0.856584 + 0.981455I$	$-0.13828 - 3.48408I$	$-4.17456 + 6.37397I$
$u = -0.062807 - 0.564581I$ $a = 0.447226 + 0.373579I$ $b = 0.856584 - 0.981455I$	$-0.13828 + 3.48408I$	$-4.17456 - 6.37397I$
$u = 1.40597 + 0.32561I$ $a = 1.11586 + 1.04697I$ $b = -0.417371 - 0.998080I$	$2.22103 + 12.76300I$	0
$u = 1.40597 - 0.32561I$ $a = 1.11586 - 1.04697I$ $b = -0.417371 + 0.998080I$	$2.22103 - 12.76300I$	0
$u = 1.42730 + 0.29068I$ $a = -0.23713 - 1.95978I$ $b = -0.989534 + 0.413380I$	$2.35464 + 6.74741I$	0
$u = 1.42730 - 0.29068I$ $a = -0.23713 + 1.95978I$ $b = -0.989534 - 0.413380I$	$2.35464 - 6.74741I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.42268 + 0.33037I$ $a = -0.933547 - 1.033410I$ $b = 0.591135 + 0.709360I$	$2.07597 + 4.27513I$	0
$u = 1.42268 - 0.33037I$ $a = -0.933547 + 1.033410I$ $b = 0.591135 - 0.709360I$	$2.07597 - 4.27513I$	0
$u = -1.42028 + 0.35130I$ $a = -0.13660 + 2.23521I$ $b = -1.181510 - 0.674850I$	$-0.1426 - 18.8140I$	0
$u = -1.42028 - 0.35130I$ $a = -0.13660 - 2.23521I$ $b = -1.181510 + 0.674850I$	$-0.1426 + 18.8140I$	0
$u = 0.283349 + 0.453426I$ $a = -0.833098 - 0.166446I$ $b = 0.027745 + 0.713970I$	$0.451489 + 1.313460I$	$4.43011 - 5.18918I$
$u = 0.283349 - 0.453426I$ $a = -0.833098 + 0.166446I$ $b = 0.027745 - 0.713970I$	$0.451489 - 1.313460I$	$4.43011 + 5.18918I$
$u = 1.49176 + 0.01117I$ $a = -0.40095 + 1.69312I$ $b = 0.605739 - 0.736610I$	$6.66225 - 3.55941I$	0
$u = 1.49176 - 0.01117I$ $a = -0.40095 - 1.69312I$ $b = 0.605739 + 0.736610I$	$6.66225 + 3.55941I$	0
$u = -1.45922 + 0.38895I$ $a = -0.04132 - 1.98850I$ $b = 1.021220 + 0.619356I$	$0.78262 - 9.39430I$	0
$u = -1.45922 - 0.38895I$ $a = -0.04132 + 1.98850I$ $b = 1.021220 - 0.619356I$	$0.78262 + 9.39430I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.49938 + 0.21106I$ $a = 1.182780 - 0.621147I$ $b = -0.852786 + 0.326083I$	$3.02808 - 3.76961I$	0
$u = -1.49938 - 0.21106I$ $a = 1.182780 + 0.621147I$ $b = -0.852786 - 0.326083I$	$3.02808 + 3.76961I$	0
$u = -0.471922$ $a = -0.923633$ $b = -0.896592$	-1.83682	-3.53830
$u = -0.211913 + 0.419594I$ $a = -0.149374 + 1.219750I$ $b = -0.542353 + 0.689988I$	$0.15758 + 2.13562I$	$0.765701 - 1.016074I$
$u = -0.211913 - 0.419594I$ $a = -0.149374 - 1.219750I$ $b = -0.542353 - 0.689988I$	$0.15758 - 2.13562I$	$0.765701 + 1.016074I$
$u = -1.54866 + 0.03684I$ $a = -0.87285 - 1.46188I$ $b = 1.013370 + 0.617331I$	$5.42233 - 8.72251I$	0
$u = -1.54866 - 0.03684I$ $a = -0.87285 + 1.46188I$ $b = 1.013370 - 0.617331I$	$5.42233 + 8.72251I$	0
$u = -0.171390 + 0.265251I$ $a = -3.61939 - 1.83440I$ $b = 1.024380 - 0.332569I$	$-3.72652 + 3.87879I$	$-6.37269 - 2.76527I$
$u = -0.171390 - 0.265251I$ $a = -3.61939 + 1.83440I$ $b = 1.024380 + 0.332569I$	$-3.72652 - 3.87879I$	$-6.37269 + 2.76527I$

$$\langle 2u^{22} - 20u^{20} + \dots - 7u^2 + b, -3u^{23} - 3u^{22} + \dots + a + 4, u^{24} - 12u^{22} + \dots - 2u + 1 \rangle$$

II. $I_2^u =$

(i) Arc colorings

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

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

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

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

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 3u^{23} + 3u^{22} + \dots + 3u - 4 \\ -2u^{22} + 20u^{20} + \dots - 6u^3 + 7u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{23} + 10u^{21} + \dots - u^2 + 6u \\ 3u^{23} - 32u^{21} + \dots + 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2u^{23} - 22u^{21} + \dots + 8u - 1 \\ 3u^{23} - 32u^{21} + \dots + 2u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2u^{22} + u^{21} + \dots - 2u - 2 \\ u^{22} - 11u^{20} + \dots - u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^{22} + u^{21} + \dots - 2u - 3 \\ -u^{23} - u^{22} + \dots - 2u - 1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^{23} - 12u^{21} + \dots + 7u - 1 \\ 3u^{23} - 32u^{21} + \dots + 3u - 1 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes

$$= -5u^{23} - 2u^{22} + 52u^{21} + 13u^{20} - 228u^{19} - 26u^{18} + 527u^{17} - 5u^{16} - 631u^{15} + 75u^{14} + 232u^{13} - 36u^{12} + 296u^{11} - 150u^{10} - 345u^9 + 229u^8 + 105u^7 - 104u^6 - 33u^5 + 16u^4 + 36u^3 - 22u^2 - 4u + 4$$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} + 12y^{23} + \dots + 5y + 1$
c_2, c_7	$y^{24} - 12y^{23} + \dots - 15y + 1$
c_3, c_4, c_{10}	$y^{24} - 24y^{23} + \dots + 12y + 1$
c_5	$y^{24} - 7y^{23} + \dots - 4y^2 + 1$
c_6, c_{11}	$y^{24} + 20y^{23} + \dots + 21y + 1$
c_8	$y^{24} - 3y^{23} + \dots - 4y + 1$
c_9	$y^{24} + 8y^{23} + \dots + 8y + 1$
c_{12}	$y^{24} - 12y^{23} + \dots - 12y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.068651 + 0.929424I$ $a = -0.779468 - 0.069325I$ $b = -0.919955 + 0.342426I$	$-5.90696 + 1.40699I$	$-0.05401 - 5.04118I$
$u = -0.068651 - 0.929424I$ $a = -0.779468 + 0.069325I$ $b = -0.919955 - 0.342426I$	$-5.90696 - 1.40699I$	$-0.05401 + 5.04118I$
$u = -1.169690 + 0.336481I$ $a = 0.118835 - 0.515687I$ $b = 1.023000 + 0.327982I$	$-2.71990 - 5.96107I$	$-2.03566 + 9.01778I$
$u = -1.169690 - 0.336481I$ $a = 0.118835 + 0.515687I$ $b = 1.023000 - 0.327982I$	$-2.71990 + 5.96107I$	$-2.03566 - 9.01778I$
$u = -1.216630 + 0.130232I$ $a = -0.817041 - 0.399318I$ $b = -1.160540 + 0.376595I$	$-1.09013 + 3.04838I$	$-1.88313 - 2.66207I$
$u = -1.216630 - 0.130232I$ $a = -0.817041 + 0.399318I$ $b = -1.160540 - 0.376595I$	$-1.09013 - 3.04838I$	$-1.88313 + 2.66207I$
$u = 1.249520 + 0.073520I$ $a = 1.42032 + 0.82987I$ $b = -0.649867 + 0.185310I$	$1.068270 - 0.560706I$	$-1.91586 + 1.84291I$
$u = 1.249520 - 0.073520I$ $a = 1.42032 - 0.82987I$ $b = -0.649867 - 0.185310I$	$1.068270 + 0.560706I$	$-1.91586 - 1.84291I$
$u = 1.231740 + 0.410206I$ $a = 0.463258 + 0.212630I$ $b = 0.838774 + 0.283314I$	$-1.97455 + 3.43328I$	$0.001801 + 0.732890I$
$u = 1.231740 - 0.410206I$ $a = 0.463258 - 0.212630I$ $b = 0.838774 - 0.283314I$	$-1.97455 - 3.43328I$	$0.001801 - 0.732890I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.324470 + 0.572839I$		
$a = 0.78856 - 2.18880I$	$-3.77922 - 5.20044I$	$-5.17463 + 7.04376I$
$b = 1.095880 + 0.468311I$		
$u = -0.324470 - 0.572839I$		
$a = 0.78856 + 2.18880I$	$-3.77922 + 5.20044I$	$-5.17463 - 7.04376I$
$b = 1.095880 - 0.468311I$		
$u = 1.335640 + 0.131798I$		
$a = -1.49295 - 0.94299I$	$4.76519 - 1.46228I$	$8.75844 + 4.53633I$
$b = 0.927331 + 0.901413I$		
$u = 1.335640 - 0.131798I$		
$a = -1.49295 + 0.94299I$	$4.76519 + 1.46228I$	$8.75844 - 4.53633I$
$b = 0.927331 - 0.901413I$		
$u = -1.382630 + 0.158548I$		
$a = 0.06907 - 1.77420I$	$5.39705 - 5.11184I$	$5.06340 + 6.86539I$
$b = 0.706472 + 0.869930I$		
$u = -1.382630 - 0.158548I$		
$a = 0.06907 + 1.77420I$	$5.39705 + 5.11184I$	$5.06340 - 6.86539I$
$b = 0.706472 - 0.869930I$		
$u = 1.41196 + 0.28189I$		
$a = 0.12280 - 2.23498I$	$1.78373 + 8.57178I$	$0.47705 - 5.72602I$
$b = -1.118650 + 0.593449I$		
$u = 1.41196 - 0.28189I$		
$a = 0.12280 + 2.23498I$	$1.78373 - 8.57178I$	$0.47705 + 5.72602I$
$b = -1.118650 - 0.593449I$		
$u = -1.44505 + 0.20614I$		
$a = 1.13988 - 1.06214I$	$3.88649 - 4.27371I$	$5.08249 + 4.87114I$
$b = -0.565803 + 0.404626I$		
$u = -1.44505 - 0.20614I$		
$a = 1.13988 + 1.06214I$	$3.88649 + 4.27371I$	$5.08249 - 4.87114I$
$b = -0.565803 - 0.404626I$		

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.312652 + 0.364008I$ $a = -1.53580 - 2.12958I$ $b = 0.651268 + 0.301680I$	$-1.97511 + 1.86915I$	$0.15434 - 3.03982I$
$u = 0.312652 - 0.364008I$ $a = -1.53580 + 2.12958I$ $b = 0.651268 - 0.301680I$	$-1.97511 - 1.86915I$	$0.15434 + 3.03982I$
$u = 0.065601 + 0.351466I$ $a = -1.49746 + 0.80113I$ $b = -0.827907 + 0.854306I$	$0.54513 + 3.18351I$	$5.52576 - 4.38971I$
$u = 0.065601 - 0.351466I$ $a = -1.49746 - 0.80113I$ $b = -0.827907 - 0.854306I$	$0.54513 - 3.18351I$	$5.52576 + 4.38971I$

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

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

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

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

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

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

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

(ii) Obstruction class = -1

(iii) Cusp Shapes = -6

(iv) **u**-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$		
$a = -1.00000$	-1.64493	-6.00000
$b = -1.00000$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u + 1)(u^{24} - 12u^{23} + \dots - 15u + 1)$ $\cdot (u^{129} + 58u^{128} + \dots + 1112505u + 85849)$
c_2	$(u + 1)(u^{24} - 6u^{22} + \dots + u + 1)(u^{129} - 29u^{127} + \dots + 259u + 293)$
c_3, c_4	$(u + 1)(u^{24} - 12u^{22} + \dots - 2u + 1)(u^{129} - 57u^{127} + \dots + 378u + 43)$
c_5	$(u + 1)(u^{24} - u^{23} + \dots + 2u^3 + 1)(u^{129} + 3u^{128} + \dots - 40u + 1)$
c_6	$u(u^{24} + 10u^{22} + \dots - u + 1)(u^{129} + u^{128} + \dots + 76623u + 52995)$
c_7	$(u + 1)(u^{24} - 6u^{22} + \dots - u + 1)(u^{129} - 29u^{127} + \dots + 259u + 293)$
c_8	$(u + 1)(u^{24} + 3u^{23} + \dots - 2u^2 + 1)(u^{129} - 9u^{128} + \dots - 40u + 1)$
c_9	$u(u^{24} + 4u^{22} + \dots + 2u + 1)$ $\cdot (u^{129} - 3u^{128} + \dots + 20927496u + 1128105)$
c_{10}	$(u + 1)(u^{24} - 12u^{22} + \dots + 2u + 1)(u^{129} - 57u^{127} + \dots + 378u + 43)$
c_{11}	$u(u^{24} + 10u^{22} + \dots + u + 1)(u^{129} + u^{128} + \dots + 76623u + 52995)$
c_{12}	$(u - 1)(u^{24} - 4u^{23} + \dots - 6u^2 + 1)$ $\cdot (u^{129} + 4u^{128} + \dots - 146894u - 14831)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y - 1)(y^{24} + 12y^{23} + \dots + 5y + 1)$ $\cdot (y^{129} + 38y^{128} + \dots + 16755519645y - 7370050801)$
c_2, c_7	$(y - 1)(y^{24} - 12y^{23} + \dots - 15y + 1)$ $\cdot (y^{129} - 58y^{128} + \dots + 1112505y - 85849)$
c_3, c_4, c_{10}	$(y - 1)(y^{24} - 24y^{23} + \dots + 12y + 1)$ $\cdot (y^{129} - 114y^{128} + \dots - 32126y - 1849)$
c_5	$(y - 1)(y^{24} - 7y^{23} + \dots - 4y^2 + 1)(y^{129} - 5y^{128} + \dots + 90y - 1)$
c_6, c_{11}	$y(y^{24} + 20y^{23} + \dots + 21y + 1)$ $\cdot (y^{129} + 89y^{128} + \dots - 89198342211y - 2808470025)$
c_8	$(y - 1)(y^{24} - 3y^{23} + \dots - 4y + 1)(y^{129} - 13y^{128} + \dots + 10y - 1)$
c_9	$y(y^{24} + 8y^{23} + \dots + 8y + 1)$ $\cdot (y^{129} + 41y^{128} + \dots + 17191577913966y - 1272620891025)$
c_{12}	$(y - 1)(y^{24} - 12y^{23} + \dots - 12y + 1)$ $\cdot (y^{129} - 34y^{128} + \dots + 16675400862y - 219958561)$