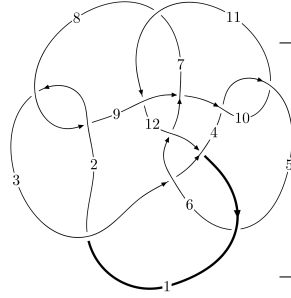
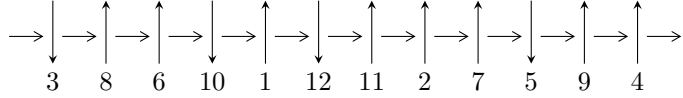


12a₀₇₀₃ (K12a₀₇₀₃)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle -2.77114 \times 10^{184} u^{73} - 8.17972 \times 10^{184} u^{72} + \dots + 7.24276 \times 10^{185} b - 3.00731 \times 10^{186}, \\ - 3.90392 \times 10^{186} u^{73} - 9.58129 \times 10^{186} u^{72} + \dots + 3.62138 \times 10^{187} a - 3.12806 \times 10^{188}, \\ u^{74} + 3u^{73} + \dots + 214u + 50 \rangle$$

$$I_2^u = \langle -6.87356 \times 10^{82} au^{57} - 2.10436 \times 10^{82} u^{57} + \dots - 1.52294 \times 10^{83} a - 7.99339 \times 10^{82}, \\ - 1.82997 \times 10^{84} au^{57} + 1.85456 \times 10^{84} u^{57} + \dots - 4.71969 \times 10^{84} a + 5.09846 \times 10^{84}, u^{58} + u^{57} + \dots + 2u - \dots \rangle$$

$$I_3^u = \langle -49666687602u^{43} + 10507987432u^{42} + \dots + 285299162b - 67652116994, \\ - 787579015337u^{43} - 483419689064u^{42} + \dots + 570598324a + 6927290387672, \\ u^{44} - 23u^{42} + \dots - 102u^2 + 4 \rangle$$

$$I_1^v = \langle a, b - 1, v + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 235 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.

$$\text{I. } I_1^u = \langle -2.77 \times 10^{184} u^{73} - 8.18 \times 10^{184} u^{72} + \dots + 7.24 \times 10^{185} b - 3.01 \times 10^{186}, -3.90 \times 10^{186} u^{73} - 9.58 \times 10^{186} u^{72} + \dots + 3.62 \times 10^{187} a - 3.13 \times 10^{188}, u^{74} + 3u^{73} + \dots + 214u + 50 \rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.107802u^{73} + 0.264576u^{72} + \dots + 24.2519u + 8.63775 \\ 0.0382609u^{73} + 0.112937u^{72} + \dots + 12.7924u + 4.15217 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.0174281u^{73} + 0.0100093u^{72} + \dots + 5.03284u + 4.77196 \\ 0.0332921u^{73} + 0.0750533u^{72} + \dots + 6.06430u + 2.23615 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 0.0978843u^{73} + 0.202898u^{72} + \dots + 16.0050u + 4.42091 \\ -0.0116068u^{73} - 0.0547438u^{72} + \dots - 6.38601u - 2.84452 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0552379u^{73} - 0.170989u^{72} + \dots - 21.5165u - 7.21064 \\ 0.0266858u^{73} + 0.0963030u^{72} + \dots + 9.95127u + 3.43602 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0695411u^{73} + 0.151639u^{72} + \dots + 11.4595u + 4.48558 \\ 0.0382609u^{73} + 0.112937u^{72} + \dots + 12.7924u + 4.15217 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0830434u^{73} - 0.210869u^{72} + \dots - 20.1108u - 4.97888 \\ 0.0569840u^{73} + 0.120041u^{72} + \dots + 10.3962u + 3.47705 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.114207u^{73} + 0.198009u^{72} + \dots + 8.85708u + 1.31279 \\ -0.0212613u^{73} + 0.00813017u^{72} + \dots + 4.74494u + 2.41140 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0897966u^{73} - 0.235013u^{72} + \dots - 22.2995u - 5.77312 \\ 0.0766086u^{73} + 0.164871u^{72} + \dots + 13.7536u + 4.46546 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-0.347145u^{73} - 0.680756u^{72} + \dots - 47.9021u - 9.04265$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{74} + 27u^{73} + \dots + 5620u + 676$
c_2, c_8	$u^{74} + 3u^{73} + \dots + 198u + 26$
c_3, c_{11}	$u^{74} + u^{73} + \dots - 4u + 1$
c_4, c_{10}	$u^{74} - 3u^{73} + \dots - 214u + 50$
c_5, c_7	$u^{74} - u^{73} + \dots - 16u + 1$
c_6	$u^{74} - 3u^{73} + \dots - 71216u + 11944$
c_9, c_{12}	$u^{74} + 5u^{73} + \dots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{74} + 27y^{73} + \dots + 8851216y + 456976$
c_2, c_8	$y^{74} + 27y^{73} + \dots + 5620y + 676$
c_3, c_{11}	$y^{74} - 13y^{73} + \dots - 4y + 1$
c_4, c_{10}	$y^{74} - 29y^{73} + \dots + 11604y + 2500$
c_5, c_7	$y^{74} + y^{73} + \dots - 84y + 1$
c_6	$y^{74} - y^{73} + \dots + 999177664y + 142659136$
c_9, c_{12}	$y^{74} + 17y^{73} + \dots + 38y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.909614 + 0.396950I$ $a = -1.31457 + 0.85012I$ $b = -0.38186 + 1.47154I$	$0.22853 - 2.72746I$	$0. + 8.02021I$
$u = -0.909614 - 0.396950I$ $a = -1.31457 - 0.85012I$ $b = -0.38186 - 1.47154I$	$0.22853 + 2.72746I$	$0. - 8.02021I$
$u = -0.914825 + 0.342039I$ $a = 0.57785 + 2.25113I$ $b = 1.97680 + 0.53701I$	$-3.78901 + 1.40165I$	$-16.4410 - 0.7863I$
$u = -0.914825 - 0.342039I$ $a = 0.57785 - 2.25113I$ $b = 1.97680 - 0.53701I$	$-3.78901 - 1.40165I$	$-16.4410 + 0.7863I$
$u = -0.156031 + 0.945245I$ $a = -0.313085 + 0.209961I$ $b = 0.996616 - 0.878583I$	$-1.52890 - 7.84005I$	$1.78951 + 8.16900I$
$u = -0.156031 - 0.945245I$ $a = -0.313085 - 0.209961I$ $b = 0.996616 + 0.878583I$	$-1.52890 + 7.84005I$	$1.78951 - 8.16900I$
$u = 0.839218 + 0.444879I$ $a = -0.548436 - 0.741129I$ $b = 0.622338 - 0.358532I$	$-1.15865 - 1.75347I$	$0.42379 + 2.04993I$
$u = 0.839218 - 0.444879I$ $a = -0.548436 + 0.741129I$ $b = 0.622338 + 0.358532I$	$-1.15865 + 1.75347I$	$0.42379 - 2.04993I$
$u = 1.044270 + 0.363592I$ $a = -0.73827 - 1.76439I$ $b = 0.667890 - 1.080670I$	$-1.411110 - 0.014479I$	0
$u = 1.044270 - 0.363592I$ $a = -0.73827 + 1.76439I$ $b = 0.667890 + 1.080670I$	$-1.411110 + 0.014479I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.860878 + 0.727657I$ $a = -0.618550 - 0.759462I$ $b = 0.600060 - 0.732713I$	$-0.84983 - 1.69851I$	0
$u = 0.860878 - 0.727657I$ $a = -0.618550 + 0.759462I$ $b = 0.600060 + 0.732713I$	$-0.84983 + 1.69851I$	0
$u = 1.072970 + 0.375190I$ $a = -0.854523 - 0.536536I$ $b = 0.297599 - 0.246377I$	$-0.86822 - 1.28553I$	0
$u = 1.072970 - 0.375190I$ $a = -0.854523 + 0.536536I$ $b = 0.297599 + 0.246377I$	$-0.86822 + 1.28553I$	0
$u = -1.012580 + 0.530794I$ $a = 1.06495 - 1.30603I$ $b = -0.129319 - 1.382060I$	$-0.42776 + 6.41562I$	0
$u = -1.012580 - 0.530794I$ $a = 1.06495 + 1.30603I$ $b = -0.129319 + 1.382060I$	$-0.42776 - 6.41562I$	0
$u = -1.057450 + 0.447518I$ $a = -0.03575 - 2.02403I$ $b = -0.334913 - 0.958480I$	$-0.65318 + 5.68113I$	0
$u = -1.057450 - 0.447518I$ $a = -0.03575 + 2.02403I$ $b = -0.334913 + 0.958480I$	$-0.65318 - 5.68113I$	0
$u = -0.836971 + 0.102898I$ $a = 0.83457 - 1.80288I$ $b = -0.812591 - 0.770221I$	$0.46152 + 4.69310I$	$4.12938 - 8.24884I$
$u = -0.836971 - 0.102898I$ $a = 0.83457 + 1.80288I$ $b = -0.812591 + 0.770221I$	$0.46152 - 4.69310I$	$4.12938 + 8.24884I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.016940 + 1.158480I$ $a = -0.066432 - 0.683445I$ $b = -0.028731 + 0.330331I$	$5.48738 - 2.71261I$	0
$u = 0.016940 - 1.158480I$ $a = -0.066432 + 0.683445I$ $b = -0.028731 - 0.330331I$	$5.48738 + 2.71261I$	0
$u = 1.025760 + 0.541737I$ $a = 0.41059 + 2.11387I$ $b = -1.52964 + 1.41048I$	$1.48385 - 8.36167I$	0
$u = 1.025760 - 0.541737I$ $a = 0.41059 - 2.11387I$ $b = -1.52964 - 1.41048I$	$1.48385 + 8.36167I$	0
$u = 1.085750 + 0.485137I$ $a = -0.08294 - 2.07700I$ $b = 0.349227 - 0.934147I$	$-1.60589 - 11.15020I$	0
$u = 1.085750 - 0.485137I$ $a = -0.08294 + 2.07700I$ $b = 0.349227 + 0.934147I$	$-1.60589 + 11.15020I$	0
$u = -1.066850 + 0.539758I$ $a = 0.893161 - 0.801409I$ $b = -0.159467 - 0.448777I$	$-5.45308 + 1.99266I$	0
$u = -1.066850 - 0.539758I$ $a = 0.893161 + 0.801409I$ $b = -0.159467 + 0.448777I$	$-5.45308 - 1.99266I$	0
$u = 0.533812 + 0.595532I$ $a = -0.507118 + 1.037650I$ $b = -1.34739 - 0.86281I$	$2.95358 + 3.82344I$	$8.69107 - 9.53262I$
$u = 0.533812 - 0.595532I$ $a = -0.507118 - 1.037650I$ $b = -1.34739 + 0.86281I$	$2.95358 - 3.82344I$	$8.69107 + 9.53262I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.308390 + 0.731898I$ $a = -0.364711 - 0.092810I$ $b = -0.421888 + 0.506910I$	$1.14192 - 0.87156I$	$5.34852 + 4.41242I$
$u = -0.308390 - 0.731898I$ $a = -0.364711 + 0.092810I$ $b = -0.421888 - 0.506910I$	$1.14192 + 0.87156I$	$5.34852 - 4.41242I$
$u = 1.020790 + 0.657917I$ $a = 0.833528 + 0.270019I$ $b = 0.626919 + 1.126860I$	$-1.53010 - 3.80254I$	0
$u = 1.020790 - 0.657917I$ $a = 0.833528 - 0.270019I$ $b = 0.626919 - 1.126860I$	$-1.53010 + 3.80254I$	0
$u = -1.148110 + 0.431399I$ $a = 0.977559 - 0.597525I$ $b = -0.206503 - 0.254163I$	$-1.89189 - 3.73040I$	0
$u = -1.148110 - 0.431399I$ $a = 0.977559 + 0.597525I$ $b = -0.206503 + 0.254163I$	$-1.89189 + 3.73040I$	0
$u = -0.238711 + 1.208710I$ $a = -0.202115 - 0.121447I$ $b = -0.187999 + 0.669054I$	$1.36765 - 0.67560I$	0
$u = -0.238711 - 1.208710I$ $a = -0.202115 + 0.121447I$ $b = -0.187999 - 0.669054I$	$1.36765 + 0.67560I$	0
$u = 1.154100 + 0.436756I$ $a = -0.29573 - 1.81016I$ $b = 0.420473 - 0.969989I$	$-5.95591 - 5.60935I$	0
$u = 1.154100 - 0.436756I$ $a = -0.29573 + 1.81016I$ $b = 0.420473 + 0.969989I$	$-5.95591 + 5.60935I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.471889 + 1.146720I$ $a = -0.0814819 + 0.0066989I$ $b = -1.00813 - 0.99688I$	$6.01642 + 8.62957I$	0
$u = 0.471889 - 1.146720I$ $a = -0.0814819 - 0.0066989I$ $b = -1.00813 + 0.99688I$	$6.01642 - 8.62957I$	0
$u = -1.244920 + 0.264711I$ $a = -0.190377 - 1.363030I$ $b = -0.384430 - 1.068030I$	$-2.92533 + 4.99049I$	0
$u = -1.244920 - 0.264711I$ $a = -0.190377 + 1.363030I$ $b = -0.384430 + 1.068030I$	$-2.92533 - 4.99049I$	0
$u = -0.431800 + 1.236090I$ $a = 0.0261358 - 0.0618161I$ $b = 0.984830 - 0.995193I$	$4.6749 - 14.7050I$	0
$u = -0.431800 - 1.236090I$ $a = 0.0261358 + 0.0618161I$ $b = 0.984830 + 0.995193I$	$4.6749 + 14.7050I$	0
$u = -0.629169 + 0.236880I$ $a = 0.65931 + 2.02972I$ $b = -0.748058 + 0.680934I$	$1.11590 - 2.39492I$	$3.38619 + 4.33941I$
$u = -0.629169 - 0.236880I$ $a = 0.65931 - 2.02972I$ $b = -0.748058 - 0.680934I$	$1.11590 + 2.39492I$	$3.38619 - 4.33941I$
$u = -1.201760 + 0.569657I$ $a = -0.24781 + 1.72565I$ $b = 1.31232 + 1.15494I$	$-4.61734 + 13.19020I$	0
$u = -1.201760 - 0.569657I$ $a = -0.24781 - 1.72565I$ $b = 1.31232 - 1.15494I$	$-4.61734 - 13.19020I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.119050 + 0.725619I$ $a = 0.478422 - 0.920331I$ $b = -0.470840 - 0.896553I$	$-1.02125 + 6.53391I$	0
$u = -1.119050 - 0.725619I$ $a = 0.478422 + 0.920331I$ $b = -0.470840 + 0.896553I$	$-1.02125 - 6.53391I$	0
$u = -0.469402 + 0.468395I$ $a = 1.43700 - 0.99968I$ $b = 0.629288 + 0.085931I$	$0.51998 + 7.85032I$	$2.36500 - 7.37361I$
$u = -0.469402 - 0.468395I$ $a = 1.43700 + 0.99968I$ $b = 0.629288 - 0.085931I$	$0.51998 - 7.85032I$	$2.36500 + 7.37361I$
$u = 0.208263 + 0.596482I$ $a = -1.285370 - 0.342537I$ $b = -0.512967 + 0.281947I$	$1.97475 - 2.48823I$	$5.74600 + 3.53308I$
$u = 0.208263 - 0.596482I$ $a = -1.285370 + 0.342537I$ $b = -0.512967 - 0.281947I$	$1.97475 + 2.48823I$	$5.74600 - 3.53308I$
$u = 0.463250 + 0.386578I$ $a = -0.27743 + 2.01381I$ $b = 0.712206 + 0.654034I$	$0.41291 + 7.22676I$	$2.21127 - 10.05995I$
$u = 0.463250 - 0.386578I$ $a = -0.27743 - 2.01381I$ $b = 0.712206 - 0.654034I$	$0.41291 - 7.22676I$	$2.21127 + 10.05995I$
$u = 0.095915 + 0.580931I$ $a = 0.225917 + 0.767444I$ $b = 0.488108 + 0.617790I$	$-2.97292 + 1.62134I$	$-2.53607 - 4.07358I$
$u = 0.095915 - 0.580931I$ $a = 0.225917 - 0.767444I$ $b = 0.488108 - 0.617790I$	$-2.97292 - 1.62134I$	$-2.53607 + 4.07358I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.22021 + 0.72285I$ $a = 0.38795 + 1.58435I$ $b = -1.18281 + 1.18650I$	$3.5916 - 15.2618I$	0
$u = 1.22021 - 0.72285I$ $a = 0.38795 - 1.58435I$ $b = -1.18281 - 1.18650I$	$3.5916 + 15.2618I$	0
$u = 1.41967 + 0.19256I$ $a = 0.493968 + 0.886865I$ $b = 0.420556 + 1.156770I$	$-7.02583 + 3.28946I$	0
$u = 1.41967 - 0.19256I$ $a = 0.493968 - 0.886865I$ $b = 0.420556 - 1.156770I$	$-7.02583 - 3.28946I$	0
$u = -1.27001 + 0.73550I$ $a = -0.35927 + 1.54105I$ $b = 1.17202 + 1.15521I$	$1.9496 + 21.6262I$	0
$u = -1.27001 - 0.73550I$ $a = -0.35927 - 1.54105I$ $b = 1.17202 - 1.15521I$	$1.9496 - 21.6262I$	0
$u = -1.52992 + 0.27858I$ $a = -0.122728 - 1.027730I$ $b = -0.439615 - 1.094750I$	$-2.64674 + 4.78715I$	0
$u = -1.52992 - 0.27858I$ $a = -0.122728 + 1.027730I$ $b = -0.439615 + 1.094750I$	$-2.64674 - 4.78715I$	0
$u = -0.079882 + 0.380032I$ $a = -0.609520 - 0.407700I$ $b = 0.094707 + 0.887383I$	$1.30410 - 2.82260I$	$2.38703 + 2.73836I$
$u = -0.079882 - 0.380032I$ $a = -0.609520 + 0.407700I$ $b = 0.094707 - 0.887383I$	$1.30410 + 2.82260I$	$2.38703 - 2.73836I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.67121 + 0.12671I$	$-3.83527 - 9.66068I$	0
$a = 0.202894 - 0.909208I$		
$b = 0.445070 - 1.122660I$		
$u = 1.67121 - 0.12671I$	$-3.83527 + 9.66068I$	0
$a = 0.202894 + 0.909208I$		
$b = 0.445070 + 1.122660I$		
$u = -0.07945 + 1.67803I$	$3.50160 + 2.46193I$	0
$a = -0.0275868 + 0.0547943I$		
$b = -0.029860 + 0.867336I$		
$u = -0.07945 - 1.67803I$	$3.50160 - 2.46193I$	0
$a = -0.0275868 - 0.0547943I$		
$b = -0.029860 - 0.867336I$		

II.

$$I_2^u = \langle -6.87 \times 10^{82} a u^{57} - 2.10 \times 10^{82} u^{57} + \dots - 1.52 \times 10^{83} a - 7.99 \times 10^{82}, -1.83 \times 10^{84} a u^{57} + 1.85 \times 10^{84} u^{57} + \dots - 4.72 \times 10^{84} a + 5.10 \times 10^{84}, u^{58} + u^{57} + \dots + 2u - 1 \rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} a \\ 3.94498 a u^{57} + 1.20777 u^{57} + \dots + 8.74070 a + 4.58770 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 11.7169 a u^{57} - 25.6973 u^{57} + \dots + 34.7947 a - 81.3867 \\ -3.44910 a u^{57} - 9.14563 u^{57} + \dots - 7.51696 a - 29.9963 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 13.0375 a u^{57} + 2.87073 u^{57} + \dots + 32.4685 a + 12.1830 \\ 0.641108 a u^{57} + 30.3518 u^{57} + \dots - 0.00590775 a + 91.5551 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -4.61184 a u^{57} - 1.77005 u^{57} + \dots - 23.6676 a + 11.0247 \\ -2.57353 a u^{57} + 1.27800 u^{57} + \dots - 6.67995 a - 7.63184 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -3.94498 a u^{57} - 1.20777 u^{57} + \dots - 7.74070 a - 4.58770 \\ 3.94498 a u^{57} + 1.20777 u^{57} + \dots + 8.74070 a + 4.58770 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -8.74070 a u^{57} + 0.283128 u^{57} + \dots - 17.6876 a - 7.07158 \\ -1.39456 a u^{57} - 35.1260 u^{57} + \dots - 3.94498 a - 104.311 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 7.46877 a u^{57} - 2.82013 u^{57} + \dots + 19.3491 a - 9.27593 \\ 0.116447 a u^{57} + 5.74680 u^{57} + \dots + 1.69257 a + 11.6060 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -10.1353 a u^{57} - 3.00479 u^{57} + \dots - 21.6326 a - 18.7884 \\ 0.641108 a u^{57} - 33.1069 u^{57} + \dots - 0.00590775 a - 94.2059 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-129.417u^{57} - 187.821u^{56} + \dots - 119.252u - 320.679$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{58} + 24u^{57} + \dots + 31u + 1)^2$
c_2	$(u^{58} + 12u^{56} + \dots + 9u - 1)^2$
c_3	$u^{116} + 25u^{115} + \dots - 117584u - 11337$
c_4	$(u^{58} - u^{57} + \dots - 2u - 1)^2$
c_5	$-u^{116} + 24u^{114} + \dots - 91697u + 9341$
c_6	$(u^{58} + 19u^{56} + \dots + 2418u - 169)^2$
c_7	$u^{116} - 24u^{114} + \dots - 91697u - 9341$
c_8	$(u^{58} + 12u^{56} + \dots - 9u - 1)^2$
c_9, c_{12}	$u^{116} - 11u^{115} + \dots - 10u + 3$
c_{10}	$(u^{58} + u^{57} + \dots + 2u - 1)^2$
c_{11}	$-u^{116} + 25u^{115} + \dots - 117584u + 11337$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{58} + 28y^{57} + \dots + 99y + 1)^2$
c_2, c_8	$(y^{58} + 24y^{57} + \dots + 31y + 1)^2$
c_3, c_{11}	$y^{116} - 41y^{115} + \dots - 774026392y + 128527569$
c_4, c_{10}	$(y^{58} - 43y^{57} + \dots - 36y + 1)^2$
c_5, c_7	$y^{116} - 48y^{115} + \dots - 2631435723y + 87254281$
c_6	$(y^{58} + 38y^{57} + \dots - 3832244y + 28561)^2$
c_9, c_{12}	$y^{116} - 59y^{115} + \dots + 512y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.983927 + 0.318949I$ $a = 1.187140 + 0.052823I$ $b = -0.869611 + 0.208809I$	$-1.89056 - 5.30668I$	0
$u = 0.983927 + 0.318949I$ $a = 0.19786 - 2.40092I$ $b = 0.98116 - 1.32322I$	$-1.89056 - 5.30668I$	0
$u = 0.983927 - 0.318949I$ $a = 1.187140 - 0.052823I$ $b = -0.869611 - 0.208809I$	$-1.89056 + 5.30668I$	0
$u = 0.983927 - 0.318949I$ $a = 0.19786 + 2.40092I$ $b = 0.98116 + 1.32322I$	$-1.89056 + 5.30668I$	0
$u = -0.899915 + 0.333105I$ $a = 1.31287 + 1.85054I$ $b = 2.39478 + 0.04831I$	$-3.75414 + 1.40682I$	0
$u = -0.899915 + 0.333105I$ $a = 0.28976 + 2.34331I$ $b = 1.61786 + 0.50047I$	$-3.75414 + 1.40682I$	0
$u = -0.899915 - 0.333105I$ $a = 1.31287 - 1.85054I$ $b = 2.39478 - 0.04831I$	$-3.75414 - 1.40682I$	0
$u = -0.899915 - 0.333105I$ $a = 0.28976 - 2.34331I$ $b = 1.61786 - 0.50047I$	$-3.75414 - 1.40682I$	0
$u = -0.693787 + 0.795237I$ $a = -0.362434 + 0.364360I$ $b = 0.291370 - 0.082518I$	$2.08753 - 1.00075I$	0
$u = -0.693787 + 0.795237I$ $a = -0.371469 - 0.038191I$ $b = -1.085260 + 0.841151I$	$2.08753 - 1.00075I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.693787 - 0.795237I$ $a = -0.362434 - 0.364360I$ $b = 0.291370 + 0.082518I$	$2.08753 + 1.00075I$	0
$u = -0.693787 - 0.795237I$ $a = -0.371469 + 0.038191I$ $b = -1.085260 - 0.841151I$	$2.08753 + 1.00075I$	0
$u = 1.017310 + 0.425731I$ $a = -0.10621 - 1.57310I$ $b = 0.85990 - 1.37105I$	$1.98850 - 0.32186I$	0
$u = 1.017310 + 0.425731I$ $a = 0.15740 + 2.06900I$ $b = -0.431304 + 0.293733I$	$1.98850 - 0.32186I$	0
$u = 1.017310 - 0.425731I$ $a = -0.10621 + 1.57310I$ $b = 0.85990 + 1.37105I$	$1.98850 + 0.32186I$	0
$u = 1.017310 - 0.425731I$ $a = 0.15740 - 2.06900I$ $b = -0.431304 - 0.293733I$	$1.98850 + 0.32186I$	0
$u = 0.666642 + 0.549919I$ $a = -0.557972 - 0.883757I$ $b = 0.916946 + 0.294173I$	$-1.38788 - 2.16672I$	$4.00000 + 5.21669I$
$u = 0.666642 + 0.549919I$ $a = 0.171191 - 0.598059I$ $b = 0.899500 - 0.191334I$	$-1.38788 - 2.16672I$	$4.00000 + 5.21669I$
$u = 0.666642 - 0.549919I$ $a = -0.557972 + 0.883757I$ $b = 0.916946 - 0.294173I$	$-1.38788 + 2.16672I$	$4.00000 - 5.21669I$
$u = 0.666642 - 0.549919I$ $a = 0.171191 + 0.598059I$ $b = 0.899500 + 0.191334I$	$-1.38788 + 2.16672I$	$4.00000 - 5.21669I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.032790 + 0.520597I$ $a = -1.007200 - 0.048246I$ $b = -1.69700 - 1.11471I$	$4.09523 - 5.68976I$	0
$u = 1.032790 + 0.520597I$ $a = 0.15392 + 2.08604I$ $b = -1.126640 + 0.817919I$	$4.09523 - 5.68976I$	0
$u = 1.032790 - 0.520597I$ $a = -1.007200 + 0.048246I$ $b = -1.69700 + 1.11471I$	$4.09523 + 5.68976I$	0
$u = 1.032790 - 0.520597I$ $a = 0.15392 - 2.08604I$ $b = -1.126640 - 0.817919I$	$4.09523 + 5.68976I$	0
$u = -1.040730 + 0.511748I$ $a = 0.13358 - 1.64233I$ $b = -0.92739 - 1.33633I$	$2.63526 + 5.96041I$	0
$u = -1.040730 + 0.511748I$ $a = -0.62162 + 1.69582I$ $b = 0.500633 + 0.261238I$	$2.63526 + 5.96041I$	0
$u = -1.040730 - 0.511748I$ $a = 0.13358 + 1.64233I$ $b = -0.92739 + 1.33633I$	$2.63526 - 5.96041I$	0
$u = -1.040730 - 0.511748I$ $a = -0.62162 - 1.69582I$ $b = 0.500633 - 0.261238I$	$2.63526 - 5.96041I$	0
$u = -0.993852 + 0.620347I$ $a = -0.708994 + 0.525865I$ $b = 0.714239 + 0.322722I$	$0.99155 + 6.40137I$	0
$u = -0.993852 + 0.620347I$ $a = 0.42456 - 1.90215I$ $b = -0.96605 - 1.20035I$	$0.99155 + 6.40137I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.993852 - 0.620347I$ $a = -0.708994 - 0.525865I$ $b = 0.714239 - 0.322722I$	$0.99155 - 6.40137I$	0
$u = -0.993852 - 0.620347I$ $a = 0.42456 + 1.90215I$ $b = -0.96605 + 1.20035I$	$0.99155 - 6.40137I$	0
$u = 1.18407$ $a = -0.57172 + 1.33448I$ $b = -0.251209 + 1.004500I$	-4.03666	0
$u = 1.18407$ $a = -0.57172 - 1.33448I$ $b = -0.251209 - 1.004500I$	-4.03666	0
$u = -0.773539$ $a = -1.52145$ $b = -0.553424$	1.94885	5.65420
$u = -0.773539$ $a = -0.167507$ $b = -1.25618$	1.94885	5.65420
$u = -1.115210 + 0.522613I$ $a = -1.325900 + 0.465841I$ $b = 0.746057 + 0.160646I$	$2.35361 + 5.90414I$	0
$u = -1.115210 + 0.522613I$ $a = 0.03148 - 1.91475I$ $b = -0.96194 - 1.22491I$	$2.35361 + 5.90414I$	0
$u = -1.115210 - 0.522613I$ $a = -1.325900 - 0.465841I$ $b = 0.746057 - 0.160646I$	$2.35361 - 5.90414I$	0
$u = -1.115210 - 0.522613I$ $a = 0.03148 + 1.91475I$ $b = -0.96194 + 1.22491I$	$2.35361 - 5.90414I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.539688 + 0.525895I$ $a = -1.218680 - 0.172365I$ $b = -1.161010 + 0.564880I$	$4.19790 - 1.70003I$	$12.64550 + 4.03165I$
$u = -0.539688 + 0.525895I$ $a = -1.50267 - 0.48393I$ $b = 0.776093 - 0.064315I$	$4.19790 - 1.70003I$	$12.64550 + 4.03165I$
$u = -0.539688 - 0.525895I$ $a = -1.218680 + 0.172365I$ $b = -1.161010 - 0.564880I$	$4.19790 + 1.70003I$	$12.64550 - 4.03165I$
$u = -0.539688 - 0.525895I$ $a = -1.50267 + 0.48393I$ $b = 0.776093 + 0.064315I$	$4.19790 + 1.70003I$	$12.64550 - 4.03165I$
$u = 1.158160 + 0.468537I$ $a = 1.37731 + 0.32941I$ $b = -0.784940 + 0.141404I$	$1.43369 - 11.01700I$	0
$u = 1.158160 + 0.468537I$ $a = 0.07023 - 1.92357I$ $b = 0.98069 - 1.22030I$	$1.43369 - 11.01700I$	0
$u = 1.158160 - 0.468537I$ $a = 1.37731 - 0.32941I$ $b = -0.784940 - 0.141404I$	$1.43369 + 11.01700I$	0
$u = 1.158160 - 0.468537I$ $a = 0.07023 + 1.92357I$ $b = 0.98069 + 1.22030I$	$1.43369 + 11.01700I$	0
$u = -1.134870 + 0.530654I$ $a = 0.973962 - 0.370776I$ $b = 1.52036 - 1.29665I$	$2.07141 + 12.33580I$	0
$u = -1.134870 + 0.530654I$ $a = -0.08275 + 1.89534I$ $b = 1.047500 + 0.813687I$	$2.07141 + 12.33580I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.134870 - 0.530654I$ $a = 0.973962 + 0.370776I$ $b = 1.52036 + 1.29665I$	$2.07141 - 12.33580I$	0
$u = -1.134870 - 0.530654I$ $a = -0.08275 - 1.89534I$ $b = 1.047500 - 0.813687I$	$2.07141 - 12.33580I$	0
$u = 0.678763 + 0.304090I$ $a = 1.81769 - 0.31820I$ $b = -0.870086 - 0.060300I$	$3.28012 - 2.95144I$	$11.34296 + 4.99728I$
$u = 0.678763 + 0.304090I$ $a = 1.85516 + 0.25499I$ $b = 1.42577 + 0.57082I$	$3.28012 - 2.95144I$	$11.34296 + 4.99728I$
$u = 0.678763 - 0.304090I$ $a = 1.81769 + 0.31820I$ $b = -0.870086 + 0.060300I$	$3.28012 + 2.95144I$	$11.34296 - 4.99728I$
$u = 0.678763 - 0.304090I$ $a = 1.85516 - 0.25499I$ $b = 1.42577 - 0.57082I$	$3.28012 + 2.95144I$	$11.34296 - 4.99728I$
$u = 0.711743 + 0.214181I$ $a = 0.502489 + 0.392426I$ $b = 1.151440 + 0.667098I$	$-0.99974 + 2.82526I$	$1.20359 - 0.99484I$
$u = 0.711743 + 0.214181I$ $a = -1.21930 + 1.72504I$ $b = -0.132530 - 0.238891I$	$-0.99974 + 2.82526I$	$1.20359 - 0.99484I$
$u = 0.711743 - 0.214181I$ $a = 0.502489 - 0.392426I$ $b = 1.151440 - 0.667098I$	$-0.99974 - 2.82526I$	$1.20359 + 0.99484I$
$u = 0.711743 - 0.214181I$ $a = -1.21930 - 1.72504I$ $b = -0.132530 + 0.238891I$	$-0.99974 - 2.82526I$	$1.20359 + 0.99484I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.275690 + 0.112208I$ $a = 0.57333 - 1.31381I$ $b = 0.412845 - 1.334780I$	$-7.51369 + 3.90311I$	0
$u = -1.275690 + 0.112208I$ $a = 0.50049 + 1.41688I$ $b = 0.531909 + 0.903314I$	$-7.51369 + 3.90311I$	0
$u = -1.275690 - 0.112208I$ $a = 0.57333 + 1.31381I$ $b = 0.412845 + 1.334780I$	$-7.51369 - 3.90311I$	0
$u = -1.275690 - 0.112208I$ $a = 0.50049 - 1.41688I$ $b = 0.531909 - 0.903314I$	$-7.51369 - 3.90311I$	0
$u = -0.228587 + 0.651998I$ $a = 0.016841 - 0.301519I$ $b = 0.968979 + 0.524884I$	$4.71744 + 7.09683I$	$11.1107 - 10.0462I$
$u = -0.228587 + 0.651998I$ $a = 2.67767 - 1.79519I$ $b = -0.579536 - 0.843179I$	$4.71744 + 7.09683I$	$11.1107 - 10.0462I$
$u = -0.228587 - 0.651998I$ $a = 0.016841 + 0.301519I$ $b = 0.968979 - 0.524884I$	$4.71744 - 7.09683I$	$11.1107 + 10.0462I$
$u = -0.228587 - 0.651998I$ $a = 2.67767 + 1.79519I$ $b = -0.579536 + 0.843179I$	$4.71744 - 7.09683I$	$11.1107 + 10.0462I$
$u = 0.473600 + 0.475601I$ $a = 0.345061 + 0.170096I$ $b = -1.263920 - 0.484839I$	$5.74109 + 1.44016I$	$14.5768 + 1.9096I$
$u = 0.473600 + 0.475601I$ $a = 2.06717 + 3.07009I$ $b = -0.84728 + 1.17883I$	$5.74109 + 1.44016I$	$14.5768 + 1.9096I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.473600 - 0.475601I$ $a = 0.345061 - 0.170096I$ $b = -1.263920 + 0.484839I$	$5.74109 - 1.44016I$	$14.5768 - 1.9096I$
$u = 0.473600 - 0.475601I$ $a = 2.06717 - 3.07009I$ $b = -0.84728 - 1.17883I$	$5.74109 - 1.44016I$	$14.5768 - 1.9096I$
$u = -0.100280 + 0.637761I$ $a = -0.437768 - 0.241830I$ $b = -1.031830 + 0.593890I$	$4.94829 - 1.46192I$	$11.85441 + 3.20512I$
$u = -0.100280 + 0.637761I$ $a = -2.98175 - 0.21027I$ $b = 0.487955 - 0.602136I$	$4.94829 - 1.46192I$	$11.85441 + 3.20512I$
$u = -0.100280 - 0.637761I$ $a = -0.437768 + 0.241830I$ $b = -1.031830 - 0.593890I$	$4.94829 + 1.46192I$	$11.85441 - 3.20512I$
$u = -0.100280 - 0.637761I$ $a = -2.98175 + 0.21027I$ $b = 0.487955 + 0.602136I$	$4.94829 + 1.46192I$	$11.85441 - 3.20512I$
$u = -0.188688 + 0.601578I$ $a = -0.314564 - 0.336475I$ $b = 1.143350 - 0.503661I$	$4.65615 - 7.77807I$	$11.27847 + 5.55302I$
$u = -0.188688 + 0.601578I$ $a = -3.04363 + 1.50519I$ $b = 0.762952 + 0.916198I$	$4.65615 - 7.77807I$	$11.27847 + 5.55302I$
$u = -0.188688 - 0.601578I$ $a = -0.314564 + 0.336475I$ $b = 1.143350 + 0.503661I$	$4.65615 + 7.77807I$	$11.27847 - 5.55302I$
$u = -0.188688 - 0.601578I$ $a = -3.04363 - 1.50519I$ $b = 0.762952 - 0.916198I$	$4.65615 + 7.77807I$	$11.27847 - 5.55302I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.25467 + 0.65872I$ $a = 0.244909 - 0.347638I$ $b = 0.539458 - 0.251523I$	$1.16328 + 3.43651I$	0
$u = 1.25467 + 0.65872I$ $a = -0.414535 - 0.070192I$ $b = 1.332110 + 0.343926I$	$1.16328 + 3.43651I$	0
$u = 1.25467 - 0.65872I$ $a = 0.244909 + 0.347638I$ $b = 0.539458 + 0.251523I$	$1.16328 - 3.43651I$	0
$u = 1.25467 - 0.65872I$ $a = -0.414535 + 0.070192I$ $b = 1.332110 - 0.343926I$	$1.16328 - 3.43651I$	0
$u = 1.29745 + 0.60581I$ $a = 0.048985 + 0.865067I$ $b = -0.538148 + 0.400279I$	$-3.34416 - 6.01155I$	0
$u = 1.29745 + 0.60581I$ $a = -0.26855 - 1.42689I$ $b = 1.22345 - 1.29317I$	$-3.34416 - 6.01155I$	0
$u = 1.29745 - 0.60581I$ $a = 0.048985 - 0.865067I$ $b = -0.538148 - 0.400279I$	$-3.34416 + 6.01155I$	0
$u = 1.29745 - 0.60581I$ $a = -0.26855 + 1.42689I$ $b = 1.22345 + 1.29317I$	$-3.34416 + 6.01155I$	0
$u = -1.16072 + 0.85252I$ $a = -0.210313 + 0.574395I$ $b = 0.628248 + 0.459975I$	$1.76328 + 7.13457I$	0
$u = -1.16072 + 0.85252I$ $a = 0.58326 - 1.45297I$ $b = -1.12243 - 1.10252I$	$1.76328 + 7.13457I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.16072 - 0.85252I$		
$a = -0.210313 - 0.574395I$	$1.76328 - 7.13457I$	0
$b = 0.628248 - 0.459975I$		
$u = -1.16072 - 0.85252I$		
$a = 0.58326 + 1.45297I$	$1.76328 - 7.13457I$	0
$b = -1.12243 + 1.10252I$		
$u = -1.47866 + 0.47246I$		
$a = -0.243749 - 0.227925I$	$1.84354 + 1.24179I$	0
$b = -0.430871 - 0.187128I$		
$u = -1.47866 + 0.47246I$		
$a = 0.308229 - 0.000166I$	$1.84354 + 1.24179I$	0
$b = -1.47549 + 0.28076I$		
$u = -1.47866 - 0.47246I$		
$a = -0.243749 + 0.227925I$	$1.84354 - 1.24179I$	0
$b = -0.430871 + 0.187128I$		
$u = -1.47866 - 0.47246I$		
$a = 0.308229 + 0.000166I$	$1.84354 - 1.24179I$	0
$b = -1.47549 - 0.28076I$		
$u = 1.28076 + 0.88750I$		
$a = 0.115644 + 0.588333I$	$0.49855 - 12.39580I$	0
$b = -0.590168 + 0.483945I$		
$u = 1.28076 + 0.88750I$		
$a = -0.54062 - 1.33143I$	$0.49855 - 12.39580I$	0
$b = 1.19201 - 1.08773I$		
$u = 1.28076 - 0.88750I$		
$a = 0.115644 - 0.588333I$	$0.49855 + 12.39580I$	0
$b = -0.590168 - 0.483945I$		
$u = 1.28076 - 0.88750I$		
$a = -0.54062 + 1.33143I$	$0.49855 + 12.39580I$	0
$b = 1.19201 + 1.08773I$		

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.52971 + 0.39007I$ $a = 0.210355 + 0.296122I$ $b = 1.70934 + 0.78004I$	$0.74548 - 2.75195I$	0
$u = 1.52971 + 0.39007I$ $a = -0.330029 - 0.013900I$ $b = -0.170548 - 0.175640I$	$0.74548 - 2.75195I$	0
$u = 1.52971 - 0.39007I$ $a = 0.210355 - 0.296122I$ $b = 1.70934 - 0.78004I$	$0.74548 + 2.75195I$	0
$u = 1.52971 - 0.39007I$ $a = -0.330029 + 0.013900I$ $b = -0.170548 + 0.175640I$	$0.74548 + 2.75195I$	0
$u = -0.378739 + 0.094404I$ $a = -0.899445 - 0.737629I$ $b = -1.350900 - 0.372864I$	$5.26333 + 1.61855I$	$15.5321 - 12.5611I$
$u = -0.378739 + 0.094404I$ $a = -1.19367 - 7.95351I$ $b = -0.261456 + 0.308785I$	$5.26333 + 1.61855I$	$15.5321 - 12.5611I$
$u = -0.378739 - 0.094404I$ $a = -0.899445 + 0.737629I$ $b = -1.350900 + 0.372864I$	$5.26333 - 1.61855I$	$15.5321 + 12.5611I$
$u = -0.378739 - 0.094404I$ $a = -1.19367 + 7.95351I$ $b = -0.261456 - 0.308785I$	$5.26333 - 1.61855I$	$15.5321 + 12.5611I$
$u = 0.373793 + 0.016354I$ $a = 1.114600 - 0.725533I$ $b = 1.35097 - 0.52120I$	$4.53970 - 7.47022I$	$22.4187 + 10.8622I$
$u = 0.373793 + 0.016354I$ $a = -0.12774 - 9.40851I$ $b = 0.111222 + 0.332738I$	$4.53970 - 7.47022I$	$22.4187 + 10.8622I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.373793 - 0.016354I$ $a = 1.114600 + 0.725533I$ $b = 1.35097 + 0.52120I$	$4.53970 + 7.47022I$	$22.4187 - 10.8622I$
$u = 0.373793 - 0.016354I$ $a = -0.12774 + 9.40851I$ $b = 0.111222 - 0.332738I$	$4.53970 + 7.47022I$	$22.4187 - 10.8622I$
$u = -1.93517 + 0.83011I$ $a = -0.027031 + 0.146160I$ $b = -1.92459 + 0.98231I$	$1.68742 - 1.49708I$	0
$u = -1.93517 + 0.83011I$ $a = 0.0716781 - 0.0252929I$ $b = 0.0378499 - 0.1290530I$	$1.68742 - 1.49708I$	0
$u = -1.93517 - 0.83011I$ $a = -0.027031 - 0.146160I$ $b = -1.92459 - 0.98231I$	$1.68742 + 1.49708I$	0
$u = -1.93517 - 0.83011I$ $a = 0.0716781 + 0.0252929I$ $b = 0.0378499 + 0.1290530I$	$1.68742 + 1.49708I$	0

$$\text{III. } I_3^u = \langle -4.97 \times 10^{10} u^{43} + 1.05 \times 10^{10} u^{42} + \dots + 2.85 \times 10^8 b - 6.77 \times 10^{10}, -7.88 \times 10^{11} u^{43} - 4.83 \times 10^{11} u^{42} + \dots + 5.71 \times 10^8 a + 6.93 \times 10^{12}, u^{44} - 23u^{42} + \dots - 102u^2 + 4 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_4 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_1 &= \begin{pmatrix} 1380.27u^{43} + 847.215u^{42} + \dots - 19532.9u - 12140.4 \\ 174.086u^{43} - 36.8315u^{42} + \dots - 2595.25u + 237.127 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -469.676u^{43} - 434.302u^{42} + \dots + 2687.71u + 5259.46 \\ 269.209u^{43} - 131.003u^{42} + \dots - 3625.99u + 1898.91 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix} \\ a_3 &= \begin{pmatrix} 787.025u^{43} + 469.387u^{42} + \dots - 8298.88u - 5640.50 \\ -600.364u^{43} + 290.226u^{42} + \dots + 8604.21u - 4145.18 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -126.074u^{43} + 31.2619u^{42} + \dots + 3740.20u + 733.970 \\ -311.459u^{43} + 198.058u^{42} + \dots + 3446.65u - 2202.88 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} 1206.18u^{43} + 884.047u^{42} + \dots - 16937.7u - 12377.5 \\ 174.086u^{43} - 36.8315u^{42} + \dots - 2595.25u + 237.127 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 59.2817u^{43} + 174.086u^{42} + \dots + 338.247u - 2595.25 \\ 884.047u^{43} - 343.974u^{42} + \dots - 12377.5u + 4824.73 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -445.667u^{43} - 441.656u^{42} + \dots + 6512.62u + 5712.03 \\ -145.013u^{43} + 42.9310u^{42} + \dots + 1969.18u - 319.421 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 328.491u^{43} + 111.426u^{42} + \dots - 3287.74u - 1743.37 \\ 692.223u^{43} - 299.669u^{42} + \dots - 9828.37u + 4223.48 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes

$$= -\frac{169875784393}{142649581}u^{42} + \frac{3858802931754}{142649581}u^{40} + \dots - \frac{49992549320264}{142649581}u^2 + \frac{2225891322260}{142649581}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{22} - 12u^{21} + \dots - 30u + 4)^2$
c_2, c_8	$u^{44} + 12u^{42} + \dots + 30u^2 + 4$
c_3	$u^{44} - 8u^{43} + \dots + 12u + 1$
c_4, c_{10}	$u^{44} - 23u^{42} + \dots - 102u^2 + 4$
c_5	$u^{44} - 3u^{43} + \dots - u + 3$
c_6	$u^{44} + 12u^{42} + \dots + 104u^2 + 64$
c_7	$u^{44} + 3u^{43} + \dots + u + 3$
c_9	$u^{44} + 4u^{43} + \dots - 2u + 1$
c_{11}	$u^{44} + 8u^{43} + \dots - 12u + 1$
c_{12}	$u^{44} - 4u^{43} + \dots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{22} - 2y^{21} + \cdots + 116y + 16)^2$
c_2, c_8	$(y^{22} + 12y^{21} + \cdots + 30y + 4)^2$
c_3, c_{11}	$y^{44} - 24y^{43} + \cdots + 34y + 1$
c_4, c_{10}	$(y^{22} - 23y^{21} + \cdots - 102y + 4)^2$
c_5, c_7	$y^{44} - 29y^{43} + \cdots + 275y + 9$
c_6	$(y^{22} + 12y^{21} + \cdots + 104y + 64)^2$
c_9, c_{12}	$y^{44} - 36y^{43} + \cdots + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.890301 + 0.355710I$ $a = -1.55139 + 2.50702I$ $b = -2.84336 + 0.48981I$	$-3.61231 - 1.50481I$	0
$u = 0.890301 - 0.355710I$ $a = -1.55139 - 2.50702I$ $b = -2.84336 - 0.48981I$	$-3.61231 + 1.50481I$	0
$u = -0.890301 + 0.355710I$ $a = -0.14684 - 2.23209I$ $b = -1.66770 - 0.34315I$	$-3.61231 + 1.50481I$	0
$u = -0.890301 - 0.355710I$ $a = -0.14684 + 2.23209I$ $b = -1.66770 + 0.34315I$	$-3.61231 - 1.50481I$	0
$u = 0.962781 + 0.556290I$ $a = -0.42680 - 1.99979I$ $b = 0.99813 - 1.33644I$	$1.54605 - 6.68632I$	0
$u = 0.962781 - 0.556290I$ $a = -0.42680 + 1.99979I$ $b = 0.99813 + 1.33644I$	$1.54605 + 6.68632I$	0
$u = -0.962781 + 0.556290I$ $a = -0.871040 + 0.923872I$ $b = 0.812637 + 0.557564I$	$1.54605 + 6.68632I$	0
$u = -0.962781 - 0.556290I$ $a = -0.871040 - 0.923872I$ $b = 0.812637 - 0.557564I$	$1.54605 - 6.68632I$	0
$u = -1.057040 + 0.599259I$ $a = -0.693557 + 0.066886I$ $b = 0.651853 + 0.043632I$	$1.69287 + 5.75932I$	0
$u = -1.057040 - 0.599259I$ $a = -0.693557 - 0.066886I$ $b = 0.651853 - 0.043632I$	$1.69287 - 5.75932I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.057040 + 0.599259I$ $a = -0.28795 - 1.92158I$ $b = 0.92767 - 1.11759I$	$1.69287 - 5.75932I$	0
$u = 1.057040 - 0.599259I$ $a = -0.28795 + 1.92158I$ $b = 0.92767 + 1.11759I$	$1.69287 + 5.75932I$	0
$u = -1.137810 + 0.573953I$ $a = 0.23224 - 1.85448I$ $b = -0.922178 - 1.030250I$	$0.40365 + 10.85750I$	0
$u = -1.137810 - 0.573953I$ $a = 0.23224 + 1.85448I$ $b = -0.922178 + 1.030250I$	$0.40365 - 10.85750I$	0
$u = 1.137810 + 0.573953I$ $a = 0.369719 - 0.301271I$ $b = -0.592267 - 0.232521I$	$0.40365 - 10.85750I$	0
$u = 1.137810 - 0.573953I$ $a = 0.369719 + 0.301271I$ $b = -0.592267 + 0.232521I$	$0.40365 + 10.85750I$	0
$u = -1.250330 + 0.427686I$ $a = -0.131233 - 0.240099I$ $b = -0.265739 - 0.377245I$	$1.69511 - 1.48636I$	0
$u = -1.250330 - 0.427686I$ $a = -0.131233 + 0.240099I$ $b = -0.265739 + 0.377245I$	$1.69511 + 1.48636I$	0
$u = 1.250330 + 0.427686I$ $a = 0.021163 + 0.479787I$ $b = 1.254000 + 0.613062I$	$1.69511 + 1.48636I$	0
$u = 1.250330 - 0.427686I$ $a = 0.021163 - 0.479787I$ $b = 1.254000 - 0.613062I$	$1.69511 - 1.48636I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.278510 + 0.382564I$ $a = 0.06391 - 1.47969I$ $b = -0.662548 - 1.160730I$	$-4.45807 + 5.11414I$	0
$u = -1.278510 - 0.382564I$ $a = 0.06391 + 1.47969I$ $b = -0.662548 + 1.160730I$	$-4.45807 - 5.11414I$	0
$u = 1.278510 + 0.382564I$ $a = 0.071694 - 1.157740I$ $b = 0.194451 - 0.834587I$	$-4.45807 - 5.11414I$	0
$u = 1.278510 - 0.382564I$ $a = 0.071694 + 1.157740I$ $b = 0.194451 + 0.834587I$	$-4.45807 + 5.11414I$	0
$u = 0.655358 + 0.056161I$ $a = -2.25831 - 1.83083I$ $b = 0.647534 - 0.510592I$	$-1.00629 - 3.74451I$	$0.59125 + 7.75639I$
$u = 0.655358 - 0.056161I$ $a = -2.25831 + 1.83083I$ $b = 0.647534 + 0.510592I$	$-1.00629 + 3.74451I$	$0.59125 - 7.75639I$
$u = -0.655358 + 0.056161I$ $a = 0.09957 - 1.74344I$ $b = -0.996379 - 0.834626I$	$-1.00629 + 3.74451I$	$0.59125 - 7.75639I$
$u = -0.655358 - 0.056161I$ $a = 0.09957 + 1.74344I$ $b = -0.996379 + 0.834626I$	$-1.00629 - 3.74451I$	$0.59125 + 7.75639I$
$u = 0.534947 + 0.027147I$ $a = 0.13006 + 7.24681I$ $b = -0.103553 + 0.629023I$	$4.31380 + 7.41464I$	$-11.59362 - 2.35758I$
$u = 0.534947 - 0.027147I$ $a = 0.13006 - 7.24681I$ $b = -0.103553 - 0.629023I$	$4.31380 - 7.41464I$	$-11.59362 + 2.35758I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.534947 + 0.027147I$ $a = -0.411132 + 0.237842I$ $b = -1.36126 + 0.51197I$	$4.31380 - 7.41464I$	$-11.59362 + 2.35758I$
$u = -0.534947 - 0.027147I$ $a = -0.411132 - 0.237842I$ $b = -1.36126 - 0.51197I$	$4.31380 + 7.41464I$	$-11.59362 - 2.35758I$
$u = 0.503384 + 0.100771I$ $a = 0.533711 - 0.267913I$ $b = 1.37356 + 0.39441I$	$5.07435 + 1.38368I$	$-2.10691 + 7.35889I$
$u = 0.503384 - 0.100771I$ $a = 0.533711 + 0.267913I$ $b = 1.37356 - 0.39441I$	$5.07435 - 1.38368I$	$-2.10691 - 7.35889I$
$u = -0.503384 + 0.100771I$ $a = -2.48743 + 5.79951I$ $b = 0.410188 + 0.635835I$	$5.07435 - 1.38368I$	$-2.10691 - 7.35889I$
$u = -0.503384 - 0.100771I$ $a = -2.48743 - 5.79951I$ $b = 0.410188 - 0.635835I$	$5.07435 + 1.38368I$	$-2.10691 + 7.35889I$
$u = 1.51789 + 0.04412I$ $a = 0.334384 + 0.146502I$ $b = 0.307214 - 0.009085I$	$0.87521 - 2.88965I$	0
$u = 1.51789 - 0.04412I$ $a = 0.334384 - 0.146502I$ $b = 0.307214 + 0.009085I$	$0.87521 + 2.88965I$	0
$u = -1.51789 + 0.04412I$ $a = -0.067041 + 0.360788I$ $b = -1.73760 + 0.40703I$	$0.87521 + 2.88965I$	0
$u = -1.51789 - 0.04412I$ $a = -0.067041 - 0.360788I$ $b = -1.73760 - 0.40703I$	$0.87521 - 2.88965I$	0

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.65768 + 0.61691I$ $a = -0.0442541 - 0.0313126I$ $b = -0.090856 - 0.161668I$	$1.70029 - 1.46928I$	0
$u = -1.65768 - 0.61691I$ $a = -0.0442541 + 0.0313126I$ $b = -0.090856 + 0.161668I$	$1.70029 + 1.46928I$	0
$u = 1.65768 + 0.61691I$ $a = 0.020536 + 0.223134I$ $b = 1.66619 + 0.77983I$	$1.70029 + 1.46928I$	0
$u = 1.65768 - 0.61691I$ $a = 0.020536 - 0.223134I$ $b = 1.66619 - 0.77983I$	$1.70029 - 1.46928I$	0

IV. $I_1^v = \langle a, b - 1, v + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

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

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

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

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

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

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

$$a_8 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = 12

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

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$		
$a = 0$	3.28987	12.0000
$b = 1.00000$		

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^{22} - 12u^{21} + \dots - 30u + 4)^2(u^{74} + 27u^{73} + \dots + 5620u + 676)$
c_2, c_8	$u(u^{44} + 12u^{42} + \dots + 30u^2 + 4)(u^{74} + 3u^{73} + \dots + 198u + 26)$
c_3	$(u + 1)(u^{44} - 8u^{43} + \dots + 12u + 1)(u^{74} + u^{73} + \dots - 4u + 1)$
c_4, c_{10}	$u(u^{44} - 23u^{42} + \dots - 102u^2 + 4)(u^{74} - 3u^{73} + \dots - 214u + 50)$
c_5	$(u - 1)(u^{44} - 3u^{43} + \dots - u + 3)(u^{74} - u^{73} + \dots - 16u + 1)$
c_6	$u(u^{44} + 12u^{42} + \dots + 104u^2 + 64)(u^{74} - 3u^{73} + \dots - 71216u + 11944)$
c_7	$(u + 1)(u^{44} + 3u^{43} + \dots + u + 3)(u^{74} - u^{73} + \dots - 16u + 1)$
c_9	$(u - 1)(u^{44} + 4u^{43} + \dots - 2u + 1)(u^{74} + 5u^{73} + \dots + 2u + 1)$
c_{11}	$(u - 1)(u^{44} + 8u^{43} + \dots - 12u + 1)(u^{74} + u^{73} + \dots - 4u + 1)$
c_{12}	$(u + 1)(u^{44} - 4u^{43} + \dots + 2u + 1)(u^{74} + 5u^{73} + \dots + 2u + 1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^{22} - 2y^{21} + \dots + 116y + 16)^2$ $\cdot (y^{74} + 27y^{73} + \dots + 8851216y + 456976)$
c_2, c_8	$y(y^{22} + 12y^{21} + \dots + 30y + 4)^2(y^{74} + 27y^{73} + \dots + 5620y + 676)$
c_3, c_{11}	$(y - 1)(y^{44} - 24y^{43} + \dots + 34y + 1)(y^{74} - 13y^{73} + \dots - 4y + 1)$
c_4, c_{10}	$y(y^{22} - 23y^{21} + \dots - 102y + 4)^2$ $\cdot (y^{74} - 29y^{73} + \dots + 11604y + 2500)$
c_5, c_7	$(y - 1)(y^{44} - 29y^{43} + \dots + 275y + 9)(y^{74} + y^{73} + \dots - 84y + 1)$
c_6	$y(y^{22} + 12y^{21} + \dots + 104y + 64)^2$ $\cdot (y^{74} - y^{73} + \dots + 999177664y + 142659136)$
c_9, c_{12}	$(y - 1)(y^{44} - 36y^{43} + \dots + 8y + 1)(y^{74} + 17y^{73} + \dots + 38y + 1)$