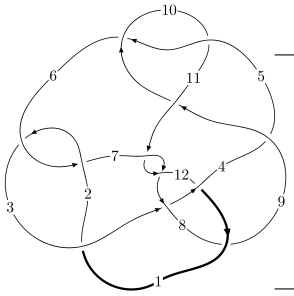
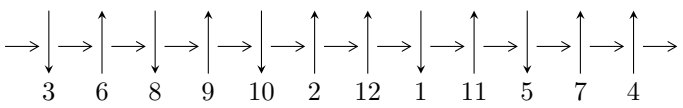
$12a_{0285}$ $(K12a_{0285})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

Ideals for irreducible components[2]of $X_{\mathbf{par}}$

$$I_1^u = \langle -4.38602 \times 10^{1011} u^{142} + 4.52733 \times 10^{1012} u^{141} + \cdots + 7.36925 \times 10^{1008} b - 6.46995 \times 10^{1015},$$
$$5.01535 \times 10^{1015} u^{142} - 5.18424 \times 10^{1016} u^{141} + \cdots + 7.49969 \times 10^{1012} a + 7.61449 \times 10^{1019},$$
$$u^{143} - 11u^{142} + \cdots + 27584u - 10177 \rangle$$

$$I_2^u = \langle 17434253328675 u^{29} - 10533896428578 u^{28} + \cdots + 320682258343 b + 24639564912626,$$
$$- 14129515908963 u^{29} + 10877469922460 u^{28} + \cdots + 320682258343 a - 14905932574354,$$
$$u^{30} - 4u^{28} + \cdots + 7u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 173 representations.

[1]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`).

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

I. $I_1^u = \langle -4.39 \times 10^{1011} u^{142} + 4.53 \times 10^{1012} u^{141} + \cdots + 7.37 \times 10^{1008} b - 6.47 \times 10^{1015},\ 5.02 \times 10^{1015} u^{142} - 5.18 \times 10^{1016} u^{141} + \cdots + 7.50 \times 10^{1012} a + 7.61 \times 10^{1019},\ u^{143} - 11 u^{142} + \cdots + 27584 u - 10177 \rangle$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} -668.741 u^{142} + 6912.61 u^{141} + \cdots + 1.21975 \times 10^7 u - 1.01531 \times 10^7 \\ 595.179 u^{142} - 6143.54 u^{141} + \cdots - 1.08740 \times 10^7 u + 8.77965 \times 10^6 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -967.389 u^{142} + 9991.06 u^{141} + \cdots + 1.76427 \times 10^7 u - 1.44188 \times 10^7 \\ 740.258 u^{142} - 7639.69 u^{141} + \cdots - 1.35358 \times 10^7 u + 1.08831 \times 10^7 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -108.766 u^{142} + 1139.76 u^{141} + \cdots + 1.37302 \times 10^6 u - 1.61760 \times 10^6 \\ 18.0614 u^{142} - 178.616 u^{141} + \cdots - 432383. u + 112725. \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 259.463 u^{142} - 2660.28 u^{141} + \cdots - 5.64469 \times 10^6 u + 4.01611 \times 10^6 \\ 259.478 u^{142} - 2699.21 u^{141} + \cdots - 4.33611 \times 10^6 u + 4.12531 \times 10^6 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -211.226 u^{142} + 2185.46 u^{141} + \cdots + 3.35948 \times 10^6 u - 2.87681 \times 10^6 \\ 386.427 u^{142} - 3993.28 u^{141} + \cdots - 6.92165 \times 10^6 u + 5.73513 \times 10^6 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1263.92 u^{142} + 13056.2 u^{141} + \cdots + 2.30715 \times 10^7 u - 1.89327 \times 10^7 \\ 595.179 u^{142} - 6143.54 u^{141} + \cdots - 1.08740 \times 10^7 u + 8.77965 \times 10^6 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -619.595 u^{142} + 6371.78 u^{141} + \cdots + 1.24532 \times 10^7 u - 9.34184 \times 10^6 \\ -226.209 u^{142} + 2361.85 u^{141} + \cdots + 3.61819 \times 10^6 u - 3.74097 \times 10^6 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 164.959 u^{142} - 1704.00 u^{141} + \cdots - 3.34405 \times 10^6 u + 2.71769 \times 10^6 \\ 240.397 u^{142} - 2495.44 u^{141} + \cdots - 4.61159 \times 10^6 u + 4.12755 \times 10^6 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1277.48 u^{142} - 13220.8 u^{141} + \cdots - 2.34740 \times 10^7 u + 1.99571 \times 10^7 \\ -1249.41 u^{142} + 12921.3 u^{141} + \cdots + 2.29038 \times 10^7 u - 1.92225 \times 10^7 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -2985.35 u^{142} + 30817.6 u^{141} + \cdots + 5.50221 \times 10^7 u - 4.46363 \times 10^7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{143} + 54u^{142} + \cdots - 64u - 1$
c_2, c_6	$u^{143} + 27u^{141} + \cdots + 14u - 1$
c_3	$u^{143} - u^{142} + \cdots - 79259u - 20259$
c_4	$u^{143} + u^{142} + \cdots + 7060687u - 934895$
c_5, c_{10}	$u^{143} - u^{142} + \cdots + 11u - 19$
c_7, c_{11}	$u^{143} + u^{142} + \cdots + 4691957u - 772753$
c_8	$u^{143} + 5u^{142} + \cdots - 58437u - 10229$
c_9	$u^{143} - 75u^{142} + \cdots - 6035u + 361$
c_{12}	$u^{143} + 11u^{142} + \cdots + 27584u + 10177$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{143} + 86y^{142} + \cdots + 12060y - 1$
c_2, c_6	$y^{143} + 54y^{142} + \cdots - 64y - 1$
c_3	$y^{143} + 35y^{142} + \cdots - 29282604383y - 410427081$
c_4	$y^{143} - 93y^{142} + \cdots - 27555367489641y - 874028661025$
c_5, c_{10}	$y^{143} + 75y^{142} + \cdots - 6035y - 361$
c_7, c_{11}	$y^{143} - 117y^{142} + \cdots - 6329951089997y - 597147199009$
c_8	$y^{143} + 33y^{142} + \cdots - 8154279695y - 104632441$
c_9	$y^{143} - 9y^{142} + \cdots + 5558613y - 130321$
c_{12}	$y^{143} - 37y^{142} + \cdots + 2435807716y - 103571329$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.942702+0.364107I$ $a=-0.177763-1.145760I$ $b=\ \ 0.866397-0.753553I$	$1.72885-1.29757I$	0
$u=-0.942702-0.364107I$ $a=-0.177763+1.145760I$ $b=\ \ 0.866397+0.753553I$	$1.72885+1.29757I$	0
$u=-0.686690+0.770176I$ $a=\ \ 0.80784-1.60288I$ $b=\ \ 1.116190-0.098548I$	$1.45725-0.56929I$	0
$u=-0.686690-0.770176I$ $a=\ \ 0.80784+1.60288I$ $b=\ \ 1.116190+0.098548I$	$1.45725+0.56929I$	0
$u=-0.672172+0.673426I$ $a=\ \ 1.126840-0.440477I$ $b=\ \ 0.282383+0.300551I$	$1.20400-2.16328I$	0
$u=-0.672172-0.673426I$ $a=\ \ 1.126840+0.440477I$ $b=\ \ 0.282383-0.300551I$	$1.20400+2.16328I$	0
$u=-0.790822+0.688856I$ $a=\ \ 0.102784-1.035030I$ $b=\ \ 0.348736-1.110730I$	$1.33673-2.51070I$	0
$u=-0.790822-0.688856I$ $a=\ \ 0.102784+1.035030I$ $b=\ \ 0.348736+1.110730I$	$1.33673+2.51070I$	0
$u=\ \ 0.698246+0.784390I$ $a=\ \ 0.52856+1.79612I$ $b=\ \ 1.224570+0.258360I$	$0.75296+5.48494I$	0
$u=\ \ 0.698246-0.784390I$ $a=\ \ 0.52856-1.79612I$ $b=\ \ 1.224570-0.258360I$	$0.75296-5.48494I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.412417 + 0.855264I$ $a = -0.058546 + 0.861634I$ $b = -0.394352 + 0.734852I$	$-4.53599 + 0.12727I$	0
$u = 0.412417 - 0.855264I$ $a = -0.058546 - 0.861634I$ $b = -0.394352 - 0.734852I$	$-4.53599 - 0.12727I$	0
$u = -0.619462 + 0.714333I$ $a = 0.504812 - 0.994420I$ $b = 0.640043 - 0.456237I$	$0.41349 - 1.81846I$	0
$u = -0.619462 - 0.714333I$ $a = 0.504812 + 0.994420I$ $b = 0.640043 + 0.456237I$	$0.41349 + 1.81846I$	0
$u = 0.746098 + 0.578824I$ $a = 1.144860 - 0.020941I$ $b = -0.072007 - 0.458537I$	$0.43136 - 2.64878I$	0
$u = 0.746098 - 0.578824I$ $a = 1.144860 + 0.020941I$ $b = -0.072007 + 0.458537I$	$0.43136 + 2.64878I$	0
$u = 0.956217 + 0.473910I$ $a = -0.459363 + 0.933946I$ $b = 0.835719 + 0.735845I$	$1.57409 + 4.33045I$	0
$u = 0.956217 - 0.473910I$ $a = -0.459363 - 0.933946I$ $b = 0.835719 - 0.735845I$	$1.57409 - 4.33045I$	0
$u = -0.907918 + 0.065941I$ $a = 0.599867 + 1.261830I$ $b = -1.162300 + 0.466689I$	$4.14311 - 3.74371I$	0
$u = -0.907918 - 0.065941I$ $a = 0.599867 - 1.261830I$ $b = -1.162300 - 0.466689I$	$4.14311 + 3.74371I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.778207 + 0.459641I$ $a = 0.155491 - 0.435491I$ $b = 0.300328 - 0.749291I$	$0.710905 - 0.522185I$	0
$u = 0.778207 - 0.459641I$ $a = 0.155491 + 0.435491I$ $b = 0.300328 + 0.749291I$	$0.710905 + 0.522185I$	0
$u = 0.824561 + 0.723923I$ $a = -0.052145 + 1.034410I$ $b = 0.120849 + 1.297670I$	$0.27543 + 7.67403I$	0
$u = 0.824561 - 0.723923I$ $a = -0.052145 - 1.034410I$ $b = 0.120849 - 1.297670I$	$0.27543 - 7.67403I$	0
$u = -0.866052 + 0.245513I$ $a = 0.92166 + 2.05840I$ $b = -1.291340 - 0.097348I$	$9.48273 + 0.34349I$	0
$u = -0.866052 - 0.245513I$ $a = 0.92166 - 2.05840I$ $b = -1.291340 + 0.097348I$	$9.48273 - 0.34349I$	0
$u = -0.998820 + 0.491964I$ $a = 0.254642 - 0.746212I$ $b = 1.189530 - 0.573878I$	$2.83724 - 4.45710I$	0
$u = -0.998820 - 0.491964I$ $a = 0.254642 + 0.746212I$ $b = 1.189530 + 0.573878I$	$2.83724 + 4.45710I$	0
$u = 0.692047 + 0.890082I$ $a = 0.029194 + 1.171020I$ $b = 0.989314 + 0.511122I$	$-2.05768 + 0.08833I$	0
$u = 0.692047 - 0.890082I$ $a = 0.029194 - 1.171020I$ $b = 0.989314 - 0.511122I$	$-2.05768 - 0.08833I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.764186 + 0.837668I$ $a = -0.041847 + 0.585377I$ $b = -0.302856 + 0.732268I$	$-3.47929 + 1.86853I$	0
$u = 0.764186 - 0.837668I$ $a = -0.041847 - 0.585377I$ $b = -0.302856 - 0.732268I$	$-3.47929 - 1.86853I$	0
$u = 0.831651 + 0.219641I$ $a = 1.35365 - 1.93595I$ $b = -1.398960 + 0.000957I$	$9.76892 + 5.18382I$	0
$u = 0.831651 - 0.219641I$ $a = 1.35365 + 1.93595I$ $b = -1.398960 - 0.000957I$	$9.76892 - 5.18382I$	0
$u = -0.856184 + 0.014229I$ $a = 0.050201 - 1.008980I$ $b = -1.56583 - 0.86229I$	$7.41401 + 9.47262I$	0
$u = -0.856184 - 0.014229I$ $a = 0.050201 + 1.008980I$ $b = -1.56583 + 0.86229I$	$7.41401 - 9.47262I$	0
$u = 0.728724 + 0.881909I$ $a = -0.906766 + 0.164729I$ $b = 0.050733 + 0.686342I$	$3.53088 + 1.62729I$	0
$u = 0.728724 - 0.881909I$ $a = -0.906766 - 0.164729I$ $b = 0.050733 - 0.686342I$	$3.53088 - 1.62729I$	0
$u = 0.923053 + 0.682792I$ $a = 0.137723 - 0.951706I$ $b = -0.336105 - 1.336030I$	$4.25948 + 3.97292I$	0
$u = 0.923053 - 0.682792I$ $a = 0.137723 + 0.951706I$ $b = -0.336105 + 1.336030I$	$4.25948 - 3.97292I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.228646 + 0.807230I$ $a = 0.023292 - 1.154560I$ $b = 0.484549 - 0.690336I$	$-3.54560 - 4.45890I$	0
$u = 0.228646 - 0.807230I$ $a = 0.023292 + 1.154560I$ $b = 0.484549 + 0.690336I$	$-3.54560 + 4.45890I$	0
$u = -0.824374 + 0.818767I$ $a = -0.134727 + 0.950498I$ $b = -0.330114 + 1.302230I$	$4.19868 - 6.92087I$	0
$u = -0.824374 - 0.818767I$ $a = -0.134727 - 0.950498I$ $b = -0.330114 - 1.302230I$	$4.19868 + 6.92087I$	0
$u = 0.850879 + 0.794220I$ $a = 0.002009 - 0.970973I$ $b = -0.09037 - 1.43673I$	$3.18956 + 12.44830I$	0
$u = 0.850879 - 0.794220I$ $a = 0.002009 + 0.970973I$ $b = -0.09037 + 1.43673I$	$3.18956 - 12.44830I$	0
$u = 0.825852 + 0.004693I$ $a = 0.095954 + 0.726046I$ $b = -1.71850 + 0.66219I$	$8.39627 - 4.33805I$	0
$u = 0.825852 - 0.004693I$ $a = 0.095954 - 0.726046I$ $b = -1.71850 - 0.66219I$	$8.39627 + 4.33805I$	0
$u = -0.967449 + 0.682030I$ $a = -0.009488 + 0.960374I$ $b = -0.597638 + 1.204970I$	$4.75240 + 1.14948I$	0
$u = -0.967449 - 0.682030I$ $a = -0.009488 - 0.960374I$ $b = -0.597638 - 1.204970I$	$4.75240 - 1.14948I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.572462 + 0.564106I$ $a = -0.02824 + 1.51493I$ $b = -0.175033 + 0.862926I$	$-2.32809 + 6.89844I$	0
$u = 0.572462 - 0.564106I$ $a = -0.02824 - 1.51493I$ $b = -0.175033 - 0.862926I$	$-2.32809 - 6.89844I$	0
$u = -1.081800 + 0.521766I$ $a = -0.667986 + 0.530010I$ $b = 0.050573 - 0.324471I$	$5.22748 + 1.13720I$	0
$u = -1.081800 - 0.521766I$ $a = -0.667986 - 0.530010I$ $b = 0.050573 + 0.324471I$	$5.22748 - 1.13720I$	0
$u = -0.784389 + 0.112607I$ $a = 0.099331 - 1.070910I$ $b = 1.52498 - 0.73193I$	$4.58573 - 4.92230I$	0
$u = -0.784389 - 0.112607I$ $a = 0.099331 + 1.070910I$ $b = 1.52498 + 0.73193I$	$4.58573 + 4.92230I$	0
$u = -0.785370 + 0.921483I$ $a = -0.917738 + 0.192616I$ $b = -0.253898 - 0.496075I$	$3.87008 - 7.00864I$	0
$u = -0.785370 - 0.921483I$ $a = -0.917738 - 0.192616I$ $b = -0.253898 + 0.496075I$	$3.87008 + 7.00864I$	0
$u = 0.769080 + 0.075838I$ $a = 0.019176 + 0.801017I$ $b = 1.65258 + 0.50828I$	$5.21209 - 0.24772I$	0
$u = 0.769080 - 0.075838I$ $a = 0.019176 - 0.801017I$ $b = 1.65258 - 0.50828I$	$5.21209 + 0.24772I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.767831 + 0.087559I$ $a = 1.108720 - 0.253163I$ $b = -1.51890 - 0.20065I$	$7.01627 + 4.59260I$	0
$u = 0.767831 - 0.087559I$ $a = 1.108720 + 0.253163I$ $b = -1.51890 + 0.20065I$	$7.01627 - 4.59260I$	0
$u = 1.120030 + 0.504423I$ $a = 0.246737 + 0.426754I$ $b = 1.134750 + 0.236646I$	$2.24387 - 0.08919I$	0
$u = 1.120030 - 0.504423I$ $a = 0.246737 - 0.426754I$ $b = 1.134750 - 0.236646I$	$2.24387 + 0.08919I$	0
$u = -0.829157 + 0.940074I$ $a = -0.427214 + 0.812063I$ $b = -0.769545 + 0.441408I$	$1.98538 - 6.12408I$	0
$u = -0.829157 - 0.940074I$ $a = -0.427214 - 0.812063I$ $b = -0.769545 - 0.441408I$	$1.98538 + 6.12408I$	0
$u = 1.077520 + 0.652629I$ $a = -0.875976 - 0.121227I$ $b = 0.327467 + 0.543713I$	$3.81671 - 6.59998I$	0
$u = 1.077520 - 0.652629I$ $a = -0.875976 + 0.121227I$ $b = 0.327467 - 0.543713I$	$3.81671 + 6.59998I$	0
$u = 0.878141 + 0.911010I$ $a = -0.31524 - 1.38014I$ $b = -1.263300 - 0.375674I$	$1.19255 + 11.28560I$	0
$u = 0.878141 - 0.911010I$ $a = -0.31524 + 1.38014I$ $b = -1.263300 + 0.375674I$	$1.19255 - 11.28560I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.862422+0.926912I$ $a=-0.485253+1.153900I$ $b=-1.120380+0.257528I$	$2.43125-6.15187I$	0
$u=-0.862422-0.926912I$ $a=-0.485253-1.153900I$ $b=-1.120380-0.257528I$	$2.43125+6.15187I$	0
$u=-1.183970+0.478270I$ $a=-0.006180+0.751980I$ $b=-0.668145+0.159273I$	$3.66761-0.29510I$	0
$u=-1.183970-0.478270I$ $a=-0.006180-0.751980I$ $b=-0.668145-0.159273I$	$3.66761+0.29510I$	0
$u=0.709445+0.139403I$ $a=2.48531+0.57135I$ $b=-1.325380-0.242440I$	$7.91416+4.97044I$	0
$u=0.709445-0.139403I$ $a=2.48531-0.57135I$ $b=-1.325380+0.242440I$	$7.91416-4.97044I$	0
$u=0.939027+0.878229I$ $a=0.001532-0.522697I$ $b=0.279870-0.708412I$	$-1.30512+6.67342I$	0
$u=0.939027-0.878229I$ $a=0.001532+0.522697I$ $b=0.279870+0.708412I$	$-1.30512-6.67342I$	0
$u=-0.692283+0.139852I$ $a=2.73474-1.24695I$ $b=-1.189710+0.293492I$	$6.73300-10.15420I$	0
$u=-0.692283-0.139852I$ $a=2.73474+1.24695I$ $b=-1.189710-0.293492I$	$6.73300+10.15420I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.673364+0.113562I$ $a=\ \ 1.27854-1.54629I$ $b=-1.152230-0.146646I$	$3.15205-4.00093I$	0
$u=-0.673364-0.113562I$ $a=\ \ 1.27854+1.54629I$ $b=-1.152230+0.146646I$	$3.15205+4.00093I$	0
$u=-0.409296+0.535230I$ $a=\ \ 0.329044-1.370700I$ $b=-0.126062-0.811785I$	$-0.35426-2.21924I$	0
$u=-0.409296-0.535230I$ $a=\ \ 0.329044+1.370700I$ $b=-0.126062+0.811785I$	$-0.35426+2.21924I$	0
$u=\ \ 0.670539$ $a=-1.40075$ $b=\ \ 1.35805$	3.32634	0
$u=\ \ 1.326520+0.131714I$ $a=\ \ 0.621867-0.614530I$ $b=-0.728900-0.019182I$	$0.31557+4.38115I$	0
$u=\ \ 1.326520-0.131714I$ $a=\ \ 0.621867+0.614530I$ $b=-0.728900+0.019182I$	$0.31557-4.38115I$	0
$u=-1.148880+0.698505I$ $a=-0.225882+0.643519I$ $b=-0.986431+0.406096I$	$3.48218-0.54868I$	0
$u=-1.148880-0.698505I$ $a=-0.225882-0.643519I$ $b=-0.986431-0.406096I$	$3.48218+0.54868I$	0
$u=\ \ 0.655245+0.013073I$ $a=\ \ 0.118218+0.994804I$ $b=-1.83492+0.42074I$	$8.90892+4.27424I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.655245 - 0.013073I$ $a = \quad 0.118218 - 0.994804I$ $b = -1.83492 - 0.42074I$	$8.90892 - 4.27424I$	0
$u = \quad 0.985254 + 0.950108I$ $a = \quad 0.101542 - 0.900112I$ $b = -1.040560 - 0.496938I$	$-2.59195 + 4.70960I$	0
$u = \quad 0.985254 - 0.950108I$ $a = \quad 0.101542 + 0.900112I$ $b = -1.040560 + 0.496938I$	$-2.59195 - 4.70960I$	0
$u = -0.612631 + 0.025132I$ $a = \quad 0.085534 - 1.359730I$ $b = -1.71554 - 0.69035I$	$8.21950 + 1.31712I$	0
$u = -0.612631 - 0.025132I$ $a = \quad 0.085534 + 1.359730I$ $b = -1.71554 + 0.69035I$	$8.21950 - 1.31712I$	0
$u = \quad 0.608225 + 0.026983I$ $a = -3.27682 + 1.87542I$ $b = \quad 1.268940 - 0.122009I$	$4.47403 + 0.66826I$	0
$u = \quad 0.608225 - 0.026983I$ $a = -3.27682 - 1.87542I$ $b = \quad 1.268940 + 0.122009I$	$4.47403 - 0.66826I$	0
$u = -0.599808 + 0.092592I$ $a = -0.63118 - 2.17437I$ $b = \quad 0.949720 - 0.208162I$	$0.662019 - 0.640153I$	0
$u = -0.599808 - 0.092592I$ $a = -0.63118 + 2.17437I$ $b = \quad 0.949720 + 0.208162I$	$0.662019 + 0.640153I$	0
$u = -0.603227 + 0.037987I$ $a = -2.82885 - 2.80975I$ $b = \quad 1.161170 + 0.192599I$	$3.75638 + 4.31742I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.603227-0.037987I$ $a=-2.82885+2.80975I$ $b=1.161170-0.192599I$	$3.75638-4.31742I$	0
$u=0.425862+0.363879I$ $a=0.28179-2.27579I$ $b=0.304884-0.533381I$	$-2.29864+2.49790I$	0
$u=0.425862-0.363879I$ $a=0.28179+2.27579I$ $b=0.304884+0.533381I$	$-2.29864-2.49790I$	0
$u=1.26025+0.82746I$ $a=-0.106652+1.107940I$ $b=1.51042+0.46960I$	$10.1703+10.1055I$	0
$u=1.26025-0.82746I$ $a=-0.106652-1.107940I$ $b=1.51042-0.46960I$	$10.1703-10.1055I$	0
$u=1.19546+0.92100I$ $a=-0.294524-0.291200I$ $b=-1.108500-0.012149I$	$1.77932-4.36860I$	0
$u=1.19546-0.92100I$ $a=-0.294524+0.291200I$ $b=-1.108500+0.012149I$	$1.77932+4.36860I$	0
$u=1.25076+0.95388I$ $a=0.002646-1.047880I$ $b=-1.45626-0.54648I$	$5.2713+14.0378I$	0
$u=1.25076-0.95388I$ $a=0.002646+1.047880I$ $b=-1.45626+0.54648I$	$5.2713-14.0378I$	0
$u=-1.32430+0.85870I$ $a=-0.047133-0.984502I$ $b=1.48924-0.33956I$	$11.48390-3.78272I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.32430-0.85870I$ $a=-0.047133+0.984502I$ $b=\ \ 1.48924+0.33956I$	$11.48390+3.78272I$	0
$u=-1.28834+0.98530I$ $a=-0.041308+0.929941I$ $b=-1.44553+0.43105I$	$6.92152-7.81231I$	0
$u=-1.28834-0.98530I$ $a=-0.041308-0.929941I$ $b=-1.44553-0.43105I$	$6.92152+7.81231I$	0
$u=-0.075588+0.361273I$ $a=-1.03407+1.92467I$ $b=\ \ 0.449408+0.562483I$	$0.01834+1.65707I$	0
$u=-0.075588-0.361273I$ $a=-1.03407-1.92467I$ $b=\ \ 0.449408-0.562483I$	$0.01834-1.65707I$	0
$u=-0.41347+1.59092I$ $a=-0.385452+0.204680I$ $b=-1.355160+0.184332I$	$5.12467-3.51776I$	0
$u=-0.41347-1.59092I$ $a=-0.385452-0.204680I$ $b=-1.355160-0.184332I$	$5.12467+3.51776I$	0
$u=\ \ 1.32005+0.98383I$ $a=-0.020234+0.986267I$ $b=\ \ 1.48915+0.59400I$	$8.2127+19.3826I$	0
$u=\ \ 1.32005-0.98383I$ $a=-0.020234-0.986267I$ $b=\ \ 1.48915-0.59400I$	$8.2127-19.3826I$	0
$u=-0.087742+0.339205I$ $a=\ \ 1.46439-0.79618I$ $b=\ \ 0.277155-0.425388I$	$0.131184-1.216560I$	$0.+6.03892I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.087742-0.339205I$ $a=\ 1.46439+0.79618I$ $b=\ 0.277155+0.425388I$	$0.131184+1.216560I$	$0.-6.03892I$
$u=-0.019510+0.335422I$ $a=\ 2.20101-0.21808I$ $b=\ 1.65345-0.19526I$	$5.29449-2.92921I$	$13.65581+0.I$
$u=-0.019510-0.335422I$ $a=\ 2.20101+0.21808I$ $b=\ 1.65345+0.19526I$	$5.29449+2.92921I$	$13.65581+0.I$
$u=-1.35987+1.03349I$ $a=\ 0.021572-0.873272I$ $b=\ 1.49612-0.47648I$	$9.9843-12.9686I$	0
$u=-1.35987-1.03349I$ $a=\ 0.021572+0.873272I$ $b=\ 1.49612+0.47648I$	$9.9843+12.9686I$	0
$u=\ 1.48281+0.85235I$ $a=\ 0.240128-0.652021I$ $b=-1.143240-0.322153I$	$-0.86246+5.73987I$	0
$u=\ 1.48281-0.85235I$ $a=\ 0.240128+0.652021I$ $b=-1.143240+0.322153I$	$-0.86246-5.73987I$	0
$u=\ 1.68290+0.61851I$ $a=-0.328700+0.567735I$ $b=\ 1.145970+0.150811I$	$2.76591+2.34228I$	0
$u=\ 1.68290-0.61851I$ $a=-0.328700-0.567735I$ $b=\ 1.145970-0.150811I$	$2.76591-2.34228I$	0
$u=\ 1.64569+0.95094I$ $a=-0.210422+0.585719I$ $b=\ 1.238880+0.309418I$	$1.85095+10.32980I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.64569 - 0.95094I$ $a = -0.210422 - 0.585719I$ $b = 1.238880 - 0.309418I$	$1.85095 - 10.32980I$	0
$u = 1.09408 + 1.71428I$ $a = -0.288513 - 0.117345I$ $b = -1.179760 + 0.225858I$	$3.62431 - 5.24804I$	0
$u = 1.09408 - 1.71428I$ $a = -0.288513 + 0.117345I$ $b = -1.179760 - 0.225858I$	$3.62431 + 5.24804I$	0
$u = -1.52511 + 1.40882I$ $a = -0.144809 + 0.348009I$ $b = -1.251720 - 0.009524I$	$5.74860 - 1.67782I$	0
$u = -1.52511 - 1.40882I$ $a = -0.144809 - 0.348009I$ $b = -1.251720 + 0.009524I$	$5.74860 + 1.67782I$	0
$u = 0.72128 + 2.05563I$ $a = 0.292749 + 0.037134I$ $b = 1.275150 - 0.267052I$	$7.35370 - 1.82984I$	0
$u = 0.72128 - 2.05563I$ $a = 0.292749 - 0.037134I$ $b = 1.275150 + 0.267052I$	$7.35370 + 1.82984I$	0
$u = -1.81034 + 1.38849I$ $a = 0.090706 - 0.331869I$ $b = 1.253800 + 0.105408I$	$8.94675 + 2.62890I$	0
$u = -1.81034 - 1.38849I$ $a = 0.090706 + 0.331869I$ $b = 1.253800 - 0.105408I$	$8.94675 - 2.62890I$	0
$u = -1.56063 + 1.73319I$ $a = 0.148206 - 0.286892I$ $b = 1.346840 + 0.015379I$	$9.14039 - 5.74535I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.56063-1.73319I$		
$a=\quad 0.148206+0.286892I$	$9.14039+5.74535I$	0
$b=\quad 1.346840-0.015379I$		
$u=\quad 1.28018+1.95763I$		
$a=\quad 0.247148+0.100841I$	$6.35572-9.87696I$	0
$b=\quad 1.160580-0.296009I$		
$u=\quad 1.28018-1.95763I$		
$a=\quad 0.247148-0.100841I$	$6.35572+9.87696I$	0
$b=\quad 1.160580+0.296009I$		

II.

$\boldsymbol{I_2^u = \langle 1.74\times 10^{13}u^{29} - 1.05\times 10^{13}u^{28} + \cdots + 3.21\times 10^{11}b + 2.46\times 10^{13},\ -1.41\times 10^{13}u^{29} + 1.09\times 10^{13}u^{28} + \cdots + 3.21\times 10^{11}a - 1.49\times 10^{13},\ u^{30} - 4u^{28} + \cdots + 7u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} 44.0608u^{29} - 33.9198u^{28} + \cdots + 299.494u + 46.4819 \\ -54.3661u^{29} + 32.8484u^{28} + \cdots - 446.961u - 76.8348 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 75.5398u^{29} - 53.3340u^{28} + \cdots + 553.077u + 89.3970 \\ -64.4645u^{29} + 37.2310u^{28} + \cdots - 551.381u - 96.2490 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -19.6735u^{29} + 12.1162u^{28} + \cdots - 223.934u - 52.7186 \\ 24.9904u^{29} - 20.6388u^{28} + \cdots + 177.013u + 33.5769 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -4.58544u^{29} + 0.271279u^{28} + \cdots - 89.3748u - 24.5292 \\ u^{29} - 4u^{27} + \cdots + 22u + 7 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -36.0562u^{29} + 16.6858u^{28} + \cdots - 353.450u - 63.1994 \\ 5.52369u^{29} + 1.00132u^{28} + \cdots + 101.657u + 21.0571 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 98.4269u^{29} - 66.7682u^{28} + \cdots + 746.455u + 123.317 \\ -54.3661u^{29} + 32.8484u^{28} + \cdots - 446.961u - 76.8348 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 89.3970u^{29} - 75.5398u^{28} + \cdots + 520.238u + 72.7018 \\ -63.4006u^{29} + 48.1338u^{28} + \cdots - 430.904u - 67.9960 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -22.9370u^{29} + 15.7319u^{28} + \cdots - 209.038u - 45.2944 \\ 15.9370u^{29} - 14.7319u^{28} + \cdots + 97.0380u + 18.2944 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -20.9873u^{29} + 32.1134u^{28} + \cdots + 4.49827u + 10.4593 \\ 9.31510u^{29} - 16.5471u^{28} + \cdots - 15.3500u - 8.61686 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= \frac{40229863551975}{320682258343}u^{29} - \frac{22481908596968}{320682258343}u^{28} + \cdots + \frac{360021636548064}{320682258343}u + \frac{67938473591191}{320682258343}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} - 15u^{29} + \cdots - 17u + 1$
c_2	$u^{30} - u^{29} + \cdots - u + 1$
c_3	$u^{30} + 4u^{28} + \cdots + 4u^2 + 1$
c_4	$u^{30} - 8u^{28} + \cdots + 2u + 1$
c_5	$u^{30} + 8u^{28} + \cdots + 6u^2 + 1$
c_6	$u^{30} + u^{29} + \cdots + u + 1$
c_7	$u^{30} - 2u^{29} + \cdots - 2u + 1$
c_8	$u^{30} + 5u^{28} + \cdots + 4u^4 + 1$
c_9	$u^{30} + 16u^{29} + \cdots + 12u + 1$
c_{10}	$u^{30} + 8u^{28} + \cdots + 6u^2 + 1$
c_{11}	$u^{30} + 2u^{29} + \cdots + 2u + 1$
c_{12}	$u^{30} - 4u^{28} + \cdots + 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 15y^{29} + \cdots + 5y + 1$
c_2, c_6	$y^{30} + 15y^{29} + \cdots + 17y + 1$
c_3	$y^{30} + 8y^{29} + \cdots + 8y + 1$
c_4	$y^{30} - 16y^{29} + \cdots + 22y + 1$
c_5, c_{10}	$y^{30} + 16y^{29} + \cdots + 12y + 1$
c_7, c_{11}	$y^{30} - 28y^{29} + \cdots - 22y + 1$
c_8	$y^{30} + 10y^{29} + \cdots + 8y^2 + 1$
c_9	$y^{30} + 32y^{28} + \cdots - 4y + 1$
c_{12}	$y^{30} - 8y^{29} + \cdots - 7y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.907019+0.274273I$ $a=-0.220090-1.014830I$ $b=\ \ 0.770008-0.746552I$	$1.84495-2.15650I$	$5.47467+7.04688I$
$u=-0.907019-0.274273I$ $a=-0.220090+1.014830I$ $b=\ \ 0.770008+0.746552I$	$1.84495+2.15650I$	$5.47467-7.04688I$
$u=\ \ 0.556562+0.893348I$ $a=-0.064333-0.747475I$ $b=-1.121480+0.435771I$	$5.56455-9.18953I$	$4.66561+5.85107I$
$u=\ \ 0.556562-0.893348I$ $a=-0.064333+0.747475I$ $b=-1.121480-0.435771I$	$5.56455+9.18953I$	$4.66561-5.85107I$
$u=\ \ 0.894586+0.585810I$ $a=-0.169013+1.278090I$ $b=\ \ 0.651977+0.187324I$	$-1.29362+3.40871I$	$1.03864-3.84820I$
$u=\ \ 0.894586-0.585810I$ $a=-0.169013-1.278090I$ $b=\ \ 0.651977-0.187324I$	$-1.29362-3.40871I$	$1.03864+3.84820I$
$u=-0.755971+0.771635I$ $a=-0.685301+1.029880I$ $b=-0.584481+0.371861I$	$1.20662-5.49920I$	$0.29162+4.33782I$
$u=-0.755971-0.771635I$ $a=-0.685301-1.029880I$ $b=-0.584481-0.371861I$	$1.20662+5.49920I$	$0.29162-4.33782I$
$u=-0.382691+1.012540I$ $a=\ \ 0.489529-0.296123I$ $b=\ \ 1.46800-0.26514I$	$4.71977-3.22675I$	$-0.05031+2.77520I$
$u=-0.382691-1.012540I$ $a=\ \ 0.489529+0.296123I$ $b=\ \ 1.46800+0.26514I$	$4.71977+3.22675I$	$-0.05031-2.77520I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.716005+0.541603I$ $a=\ \ 0.227397+0.764574I$ $b=-1.55526-0.02098I$	$8.01213-4.99351I$	$7.90170+7.07826I$
$u=-0.716005-0.541603I$ $a=\ \ 0.227397-0.764574I$ $b=-1.55526+0.02098I$	$8.01213+4.99351I$	$7.90170-7.07826I$
$u=-1.022260+0.466451I$ $a=-0.123309+0.946581I$ $b=-0.551215+0.620151I$	$2.74239+0.51273I$	$4.62517-2.42060I$
$u=-1.022260-0.466451I$ $a=-0.123309-0.946581I$ $b=-0.551215-0.620151I$	$2.74239-0.51273I$	$4.62517+2.42060I$
$u=\ \ 0.058365+1.157870I$ $a=-0.491989-0.204462I$ $b=-1.336880+0.403515I$	$6.90164-1.15606I$	$6.63535-2.31964I$
$u=\ \ 0.058365-1.157870I$ $a=-0.491989+0.204462I$ $b=-1.336880-0.403515I$	$6.90164+1.15606I$	$6.63535+2.31964I$
$u=-0.582427+0.587140I$ $a=\ \ 0.82414-1.64502I$ $b=\ \ 0.713317-0.350203I$	$-0.224796-0.681290I$	$-0.402018+0.954968I$
$u=-0.582427-0.587140I$ $a=\ \ 0.82414+1.64502I$ $b=\ \ 0.713317+0.350203I$	$-0.224796+0.681290I$	$-0.402018-0.954968I$
$u=-0.733691+0.159907I$ $a=\ \ 1.159000+0.217569I$ $b=-1.45947-0.36277I$	$7.40216+4.02079I$	$6.60632+2.48099I$
$u=-0.733691-0.159907I$ $a=\ \ 1.159000-0.217569I$ $b=-1.45947+0.36277I$	$7.40216-4.02079I$	$6.60632-2.48099I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.262720 + 0.144773I$ $a = -0.611804 + 0.519065I$ $b = 0.686030 + 0.353039I$	$-0.21145 + 5.02428I$	$-0.20853 - 10.06268I$
$u = 1.262720 - 0.144773I$ $a = -0.611804 - 0.519065I$ $b = 0.686030 - 0.353039I$	$-0.21145 - 5.02428I$	$-0.20853 + 10.06268I$
$u = 0.273634 + 0.673833I$ $a = 0.82738 + 1.35972I$ $b = 1.150110 - 0.296946I$	$2.86965 - 4.20885I$	$1.93188 + 2.90240I$
$u = 0.273634 - 0.673833I$ $a = 0.82738 - 1.35972I$ $b = 1.150110 + 0.296946I$	$2.86965 + 4.20885I$	$1.93188 - 2.90240I$
$u = 1.135110 + 0.771702I$ $a = 0.020207 - 0.864589I$ $b = -0.575849 - 0.212344I$	$0.04895 + 7.83132I$	$3.35663 - 8.85381I$
$u = 1.135110 - 0.771702I$ $a = 0.020207 + 0.864589I$ $b = -0.575849 + 0.212344I$	$0.04895 - 7.83132I$	$3.35663 + 8.85381I$
$u = -0.517662 + 0.263417I$ $a = -1.48811 - 1.62476I$ $b = 1.336910 + 0.150572I$	$3.91649 - 0.89229I$	$1.83943 + 5.03941I$
$u = -0.517662 - 0.263417I$ $a = -1.48811 + 1.62476I$ $b = 1.336910 - 0.150572I$	$3.91649 + 0.89229I$	$1.83943 - 5.03941I$
$u = 1.43674 + 0.42468I$ $a = 0.306294 - 0.581017I$ $b = -0.591706 - 0.331632I$	$0.91378 + 1.81579I$	$2.00000 - 2.03944I$
$u = 1.43674 - 0.42468I$ $a = 0.306294 + 0.581017I$ $b = -0.591706 + 0.331632I$	$0.91378 - 1.81579I$	$2.00000 + 2.03944I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{30}-15u^{29}+\cdots-17u+1)(u^{143}+54u^{142}+\cdots-64u-1)$
c_2	$(u^{30}-u^{29}+\cdots-u+1)(u^{143}+27u^{141}+\cdots+14u-1)$
c_3	$(u^{30}+4u^{28}+\cdots+4u^2+1)(u^{143}-u^{142}+\cdots-79259u-20259)$
c_4	$(u^{30}-8u^{28}+\cdots+2u+1)(u^{143}+u^{142}+\cdots+7060687u-934895)$
c_5	$(u^{30}+8u^{28}+\cdots+6u^2+1)(u^{143}-u^{142}+\cdots+11u-19)$
c_6	$(u^{30}+u^{29}+\cdots+u+1)(u^{143}+27u^{141}+\cdots+14u-1)$
c_7	$(u^{30}-2u^{29}+\cdots-2u+1)(u^{143}+u^{142}+\cdots+4691957u-772753)$
c_8	$(u^{30}+5u^{28}+\cdots+4u^4+1)(u^{143}+5u^{142}+\cdots-58437u-10229)$
c_9	$(u^{30}+16u^{29}+\cdots+12u+1)(u^{143}-75u^{142}+\cdots-6035u+361)$
c_{10}	$(u^{30}+8u^{28}+\cdots+6u^2+1)(u^{143}-u^{142}+\cdots+11u-19)$
c_{11}	$(u^{30}+2u^{29}+\cdots+2u+1)(u^{143}+u^{142}+\cdots+4691957u-772753)$
c_{12}	$(u^{30}-4u^{28}+\cdots+7u+1)(u^{143}+11u^{142}+\cdots+27584u+10177)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{30}+15y^{29}+\cdots+5y+1)(y^{143}+86y^{142}+\cdots+12060y-1)$
c_2, c_6	$(y^{30}+15y^{29}+\cdots+17y+1)(y^{143}+54y^{142}+\cdots-64y-1)$
c_3	$(y^{30}+8y^{29}+\cdots+8y+1)$ $\cdot(y^{143}+35y^{142}+\cdots-29282604383y-410427081)$
c_4	$(y^{30}-16y^{29}+\cdots+22y+1)$ $\cdot(y^{143}-93y^{142}+\cdots-27555367489641y-874028661025)$
c_5, c_{10}	$(y^{30}+16y^{29}+\cdots+12y+1)(y^{143}+75y^{142}+\cdots-6035y-361)$
c_7, c_{11}	$(y^{30}-28y^{29}+\cdots-22y+1)$ $\cdot(y^{143}-117y^{142}+\cdots-6329951089997y-597147199009)$
c_8	$(y^{30}+10y^{29}+\cdots+8y^2+1)$ $\cdot(y^{143}+33y^{142}+\cdots-8154279695y-104632441)$
c_9	$(y^{30}+32y^{28}+\cdots-4y+1)(y^{143}-9y^{142}+\cdots+5558613y-130321)$
c_{12}	$(y^{30}-8y^{29}+\cdots-7y+1)$ $\cdot(y^{143}-37y^{142}+\cdots+2435807716y-103571329)$