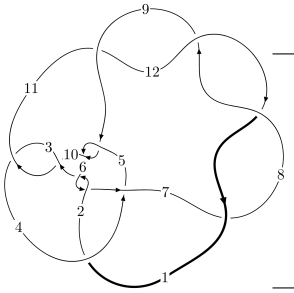
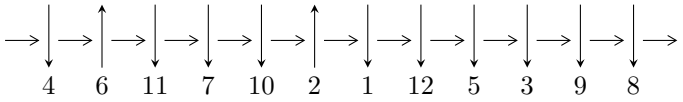
$12a_{0978}$ $(K12a_{0978})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3u^{28} - 27u^{27} + \cdots + 4b - 12,\ -3u^{28} + 33u^{27} + \cdots + 8a + 252,\ u^{29} - 9u^{28} + \cdots - 100u + 8\rangle$$

$$I_2^u = \langle -1.23410 \times 10^{16} a^5 u^8 - 5.81741 \times 10^{15} a^4 u^8 + \cdots + 7.78751 \times 10^{15} a + 1.59891 \times 10^{16},$$
$$-2u^8 a^4 - u^8 a^3 + \cdots - 51a - 8,\ u^9 + u^8 + 6u^7 + 5u^6 + 11u^5 + 7u^4 + 6u^3 + 2u^2 + u + 1\rangle$$

$$I_3^u = \langle -u^{14} + 2u^{13} - 10u^{12} + 16u^{11} - 37u^{10} + 47u^9 - 63u^8 + 60u^7 - 49u^6 + 28u^5 - 13u^4 - u^3 + 3u^2 + b - 2u,$$
$$u^{14} - 3u^{13} + \cdots + a - 2,\ u^{17} - 2u^{16} + \cdots + u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 100 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. $I_1^u = \langle 3u^{28} - 27u^{27} + \cdots + 4b - 12,\ -3u^{28} + 33u^{27} + \cdots + 8a + 252,\ u^{29} - 9u^{28} + \cdots - 100u + 8 \rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} \frac{3}{8}u^{28} - \frac{33}{8}u^{27} + \cdots + \frac{1301}{4}u - \frac{63}{2} \\ -\frac{3}{4}u^{28} + \frac{27}{4}u^{27} + \cdots - 66u + 3 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.375000u^{28} + 2.62500u^{27} + \cdots + 259.250u - 28.5000 \\ -\frac{3}{4}u^{28} + \frac{27}{4}u^{27} + \cdots - 66u + 3 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{5}{8}u^{28} - \frac{51}{8}u^{27} + \cdots + \frac{1525}{4}u - 36 \\ -\frac{3}{4}u^{28} + \frac{25}{4}u^{27} + \cdots + \frac{55}{2}u - 5 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{23}{8}u^{28} - \frac{203}{8}u^{27} + \cdots + \frac{995}{2}u - 45 \\ -\frac{1}{2}u^{27} + \frac{9}{2}u^{26} + \cdots + \frac{323}{2}u - 17 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{3}{8}u^{28} + \frac{29}{8}u^{27} + \cdots - \frac{343}{4}u + 8 \\ -\frac{1}{4}u^{28} + \frac{7}{4}u^{27} + \cdots - \frac{101}{2}u + 5 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2.62500u^{28} - 22.3750u^{27} + \cdots + 419.250u - 40.5000 \\ \frac{5}{4}u^{28} - \frac{45}{4}u^{27} + \cdots + 286u - 27 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{28} - 31u^{27} + 186u^{26} - 798u^{25} + 2869u^{24} - 8634u^{23} + 22638u^{22} - 52004u^{21} + 106076u^{20} - 192765u^{19} + 313260u^{18} - 455019u^{17} + 589368u^{16} - 676516u^{15} + 680694u^{14} - 588454u^{13} + 420170u^{12} - 224488u^{11} + 56862u^{10} + 46163u^9 - 80407u^8 + 68178u^7 - 39610u^6 + 15736u^5 - 3305u^4 - 530u^3 + 703u^2 - 254u + 34$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{29} - u^{28} + \cdots + 9u + 1$
c_2, c_6	$u^{29} - 18u^{28} + \cdots - 6144u + 512$
c_3, c_5, c_9 c_{10}	$u^{29} - u^{28} + \cdots + 2u + 1$
c_7, c_8, c_{11} c_{12}	$u^{29} - 9u^{28} + \cdots - 100u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{29} + 9y^{28} + \cdots + 51y - 1$
c_2, c_6	$y^{29} + 18y^{28} + \cdots + 524288y - 262144$
c_3, c_5, c_9 c_{10}	$y^{29} - 23y^{28} + \cdots - 2y - 1$
c_7, c_8, c_{11} c_{12}	$y^{29} + 33y^{28} + \cdots - 112y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.604842 + 0.799420I$ $a = 0.394109 - 1.305310I$ $b = 1.11393 + 1.05287I$	$-8.0468 - 12.8405I$	$-10.86733 + 8.44096I$
$u = 0.604842 - 0.799420I$ $a = 0.394109 + 1.305310I$ $b = 1.11393 - 1.05287I$	$-8.0468 + 12.8405I$	$-10.86733 - 8.44096I$
$u = 0.679595 + 0.725392I$ $a = -0.526243 + 0.748082I$ $b = -0.604806 - 0.973958I$	$-1.79348 - 6.74869I$	$-9.01372 + 8.18968I$
$u = 0.679595 - 0.725392I$ $a = -0.526243 - 0.748082I$ $b = -0.604806 + 0.973958I$	$-1.79348 + 6.74869I$	$-9.01372 - 8.18968I$
$u = 0.864891 + 0.414155I$ $a = 0.350853 + 0.068689I$ $b = -0.250971 + 0.745879I$	$-2.88495 + 1.60167I$	$-6.91098 - 4.21579I$
$u = 0.864891 - 0.414155I$ $a = 0.350853 - 0.068689I$ $b = -0.250971 - 0.745879I$	$-2.88495 - 1.60167I$	$-6.91098 + 4.21579I$
$u = 0.805829 + 0.143852I$ $a = 0.028988 - 0.359456I$ $b = 0.952881 - 0.764359I$	$-10.03050 + 8.17766I$	$-13.8601 - 5.1610I$
$u = 0.805829 - 0.143852I$ $a = 0.028988 + 0.359456I$ $b = 0.952881 + 0.764359I$	$-10.03050 - 8.17766I$	$-13.8601 + 5.1610I$
$u = 0.125066 + 0.771350I$ $a = 0.715740 - 0.947825I$ $b = 0.281937 + 0.744077I$	$2.49819 + 0.56084I$	$-0.83766 - 3.02068I$
$u = 0.125066 - 0.771350I$ $a = 0.715740 + 0.947825I$ $b = 0.281937 - 0.744077I$	$2.49819 - 0.56084I$	$-0.83766 + 3.02068I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.514232 + 1.160970I$ $a = -0.753282 - 0.069149I$ $b = 0.572931 - 0.504230I$	$-6.11139 + 3.64867I$	$-10.51258 - 6.38309I$
$u = 0.514232 - 1.160970I$ $a = -0.753282 + 0.069149I$ $b = 0.572931 + 0.504230I$	$-6.11139 - 3.64867I$	$-10.51258 + 6.38309I$
$u = 0.259282 + 0.636659I$ $a = -0.91563 + 1.57663I$ $b = -0.847475 - 0.963533I$	$0.67008 - 3.51851I$	$-3.24653 + 1.59762I$
$u = 0.259282 - 0.636659I$ $a = -0.91563 - 1.57663I$ $b = -0.847475 + 0.963533I$	$0.67008 + 3.51851I$	$-3.24653 - 1.59762I$
$u = -0.654920$ $a = 0.325115$ $b = -0.128661$	-0.994337	-5.14270
$u = 0.27416 + 1.57663I$ $a = 0.364136 - 0.936698I$ $b = 0.213812 + 0.901583I$	$3.76330 - 2.62652I$	0
$u = 0.27416 - 1.57663I$ $a = 0.364136 + 0.936698I$ $b = 0.213812 - 0.901583I$	$3.76330 + 2.62652I$	0
$u = 0.06542 + 1.60221I$ $a = 0.25871 + 1.88519I$ $b = -1.06635 - 1.25262I$	$8.42220 - 4.67294I$	0
$u = 0.06542 - 1.60221I$ $a = 0.25871 - 1.88519I$ $b = -1.06635 + 1.25262I$	$8.42220 + 4.67294I$	0
$u = 0.04590 + 1.62872I$ $a = 0.00837 - 1.44018I$ $b = 0.652195 + 1.058360I$	$10.81300 - 0.15593I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.04590 - 1.62872I$ $a = 0.00837 + 1.44018I$ $b = 0.652195 - 1.058360I$	$10.81300 + 0.15593I$	0
$u = 0.19961 + 1.62106I$ $a = -0.04569 + 1.63892I$ $b = -0.77835 - 1.26024I$	$6.09827 - 10.02090I$	0
$u = 0.19961 - 1.62106I$ $a = -0.04569 - 1.63892I$ $b = -0.77835 + 1.26024I$	$6.09827 + 10.02090I$	0
$u = 0.275491 + 0.216775I$ $a = 0.40956 + 1.65132I$ $b = -0.516630 + 0.595869I$	$-0.45318 + 1.49811I$	$-4.17600 - 5.66136I$
$u = 0.275491 - 0.216775I$ $a = 0.40956 - 1.65132I$ $b = -0.516630 - 0.595869I$	$-0.45318 - 1.49811I$	$-4.17600 + 5.66136I$
$u = 0.18131 + 1.64123I$ $a = -0.33033 - 1.94950I$ $b = 1.20109 + 1.31387I$	$0.2220 - 15.8446I$	0
$u = 0.18131 - 1.64123I$ $a = -0.33033 + 1.94950I$ $b = 1.20109 - 1.31387I$	$0.2220 + 15.8446I$	0
$u = -0.06816 + 1.65589I$ $a = 0.128156 + 0.626015I$ $b = -0.359867 - 0.399152I$	$5.55507 + 2.59285I$	0
$u = -0.06816 - 1.65589I$ $a = 0.128156 - 0.626015I$ $b = -0.359867 + 0.399152I$	$5.55507 - 2.59285I$	0

II. $I_2^u = \langle -1.23 \times 10^{16} a^5 u^8 - 5.82 \times 10^{15} a^4 u^8 + \cdots + 7.79 \times 10^{15} a + 1.60 \times 10^{16},\ -2u^8 a^4 - u^8 a^3 + \cdots - 51a - 8,\ u^9 + u^8 + \cdots + u + 1 \rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} a \\ 0.513262a^5u^8 + 0.241947a^4u^8 + \cdots - 0.323883a - 0.664986 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.513262a^5u^8 + 0.241947a^4u^8 + \cdots + 0.676117a - 0.664986 \\ 0.513262a^5u^8 + 0.241947a^4u^8 + \cdots - 0.323883a - 0.664986 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.603905a^5u^8 - 0.0780679a^4u^8 + \cdots + 0.720120a - 0.843094 \\ -0.404937a^5u^8 + 0.00574372a^4u^8 + \cdots + 0.605027a - 0.598552 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.17240a^5u^8 - 0.330244a^4u^8 + \cdots + 0.284771a + 1.02793 \\ -0.261374a^5u^8 - 0.469207a^4u^8 + \cdots - 0.104560a - 0.0143170 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.404320a^5u^8 - 0.0844140a^4u^8 + \cdots + 0.788943a + 1.29237 \\ -0.275144a^5u^8 + 0.0139674a^4u^8 + \cdots + 0.455972a + 0.226517 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.633736a^5u^8 + 0.276828a^4u^8 + \cdots - 0.0682940a - 0.732949 \\ 0.666311a^5u^8 + 0.463464a^4u^8 + \cdots - 0.500467a - 0.387131 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{7120397197575888}{2671575513101105}u^8a^5 - \frac{4952713186605196}{2671575513101105}u^8a^4 + \cdots + \frac{82279149703176}{41101161740017}a - \frac{11892452399477002}{2671575513101105}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{54} - 9u^{53} + \cdots + 22u - 1$
c_2, c_6	$(u^3 + u^2 + 2u + 1)^{18}$
c_3, c_5, c_9 c_{10}	$u^{54} - u^{53} + \cdots + 2198u + 6221$
c_7, c_8, c_{11} c_{12}	$(u^9 + u^8 + 6u^7 + 5u^6 + 11u^5 + 7u^4 + 6u^3 + 2u^2 + u + 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{54} - 5y^{53} + \cdots - 200y + 1$
c_2, c_6	$(y^3 + 3y^2 + 2y - 1)^{18}$
c_3, c_5, c_9 c_{10}	$y^{54} - 45y^{53} + \cdots - 751525392y + 38700841$
c_7, c_8, c_{11} c_{12}	$(y^9 + 11y^8 + 48y^7 + 105y^6 + 121y^5 + 73y^4 + 20y^3 - 6y^2 - 3y - 1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.429032+0.787939I$ $a=\ \ 0.657021+0.673116I$ $b=\ \ 0.525744-0.533627I$	$1.34145+3.41073I$	$-3.09811-4.39642I$
$u=-0.429032+0.787939I$ $a=-0.185248-1.102330I$ $b=-0.617353+0.872102I$	$1.34145+3.41073I$	$-3.09811-4.39642I$
$u=-0.429032+0.787939I$ $a=-0.805501+0.871788I$ $b=\ \ 0.505435+0.221792I$	$-2.79613+0.58261I$	$-9.62737-1.41698I$
$u=-0.429032+0.787939I$ $a=\ \ 0.680646+0.092622I$ $b=-0.732937-0.705615I$	$-2.79613+0.58261I$	$-9.62737-1.41698I$
$u=-0.429032+0.787939I$ $a=-0.03604+1.55167I$ $b=\ \ 1.31899-1.13527I$	$-2.79613+6.23885I$	$-9.62737-7.37587I$
$u=-0.429032+0.787939I$ $a=-0.93584-1.51829I$ $b=-0.878526+0.832237I$	$-2.79613+6.23885I$	$-9.62737-7.37587I$
$u=-0.429032-0.787939I$ $a=\ \ 0.657021-0.673116I$ $b=\ \ 0.525744+0.533627I$	$1.34145-3.41073I$	$-3.09811+4.39642I$
$u=-0.429032-0.787939I$ $a=-0.185248+1.102330I$ $b=-0.617353-0.872102I$	$1.34145-3.41073I$	$-3.09811+4.39642I$
$u=-0.429032-0.787939I$ $a=-0.805501-0.871788I$ $b=\ \ 0.505435-0.221792I$	$-2.79613-0.58261I$	$-9.62737+1.41698I$
$u=-0.429032-0.787939I$ $a=\ \ 0.680646-0.092622I$ $b=-0.732937+0.705615I$	$-2.79613-0.58261I$	$-9.62737+1.41698I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.429032-0.787939I$ $a=-0.03604-1.55167I$ $b=\ \ 1.31899+1.13527I$	$-2.79613-6.23885I$	$-9.62737+7.37587I$
$u=-0.429032-0.787939I$ $a=-0.93584+1.51829I$ $b=-0.878526-0.832237I$	$-2.79613-6.23885I$	$-9.62737+7.37587I$
$u=-0.590618$ $a=-1.065320+0.113642I$ $b=-0.764982+0.819272I$	$-5.12213+2.82812I$	$-13.8431-2.9794I$
$u=-0.590618$ $a=-1.065320-0.113642I$ $b=-0.764982-0.819272I$	$-5.12213-2.82812I$	$-13.8431+2.9794I$
$u=-0.590618$ $a=\ \ 0.214215+0.836149I$ $b=\ \ 1.081010+0.550995I$	$-5.12213-2.82812I$	$-13.8431+2.9794I$
$u=-0.590618$ $a=\ \ 0.214215-0.836149I$ $b=\ \ 1.081010-0.550995I$	$-5.12213+2.82812I$	$-13.8431-2.9794I$
$u=-0.590618$ $a=\ \ 0.503448$ $b=\ \ 0.0621929$	-0.984552	-7.31380
$u=-0.590618$ $a=\ \ 0.228776$ $b=-0.334077$	-0.984552	-7.31380
$u=\ \ 0.290170+0.487341I$ $a=-1.45383+0.43731I$ $b=\ \ 1.60515-1.25639I$	$-7.92355-3.93782I$	$-14.9560+9.2189I$
$u=\ \ 0.290170+0.487341I$ $a=-0.269361-0.304133I$ $b=-1.135660+0.475716I$	$-3.78596-1.10969I$	$-8.42675+6.23947I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.290170 + 0.487341I$ $a = 2.12283 + 0.28843I$ $b = 1.025950 + 0.133490I$	$-7.92355 + 1.71843I$	$-14.9560 + 3.2600I$
$u = 0.290170 + 0.487341I$ $a = 0.18762 + 2.78442I$ $b = -0.491313 - 0.634935I$	$-3.78596 - 1.10969I$	$-8.42675 + 6.23947I$
$u = 0.290170 + 0.487341I$ $a = 0.41956 - 3.09076I$ $b = 0.70806 + 1.65696I$	$-7.92355 + 1.71843I$	$-14.9560 + 3.2600I$
$u = 0.290170 + 0.487341I$ $a = -0.89854 - 3.40095I$ $b = 0.443076 - 0.163926I$	$-7.92355 - 3.93782I$	$-14.9560 + 9.2189I$
$u = 0.290170 - 0.487341I$ $a = -1.45383 - 0.43731I$ $b = 1.60515 + 1.25639I$	$-7.92355 + 3.93782I$	$-14.9560 - 9.2189I$
$u = 0.290170 - 0.487341I$ $a = -0.269361 + 0.304133I$ $b = -1.135660 - 0.475716I$	$-3.78596 + 1.10969I$	$-8.42675 - 6.23947I$
$u = 0.290170 - 0.487341I$ $a = 2.12283 - 0.28843I$ $b = 1.025950 - 0.133490I$	$-7.92355 - 1.71843I$	$-14.9560 - 3.2600I$
$u = 0.290170 - 0.487341I$ $a = 0.18762 - 2.78442I$ $b = -0.491313 + 0.634935I$	$-3.78596 + 1.10969I$	$-8.42675 - 6.23947I$
$u = 0.290170 - 0.487341I$ $a = 0.41956 + 3.09076I$ $b = 0.70806 - 1.65696I$	$-7.92355 - 1.71843I$	$-14.9560 - 3.2600I$
$u = 0.290170 - 0.487341I$ $a = -0.89854 + 3.40095I$ $b = 0.443076 + 0.163926I$	$-7.92355 + 3.93782I$	$-14.9560 - 9.2189I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.05587 + 1.55975I$ $a = 0.957963 - 0.490086I$ $b = -1.59886 + 0.51276I$	$3.24228 - 2.21388I$	$-4.73934 + 3.04598I$
$u = 0.05587 + 1.55975I$ $a = -0.77028 - 1.67796I$ $b = 0.0473285 + 0.1306670I$	$-0.89531 - 5.04200I$	$-11.26860 + 6.02543I$
$u = 0.05587 + 1.55975I$ $a = 0.147478 - 0.041645I$ $b = 1.285880 - 0.019926I$	$-0.895307 + 0.614244I$	$-11.26860 + 0.06653I$
$u = 0.05587 + 1.55975I$ $a = 0.36282 + 2.03388I$ $b = -0.071170 - 0.998368I$	$3.24228 - 2.21388I$	$-4.73934 + 3.04598I$
$u = 0.05587 + 1.55975I$ $a = -2.28826 + 1.18677I$ $b = 2.37301 - 1.21408I$	$-0.89531 - 5.04200I$	$-11.26860 + 6.02543I$
$u = 0.05587 + 1.55975I$ $a = -0.15939 - 3.05606I$ $b = 0.17612 + 2.23225I$	$-0.895307 + 0.614244I$	$-11.26860 + 0.06653I$
$u = 0.05587 - 1.55975I$ $a = 0.957963 + 0.490086I$ $b = -1.59886 - 0.51276I$	$3.24228 + 2.21388I$	$-4.73934 - 3.04598I$
$u = 0.05587 - 1.55975I$ $a = -0.77028 + 1.67796I$ $b = 0.0473285 - 0.1306670I$	$-0.89531 + 5.04200I$	$-11.26860 - 6.02543I$
$u = 0.05587 - 1.55975I$ $a = 0.147478 + 0.041645I$ $b = 1.285880 + 0.019926I$	$-0.895307 - 0.614244I$	$-11.26860 - 0.06653I$
$u = 0.05587 - 1.55975I$ $a = 0.36282 - 2.03388I$ $b = -0.071170 + 0.998368I$	$3.24228 + 2.21388I$	$-4.73934 - 3.04598I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.05587 - 1.55975I$ $a = -2.28826 - 1.18677I$ $b = 2.37301 + 1.21408I$	$-0.89531 + 5.04200I$	$-11.26860 - 6.02543I$
$u = 0.05587 - 1.55975I$ $a = -0.15939 + 3.05606I$ $b = 0.17612 - 2.23225I$	$-0.895307 - 0.614244I$	$-11.26860 - 0.06653I$
$u = -0.12170 + 1.63384I$ $a = 0.156969 + 0.921253I$ $b = -0.081545 - 0.567424I$	$5.50228 + 2.67236I$	$-8.02038 + 0.00647I$
$u = -0.12170 + 1.63384I$ $a = 0.002175 + 1.150340I$ $b = 0.827657 - 0.783679I$	$9.63986 + 5.50049I$	$-1.49111 - 2.97298I$
$u = -0.12170 + 1.63384I$ $a = -0.05149 - 1.68116I$ $b = -1.015860 + 0.911097I$	$5.50228 + 8.32861I$	$-8.02038 - 5.95242I$
$u = -0.12170 + 1.63384I$ $a = 0.245597 - 0.004809I$ $b = -0.587278 + 0.080169I$	$5.50228 + 2.67236I$	$-8.02038 + 0.00647I$
$u = -0.12170 + 1.63384I$ $a = 0.18553 - 1.77944I$ $b = -0.70006 + 1.31119I$	$9.63986 + 5.50049I$	$-1.49111 - 2.97298I$
$u = -0.12170 + 1.63384I$ $a = -0.78744 + 2.22718I$ $b = 1.38806 - 1.65016I$	$5.50228 + 8.32861I$	$-8.02038 - 5.95242I$
$u = -0.12170 - 1.63384I$ $a = 0.156969 - 0.921253I$ $b = -0.081545 + 0.567424I$	$5.50228 - 2.67236I$	$-8.02038 - 0.00647I$
$u = -0.12170 - 1.63384I$ $a = 0.002175 - 1.150340I$ $b = 0.827657 + 0.783679I$	$9.63986 - 5.50049I$	$-1.49111 + 2.97298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.12170-1.63384I$ $a=-0.05149+1.68116I$ $b=-1.015860-0.911097I$	$5.50228-8.32861I$	$-8.02038+5.95242I$
$u=-0.12170-1.63384I$ $a=\ \ 0.245597+0.004809I$ $b=-0.587278-0.080169I$	$5.50228-2.67236I$	$-8.02038-0.00647I$
$u=-0.12170-1.63384I$ $a=\ \ 0.18553+1.77944I$ $b=-0.70006-1.31119I$	$9.63986-5.50049I$	$-1.49111+2.97298I$
$u=-0.12170-1.63384I$ $a=-0.78744-2.22718I$ $b=\ \ 1.38806+1.65016I$	$5.50228-8.32861I$	$-8.02038+5.95242I$

III.

$\boldsymbol{I_3^u = \langle -u^{14}+2u^{13}+\cdots+b-2u,\ u^{14}-3u^{13}+\cdots+a-2,\ u^{17}-2u^{16}+\cdots+u+1\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} -u^{14}+3u^{13}+\cdots-5u+2 \\ u^{14}-2u^{13}+\cdots-3u^2+2u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^{13}-2u^{12}+\cdots-3u+2 \\ u^{14}-2u^{13}+\cdots-3u^2+2u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{13}+2u^{12}+\cdots-3u-2 \\ -u^{14}+2u^{13}+\cdots-3u^2-u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{16}-2u^{15}+\cdots+8u+1 \\ -u^{13}+2u^{12}+\cdots-u-1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{16}+5u^{15}+\cdots-4u+1 \\ u^{16}-2u^{15}+\cdots+2u+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3+2u \\ u^5+3u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{14}+3u^{13}+\cdots-4u+2 \\ u^7-u^6+5u^5-4u^4+7u^3-4u^2+2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= 2u^{13}-3u^{12}+19u^{11}-24u^{10}+66u^9-72u^8+102u^7-97u^6+69u^5-52u^4+20u^3-4u^2+u-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{17} - u^{16} + \cdots + 2u - 1$
c_2	$u^{17} + u^{16} + \cdots - 10u^2 - 3$
c_3, c_9	$u^{17} + u^{16} + \cdots + u + 1$
c_5, c_{10}	$u^{17} - u^{16} + \cdots + u - 1$
c_6	$u^{17} - u^{16} + \cdots + 10u^2 + 3$
c_7, c_8	$u^{17} - 2u^{16} + \cdots + u + 1$
c_{11}, c_{12}	$u^{17} + 2u^{16} + \cdots + u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{17} - y^{16} + \cdots - 8y^2 - 1$
c_2, c_6	$y^{17} + 15y^{16} + \cdots - 60y - 9$
c_3, c_5, c_9 c_{10}	$y^{17} - 17y^{16} + \cdots + 11y - 1$
c_7, c_8, c_{11} c_{12}	$y^{17} + 22y^{16} + \cdots - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.158227+0.949272I$ $a=-1.136970-0.062397I$ $b=\ \ 0.576177-0.451096I$	$-5.95683-2.21682I$	$-9.81981+0.30111I$
$u=-0.158227-0.949272I$ $a=-1.136970+0.062397I$ $b=\ \ 0.576177+0.451096I$	$-5.95683+2.21682I$	$-9.81981-0.30111I$
$u=\ \ 0.439599+0.688982I$ $a=-0.563792+1.172180I$ $b=-0.860698-0.831831I$	$-0.05785-4.28043I$	$-10.18807+7.70783I$
$u=\ \ 0.439599-0.688982I$ $a=-0.563792-1.172180I$ $b=-0.860698+0.831831I$	$-0.05785+4.28043I$	$-10.18807-7.70783I$
$u=\ \ 0.715193+0.361678I$ $a=\ \ 0.225758+0.289071I$ $b=-0.415698+0.484695I$	$-1.238940+0.551953I$	$-8.26268-6.70534I$
$u=\ \ 0.715193-0.361678I$ $a=\ \ 0.225758-0.289071I$ $b=-0.415698-0.484695I$	$-1.238940-0.551953I$	$-8.26268+6.70534I$
$u=-0.07755+1.51837I$ $a=\ \ 0.492857+1.111350I$ $b=-0.826430-0.550020I$	$1.75755+1.32675I$	$-10.54146-0.18651I$
$u=-0.07755-1.51837I$ $a=\ \ 0.492857-1.111350I$ $b=-0.826430+0.550020I$	$1.75755-1.32675I$	$-10.54146+0.18651I$
$u=-0.089258+0.450353I$ $a=\ \ 0.54876-3.32108I$ $b=\ \ 0.958039+0.895126I$	$-7.51795+3.03846I$	$-9.32293-1.07500I$
$u=-0.089258-0.450353I$ $a=\ \ 0.54876+3.32108I$ $b=\ \ 0.958039-0.895126I$	$-7.51795-3.03846I$	$-9.32293+1.07500I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.02518+1.56968I$ $a=-0.49099-1.93094I$ $b=\ \ 1.21011+1.14848I$	$-0.41020+3.44403I$	$-9.10995-1.06240I$
$u=-0.02518-1.56968I$ $a=-0.49099+1.93094I$ $b=\ \ 1.21011-1.14848I$	$-0.41020-3.44403I$	$-9.10995+1.06240I$
$u=\ \ 0.11745+1.61385I$ $a=\ \ 0.31046+1.74278I$ $b=-1.06077-1.14010I$	$7.84428-6.30616I$	$-7.19477+5.21827I$
$u=\ \ 0.11745-1.61385I$ $a=\ \ 0.31046-1.74278I$ $b=-1.06077+1.14010I$	$7.84428+6.30616I$	$-7.19477-5.21827I$
$u=\ \ 0.22028+1.66250I$ $a=\ \ 0.126398-0.701786I$ $b=\ \ 0.248846+0.601825I$	$5.91054-3.35847I$	$-0.75485+9.25452I$
$u=\ \ 0.22028-1.66250I$ $a=\ \ 0.126398+0.701786I$ $b=\ \ 0.248846-0.601825I$	$5.91054+3.35847I$	$-0.75485-9.25452I$
$u=-0.284621$ $a=\ \ 2.97503$ $b=-0.659150$	-3.95106	-10.6110

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^{17}-u^{16}+\cdots+2u-1)(u^{29}-u^{28}+\cdots+9u+1)$ $\cdot(u^{54}-9u^{53}+\cdots+22u-1)$
c_2	$((u^3+u^2+2u+1)^{18})(u^{17}+u^{16}+\cdots-10u^2-3)$ $\cdot(u^{29}-18u^{28}+\cdots-6144u+512)$
c_3, c_9	$(u^{17}+u^{16}+\cdots+u+1)(u^{29}-u^{28}+\cdots+2u+1)$ $\cdot(u^{54}-u^{53}+\cdots+2198u+6221)$
c_5, c_{10}	$(u^{17}-u^{16}+\cdots+u-1)(u^{29}-u^{28}+\cdots+2u+1)$ $\cdot(u^{54}-u^{53}+\cdots+2198u+6221)$
c_6	$((u^3+u^2+2u+1)^{18})(u^{17}-u^{16}+\cdots+10u^2+3)$ $\cdot(u^{29}-18u^{28}+\cdots-6144u+512)$
c_7, c_8	$(u^9+u^8+6u^7+5u^6+11u^5+7u^4+6u^3+2u^2+u+1)^6$ $\cdot(u^{17}-2u^{16}+\cdots+u+1)(u^{29}-9u^{28}+\cdots-100u+8)$
c_{11}, c_{12}	$(u^9+u^8+6u^7+5u^6+11u^5+7u^4+6u^3+2u^2+u+1)^6$ $\cdot(u^{17}+2u^{16}+\cdots+u-1)(u^{29}-9u^{28}+\cdots-100u+8)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^{17} - y^{16} + \cdots - 8y^2 - 1)(y^{29} + 9y^{28} + \cdots + 51y - 1)$ $\cdot (y^{54} - 5y^{53} + \cdots - 200y + 1)$
c_2, c_6	$((y^3 + 3y^2 + 2y - 1)^{18})(y^{17} + 15y^{16} + \cdots - 60y - 9)$ $\cdot (y^{29} + 18y^{28} + \cdots + 524288y - 262144)$
c_3, c_5, c_9 c_{10}	$(y^{17} - 17y^{16} + \cdots + 11y - 1)(y^{29} - 23y^{28} + \cdots - 2y - 1)$ $\cdot (y^{54} - 45y^{53} + \cdots - 751525392y + 38700841)$
c_7, c_8, c_{11} c_{12}	$(y^9 + 11y^8 + 48y^7 + 105y^6 + 121y^5 + 73y^4 + 20y^3 - 6y^2 - 3y - 1)^6$ $\cdot (y^{17} + 22y^{16} + \cdots - y - 1)(y^{29} + 33y^{28} + \cdots - 112y - 64)$