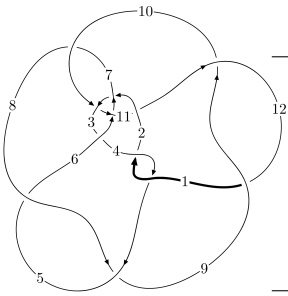
$12a_{1022}$ $(K12a_{1022})$



A knot diagram[1]

Linearized knot diagam

$$\rightarrow \underset{4}{\downarrow} \rightarrow \underset{7}{\downarrow} \rightarrow \underset{6}{\uparrow} \rightarrow \underset{1}{\downarrow} \rightarrow \underset{8}{\downarrow} \rightarrow \underset{11}{\downarrow} \rightarrow \underset{10}{\uparrow} \rightarrow \underset{5}{\downarrow} \rightarrow \underset{12}{\downarrow} \rightarrow \underset{3}{\downarrow} \rightarrow \underset{2}{\uparrow} \rightarrow \underset{9}{\downarrow} \rightarrow$$

Solving Sequence

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

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

[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).

$$
\begin{aligned}
I^u_1 &= \langle b-u,\ a-1,\ u^{11}+3u^{10}+10u^9+16u^8+25u^7+22u^6+17u^5+7u^4+2u^3+2u^2+2u-1\rangle\\
I^u_2 &= \langle b-u,\ -32833783u^{25}+115127419u^{24}+\cdots+15217558a+63920326,\ u^{26}-4u^{25}+\cdots-8u+1\rangle\\
I^u_3 &= \langle -16207713u^{25}+59026143u^{24}+\cdots+152175558b+32833783,\ a-1,\ u^{26}-4u^{25}+\cdots-8u+1\rangle\\
I^u_4 &= \langle -1.98504\times 10^{21}u^{25}-3.05841\times 10^{22}u^{24}+\cdots+4.27582\times 10^{21}b-1.24580\times 10^{24},\\
&\qquad 7.78622\times 10^{22}u^{25}+1.18227\times 10^{24}u^{24}+\cdots+1.36826\times 10^{23}a+2.49940\times 10^{25},\\
&\qquad u^{26}+16u^{25}+\cdots+4800u+512\rangle\\
I^u_5 &= \langle b+u,\ a+1,\ u^{10}+2u^9+6u^8+6u^7+9u^6+5u^5+6u^4+3u^3+3u^2+u+1\rangle\\
I^u_6 &= \langle b+u,\ 2u^9+u^8+10u^7+8u^6+22u^5+19u^4+25u^3+17u^2+a+13u+3,\\
&\qquad u^{10}+u^9+5u^8+6u^7+12u^6+13u^5+15u^4+12u^3+9u^2+4u+1\rangle\\
I^u_7 &= \langle -u^9-4u^7-2u^6-7u^5-5u^4-7u^3-5u^2+b-5u-2,\ a+1,\\
&\qquad u^{10}+u^9+5u^8+6u^7+12u^6+13u^5+15u^4+12u^3+9u^2+4u+1\rangle\\
I^u_8 &= \langle 136u^9+138u^8+938u^7+182u^6+237u^5-1628u^4-2106u^3-2845u^2+809b-2290u-883,\\
&\qquad 883u^9+3668u^8+\cdots+809a+2125,\\
&\qquad u^{10}+4u^9+15u^8+34u^7+57u^6+71u^5+66u^4+45u^3+20u^2+5u+1\rangle\\
I^u_9 &= \langle -3.23739\times 10^{22}u^{35}+2.81046\times 10^{23}u^{34}+\cdots+6.80585\times 10^{22}b+8.32842\times 10^{23},\\
&\qquad -2.58181\times 10^{25}au^{35}-1.04570\times 10^{25}u^{35}+\cdots+6.94260\times 10^{26}a-5.64319\times 10^{26},\\
&\qquad u^{36}-9u^{35}+\cdots-134u+31\rangle
\end{aligned}
$$

* 9 irreducible components of $\dim_{\mathbb{C}}=0$, with total 201 representations.

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

I. $I_1^u = \langle b - u,\ a - 1,\ u^{11} + 3u^{10} + \cdots + 2u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u + 1 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + u + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^6 + 2u^5 + 4u^4 + 3u^3 + 2u^2 + 1 \\ u^6 + u^5 + 2u^4 - u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u^2 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^3 + u^2 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^6 + u^5 + 3u^4 + u^3 + 2u^2 + u + 1 \\ u^7 + 2u^6 + 4u^5 + 3u^4 + 2u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^5 - u^4 - 2u^3 + u \\ u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -3u^{10} - 9u^9 - 27u^8 - 45u^7 - 63u^6 - 63u^5 - 45u^4 - 24u^3 - 12u^2 - 9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$u^{11} - 3u^{10} + \cdots + 2u + 1$
c_2, c_6, c_{10}	$u^{11} + 5u^{10} + 13u^9 + 20u^8 + 21u^7 + 15u^6 + 9u^5 + 4u^4 + 2u^3 + u + 1$
c_3, c_7, c_{11}	$u^{11} + 6u^{10} + \cdots + 13u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$y^{11} + 11y^{10} + \cdots + 8y - 1$
c_2, c_6, c_{10}	$y^{11} + y^{10} + \cdots + y - 1$
c_3, c_7, c_{11}	$y^{11} + 2y^{10} + \cdots + 73y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.774257 + 0.374083I$ $a = \;\; 1.00000$ $b = -0.774257 + 0.374083I$	$-4.25720 - 4.91168I$	$-10.85180 + 1.59612I$
$u = -0.774257 - 0.374083I$ $a = \;\; 1.00000$ $b = -0.774257 - 0.374083I$	$-4.25720 + 4.91168I$	$-10.85180 - 1.59612I$
$u = -0.270847 + 1.340850I$ $a = \;\; 1.00000$ $b = -0.270847 + 1.340850I$	$8.14535 - 0.73285I$	$1.25794 + 2.64536I$
$u = -0.270847 - 1.340850I$ $a = \;\; 1.00000$ $b = -0.270847 - 1.340850I$	$8.14535 + 0.73285I$	$1.25794 - 2.64536I$
$u = \;\; 0.342788 + 0.497406I$ $a = \;\; 1.00000$ $b = \;\; 0.342788 + 0.497406I$	$-0.04623 - 2.08057I$	$-2.30453 + 3.92520I$
$u = \;\; 0.342788 - 0.497406I$ $a = \;\; 1.00000$ $b = \;\; 0.342788 - 0.497406I$	$-0.04623 + 2.08057I$	$-2.30453 - 3.92520I$
$u = -0.39626 + 1.49188I$ $a = \;\; 1.00000$ $b = -0.39626 + 1.49188I$	$13.36520 + 3.24725I$	$3.49713 - 0.24747I$
$u = -0.39626 - 1.49188I$ $a = \;\; 1.00000$ $b = -0.39626 - 1.49188I$	$13.36520 - 3.24725I$	$3.49713 + 0.24747I$
$u = -0.55532 + 1.54667I$ $a = \;\; 1.00000$ $b = -0.55532 + 1.54667I$	$7.1043 + 20.4661I$	$-2.35751 - 9.89201I$
$u = -0.55532 - 1.54667I$ $a = \;\; 1.00000$ $b = -0.55532 - 1.54667I$	$7.1043 - 20.4661I$	$-2.35751 + 9.89201I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	0.307797		
$a =$	1.00000	-0.919687	-11.4820
$b =$	0.307797		

II. $\boldsymbol{I^u_2 = \langle b-u,\ -3.28\times 10^{7}u^{25}+1.15\times 10^{8}u^{24}+\cdots+1.52\times 10^{7}a+6.39\times 10^{7},\ u^{26}-4u^{25}+\cdots-8u+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.15762u^{25}-7.56543u^{24}+\cdots+34.1422u-4.20043 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2.15762u^{25}-7.56543u^{24}+\cdots+35.1422u-4.20043 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.06507u^{25}-3.87882u^{24}+\cdots+13.0606u-1.15762 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.37871u^{25}-5.67363u^{24}+\cdots+8.30834u-0.326775 \\ 0.345083u^{25}-0.871352u^{24}+\cdots-1.72715u+0.250749 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2.81841u^{25}-11.6053u^{24}+\cdots+65.4231u-14.0818 \\ 0.381448u^{25}-1.80464u^{24}+\cdots+7.36291u-1.06507 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 5.49898u^{25}-20.1756u^{24}+\cdots+66.5441u-14.9384 \\ 1.06538u^{25}-3.01528u^{24}+\cdots+1.89123u-0.733408 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.994418u^{25}-5.04490u^{24}+\cdots+6.41196u-2.43422 \\ 0.501690u^{25}-2.09040u^{24}+\cdots+0.933452u-0.423238 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2.80974u^{25}-11.3423u^{24}+\cdots+61.9904u-13.1672 \\ 0.457444u^{25}-2.03581u^{24}+\cdots+8.95996u-1.75125 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{75282671}{7608779}u^{25}-\frac{266619655}{7608779}u^{24}+\cdots+\frac{938353524}{7608779}u-\frac{212625691}{7608779}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8	$u^{26} + 4u^{25} + \cdots + 8u + 1$
c_2	$u^{26} + 22u^{25} + \cdots + 152u + 32$
c_3	$u^{26} + 27u^{25} + \cdots + 65536u + 4096$
c_6, c_{10}	$u^{26} - 5u^{25} + \cdots - 4u + 1$
c_7, c_{11}	$u^{26} - 4u^{25} + \cdots - 7u + 1$
c_9, c_{12}	$u^{26} - 16u^{25} + \cdots - 4800u + 512$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{26} + 26y^{25} + \cdots - 26y + 1$
c_2	$y^{26} - 4y^{25} + \cdots - 11584y + 1024$
c_3	$y^{26} + 7y^{25} + \cdots + 645922816y + 16777216$
c_6, c_{10}	$y^{26} + 5y^{25} + \cdots - 6y + 1$
c_7, c_{11}	$y^{26} + 8y^{25} + \cdots + y + 1$
c_9, c_{12}	$y^{26} + 14y^{25} + \cdots + 1110016y + 262144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.813745 + 0.422636I$ $a = -0.813664 - 0.438057I$ $b = 0.813745 + 0.422636I$	$-2.68290 - 3.01106I$	$-20.1229 + 10.7502I$
$u = 0.813745 - 0.422636I$ $a = -0.813664 + 0.438057I$ $b = 0.813745 - 0.422636I$	$-2.68290 + 3.01106I$	$-20.1229 - 10.7502I$
$u = 0.123424 + 1.162910I$ $a = -1.93663 + 0.49379I$ $b = 0.123424 + 1.162910I$	$5.90859 + 4.10061I$	$2.79728 - 10.32745I$
$u = 0.123424 - 1.162910I$ $a = -1.93663 - 0.49379I$ $b = 0.123424 - 1.162910I$	$5.90859 - 4.10061I$	$2.79728 + 10.32745I$
$u = 0.769690 + 0.075945I$ $a = -0.525711 + 1.029160I$ $b = 0.769690 + 0.075945I$	$-2.57819 + 0.87030I$	$-17.9709 + 1.0721I$
$u = 0.769690 - 0.075945I$ $a = -0.525711 - 1.029160I$ $b = 0.769690 - 0.075945I$	$-2.57819 - 0.87030I$	$-17.9709 - 1.0721I$
$u = -0.729341 + 0.116282I$ $a = 0.55820 + 1.49864I$ $b = -0.729341 + 0.116282I$	$-2.36667 - 9.84234I$	$-8.56561 + 5.66390I$
$u = -0.729341 - 0.116282I$ $a = 0.55820 - 1.49864I$ $b = -0.729341 - 0.116282I$	$-2.36667 + 9.84234I$	$-8.56561 - 5.66390I$
$u = -0.056569 + 1.303740I$ $a = 0.746392 + 1.143550I$ $b = -0.056569 + 1.303740I$	$6.70389 - 1.79520I$	$5.95883 + 1.74216I$
$u = -0.056569 - 1.303740I$ $a = 0.746392 - 1.143550I$ $b = -0.056569 - 1.303740I$	$6.70389 + 1.79520I$	$5.95883 - 1.74216I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.302846 + 1.282200I$ $a = 0.451565 + 1.043670I$ $b = -0.302846 + 1.282200I$	$1.37803 + 13.53090I$	$-3.53647 - 9.06833I$
$u = -0.302846 - 1.282200I$ $a = 0.451565 - 1.043670I$ $b = -0.302846 - 1.282200I$	$1.37803 - 13.53090I$	$-3.53647 + 9.06833I$
$u = 0.272167 + 1.326590I$ $a = -0.079220 + 0.807508I$ $b = 0.272167 + 1.326590I$	$3.18245 - 5.41198I$	$-1.04824 + 12.39529I$
$u = 0.272167 - 1.326590I$ $a = -0.079220 - 0.807508I$ $b = 0.272167 - 1.326590I$	$3.18245 + 5.41198I$	$-1.04824 - 12.39529I$
$u = -0.042971 + 1.360470I$ $a = 0.454407 + 0.559333I$ $b = -0.042971 + 1.360470I$	$6.99635 - 1.64768I$	$2.93239 + 1.38429I$
$u = -0.042971 - 1.360470I$ $a = 0.454407 - 0.559333I$ $b = -0.042971 - 1.360470I$	$6.99635 + 1.64768I$	$2.93239 - 1.38429I$
$u = -0.359342 + 0.383452I$ $a = 1.45268 - 1.73242I$ $b = -0.359342 + 0.383452I$	$1.79210 - 2.89318I$	$-5.66787 + 3.03704I$
$u = -0.359342 - 0.383452I$ $a = 1.45268 + 1.73242I$ $b = -0.359342 - 0.383452I$	$1.79210 + 2.89318I$	$-5.66787 - 3.03704I$
$u = 0.33767 + 1.48359I$ $a = -1.092450 + 0.239272I$ $b = 0.33767 + 1.48359I$	$10.3557 - 10.3695I$	$2.75046 + 9.04972I$
$u = 0.33767 - 1.48359I$ $a = -1.092450 - 0.239272I$ $b = 0.33767 - 1.48359I$	$10.3557 + 10.3695I$	$2.75046 - 9.04972I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.42218 + 1.54686I$ $a = -0.749536 - 0.070449I$ $b = 0.42218 + 1.54686I$	$8.98409 - 4.61256I$	$0. + 3.52913I$
$u = 0.42218 - 1.54686I$ $a = -0.749536 + 0.070449I$ $b = 0.42218 - 1.54686I$	$8.98409 + 4.61256I$	$0. - 3.52913I$
$u = 0.52411 + 1.57107I$ $a = -0.900686 + 0.050431I$ $b = 0.52411 + 1.57107I$	$7.28763 - 11.38750I$	$-6.0000 + 13.5374I$
$u = 0.52411 - 1.57107I$ $a = -0.900686 - 0.050431I$ $b = 0.52411 - 1.57107I$	$7.28763 + 11.38750I$	$-6.0000 - 13.5374I$
$u = 0.228076 + 0.082713I$ $a = 3.43466 + 2.50584I$ $b = 0.228076 + 0.082713I$	$-0.54783 - 2.31386I$	$-1.42706 + 8.46763I$
$u = 0.228076 - 0.082713I$ $a = 3.43466 - 2.50584I$ $b = 0.228076 - 0.082713I$	$-0.54783 + 2.31386I$	$-1.42706 - 8.46763I$

III. $\boldsymbol{I^u_3 = \langle -1.62 \times 10^7 u^{25} + 5.90 \times 10^7 u^{24} + \cdots + 1.52 \times 10^7 b + 3.28 \times 10^7,\ a - 1,\ u^{26} - 4u^{25} + \cdots - 8u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 1.06507u^{25} - 3.87882u^{24} + \cdots + 13.0606u - 2.15762 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1.06507u^{25} - 3.87882u^{24} + \cdots + 13.0606u - 1.15762 \\ 1.06507u^{25} - 3.87882u^{24} + \cdots + 13.0606u - 2.15762 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.733408u^{25} - 1.86826u^{24} + \cdots + 21.5260u - 3.97603 \\ -0.331658u^{25} + 2.01056u^{24} + \cdots + 8.46544u - 2.81841 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.423238u^{25} - 1.19126u^{24} + \cdots + 2.13478u - 2.45245 \\ -0.733252u^{25} + 3.33702u^{24} + \cdots - 16.2748u + 2.22898 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ 0.381448u^{25} - 1.80464u^{24} + \cdots + 7.36291u - 1.06507 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ 0.786222u^{25} - 3.01419u^{24} + \cdots + 15.0471u - 2.53907 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1.75125u^{25} - 6.54757u^{24} + \cdots + 28.4703u - 5.05007 \\ 1.01789u^{25} - 3.75446u^{24} + \cdots + 14.8401u - 4.05295 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.250749u^{25} - 1.34808u^{24} + \cdots + 3.61220u - 0.278844 \\ 0.639680u^{25} - 2.50923u^{24} + \cdots + 7.76212u - 1.13131 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{75282671}{7608779}u^{25} - \frac{266619655}{7608779}u^{24} + \cdots + \frac{938353524}{7608779}u - \frac{212625691}{7608779}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$u^{26} + 4u^{25} + \cdots + 8u + 1$
c_2, c_6	$u^{26} - 5u^{25} + \cdots - 4u + 1$
c_3, c_7	$u^{26} - 4u^{25} + \cdots - 7u + 1$
c_5, c_8	$u^{26} - 16u^{25} + \cdots - 4800u + 512$
c_{10}	$u^{26} + 22u^{25} + \cdots + 152u + 32$
c_{11}	$u^{26} + 27u^{25} + \cdots + 65536u + 4096$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$y^{26} + 26y^{25} + \cdots - 26y + 1$
c_2, c_6	$y^{26} + 5y^{25} + \cdots - 6y + 1$
c_3, c_7	$y^{26} + 8y^{25} + \cdots + y + 1$
c_5, c_8	$y^{26} + 14y^{25} + \cdots + 1110016y + 262144$
c_{10}	$y^{26} - 4y^{25} + \cdots - 11584y + 1024$
c_{11}	$y^{26} + 7y^{25} + \cdots + 645922816y + 16777216$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.813745 + 0.422636I$ $a = 1.00000$ $b = -0.476976 - 0.700351I$	$-2.68290 - 3.01106I$	$-20.1229 + 10.7502I$
$u = 0.813745 - 0.422636I$ $a = 1.00000$ $b = -0.476976 + 0.700351I$	$-2.68290 + 3.01106I$	$-20.1229 - 10.7502I$
$u = 0.123424 + 1.162910I$ $a = 1.00000$ $b = -0.81325 - 2.19118I$	$5.90859 + 4.10061I$	$2.79728 - 10.32745I$
$u = 0.123424 - 1.162910I$ $a = 1.00000$ $b = -0.81325 + 2.19118I$	$5.90859 - 4.10061I$	$2.79728 + 10.32745I$
$u = 0.769690 + 0.075945I$ $a = 1.00000$ $b = -0.482793 + 0.752206I$	$-2.57819 + 0.87030I$	$-17.9709 + 1.0721I$
$u = 0.769690 - 0.075945I$ $a = 1.00000$ $b = -0.482793 - 0.752206I$	$-2.57819 - 0.87030I$	$-17.9709 - 1.0721I$
$u = -0.729341 + 0.116282I$ $a = 1.00000$ $b = -0.581380 - 1.028110I$	$-2.36667 - 9.84234I$	$-8.56561 + 5.66390I$
$u = -0.729341 - 0.116282I$ $a = 1.00000$ $b = -0.581380 + 1.028110I$	$-2.36667 + 9.84234I$	$-8.56561 - 5.66390I$
$u = -0.056569 + 1.303740I$ $a = 1.00000$ $b = -1.53312 + 0.90841I$	$6.70389 - 1.79520I$	$5.95883 + 1.74216I$
$u = -0.056569 - 1.303740I$ $a = 1.00000$ $b = -1.53312 - 0.90841I$	$6.70389 + 1.79520I$	$5.95883 - 1.74216I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.302846+1.282200I$ $a=\ \ 1.00000$ $b=-1.47496+0.26293I$	$1.37803+13.53090I$	$-3.53647-9.06833I$
$u=-0.302846-1.282200I$ $a=\ \ 1.00000$ $b=-1.47496-0.26293I$	$1.37803-13.53090I$	$-3.53647+9.06833I$
$u=\ \ 0.272167+1.326590I$ $a=\ \ 1.00000$ $b=-1.092800+0.114684I$	$3.18245-5.41198I$	$-1.04824+12.39529I$
$u=\ \ 0.272167-1.326590I$ $a=\ \ 1.00000$ $b=-1.092800-0.114684I$	$3.18245+5.41198I$	$-1.04824-12.39529I$
$u=-0.042971+1.360470I$ $a=\ \ 1.00000$ $b=-0.780481+0.594171I$	$6.99635-1.64768I$	$2.93239+1.38429I$
$u=-0.042971-1.360470I$ $a=\ \ 1.00000$ $b=-0.780481-0.594171I$	$6.99635+1.64768I$	$2.93239-1.38429I$
$u=-0.359342+0.383452I$ $a=\ \ 1.00000$ $b=\ \ 0.142290+1.179570I$	$1.79210-2.89318I$	$-5.66787+3.03704I$
$u=-0.359342-0.383452I$ $a=\ \ 1.00000$ $b=\ \ 0.142290-1.179570I$	$1.79210+2.89318I$	$-5.66787-3.03704I$
$u=\ \ 0.33767+1.48359I$ $a=\ \ 1.00000$ $b=-0.72387-1.53996I$	$10.3557-10.3695I$	$2.75046+9.04972I$
$u=\ \ 0.33767-1.48359I$ $a=\ \ 1.00000$ $b=-0.72387+1.53996I$	$10.3557+10.3695I$	$2.75046-9.04972I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.42218 + 1.54686I$ $a = 1.00000$ $b = -0.207464 - 1.189170I$	$8.98409 - 4.61256I$	$0. + 3.52913I$
$u = 0.42218 - 1.54686I$ $a = 1.00000$ $b = -0.207464 + 1.189170I$	$8.98409 + 4.61256I$	$0. - 3.52913I$
$u = 0.52411 + 1.57107I$ $a = 1.00000$ $b = -0.55129 - 1.38861I$	$7.28763 - 11.38750I$	$-6.0000 + 13.5374I$
$u = 0.52411 - 1.57107I$ $a = 1.00000$ $b = -0.55129 + 1.38861I$	$7.28763 + 11.38750I$	$-6.0000 - 13.5374I$
$u = 0.228076 + 0.082713I$ $a = 1.00000$ $b = 0.576097 + 0.855613I$	$-0.54783 - 2.31386I$	$-1.42706 + 8.46763I$
$u = 0.228076 - 0.082713I$ $a = 1.00000$ $b = 0.576097 - 0.855613I$	$-0.54783 + 2.31386I$	$-1.42706 - 8.46763I$

IV. $\boldsymbol{I_4^u = \langle -1.99 \times 10^{21} u^{25} - 3.06 \times 10^{22} u^{24} + \cdots + 4.28 \times 10^{21} b - 1.25 \times 10^{24},\ 7.79 \times 10^{22} u^{25} + 1.18 \times 10^{24} u^{24} + \cdots + 1.37 \times 10^{23} a + 2.50 \times 10^{25},\ u^{26} + 16u^{25} + \cdots + 4800u + 512 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.569059u^{25} - 8.64070u^{24} + \cdots - 1794.38u - 182.670 \\ 0.464247u^{25} + 7.15281u^{24} + \cdots + 2548.81u + 291.358 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.104812u^{25} - 1.48789u^{24} + \cdots + 754.438u + 108.689 \\ 0.464247u^{25} + 7.15281u^{24} + \cdots + 2548.81u + 291.358 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.163997u^{25} - 2.44303u^{24} + \cdots + 647.490u + 104.877 \\ 0.168292u^{25} + 2.70530u^{24} + \cdots + 1528.73u + 170.132 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.160379u^{25} - 2.67664u^{24} + \cdots - 1537.33u - 176.728 \\ -0.437158u^{25} - 6.49946u^{24} + \cdots - 605.410u - 41.8128 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.332289u^{25} - 5.14833u^{24} + \cdots - 881.241u - 66.2547 \\ 0.168292u^{25} + 2.70530u^{24} + \cdots + 1529.73u + 170.132 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.465710u^{25} - 7.70167u^{24} + \cdots - 3049.11u - 314.804 \\ -0.525455u^{25} - 7.49088u^{24} + \cdots - 16.4232u + 0.749111 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2.04513u^{25} - 33.1074u^{24} + \cdots - 13615.2u - 1488.51 \\ 0.602416u^{25} + 10.4558u^{24} + \cdots + 8812.89u + 1024.21 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.163806u^{25} - 2.61622u^{24} + \cdots - 22.1965u + 33.6433 \\ -0.191654u^{25} - 2.70075u^{24} + \cdots - 28.4066u - 13.5376 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{867712374557066895590 3}{21379108524716571014 64} u^{25} + \frac{37110273149493833583689}{5344777131179142753 66} u^{24} + \cdots + \frac{1474219562665057205592524 0}{2672388565589571376 83} u + \frac{592218296124020712509686}{890796188529857125 61}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{26} - 16u^{25} + \cdots - 4800u + 512$
c_2, c_{10}	$u^{26} - 5u^{25} + \cdots - 4u + 1$
c_3, c_{11}	$u^{26} - 4u^{25} + \cdots - 7u + 1$
c_5, c_8, c_9 c_{12}	$u^{26} + 4u^{25} + \cdots + 8u + 1$
c_6	$u^{26} + 22u^{25} + \cdots + 152u + 32$
c_7	$u^{26} + 27u^{25} + \cdots + 65536u + 4096$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{26} + 14y^{25} + \cdots + 1110016y + 262144$
c_2, c_{10}	$y^{26} + 5y^{25} + \cdots - 6y + 1$
c_3, c_{11}	$y^{26} + 8y^{25} + \cdots + y + 1$
c_5, c_8, c_9 c_{12}	$y^{26} + 26y^{25} + \cdots - 26y + 1$
c_6	$y^{26} - 4y^{25} + \cdots - 11584y + 1024$
c_7	$y^{26} + 7y^{25} + \cdots + 645922816y + 16777216$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.780481 + 0.594171I$ $a = 0.874972 - 1.077010I$ $b = -0.042971 + 1.360470I$	$6.99635 - 1.64768I$	$2.93239 + 1.38429I$
$u = -0.780481 - 0.594171I$ $a = 0.874972 + 1.077010I$ $b = -0.042971 - 1.360470I$	$6.99635 + 1.64768I$	$2.93239 - 1.38429I$
$u = 0.576097 + 0.855613I$ $a = 0.190011 - 0.138627I$ $b = 0.228076 + 0.082713I$	$-0.54783 - 2.31386I$	$-1.42706 + 8.46763I$
$u = 0.576097 - 0.855613I$ $a = 0.190011 + 0.138627I$ $b = 0.228076 - 0.082713I$	$-0.54783 + 2.31386I$	$-1.42706 - 8.46763I$
$u = -1.092800 + 0.114684I$ $a = -0.120333 - 1.226570I$ $b = 0.272167 + 1.326590I$	$3.18245 - 5.41198I$	$-1.04824 + 12.39529I$
$u = -1.092800 - 0.114684I$ $a = -0.120333 + 1.226570I$ $b = 0.272167 - 1.326590I$	$3.18245 + 5.41198I$	$-1.04824 - 12.39529I$
$u = -0.482793 + 0.752206I$ $a = -0.393633 - 0.770595I$ $b = 0.769690 + 0.075945I$	$-2.57819 + 0.87030I$	$-17.9709 + 1.0721I$
$u = -0.482793 - 0.752206I$ $a = -0.393633 + 0.770595I$ $b = 0.769690 - 0.075945I$	$-2.57819 - 0.87030I$	$-17.9709 - 1.0721I$
$u = -0.476976 + 0.700351I$ $a = -0.952831 - 0.512982I$ $b = 0.813745 - 0.422636I$	$-2.68290 + 3.01106I$	$-20.1229 - 10.7502I$
$u = -0.476976 - 0.700351I$ $a = -0.952831 + 0.512982I$ $b = 0.813745 + 0.422636I$	$-2.68290 - 3.01106I$	$-20.1229 + 10.7502I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.581380 + 1.028110I$ $a = \ \ 0.218258 + 0.585977I$ $b = -0.729341 - 0.116282I$	$-2.36667 + 9.84234I$	$-6.00000 - 5.66390I$
$u = -0.581380 - 1.028110I$ $a = \ \ 0.218258 - 0.585977I$ $b = -0.729341 + 0.116282I$	$-2.36667 - 9.84234I$	$-6.00000 + 5.66390I$
$u = \ \ 0.142290 + 1.179570I$ $a = \ \ 0.284195 + 0.338921I$ $b = -0.359342 + 0.383452I$	$1.79210 - 2.89318I$	$-6.00000 + 3.03704I$
$u = \ \ 0.142290 - 1.179570I$ $a = \ \ 0.284195 - 0.338921I$ $b = -0.359342 - 0.383452I$	$1.79210 + 2.89318I$	$-6.00000 - 3.03704I$
$u = -0.207464 + 1.189170I$ $a = -1.322480 - 0.124300I$ $b = \ \ 0.42218 - 1.54686I$	$8.98409 + 4.61256I$	$0. - 3.52913I$
$u = -0.207464 - 1.189170I$ $a = -1.322480 + 0.124300I$ $b = \ \ 0.42218 + 1.54686I$	$8.98409 - 4.61256I$	$0. + 3.52913I$
$u = -0.55129 + 1.38861I$ $a = -1.106800 + 0.061971I$ $b = \ \ 0.52411 - 1.57107I$	$7.28763 + 11.38750I$	0
$u = -0.55129 - 1.38861I$ $a = -1.106800 - 0.061971I$ $b = \ \ 0.52411 + 1.57107I$	$7.28763 - 11.38750I$	0
$u = -1.47496 + 0.26293I$ $a = \ \ 0.349193 - 0.807068I$ $b = -0.302846 + 1.282200I$	$1.37803 + 13.53090I$	0
$u = -1.47496 - 0.26293I$ $a = \ \ 0.349193 + 0.807068I$ $b = -0.302846 - 1.282200I$	$1.37803 - 13.53090I$	0

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.72387+1.53996I$ $a=-0.873470+0.191310I$ $b=\ \ 0.33767-1.48359I$	$10.3557+10.3695I$	0
$u=-0.72387-1.53996I$ $a=-0.873470-0.191310I$ $b=\ \ 0.33767+1.48359I$	$10.3557-10.3695I$	0
$u=-1.53312+0.90841I$ $a=\ \ 0.400250-0.613226I$ $b=-0.056569+1.303740I$	$6.70389-1.79520I$	0
$u=-1.53312-0.90841I$ $a=\ \ 0.400250+0.613226I$ $b=-0.056569-1.303740I$	$6.70389+1.79520I$	0
$u=-0.81325+2.19118I$ $a=-0.484841+0.123620I$ $b=\ \ 0.123424-1.162910I$	$5.90859-4.10061I$	0
$u=-0.81325-2.19118I$ $a=-0.484841-0.123620I$ $b=\ \ 0.123424+1.162910I$	$5.90859+4.10061I$	0

V. $I_5^u = \langle b + u,\ a + 1,\ u^{10} + 2u^9 + \cdots + u + 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1 \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u - 1 \\ -u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + u + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^6 + 2u^5 + 4u^4 + 3u^3 + 2u^2 + 1 \\ u^6 + u^5 + 2u^4 - u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u^2 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ -u^3 - u^2 - u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^6 - u^5 - 3u^4 - u^3 - 2u^2 - u - 1 \\ -u^7 - 2u^6 - 4u^5 - 3u^4 - 2u^3 - u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^5 - u^4 - 2u^3 + u \\ u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -9u^9 - 15u^8 - 45u^7 - 30u^6 - 48u^5 - 3u^4 - 21u^3 + 3u^2 - 9u$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$u^{10} - 2u^9 + 6u^8 - 6u^7 + 9u^6 - 5u^5 + 6u^4 - 3u^3 + 3u^2 - u + 1$
c_2, c_6, c_{10}	$u^{10} + 4u^9 + 7u^8 + 5u^7 - u^5 + 2u^4 + 2u^3 + 1$
c_3, c_7, c_{11}	$u^{10} + 2u^9 + 3u^8 + 2u^7 + 4u^6 + 6u^5 + 7u^4 + 7u^3 + 6u^2 + 2u + 1$
c_4, c_8, c_{12}	$u^{10} + 2u^9 + 6u^8 + 6u^7 + 9u^6 + 5u^5 + 6u^4 + 3u^3 + 3u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$y^{10} + 8y^9 + \cdots + 5y + 1$
c_2, c_6, c_{10}	$y^{10} - 2y^9 + 9y^8 - 13y^7 + 22y^6 - 19y^5 + 22y^4 - 4y^3 + 4y^2 + 1$
c_3, c_7, c_{11}	$y^{10} + 2y^9 + 9y^8 + 10y^7 + 18y^6 + 22y^5 + 11y^4 + 19y^3 + 22y^2 + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.593972+0.528332I$ $a=-1.00000$ $b=\ \ 0.593972-0.528332I$	$-1.80776+2.83047I$	$-7.84799-7.87651I$
$u=-0.593972-0.528332I$ $a=-1.00000$ $b=\ \ 0.593972+0.528332I$	$-1.80776-2.83047I$	$-7.84799+7.87651I$
$u=\ \ 0.037456+0.791736I$ $a=-1.00000$ $b=-0.037456-0.791736I$	$3.15099+3.55822I$	$1.97031-4.83850I$
$u=\ \ 0.037456-0.791736I$ $a=-1.00000$ $b=-0.037456+0.791736I$	$3.15099-3.55822I$	$1.97031+4.83850I$
$u=\ \ 0.488976+0.591273I$ $a=-1.00000$ $b=-0.488976-0.591273I$	$-0.91950-10.96120I$	$-3.05047+8.35006I$
$u=\ \ 0.488976-0.591273I$ $a=-1.00000$ $b=-0.488976+0.591273I$	$-0.91950+10.96120I$	$-3.05047-8.35006I$
$u=-0.418129+1.235270I$ $a=-1.00000$ $b=\ \ 0.418129-1.235270I$	$3.17000+5.17605I$	$-6.31442-5.28622I$
$u=-0.418129-1.235270I$ $a=-1.00000$ $b=\ \ 0.418129+1.235270I$	$3.17000-5.17605I$	$-6.31442+5.28622I$
$u=-0.51433+1.50040I$ $a=-1.00000$ $b=\ \ 0.51433-1.50040I$	$7.92081+10.40350I$	$-1.25743-5.25485I$
$u=-0.51433-1.50040I$ $a=-1.00000$ $b=\ \ 0.51433+1.50040I$	$7.92081-10.40350I$	$-1.25743+5.25485I$

VI. $\boldsymbol{I_6^u = \langle b+u,\ 2u^9+u^8+\cdots+a+3,\ u^{10}+u^9+\cdots+4u+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^9-u^8-10u^7-8u^6-22u^5-19u^4-25u^3-17u^2-13u-3 \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2u^9-u^8-10u^7-8u^6-22u^5-19u^4-25u^3-17u^2-14u-3 \\ -u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^9-4u^7-2u^6-7u^5-5u^4-7u^3-4u^2-5u-1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2u^9+2u^8+8u^7+10u^6+15u^5+16u^4+12u^3+7u^2+3u+1 \\ u^8+u^7+5u^6+5u^5+10u^4+9u^3+7u^2+4u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^9-u^8-6u^7-5u^6-14u^5-10u^4-14u^3-5u^2-3u+2 \\ u^9+u^8+4u^7+5u^6+8u^5+8u^4+7u^3+4u^2+3u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^9-u^8-7u^7-3u^6-9u^5+u^4+2u^3+12u^2+7u+5 \\ -2u^8-2u^7-8u^6-9u^5-15u^4-13u^3-10u^2-4u-1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2u^8-6u^6-u^5-6u^4+u^3+2u^2+4u+1 \\ -u^8-2u^7-5u^6-8u^5-11u^4-12u^3-9u^2-5u-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^7+u^6-2u^5+3u^4+6u^2+4u+4 \\ -u^7-u^6-3u^5-4u^4-5u^3-5u^2-3u-1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^9-5u^8-7u^7-21u^6-40u^5-48u^4-70u^3-45u^2-36u-13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{10} - u^9 + 5u^8 - 6u^7 + 12u^6 - 13u^5 + 15u^4 - 12u^3 + 9u^2 - 4u + 1$
c_2	$u^{10} + 6u^9 + 18u^8 + 32u^7 + 36u^6 + 23u^5 + 4u^4 - 7u^3 - 5u^2 + 1$
c_3	$u^{10} + 2u^9 + 9u^8 + 19u^7 + 35u^6 + 35u^5 + 33u^4 + 25u^3 + 14u^2 + 5u + 1$
c_4, c_8	$u^{10} + u^9 + 5u^8 + 6u^7 + 12u^6 + 13u^5 + 15u^4 + 12u^3 + 9u^2 + 4u + 1$
c_6, c_{10}	$u^{10} - 4u^9 + 6u^8 - 2u^7 - 2u^6 + u^5 - u^4 + 4u^3 - u^2 - 2u + 1$
c_7, c_{11}	$u^{10} + 2u^8 + 4u^6 - 3u^3 + u^2 + u + 1$
c_9	$u^{10} - 4u^9 + \cdots - 5u + 1$
c_{12}	$u^{10} + 4u^9 + \cdots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8	$y^{10} + 9y^9 + \cdots + 2y + 1$
c_2	$y^{10} + 12y^8 + 4y^7 + 42y^6 + 29y^5 + 14y^4 - 17y^3 + 33y^2 - 10y + 1$
c_3	$y^{10} + 14y^9 + \cdots + 3y + 1$
c_6, c_{10}	$y^{10} - 4y^9 + 16y^8 - 22y^7 + 26y^6 - 7y^5 + y^4 - 14y^3 + 15y^2 - 6y + 1$
c_7, c_{11}	$y^{10} + 4y^9 + 12y^8 + 16y^7 + 18y^6 + 6y^5 + 12y^4 - y^3 + 7y^2 + y + 1$
c_9, c_{12}	$y^{10} + 14y^9 + \cdots + 15y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.569171 + 0.652818I$ $a = 0.207041 - 0.330300I$ $b = 0.569171 - 0.652818I$	$-0.80863 + 2.83685I$	$-10.7966 - 10.9454I$
$u = -0.569171 - 0.652818I$ $a = 0.207041 + 0.330300I$ $b = 0.569171 + 0.652818I$	$-0.80863 - 2.83685I$	$-10.7966 + 10.9454I$
$u = 0.257088 + 1.121830I$ $a = 2.10184 + 0.19080I$ $b = -0.257088 - 1.121830I$	$5.27004 - 6.36836I$	$8.9958 + 13.8831I$
$u = 0.257088 - 1.121830I$ $a = 2.10184 - 0.19080I$ $b = -0.257088 + 1.121830I$	$5.27004 + 6.36836I$	$8.9958 - 13.8831I$
$u = -0.265511 + 1.239090I$ $a = -0.332640 - 0.640183I$ $b = 0.265511 - 1.239090I$	$2.50173 + 4.70796I$	$-4.88520 - 6.47804I$
$u = -0.265511 - 1.239090I$ $a = -0.332640 + 0.640183I$ $b = 0.265511 + 1.239090I$	$2.50173 - 4.70796I$	$-4.88520 + 6.47804I$
$u = -0.409125 + 0.329081I$ $a = 0.26951 - 2.14980I$ $b = 0.409125 - 0.329081I$	$-0.60938 - 1.82644I$	$-3.43057 - 7.18365I$
$u = -0.409125 - 0.329081I$ $a = 0.26951 + 2.14980I$ $b = 0.409125 + 0.329081I$	$-0.60938 + 1.82644I$	$-3.43057 + 7.18365I$
$u = 0.48672 + 1.42706I$ $a = 0.754245 + 0.189172I$ $b = -0.48672 - 1.42706I$	$5.16077 + 2.93340I$	$-3.38341 - 2.82161I$
$u = 0.48672 - 1.42706I$ $a = 0.754245 - 0.189172I$ $b = -0.48672 + 1.42706I$	$5.16077 - 2.93340I$	$-3.38341 + 2.82161I$

VII. $\boldsymbol{I^u_7 = \langle -u^9 - 4u^7 + \cdots + b - 2,\ a + 1,\ u^{10} + u^9 + \cdots + 4u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1 \\ u^9 + 4u^7 + 2u^6 + 7u^5 + 5u^4 + 7u^3 + 5u^2 + 5u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^9 + 4u^7 + 2u^6 + 7u^5 + 5u^4 + 7u^3 + 5u^2 + 5u + 1 \\ u^9 + 4u^7 + 2u^6 + 7u^5 + 5u^4 + 7u^3 + 5u^2 + 5u + 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^9 - u^8 - 3u^7 - 4u^6 - 4u^5 - 4u^4 + u^2 + u \\ -u^8 + u^7 - 2u^6 + 3u^5 + u^4 + 7u^3 + 6u^2 + 6u + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^9 - u^8 - 4u^7 - 4u^6 - 7u^5 - 5u^4 - 4u^3 + 1 \\ -3u^9 - 3u^8 - 14u^7 - 16u^6 - 30u^5 - 30u^4 - 30u^3 - 21u^2 - 12u - 4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u^9 + u^8 + 4u^7 + 5u^6 + 8u^5 + 8u^4 + 7u^3 + 4u^2 + 3u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ u^9 + u^8 + 5u^7 + 6u^6 + 12u^5 + 13u^4 + 15u^3 + 11u^2 + 8u + 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^9 - u^8 - 5u^7 - 5u^6 - 11u^5 - 10u^4 - 11u^3 - 7u^2 - 4u - 1 \\ u^9 - u^8 + 4u^7 - 2u^6 + 6u^5 - 2u^4 + 4u^3 - u^2 + 2u - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^9 + u^8 + 4u^7 + 5u^6 + 7u^5 + 8u^4 + 5u^3 + 3u^2 + 2u \\ u^9 + u^8 + 5u^7 + 5u^6 + 11u^5 + 9u^4 + 10u^3 + 5u^2 + 3u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^9 - 5u^8 - 7u^7 - 21u^6 - 40u^5 - 48u^4 - 70u^3 - 45u^2 - 36u - 13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$u^{10} - u^9 + 5u^8 - 6u^7 + 12u^6 - 13u^5 + 15u^4 - 12u^3 + 9u^2 - 4u + 1$
c_2, c_6	$u^{10} - 4u^9 + 6u^8 - 2u^7 - 2u^6 + u^5 - u^4 + 4u^3 - u^2 - 2u + 1$
c_3, c_7	$u^{10} + 2u^8 + 4u^6 - 3u^3 + u^2 + u + 1$
c_4, c_{12}	$u^{10} + u^9 + 5u^8 + 6u^7 + 12u^6 + 13u^5 + 15u^4 + 12u^3 + 9u^2 + 4u + 1$
c_5	$u^{10} - 4u^9 + \cdots - 5u + 1$
c_8	$u^{10} + 4u^9 + \cdots + 5u + 1$
c_{10}	$u^{10} + 6u^9 + 18u^8 + 32u^7 + 36u^6 + 23u^5 + 4u^4 - 7u^3 - 5u^2 + 1$
c_{11}	$u^{10} + 2u^9 + 9u^8 + 19u^7 + 35u^6 + 35u^5 + 33u^4 + 25u^3 + 14u^2 + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_9 c_{12}	$y^{10} + 9y^9 + \cdots + 2y + 1$
c_2, c_6	$y^{10} - 4y^9 + 16y^8 - 22y^7 + 26y^6 - 7y^5 + y^4 - 14y^3 + 15y^2 - 6y + 1$
c_3, c_7	$y^{10} + 4y^9 + 12y^8 + 16y^7 + 18y^6 + 6y^5 + 12y^4 - y^3 + 7y^2 + y + 1$
c_5, c_8	$y^{10} + 14y^9 + \cdots + 15y + 1$
c_{10}	$y^{10} + 12y^8 + 4y^7 + 42y^6 + 29y^5 + 14y^4 - 17y^3 + 33y^2 - 10y + 1$
c_{11}	$y^{10} + 14y^9 + \cdots + 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.569171+0.652818I$ $a=-1.00000$ $b=\ \ 0.097784+0.323157I$	$-0.80863+2.83685I$	$-10.7966-10.9454I$
$u=-0.569171-0.652818I$ $a=-1.00000$ $b=\ \ 0.097784-0.323157I$	$-0.80863-2.83685I$	$-10.7966+10.9454I$
$u=\ \ 0.257088+1.121830I$ $a=-1.00000$ $b=\ \ 0.32631+2.40697I$	$5.27004-6.36836I$	$8.9958+13.8831I$
$u=\ \ 0.257088-1.121830I$ $a=-1.00000$ $b=\ \ 0.32631-2.40697I$	$5.27004+6.36836I$	$8.9958-13.8831I$
$u=-0.265511+1.239090I$ $a=-1.00000$ $b=\ \ 0.881563-0.242194I$	$2.50173+4.70796I$	$-4.88520-6.47804I$
$u=-0.265511-1.239090I$ $a=-1.00000$ $b=\ \ 0.881563+0.242194I$	$2.50173-4.70796I$	$-4.88520+6.47804I$
$u=-0.409125+0.329081I$ $a=-1.00000$ $b=\ \ 0.597194+0.968230I$	$-0.60938-1.82644I$	$-3.43057-7.18365I$
$u=-0.409125-0.329081I$ $a=-1.00000$ $b=\ \ 0.597194-0.968230I$	$-0.60938+1.82644I$	$-3.43057+7.18365I$
$u=\ \ 0.48672+1.42706I$ $a=-1.00000$ $b=\ \ 0.097146+1.168430I$	$5.16077+2.93340I$	$-3.38341-2.82161I$
$u=\ \ 0.48672-1.42706I$ $a=-1.00000$ $b=\ \ 0.097146-1.168430I$	$5.16077-2.93340I$	$-3.38341+2.82161I$

VIII. $\boldsymbol{I^u_8 = \langle 136u^9 + 138u^8 + \cdots + 809b - 883,\ 883u^9 + 3668u^8 + \cdots + 809a + 2125,\ u^{10} + 4u^9 + \cdots + 5u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.09147u^9 - 4.53399u^8 + \cdots - 18.3127u - 2.62670 \\ -0.168109u^9 - 0.170581u^8 + \cdots + 2.83066u + 1.09147 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.25958u^9 - 4.70457u^8 + \cdots - 15.4821u - 1.53523 \\ -0.168109u^9 - 0.170581u^8 + \cdots + 2.83066u + 1.09147 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.548826u^9 - 2.20396u^8 + \cdots - 2.87639u + 2.23980 \\ -0.469716u^9 - 1.41780u^8 + \cdots + 1.55624u + 0.0791100 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.506799u^9 + 2.66131u^8 + \cdots + 12.0841u + 2.28307 \\ 0.844252u^9 + 2.57726u^8 + \cdots + 0.710754u - 0.121137 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0791100u^9 - 0.786156u^8 + \cdots - 4.43263u + 1.16069 \\ -0.469716u^9 - 1.41780u^8 + \cdots + 2.55624u + 0.0791100 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.21261u^9 - 4.86279u^8 + \cdots - 12.5377u + 0.0568603 \\ 0.489493u^9 + 1.61434u^8 + \cdots + 8.05192u + 1.38072 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.996292u^9 + 4.27565u^8 + \cdots + 21.1360u + 4.66378 \\ -0.703337u^9 - 2.05192u^8 + \cdots - 6.87763u - 2.10260 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.668727u^9 - 2.95797u^8 + \cdots - 6.81335u + 0.702101 \\ 0.0741656u^9 + 0.487021u^8 + \cdots + 5.28059u + 0.724351 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{3671}{809}u^9 + \frac{16205}{809}u^8 + \frac{58500}{809}u^7 + \frac{139861}{809}u^6 + \frac{229711}{809}u^5 + \frac{290863}{809}u^4 + \frac{262649}{809}u^3 + \frac{173062}{809}u^2 + \frac{70613}{809}u + \frac{6271}{809}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10} - 4u^9 + \cdots - 5u + 1$
c_2, c_{10}	$u^{10} - 4u^9 + 6u^8 - 2u^7 - 2u^6 + u^5 - u^4 + 4u^3 - u^2 - 2u + 1$
c_3, c_{11}	$u^{10} + 2u^8 + 4u^6 - 3u^3 + u^2 + u + 1$
c_4	$u^{10} + 4u^9 + \cdots + 5u + 1$
c_5, c_9	$u^{10} - u^9 + 5u^8 - 6u^7 + 12u^6 - 13u^5 + 15u^4 - 12u^3 + 9u^2 - 4u + 1$
c_6	$u^{10} + 6u^9 + 18u^8 + 32u^7 + 36u^6 + 23u^5 + 4u^4 - 7u^3 - 5u^2 + 1$
c_7	$u^{10} + 2u^9 + 9u^8 + 19u^7 + 35u^6 + 35u^5 + 33u^4 + 25u^3 + 14u^2 + 5u + 1$
c_8, c_{12}	$u^{10} + u^9 + 5u^8 + 6u^7 + 12u^6 + 13u^5 + 15u^4 + 12u^3 + 9u^2 + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{10} + 14y^9 + \cdots + 15y + 1$
c_2, c_{10}	$y^{10} - 4y^9 + 16y^8 - 22y^7 + 26y^6 - 7y^5 + y^4 - 14y^3 + 15y^2 - 6y + 1$
c_3, c_{11}	$y^{10} + 4y^9 + 12y^8 + 16y^7 + 18y^6 + 6y^5 + 12y^4 - y^3 + 7y^2 + y + 1$
c_5, c_8, c_9 c_{12}	$y^{10} + 9y^9 + \cdots + 2y + 1$
c_6	$y^{10} + 12y^8 + 4y^7 + 42y^6 + 29y^5 + 14y^4 - 17y^3 + 33y^2 - 10y + 1$
c_7	$y^{10} + 14y^9 + \cdots + 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.881563 + 0.242194I$ $a = -0.639098 + 1.229980I$ $b = 0.265511 - 1.239090I$	$2.50173 + 4.70796I$	$-4.88520 - 6.47804I$
$u = -0.881563 - 0.242194I$ $a = -0.639098 - 1.229980I$ $b = 0.265511 + 1.239090I$	$2.50173 - 4.70796I$	$-4.88520 + 6.47804I$
$u = -0.597194 + 0.968230I$ $a = 0.057413 - 0.457961I$ $b = 0.409125 + 0.329081I$	$-0.60938 + 1.82644I$	$-3.43057 + 7.18365I$
$u = -0.597194 - 0.968230I$ $a = 0.057413 + 0.457961I$ $b = 0.409125 - 0.329081I$	$-0.60938 - 1.82644I$	$-3.43057 - 7.18365I$
$u = -0.097146 + 1.168430I$ $a = 1.247360 + 0.312850I$ $b = -0.48672 + 1.42706I$	$5.16077 - 2.93340I$	$-3.38341 + 2.82161I$
$u = -0.097146 - 1.168430I$ $a = 1.247360 - 0.312850I$ $b = -0.48672 - 1.42706I$	$5.16077 + 2.93340I$	$-3.38341 - 2.82161I$
$u = -0.097784 + 0.323157I$ $a = 1.36244 - 2.17354I$ $b = 0.569171 + 0.652818I$	$-0.80863 - 2.83685I$	$-10.7966 + 10.9454I$
$u = -0.097784 - 0.323157I$ $a = 1.36244 + 2.17354I$ $b = 0.569171 - 0.652818I$	$-0.80863 + 2.83685I$	$-10.7966 - 10.9454I$
$u = -0.32631 + 2.40697I$ $a = 0.471885 + 0.042836I$ $b = -0.257088 + 1.121830I$	$5.27004 + 6.36836I$	$8.9958 - 13.8831I$
$u = -0.32631 - 2.40697I$ $a = 0.471885 - 0.042836I$ $b = -0.257088 - 1.121830I$	$5.27004 - 6.36836I$	$8.9958 + 13.8831I$

IX. $I_9^u = \langle -3.24 \times 10^{22}u^{35} + 2.81 \times 10^{23}u^{34} + \cdots + 6.81 \times 10^{22}b + 8.33 \times 10^{23},\ -2.58 \times 10^{25}au^{35} - 1.05 \times 10^{25}u^{35} + \cdots + 6.94 \times 10^{26}a - 5.64 \times 10^{26},\ u^{36} - 9u^{35} + \cdots - 134u + 31\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ 0.475677u^{35} - 4.12948u^{34} + \cdots + 42.2812u - 12.2372 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.475677u^{35} - 4.12948u^{34} + \cdots + a - 12.2372 \\ 0.475677u^{35} - 4.12948u^{34} + \cdots + 42.2812u - 12.2372 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.151617au^{35} + 0.498043u^{35} + \cdots + 14.7460a - 17.5783 \\ -0.151617au^{35} + 0.806545u^{35} + \cdots + 14.7460a - 23.5346 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.354142au^{35} - 0.677346u^{35} + \cdots - 6.88488a + 13.9750 \\ 0.489571au^{35} - 0.767633u^{35} + \cdots - 13.0622a + 9.37834 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.475677au^{35} + 0.308502u^{35} + \cdots - 12.2372a - 4.95634 \\ 0.0406691u^{35} + 0.0425253u^{34} + \cdots - 35.3829u + 9.56356 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.806545au^{35} + 0.583900u^{35} + \cdots - 22.5346a - 24.2932 \\ 0.408547au^{35} + 0.475677u^{35} + \cdots - 1.26074a - 12.2372 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.322848au^{35} + 0.941520u^{35} + \cdots + 1.15116a - 16.9806 \\ 0.0962917au^{35} + 0.878224u^{35} + \cdots + 11.4909a - 11.4158 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.373215au^{35} + 0.129850u^{35} + \cdots - 10.5367a - 1.10131 \\ 0.219269au^{35} - 0.129947u^{35} + \cdots - 7.89684a + 6.80772 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1187409961196919549 1133}{17014622974963246725317}u^{35} - \frac{12436917608914195848 2851}{17014622974963246725317}u^{34} + \cdots + \frac{30256187259253984923 27188}{17014622974963246725317}u - \frac{10500359004053430078 56140}{17014622974963246725317}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$(u^{36} + 9u^{35} + \cdots + 134u + 31)^2$
c_2, c_6, c_{10}	$(u^{36} - 7u^{35} + \cdots + 2u + 1)^2$
c_3, c_7, c_{11}	$(u^{36} - 5u^{35} + \cdots - 14u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$(y^{36} + 31y^{35} + \cdots + 2256y + 961)^2$
c_2, c_6, c_{10}	$(y^{36} - 13y^{35} + \cdots - 36y + 1)^2$
c_3, c_7, c_{11}	$(y^{36} + 13y^{35} + \cdots - 14y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.088533+0.900145I$ $a=\ \ 0.298364+0.523719I$ $b=\ \ 0.341527+1.309580I$	$1.75485-3.16618I$	$-6.18735+4.12062I$
$u=-0.088533+0.900145I$ $a=\ \ 1.40395-0.51750I$ $b=-0.497838+0.222204I$	$1.75485-3.16618I$	$-6.18735+4.12062I$
$u=-0.088533-0.900145I$ $a=\ \ 0.298364-0.523719I$ $b=\ \ 0.341527-1.309580I$	$1.75485+3.16618I$	$-6.18735-4.12062I$
$u=-0.088533-0.900145I$ $a=\ \ 1.40395+0.51750I$ $b=-0.497838-0.222204I$	$1.75485+3.16618I$	$-6.18735-4.12062I$
$u=\ \ 0.314501+1.057730I$ $a=-1.107320-0.086624I$ $b=\ \ 0.47176+2.11371I$	$4.73363-6.11028I$	$-6.00000+6.55511I$
$u=\ \ 0.314501+1.057730I$ $a=\ \ 1.95788+0.13614I$ $b=-0.256628-1.198480I$	$4.73363-6.11028I$	$-6.00000+6.55511I$
$u=\ \ 0.314501-1.057730I$ $a=-1.107320+0.086624I$ $b=\ \ 0.47176-2.11371I$	$4.73363+6.11028I$	$-6.00000-6.55511I$
$u=\ \ 0.314501-1.057730I$ $a=\ \ 1.95788-0.13614I$ $b=-0.256628+1.198480I$	$4.73363+6.11028I$	$-6.00000-6.55511I$
$u=\ \ 1.076970+0.342863I$ $a=\ \ 0.418655+1.015730I$ $b=\ \ 0.249553-1.297860I$	$2.81766+0.97687I$	$-6.00000+0.I$
$u=\ \ 1.076970+0.342863I$ $a=-0.137957-1.161190I$ $b=\ \ 0.102623+1.237450I$	$2.81766+0.97687I$	$-6.00000+0.I$

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.076970 - 0.342863I$ $a = 0.418655 - 1.015730I$ $b = 0.249553 + 1.297860I$	$2.81766 - 0.97687I$	$-6.00000 + 0.I$
$u = 1.076970 - 0.342863I$ $a = -0.137957 + 1.161190I$ $b = 0.102623 - 1.237450I$	$2.81766 - 0.97687I$	$-6.00000 + 0.I$
$u = 0.626802 + 0.941753I$ $a = 0.330040 - 0.438210I$ $b = -0.382743 + 0.481017I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$
$u = 0.626802 + 0.941753I$ $a = 0.166509 + 0.517239I$ $b = 0.619556 + 0.036145I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$
$u = 0.626802 - 0.941753I$ $a = 0.330040 + 0.438210I$ $b = -0.382743 - 0.481017I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = 0.626802 - 0.941753I$ $a = 0.166509 - 0.517239I$ $b = 0.619556 - 0.036145I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = 0.694616 + 0.485356I$ $a = -1.13676 - 0.92514I$ $b = 0.06377 + 1.54349I$	$4.12212 - 6.33849I$	$-2.44165 + 8.25559I$
$u = 0.694616 + 0.485356I$ $a = 1.10497 + 1.45000I$ $b = -0.340591 - 1.194350I$	$4.12212 - 6.33849I$	$-2.44165 + 8.25559I$
$u = 0.694616 - 0.485356I$ $a = -1.13676 + 0.92514I$ $b = 0.06377 - 1.54349I$	$4.12212 + 6.33849I$	$-2.44165 - 8.25559I$
$u = 0.694616 - 0.485356I$ $a = 1.10497 - 1.45000I$ $b = -0.340591 + 1.194350I$	$4.12212 + 6.33849I$	$-2.44165 - 8.25559I$

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.205135 + 1.135620I$ $a = -1.093030 - 0.063018I$ $b = \quad 1.41401 - 0.50386I$	$0.92169 + 4.68398I$	$-10.34050 - 6.77168I$
$u = -0.205135 + 1.135620I$ $a = -0.647478 - 1.128190I$ $b = \quad 0.295783 - 1.228330I$	$0.92169 + 4.68398I$	$-10.34050 - 6.77168I$
$u = -0.205135 - 1.135620I$ $a = -1.093030 + 0.063018I$ $b = \quad 1.41401 + 0.50386I$	$0.92169 - 4.68398I$	$-10.34050 + 6.77168I$
$u = -0.205135 - 1.135620I$ $a = -0.647478 + 1.128190I$ $b = \quad 0.295783 + 1.228330I$	$0.92169 - 4.68398I$	$-10.34050 + 6.77168I$
$u = -0.256628 + 1.198480I$ $a = -0.897591 - 0.070217I$ $b = \quad 0.47176 - 2.11371I$	$4.73363 + 6.11028I$	$-6.00000 - 6.55511I$
$u = -0.256628 + 1.198480I$ $a = -1.76693 - 0.01528I$ $b = \quad 0.314501 - 1.057730I$	$4.73363 + 6.11028I$	$-6.00000 - 6.55511I$
$u = -0.256628 - 1.198480I$ $a = -0.897591 + 0.070217I$ $b = \quad 0.47176 + 2.11371I$	$4.73363 - 6.11028I$	$-6.00000 + 6.55511I$
$u = -0.256628 - 1.198480I$ $a = -1.76693 + 0.01528I$ $b = \quad 0.314501 + 1.057730I$	$4.73363 - 6.11028I$	$-6.00000 + 6.55511I$
$u = \quad 0.102623 + 1.237450I$ $a = -1.025050 - 0.286675I$ $b = \quad 1.076970 + 0.342863I$	$2.81766 + 0.97687I$	$-6.00000 + 0.I$
$u = \quad 0.102623 + 1.237450I$ $a = \quad 0.346863 - 0.841548I$ $b = \quad 0.249553 - 1.297860I$	$2.81766 + 0.97687I$	$-6.00000 + 0.I$

Solutions to I^u_9	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.102623 - 1.237450I$ $a = -1.025050 + 0.286675I$ $b = 1.076970 - 0.342863I$	$2.81766 - 0.97687I$	$-6.00000 + 0.I$
$u = 0.102623 - 1.237450I$ $a = 0.346863 + 0.841548I$ $b = 0.249553 + 1.297860I$	$2.81766 - 0.97687I$	$-6.00000 + 0.I$
$u = -0.340591 + 1.194350I$ $a = -1.209220 + 0.291442I$ $b = 0.694616 - 0.485356I$	$4.12212 + 6.33849I$	$0. - 8.25559I$
$u = -0.340591 + 1.194350I$ $a = -0.529193 - 0.430677I$ $b = 0.06377 - 1.54349I$	$4.12212 + 6.33849I$	$0. - 8.25559I$
$u = -0.340591 - 1.194350I$ $a = -1.209220 - 0.291442I$ $b = 0.694616 + 0.485356I$	$4.12212 - 6.33849I$	$0. + 8.25559I$
$u = -0.340591 - 1.194350I$ $a = -0.529193 + 0.430677I$ $b = 0.06377 + 1.54349I$	$4.12212 - 6.33849I$	$0. + 8.25559I$
$u = 0.295783 + 1.228330I$ $a = -0.911860 - 0.052573I$ $b = 1.41401 + 0.50386I$	$0.92169 - 4.68398I$	0
$u = 0.295783 + 1.228330I$ $a = 0.649721 - 0.994711I$ $b = -0.205135 - 1.135620I$	$0.92169 - 4.68398I$	0
$u = 0.295783 - 1.228330I$ $a = -0.911860 + 0.052573I$ $b = 1.41401 - 0.50386I$	$0.92169 + 4.68398I$	0
$u = 0.295783 - 1.228330I$ $a = 0.649721 + 0.994711I$ $b = -0.205135 + 1.135620I$	$0.92169 + 4.68398I$	0

Solutions to I^u_9	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.249553 + 1.297860I$ $a = -0.904797 - 0.253045I$ $b = 1.076970 - 0.342863I$	$2.81766 - 0.97687I$	0
$u = 0.249553 + 1.297860I$ $a = -0.100891 - 0.849201I$ $b = 0.102623 - 1.237450I$	$2.81766 - 0.97687I$	0
$u = 0.249553 - 1.297860I$ $a = -0.904797 + 0.253045I$ $b = 1.076970 + 0.342863I$	$2.81766 + 0.97687I$	0
$u = 0.249553 - 1.297860I$ $a = -0.100891 + 0.849201I$ $b = 0.102623 + 1.237450I$	$2.81766 + 0.97687I$	0
$u = 0.341527 + 1.309580I$ $a = 0.627077 + 0.231141I$ $b = -0.497838 + 0.222204I$	$1.75485 - 3.16618I$	0
$u = 0.341527 + 1.309580I$ $a = 0.066044 + 0.397377I$ $b = -0.088533 + 0.900145I$	$1.75485 - 3.16618I$	0
$u = 0.341527 - 1.309580I$ $a = 0.627077 - 0.231141I$ $b = -0.497838 - 0.222204I$	$1.75485 + 3.16618I$	0
$u = 0.341527 - 1.309580I$ $a = 0.066044 - 0.397377I$ $b = -0.088533 - 0.900145I$	$1.75485 + 3.16618I$	0
$u = 0.619556 + 0.036145I$ $a = -0.570534 + 0.809675I$ $b = 0.626802 + 0.941753I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$
$u = 0.619556 + 0.036145I$ $a = 1.09664 + 1.45607I$ $b = -0.382743 + 0.481017I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.619556 - 0.036145I$ $a = -0.570534 - 0.809675I$ $b = 0.626802 - 0.941753I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = 0.619556 - 0.036145I$ $a = 1.09664 - 1.45607I$ $b = -0.382743 - 0.481017I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = -0.382743 + 0.481017I$ $a = -0.581535 - 0.825287I$ $b = 0.626802 + 0.941753I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$
$u = -0.382743 + 0.481017I$ $a = 0.56394 - 1.75180I$ $b = 0.619556 + 0.036145I$	$-1.19047 - 2.14866I$	$-17.3275 + 1.3570I$
$u = -0.382743 - 0.481017I$ $a = -0.581535 + 0.825287I$ $b = 0.626802 - 0.941753I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = -0.382743 - 0.481017I$ $a = 0.56394 + 1.75180I$ $b = 0.619556 - 0.036145I$	$-1.19047 + 2.14866I$	$-17.3275 - 1.3570I$
$u = -0.497838 + 0.222204I$ $a = 0.82125 - 1.44155I$ $b = 0.341527 + 1.309580I$	$1.75485 - 3.16618I$	$-6.18735 + 4.12062I$
$u = -0.497838 + 0.222204I$ $a = 0.40700 - 2.44886I$ $b = -0.088533 + 0.900145I$	$1.75485 - 3.16618I$	$-6.18735 + 4.12062I$
$u = -0.497838 - 0.222204I$ $a = 0.82125 + 1.44155I$ $b = 0.341527 - 1.309580I$	$1.75485 + 3.16618I$	$-6.18735 - 4.12062I$
$u = -0.497838 - 0.222204I$ $a = 0.40700 + 2.44886I$ $b = -0.088533 - 0.900145I$	$1.75485 + 3.16618I$	$-6.18735 - 4.12062I$

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41401 + 0.50386I$ $a = 0.460277 + 0.704675I$ $b = -0.205135 - 1.135620I$	$0.92169 - 4.68398I$	0
$u = 1.41401 + 0.50386I$ $a = -0.382661 - 0.666763I$ $b = 0.295783 + 1.228330I$	$0.92169 - 4.68398I$	0
$u = 1.41401 - 0.50386I$ $a = 0.460277 - 0.704675I$ $b = -0.205135 + 1.135620I$	$0.92169 + 4.68398I$	0
$u = 1.41401 - 0.50386I$ $a = -0.382661 + 0.666763I$ $b = 0.295783 - 1.228330I$	$0.92169 + 4.68398I$	0
$u = 0.06377 + 1.54349I$ $a = -0.781577 + 0.188373I$ $b = 0.694616 + 0.485356I$	$4.12212 - 6.33849I$	0
$u = 0.06377 + 1.54349I$ $a = 0.332477 - 0.436293I$ $b = -0.340591 - 1.194350I$	$4.12212 - 6.33849I$	0
$u = 0.06377 - 1.54349I$ $a = -0.781577 - 0.188373I$ $b = 0.694616 - 0.485356I$	$4.12212 + 6.33849I$	0
$u = 0.06377 - 1.54349I$ $a = 0.332477 + 0.436293I$ $b = -0.340591 + 1.194350I$	$4.12212 + 6.33849I$	0
$u = 0.47176 + 2.11371I$ $a = -0.565911 - 0.004894I$ $b = 0.314501 + 1.057730I$	$4.73363 - 6.11028I$	0
$u = 0.47176 + 2.11371I$ $a = 0.508300 - 0.035344I$ $b = -0.256628 - 1.198480I$	$4.73363 - 6.11028I$	0

Solutions to I_9^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.47176 - 2.11371I$ $a = -0.565911 + 0.004894I$ $b = 0.314501 - 1.057730I$	$4.73363 + 6.11028I$	0
$u = 0.47176 - 2.11371I$ $a = 0.508300 + 0.035344I$ $b = -0.256628 + 1.198480I$	$4.73363 + 6.11028I$	0

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$(u^{10} - 4u^9 + \cdots - 5u + 1)$ $\cdot (u^{10} - 2u^9 + 6u^8 - 6u^7 + 9u^6 - 5u^5 + 6u^4 - 3u^3 + 3u^2 - u + 1)$ $\cdot (u^{10} - u^9 + 5u^8 - 6u^7 + 12u^6 - 13u^5 + 15u^4 - 12u^3 + 9u^2 - 4u + 1)^2$ $\cdot (u^{11} - 3u^{10} + \cdots + 2u + 1)(u^{26} - 16u^{25} + \cdots - 4800u + 512)$ $\cdot ((u^{26} + 4u^{25} + \cdots + 8u + 1)^2)(u^{36} + 9u^{35} + \cdots + 134u + 31)^2$
c_2, c_6, c_{10}	$(u^{10} - 4u^9 + 6u^8 - 2u^7 - 2u^6 + u^5 - u^4 + 4u^3 - u^2 - 2u + 1)^2$ $\cdot (u^{10} + 4u^9 + 7u^8 + 5u^7 - u^5 + 2u^4 + 2u^3 + 1)$ $\cdot (u^{10} + 6u^9 + 18u^8 + 32u^7 + 36u^6 + 23u^5 + 4u^4 - 7u^3 - 5u^2 + 1)$ $\cdot (u^{11} + 5u^{10} + 13u^9 + 20u^8 + 21u^7 + 15u^6 + 9u^5 + 4u^4 + 2u^3 + u + 1)$ $\cdot ((u^{26} - 5u^{25} + \cdots - 4u + 1)^2)(u^{26} + 22u^{25} + \cdots + 152u + 32)$ $\cdot (u^{36} - 7u^{35} + \cdots + 2u + 1)^2$
c_3, c_7, c_{11}	$(u^{10} + 2u^8 + 4u^6 - 3u^3 + u^2 + u + 1)^2$ $\cdot (u^{10} + 2u^9 + 3u^8 + 2u^7 + 4u^6 + 6u^5 + 7u^4 + 7u^3 + 6u^2 + 2u + 1)$ $\cdot (u^{10} + 2u^9 + 9u^8 + 19u^7 + 35u^6 + 35u^5 + 33u^4 + 25u^3 + 14u^2 + 5u + 1)$ $\cdot (u^{11} + 6u^{10} + \cdots + 13u + 2)(u^{26} - 4u^{25} + \cdots - 7u + 1)^2$ $\cdot (u^{26} + 27u^{25} + \cdots + 65536u + 4096)(u^{36} - 5u^{35} + \cdots - 14u + 1)^2$
c_4, c_8, c_{12}	$(u^{10} + u^9 + 5u^8 + 6u^7 + 12u^6 + 13u^5 + 15u^4 + 12u^3 + 9u^2 + 4u + 1)^2$ $\cdot (u^{10} + 2u^9 + 6u^8 + 6u^7 + 9u^6 + 5u^5 + 6u^4 + 3u^3 + 3u^2 + u + 1)$ $\cdot (u^{10} + 4u^9 + \cdots + 5u + 1)(u^{11} - 3u^{10} + \cdots + 2u + 1)$ $\cdot (u^{26} - 16u^{25} + \cdots - 4800u + 512)(u^{26} + 4u^{25} + \cdots + 8u + 1)^2$ $\cdot (u^{36} + 9u^{35} + \cdots + 134u + 31)^2$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_8, c_9, c_{12}	$(y^{10}+8y^9+\cdots+5y+1)(y^{10}+9y^9+\cdots+2y+1)^2$ $\cdot\,(y^{10}+14y^9+\cdots+15y+1)(y^{11}+11y^{10}+\cdots+8y-1)$ $\cdot\,(y^{26}+14y^{25}+\cdots+1110016y+262144)$ $\cdot\,((y^{26}+26y^{25}+\cdots-26y+1)^2)(y^{36}+31y^{35}+\cdots+2256y+961)^2$
c_2, c_6, c_{10}	$(y^{10}+12y^8+4y^7+42y^6+29y^5+14y^4-17y^3+33y^2-10y+1)$ $\cdot\,(y^{10}-4y^9+16y^8-22y^7+26y^6-7y^5+y^4-14y^3+15y^2-6y+1)^2$ $\cdot\,(y^{10}-2y^9+9y^8-13y^7+22y^6-19y^5+22y^4-4y^3+4y^2+1)$ $\cdot\,(y^{11}+y^{10}+\cdots+y-1)(y^{26}-4y^{25}+\cdots-11584y+1024)$ $\cdot\,((y^{26}+5y^{25}+\cdots-6y+1)^2)(y^{36}-13y^{35}+\cdots-36y+1)^2$
c_3, c_7, c_{11}	$(y^{10}+2y^9+9y^8+10y^7+18y^6+22y^5+11y^4+19y^3+22y^2+8y+1)$ $\cdot\,(y^{10}+4y^9+12y^8+16y^7+18y^6+6y^5+12y^4-y^3+7y^2+y+1)^2$ $\cdot\,(y^{10}+14y^9+\cdots+3y+1)(y^{11}+2y^{10}+\cdots+73y-4)$ $\cdot\,(y^{26}+7y^{25}+\cdots+645922816y+16777216)$ $\cdot\,((y^{26}+8y^{25}+\cdots+y+1)^2)(y^{36}+13y^{35}+\cdots-14y+1)^2$