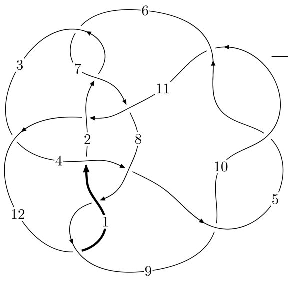
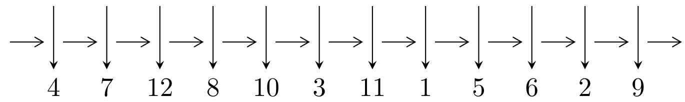
$12a_{1112}$ ($K12a_{1112}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.05333 \times 10^{25} u^{34} - 9.66699 \times 10^{25} u^{33} + \cdots + 3.46689 \times 10^{24} b - 2.06621 \times 10^{26}, \\
& 1.39674 \times 10^{26} u^{34} - 1.16817 \times 10^{27} u^{33} + \cdots + 1.73345 \times 10^{25} a - 1.66150 \times 10^{27}, \\
& u^{35} - 10u^{34} + \cdots + 34u + 20 \rangle \\
I_2^u = \langle & -4.36663 \times 10^{46} a u^{54} + 3.92439 \times 10^{46} u^{54} + \cdots + 1.93672 \times 10^{46} a - 3.95313 \times 10^{46}, \\
& - 5.04902 \times 10^{42} a u^{54} + 3.03401 \times 10^{43} u^{54} + \cdots - 1.84231 \times 10^{44} a + 2.06530 \times 10^{44}, \\
& u^{55} + 4u^{54} + \cdots + 3u - 1 \rangle \\
I_3^u = \langle & -u^7 + 5u^5 - 7u^3 + 2u^2 + b - 1,\ u^7 - 5u^5 + 7u^3 - 2u^2 + a + 2,\ u^8 - u^7 - 5u^6 + 5u^5 + 7u^4 - 8u^3 + 2u^2 - u \\
I_4^u = \langle & 5u^{14} a - u^{14} + \cdots - a - 6,\ -u^{14} a - u^{13} a + \cdots + 5a + 1, \\
& u^{15} + u^{14} - 9u^{13} - 10u^{12} + 29u^{11} + 35u^{10} - 39u^9 - 50u^8 + 18u^7 + 20u^6 - 2u^5 + 11u^4 + 4u^3 - 7u^2 - 2u - 1
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 183 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. $I_1^u = \langle 1.05\times10^{25}u^{34}-9.67\times10^{25}u^{33}+\cdots+3.47\times10^{24}b-2.07\times10^{26},\ 1.40\times10^{26}u^{34}-1.17\times10^{27}u^{33}+\cdots+1.73\times10^{25}a-1.66\times10^{27},\ u^{35}-10u^{34}+\cdots+34u+20\rangle$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-8.05760u^{34}+67.3902u^{33}+\cdots+216.775u+95.8498\\-3.03824u^{34}+27.8837u^{33}+\cdots+151.183u+59.5982\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-8.07945u^{34}+70.9964u^{33}+\cdots+308.907u+126.677\\20.2058u^{34}-172.098u^{33}+\cdots-634.931u-269.346\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.743800u^{34}-8.22710u^{33}+\cdots-77.9988u-27.7846\\-14.1624u^{34}+122.356u^{33}+\cdots+493.828u+204.174\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-1.67496u^{34}+12.9651u^{33}+\cdots+17.1386u+11.5788\\-4.24049u^{34}+36.4664u^{33}+\cdots+138.050u+59.1818\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-6.69454u^{34}+54.3723u^{33}+\cdots+135.594u+65.4843\\-2.18204u^{34}+16.4361u^{33}+\cdots+6.41141u+8.93501\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-11.0958u^{34}+95.2739u^{33}+\cdots+367.957u+155.448\\-3.03824u^{34}+27.8837u^{33}+\cdots+151.183u+59.5982\end{pmatrix}$$

$$a_3 = \begin{pmatrix}12.7046u^{34}-108.535u^{33}+\cdots-404.102u-172.051\\10.5406u^{34}-90.7723u^{33}+\cdots-350.757u-148.302\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1505820769950017868833398728}{173344647704451037240759}u^{34} - \frac{1293993719851736952781608217}{173344647704451037240759}u^{33} + \cdots - \frac{5021810385311596138829713842}{173344647704451037240759}u - \frac{2132009033300635690695804090}{173344647704451037240759}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{35} + u^{34} + \cdots + 7u + 1$
c_2, c_6, c_8 c_{12}	$u^{35} + u^{34} + \cdots + 8u + 4$
c_3	$u^{35} + 19u^{34} + \cdots + 3582u + 412$
c_4, c_7	$u^{35} + u^{34} + \cdots + 4u + 1$
c_5, c_9, c_{10}	$u^{35} - 10u^{34} + \cdots + 34u + 20$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{35} + 25y^{34} + \cdots + 29y - 1$
c_2, c_6, c_8 c_{12}	$y^{35} + 23y^{34} + \cdots + 144y - 16$
c_3	$y^{35} + 5y^{34} + \cdots + 3024300y - 169744$
c_4, c_7	$y^{35} + 11y^{34} + \cdots - 38y - 1$
c_5, c_9, c_{10}	$y^{35} - 38y^{34} + \cdots + 1916y - 400$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.803997+0.533074I$ $a=\ \ 1.43448+1.10830I$ $b=-0.062543-1.074790I$	$6.06587-1.03841I$	$-4.61661+0.I$
$u=-0.803997-0.533074I$ $a=\ \ 1.43448-1.10830I$ $b=-0.062543+1.074790I$	$6.06587+1.03841I$	$-4.61661+0.I$
$u=\ \ 1.105460+0.091312I$ $a=\ \ 0.064040+0.792479I$ $b=\ \ 0.422290-1.286260I$	$3.42980+2.02749I$	$-9.51115+1.18447I$
$u=\ \ 1.105460-0.091312I$ $a=\ \ 0.064040-0.792479I$ $b=\ \ 0.422290+1.286260I$	$3.42980-2.02749I$	$-9.51115-1.18447I$
$u=\ \ 0.673394+0.561518I$ $a=\ \ 0.676471-1.054270I$ $b=\ \ 0.207754+1.028490I$	$2.46897-2.30248I$	$-9.34144+3.82773I$
$u=\ \ 0.673394-0.561518I$ $a=\ \ 0.676471+1.054270I$ $b=\ \ 0.207754-1.028490I$	$2.46897+2.30248I$	$-9.34144-3.82773I$
$u=-0.598181+0.961731I$ $a=-0.54099-1.61027I$ $b=-0.538203+1.269780I$	$6.0194+14.5123I$	$-8.16245-9.90720I$
$u=-0.598181-0.961731I$ $a=-0.54099+1.61027I$ $b=-0.538203-1.269780I$	$6.0194-14.5123I$	$-8.16245+9.90720I$
$u=-0.473448+0.563117I$ $a=\ \ 0.348604-0.219293I$ $b=-0.867609-0.203863I$	$-0.63258+3.95481I$	$-13.6290-6.0007I$
$u=-0.473448-0.563117I$ $a=\ \ 0.348604+0.219293I$ $b=-0.867609+0.203863I$	$-0.63258-3.95481I$	$-13.6290+6.0007I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.349085+0.606361I$ $a=\ 0.23813+2.73509I$ $b=\ 0.224450-1.246080I$	$7.37225+4.97861I$	$-1.44832-6.36788I$
$u=-0.349085-0.606361I$ $a=\ 0.23813-2.73509I$ $b=\ 0.224450+1.246080I$	$7.37225-4.97861I$	$-1.44832+6.36788I$
$u=-0.707100+1.117540I$ $a=-0.338530-1.076450I$ $b=\ 0.378752+1.180320I$	$5.90335-7.84555I$	0
$u=-0.707100-1.117540I$ $a=-0.338530+1.076450I$ $b=\ 0.378752-1.180320I$	$5.90335+7.84555I$	0
$u=-1.41227+0.14588I$ $a=\ 1.208100+0.092079I$ $b=\ 0.797088-0.998953I$	$1.00471+6.09485I$	0
$u=-1.41227-0.14588I$ $a=\ 1.208100-0.092079I$ $b=\ 0.797088+0.998953I$	$1.00471-6.09485I$	0
$u=-0.391148+0.427059I$ $a=\ 0.295079+0.998933I$ $b=\ 0.596218-0.096324I$	$-0.501599-0.453196I$	$-14.2379-0.6217I$
$u=-0.391148-0.427059I$ $a=\ 0.295079-0.998933I$ $b=\ 0.596218+0.096324I$	$-0.501599+0.453196I$	$-14.2379+0.6217I$
$u=\ 1.47231+0.17993I$ $a=-0.87718+1.36651I$ $b=-0.314810-1.360770I$	$1.40292-7.73465I$	0
$u=\ 1.47231-0.17993I$ $a=-0.87718-1.36651I$ $b=-0.314810+1.360770I$	$1.40292+7.73465I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.49385 + 0.19132I$ $a = 0.337606 - 0.343758I$ $b = 1.058070 - 0.319858I$	$-7.06787 - 6.71422I$	0
$u = 1.49385 - 0.19132I$ $a = 0.337606 + 0.343758I$ $b = 1.058070 + 0.319858I$	$-7.06787 + 6.71422I$	0
$u = 0.174543 + 0.422754I$ $a = -1.74538 + 2.01944I$ $b = -0.584132 - 1.136250I$	$6.24160 - 4.06118I$	$-1.88533 + 4.69388I$
$u = 0.174543 - 0.422754I$ $a = -1.74538 - 2.01944I$ $b = -0.584132 + 1.136250I$	$6.24160 + 4.06118I$	$-1.88533 - 4.69388I$
$u = -1.54135 + 0.10386I$ $a = -0.828626 - 0.343315I$ $b = -0.521454 + 0.940783I$	$-4.84166 + 4.34625I$	0
$u = -1.54135 - 0.10386I$ $a = -0.828626 + 0.343315I$ $b = -0.521454 - 0.940783I$	$-4.84166 - 4.34625I$	0
$u = 1.54823 + 0.03994I$ $a = -0.491121 + 0.284574I$ $b = -0.604028 + 0.080486I$	$-7.11890 - 0.61994I$	0
$u = 1.54823 - 0.03994I$ $a = -0.491121 - 0.284574I$ $b = -0.604028 - 0.080486I$	$-7.11890 + 0.61994I$	0
$u = 1.57837 + 0.33899I$ $a = 1.038850 - 0.942216I$ $b = 0.66578 + 1.28800I$	$-1.0151 - 19.2744I$	0
$u = 1.57837 - 0.33899I$ $a = 1.038850 + 0.942216I$ $b = 0.66578 - 1.28800I$	$-1.0151 + 19.2744I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.382332$ $a = 0.622554$ $b = 0.322801$	-0.581792	-17.0880
$u = 1.53143 + 0.55845I$ $a = -0.701270 + 1.154460I$ $b = -0.300993 - 0.837192I$	$-3.88596 - 3.19348I$	0
$u = 1.53143 - 0.55845I$ $a = -0.701270 - 1.154460I$ $b = -0.300993 + 0.837192I$	$-3.88596 + 3.19348I$	0
$u = 1.89015 + 0.03404I$ $a = -0.329520 - 0.418059I$ $b = -0.218032 + 0.900975I$	$-3.86222 + 1.75896I$	0
$u = 1.89015 - 0.03404I$ $a = -0.329520 + 0.418059I$ $b = -0.218032 - 0.900975I$	$-3.86222 - 1.75896I$	0

II. $\boldsymbol{I_2^u = \langle -4.37\times 10^{46} a u^{54} + 3.92\times 10^{46} u^{54} + \cdots + 1.94\times 10^{46} a - 3.95\times 10^{46},\ -5.05\times 10^{42} a u^{54} + 3.03\times 10^{43} u^{54} + \cdots - 1.84\times 10^{44} a + 2.07\times 10^{44},\ u^{55} + 4u^{54} + \cdots + 3u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ 1.14957au^{54} - 1.03314u^{54} + \cdots - 0.509865a + 1.04071 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.26663au^{54} - 0.830110u^{54} + \cdots + 1.05263a - 3.29375 \\ -0.604358au^{54} + 1.38963u^{54} + \cdots - 1.89616a + 2.18358 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.459243au^{54} - 2.31570u^{54} + \cdots + 1.32353a - 7.18383 \\ 0.491567au^{54} + 0.506314u^{54} + \cdots - 0.166689a + 0.246017 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.18307au^{54} + 4.62717u^{54} + \cdots - 3.90624a + 6.59236 \\ -0.247329au^{54} - 0.152341u^{54} + \cdots - 0.316387a - 1.04384 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1.94504au^{54} + 0.689214u^{54} + \cdots - 1.16001a - 0.436189 \\ -0.235673au^{54} + 1.03979u^{54} + \cdots - 1.66571a + 2.18129 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1.14957au^{54} - 1.03314u^{54} + \cdots + 0.490135a + 1.04071 \\ 1.14957au^{54} - 1.03314u^{54} + \cdots - 0.509865a + 1.04071 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.468039au^{54} - 2.67095u^{54} + \cdots + 1.96864a - 5.26709 \\ -0.0813838au^{54} + 0.151068u^{54} + \cdots + 0.379373a + 2.16276 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.650219u^{54} + 3.90679u^{53} + \cdots + 33.7462u - 13.9094$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{110} - 10u^{109} + \cdots - 62239u + 5573$
c_2, c_6, c_8 c_{12}	$u^{110} - u^{109} + \cdots + 757u + 161$
c_3	$(u^{55} - 8u^{54} + \cdots + u - 1)^2$
c_4, c_7	$u^{110} + 5u^{109} + \cdots - 2143u + 1273$
c_5, c_9, c_{10}	$(u^{55} + 4u^{54} + \cdots + 3u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{110} + 18y^{109} + \cdots + 573371397y + 31058329$
c_2, c_6, c_8 c_{12}	$y^{110} + 53y^{109} + \cdots + 1093301y + 25921$
c_3	$(y^{55} + 52y^{53} + \cdots - 51y - 1)^2$
c_4, c_7	$y^{110} - 19y^{109} + \cdots + 173836323y + 1620529$
c_5, c_9, c_{10}	$(y^{55} - 58y^{54} + \cdots + y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.690905 + 0.836192I$ $a = 0.366866 - 0.880523I$ $b = -0.241428 + 0.824984I$	$2.29186 - 2.97653I$	0
$u = 0.690905 + 0.836192I$ $a = 0.61526 - 1.37416I$ $b = 0.455751 + 1.178700I$	$2.29186 - 2.97653I$	0
$u = 0.690905 - 0.836192I$ $a = 0.366866 + 0.880523I$ $b = -0.241428 - 0.824984I$	$2.29186 + 2.97653I$	0
$u = 0.690905 - 0.836192I$ $a = 0.61526 + 1.37416I$ $b = 0.455751 - 1.178700I$	$2.29186 + 2.97653I$	0
$u = -0.211935 + 1.078880I$ $a = 0.14003 + 1.43194I$ $b = 0.470912 - 1.207600I$	$2.01266 + 5.69803I$	0
$u = -0.211935 + 1.078880I$ $a = -0.05804 - 1.67565I$ $b = -0.253274 + 0.756122I$	$2.01266 + 5.69803I$	0
$u = -0.211935 - 1.078880I$ $a = 0.14003 - 1.43194I$ $b = 0.470912 + 1.207600I$	$2.01266 - 5.69803I$	0
$u = -0.211935 - 1.078880I$ $a = -0.05804 + 1.67565I$ $b = -0.253274 - 0.756122I$	$2.01266 - 5.69803I$	0
$u = 0.490640 + 0.738991I$ $a = 0.160306 + 0.008195I$ $b = -1.008690 + 0.095297I$	$2.39208 - 9.05536I$	$-10.63523 + 8.54922I$
$u = 0.490640 + 0.738991I$ $a = -0.74005 + 1.97245I$ $b = -0.532272 - 1.198920I$	$2.39208 - 9.05536I$	$-10.63523 + 8.54922I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.490640-0.738991I$ $a=\ \ 0.160306-0.008195I$ $b=-1.008690-0.095297I$	$2.39208+9.05536I$	$-10.63523-8.54922I$
$u=\ \ 0.490640-0.738991I$ $a=-0.74005-1.97245I$ $b=-0.532272+1.198920I$	$2.39208+9.05536I$	$-10.63523-8.54922I$
$u=\ \ 0.721236+0.487051I$ $a=-0.175549-0.965280I$ $b=\ \ 0.265285+0.402133I$	$2.64516-3.21436I$	$-11.40156+4.88184I$
$u=\ \ 0.721236+0.487051I$ $a=\ \ 1.32499-1.39029I$ $b=\ \ 0.439519+1.129730I$	$2.64516-3.21436I$	$-11.40156+4.88184I$
$u=\ \ 0.721236-0.487051I$ $a=-0.175549+0.965280I$ $b=\ \ 0.265285-0.402133I$	$2.64516+3.21436I$	$-11.40156-4.88184I$
$u=\ \ 0.721236-0.487051I$ $a=\ \ 1.32499+1.39029I$ $b=\ \ 0.439519-1.129730I$	$2.64516+3.21436I$	$-11.40156-4.88184I$
$u=-0.094135+0.797521I$ $a=-0.09523+1.51095I$ $b=-0.33150-1.38137I$	$7.37231+4.07544I$	$-3.25549-3.99001I$
$u=-0.094135+0.797521I$ $a=\ \ 0.19906-2.27702I$ $b=-0.400816+1.176110I$	$7.37231+4.07544I$	$-3.25549-3.99001I$
$u=-0.094135-0.797521I$ $a=-0.09523-1.51095I$ $b=-0.33150+1.38137I$	$7.37231-4.07544I$	$-3.25549+3.99001I$
$u=-0.094135-0.797521I$ $a=\ \ 0.19906+2.27702I$ $b=-0.400816-1.176110I$	$7.37231-4.07544I$	$-3.25549+3.99001I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.659238+0.334521I$ $a=\ \ 0.942611+0.016242I$ $b=-0.252937-0.954465I$	$-0.69659-1.57624I$	$-16.2076+2.4005I$
$u=-0.659238+0.334521I$ $a=\ \ 0.097853-0.336057I$ $b=\ \ 0.839956+0.182273I$	$-0.69659-1.57624I$	$-16.2076+2.4005I$
$u=-0.659238-0.334521I$ $a=\ \ 0.942611-0.016242I$ $b=-0.252937+0.954465I$	$-0.69659+1.57624I$	$-16.2076-2.4005I$
$u=-0.659238-0.334521I$ $a=\ \ 0.097853+0.336057I$ $b=\ \ 0.839956-0.182273I$	$-0.69659+1.57624I$	$-16.2076-2.4005I$
$u=-1.174720+0.534428I$ $a=-0.647509-0.837083I$ $b=\ \ 0.303605+1.014120I$	$4.16724+0.68269I$	0
$u=-1.174720+0.534428I$ $a=\ \ 1.009840+0.600097I$ $b=\ \ 0.651657-1.213950I$	$4.16724+0.68269I$	0
$u=-1.174720-0.534428I$ $a=-0.647509+0.837083I$ $b=\ \ 0.303605-1.014120I$	$4.16724-0.68269I$	0
$u=-1.174720-0.534428I$ $a=\ \ 1.009840-0.600097I$ $b=\ \ 0.651657+1.213950I$	$4.16724-0.68269I$	0
$u=\ \ 0.512258+0.483347I$ $a=-0.83422+1.25390I$ $b=\ \ 0.478814-1.088540I$	$2.16174+4.57220I$	$-12.69275-5.26611I$
$u=\ \ 0.512258+0.483347I$ $a=\ \ 1.01988-1.23393I$ $b=\ \ 0.518200-0.362883I$	$2.16174+4.57220I$	$-12.69275-5.26611I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.512258 - 0.483347I$ $a = -0.83422 - 1.25390I$ $b = 0.478814 + 1.088540I$	$2.16174 - 4.57220I$	$-12.69275 + 5.26611I$
$u = 0.512258 - 0.483347I$ $a = 1.01988 + 1.23393I$ $b = 0.518200 + 0.362883I$	$2.16174 - 4.57220I$	$-12.69275 + 5.26611I$
$u = -1.305390 + 0.111278I$ $a = -0.162667 - 0.719844I$ $b = 0.085396 + 1.348090I$	$-0.64381 + 2.74769I$	0
$u = -1.305390 + 0.111278I$ $a = 0.158184 + 0.340349I$ $b = 0.890640 + 0.025319I$	$-0.64381 + 2.74769I$	0
$u = -1.305390 - 0.111278I$ $a = -0.162667 + 0.719844I$ $b = 0.085396 - 1.348090I$	$-0.64381 - 2.74769I$	0
$u = -1.305390 - 0.111278I$ $a = 0.158184 - 0.340349I$ $b = 0.890640 - 0.025319I$	$-0.64381 - 2.74769I$	0
$u = 1.321550 + 0.221317I$ $a = -0.130536 + 0.598890I$ $b = 0.04613 - 1.58841I$	$3.02817 - 7.64203I$	0
$u = 1.321550 + 0.221317I$ $a = 1.17454 - 1.37975I$ $b = 0.486101 + 1.244880I$	$3.02817 - 7.64203I$	0
$u = 1.321550 - 0.221317I$ $a = -0.130536 - 0.598890I$ $b = 0.04613 + 1.58841I$	$3.02817 + 7.64203I$	0
$u = 1.321550 - 0.221317I$ $a = 1.17454 + 1.37975I$ $b = 0.486101 - 1.244880I$	$3.02817 + 7.64203I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.34005$ $a = 1.353980 + 0.139540I$ $b = 0.760771 - 0.965542I$	0.940013	0
$u = 1.34005$ $a = 1.353980 - 0.139540I$ $b = 0.760771 + 0.965542I$	0.940013	0
$u = 1.34292$ $a = -1.22526 + 0.74618I$ $b = -0.485734 - 0.832040I$	-4.96750	0
$u = 1.34292$ $a = -1.22526 - 0.74618I$ $b = -0.485734 + 0.832040I$	-4.96750	0
$u = -1.386050 + 0.039559I$ $a = -0.470371 + 0.137165I$ $b = -1.43986 + 0.40976I$	$-5.51949 + 1.85437I$	0
$u = -1.386050 + 0.039559I$ $a = 1.53412 + 1.58546I$ $b = 0.370669 - 1.035590I$	$-5.51949 + 1.85437I$	0
$u = -1.386050 - 0.039559I$ $a = -0.470371 - 0.137165I$ $b = -1.43986 - 0.40976I$	$-5.51949 - 1.85437I$	0
$u = -1.386050 - 0.039559I$ $a = 1.53412 - 1.58546I$ $b = 0.370669 + 1.035590I$	$-5.51949 - 1.85437I$	0
$u = 1.387900 + 0.064924I$ $a = -0.983235 + 0.686959I$ $b = -0.77404 - 1.32545I$	$-2.42366 - 5.71620I$	0
$u = 1.387900 + 0.064924I$ $a = 1.68695 + 1.28000I$ $b = 0.303534 - 0.933624I$	$-2.42366 - 5.71620I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.387900 - 0.064924I$ $a = -0.983235 - 0.686959I$ $b = -0.77404 + 1.32545I$	$-2.42366 + 5.71620I$	0
$u = 1.387900 - 0.064924I$ $a = 1.68695 - 1.28000I$ $b = 0.303534 + 0.933624I$	$-2.42366 + 5.71620I$	0
$u = 0.225296 + 0.549556I$ $a = 0.905062 - 0.259449I$ $b = -0.570153 - 0.065197I$	$3.94023 - 0.36163I$	$-6.60083 + 2.19067I$
$u = 0.225296 + 0.549556I$ $a = 0.42046 - 2.13735I$ $b = -0.288357 + 1.170460I$	$3.94023 - 0.36163I$	$-6.60083 + 2.19067I$
$u = 0.225296 - 0.549556I$ $a = 0.905062 + 0.259449I$ $b = -0.570153 + 0.065197I$	$3.94023 + 0.36163I$	$-6.60083 - 2.19067I$
$u = 0.225296 - 0.549556I$ $a = 0.42046 + 2.13735I$ $b = -0.288357 - 1.170460I$	$3.94023 + 0.36163I$	$-6.60083 - 2.19067I$
$u = -1.386690 + 0.269417I$ $a = -0.422386 - 0.146904I$ $b = -1.216850 - 0.506933I$	$-6.24126 + 4.08987I$	0
$u = -1.386690 + 0.269417I$ $a = 0.69726 + 1.42412I$ $b = 0.456342 - 0.987921I$	$-6.24126 + 4.08987I$	0
$u = -1.386690 - 0.269417I$ $a = -0.422386 + 0.146904I$ $b = -1.216850 + 0.506933I$	$-6.24126 - 4.08987I$	0
$u = -1.386690 - 0.269417I$ $a = 0.69726 - 1.42412I$ $b = 0.456342 + 0.987921I$	$-6.24126 - 4.08987I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.536397 + 0.236810I$ $a = -1.26961 - 1.53747I$ $b = -0.213339 - 1.096540I$	$4.05157 - 6.54678I$	$-9.8538 + 10.2390I$
$u = 0.536397 + 0.236810I$ $a = 1.08706 - 1.94734I$ $b = 0.49841 + 1.34996I$	$4.05157 - 6.54678I$	$-9.8538 + 10.2390I$
$u = 0.536397 - 0.236810I$ $a = -1.26961 + 1.53747I$ $b = -0.213339 + 1.096540I$	$4.05157 + 6.54678I$	$-9.8538 - 10.2390I$
$u = 0.536397 - 0.236810I$ $a = 1.08706 + 1.94734I$ $b = 0.49841 - 1.34996I$	$4.05157 + 6.54678I$	$-9.8538 - 10.2390I$
$u = 0.126349 + 0.501505I$ $a = 0.133217 + 0.639727I$ $b = 0.878362 - 0.065344I$	$-1.43716 - 0.99063I$	$-13.8892 + 7.3873I$
$u = 0.126349 + 0.501505I$ $a = 0.54521 + 2.88272I$ $b = -0.256700 - 0.705954I$	$-1.43716 - 0.99063I$	$-13.8892 + 7.3873I$
$u = 0.126349 - 0.501505I$ $a = 0.133217 - 0.639727I$ $b = 0.878362 + 0.065344I$	$-1.43716 + 0.99063I$	$-13.8892 - 7.3873I$
$u = 0.126349 - 0.501505I$ $a = 0.54521 - 2.88272I$ $b = -0.256700 + 0.705954I$	$-1.43716 + 0.99063I$	$-13.8892 - 7.3873I$
$u = 1.52074 + 0.01580I$ $a = -0.266906 + 0.895049I$ $b = 0.111980 + 0.556616I$	$-7.32030 - 0.96544I$	0
$u = 1.52074 + 0.01580I$ $a = -0.443060 + 0.172960I$ $b = -1.240360 + 0.064281I$	$-7.32030 - 0.96544I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.52074 - 0.01580I$ $a = -0.266906 - 0.895049I$ $b = 0.111980 - 0.556616I$	$-7.32030 + 0.96544I$	0
$u = 1.52074 - 0.01580I$ $a = -0.443060 - 0.172960I$ $b = -1.240360 - 0.064281I$	$-7.32030 + 0.96544I$	0
$u = -1.52714 + 0.06478I$ $a = -1.35128 - 0.61695I$ $b = -0.444453 + 1.001100I$	$-5.07203 + 4.49506I$	0
$u = -1.52714 + 0.06478I$ $a = -0.383694 - 0.233764I$ $b = -0.746188 + 0.730758I$	$-5.07203 + 4.49506I$	0
$u = -1.52714 - 0.06478I$ $a = -1.35128 + 0.61695I$ $b = -0.444453 - 1.001100I$	$-5.07203 - 4.49506I$	0
$u = -1.52714 - 0.06478I$ $a = -0.383694 + 0.233764I$ $b = -0.746188 - 0.730758I$	$-5.07203 - 4.49506I$	0
$u = -1.53811 + 0.10456I$ $a = -0.826037 - 0.762359I$ $b = -0.69779 + 1.43777I$	$-2.93955 + 7.97841I$	0
$u = -1.53811 + 0.10456I$ $a = 0.784100 - 1.006170I$ $b = 0.193292 - 0.848073I$	$-2.93955 + 7.97841I$	0
$u = -1.53811 - 0.10456I$ $a = -0.826037 + 0.762359I$ $b = -0.69779 - 1.43777I$	$-2.93955 - 7.97841I$	0
$u = -1.53811 - 0.10456I$ $a = 0.784100 + 1.006170I$ $b = 0.193292 + 0.848073I$	$-2.93955 - 7.97841I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.51977 + 0.26825I$ $a = 1.16431 + 0.99467I$ $b = 0.634096 - 1.239720I$	$-4.16439 + 12.76640I$	0
$u = -1.51977 + 0.26825I$ $a = 0.340713 + 0.273669I$ $b = 1.185500 + 0.302967I$	$-4.16439 + 12.76640I$	0
$u = -1.51977 - 0.26825I$ $a = 1.16431 - 0.99467I$ $b = 0.634096 + 1.239720I$	$-4.16439 - 12.76640I$	0
$u = -1.51977 - 0.26825I$ $a = 0.340713 - 0.273669I$ $b = 1.185500 - 0.302967I$	$-4.16439 - 12.76640I$	0
$u = 1.54072 + 0.14118I$ $a = -0.481819 + 0.127682I$ $b = -1.081290 + 0.463123I$	$-7.70356 - 0.46262I$	0
$u = 1.54072 + 0.14118I$ $a = -0.252295 + 0.047124I$ $b = 0.322557 - 0.514598I$	$-7.70356 - 0.46262I$	0
$u = 1.54072 - 0.14118I$ $a = -0.481819 - 0.127682I$ $b = -1.081290 - 0.463123I$	$-7.70356 + 0.46262I$	0
$u = 1.54072 - 0.14118I$ $a = -0.252295 - 0.047124I$ $b = 0.322557 + 0.514598I$	$-7.70356 + 0.46262I$	0
$u = 1.50018 + 0.38684I$ $a = -0.958249 + 0.844891I$ $b = -0.70633 - 1.24190I$	$-3.69123 - 10.85860I$	0
$u = 1.50018 + 0.38684I$ $a = 0.76469 - 1.24419I$ $b = 0.485508 + 0.989403I$	$-3.69123 - 10.85860I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50018 - 0.38684I$ $a = -0.958249 - 0.844891I$ $b = -0.70633 + 1.24190I$	$-3.69123 + 10.85860I$	0
$u = 1.50018 - 0.38684I$ $a = 0.76469 + 1.24419I$ $b = 0.485508 - 0.989403I$	$-3.69123 + 10.85860I$	0
$u = -1.56273 + 0.23862I$ $a = -0.996306 - 0.820496I$ $b = -0.651483 + 1.225350I$	$-5.09742 + 6.69470I$	0
$u = -1.56273 + 0.23862I$ $a = 0.0205085 - 0.0612444I$ $b = 0.544425 + 0.509778I$	$-5.09742 + 6.69470I$	0
$u = -1.56273 - 0.23862I$ $a = -0.996306 + 0.820496I$ $b = -0.651483 - 1.225350I$	$-5.09742 - 6.69470I$	0
$u = -1.56273 - 0.23862I$ $a = 0.0205085 + 0.0612444I$ $b = 0.544425 - 0.509778I$	$-5.09742 - 6.69470I$	0
$u = 0.135314 + 0.346844I$ $a = -1.19090 + 2.30647I$ $b = 0.554346 - 1.164890I$	$2.04910 + 4.63068I$	$-15.3685 - 1.9194I$
$u = 0.135314 + 0.346844I$ $a = -0.57382 - 4.23784I$ $b = -0.013052 - 0.468528I$	$2.04910 + 4.63068I$	$-15.3685 - 1.9194I$
$u = 0.135314 - 0.346844I$ $a = -1.19090 - 2.30647I$ $b = 0.554346 + 1.164890I$	$2.04910 - 4.63068I$	$-15.3685 + 1.9194I$
$u = 0.135314 - 0.346844I$ $a = -0.57382 + 4.23784I$ $b = -0.013052 + 0.468528I$	$2.04910 - 4.63068I$	$-15.3685 + 1.9194I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.363495$ $a = 3.65772 + 1.37528I$ $b = -0.276741 - 0.830004I$	4.58058	-5.80200
$u = 0.363495$ $a = 3.65772 - 1.37528I$ $b = -0.276741 + 0.830004I$	4.58058	-5.80200
$u = -1.71593 + 0.24905I$ $a = -0.594291 - 0.975640I$ $b = -0.268549 + 0.897332I$	$-3.75907 + 0.40062I$	0
$u = -1.71593 + 0.24905I$ $a = -0.260538 + 0.379014I$ $b = -0.322443 - 0.866343I$	$-3.75907 + 0.40062I$	0
$u = -1.71593 - 0.24905I$ $a = -0.594291 + 0.975640I$ $b = -0.268549 - 0.897332I$	$-3.75907 - 0.40062I$	0
$u = -1.71593 - 0.24905I$ $a = -0.260538 - 0.379014I$ $b = -0.322443 + 0.866343I$	$-3.75907 - 0.40062I$	0
$u = -0.150877 + 0.151461I$ $a = 1.133190 - 0.604556I$ $b = 1.231950 + 0.223344I$	$-1.06328 - 1.24128I$	$-32.8326 + 10.3421I$
$u = -0.150877 + 0.151461I$ $a = 8.35588 + 0.45585I$ $b = -0.249094 - 0.839602I$	$-1.06328 - 1.24128I$	$-32.8326 + 10.3421I$
$u = -0.150877 - 0.151461I$ $a = 1.133190 + 0.604556I$ $b = 1.231950 - 0.223344I$	$-1.06328 + 1.24128I$	$-32.8326 - 10.3421I$
$u = -0.150877 - 0.151461I$ $a = 8.35588 - 0.45585I$ $b = -0.249094 + 0.839602I$	$-1.06328 + 1.24128I$	$-32.8326 - 10.3421I$

III. $\boldsymbol{I^u_3 = \langle -u^7+5u^5-7u^3+2u^2+b-1,\ u^7-5u^5+7u^3-2u^2+a+2,\ u^8-u^7-5u^6+5u^5+7u^4-8u^3+2u^2-u-1\rangle}$

(i) Arc colorings

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^7+5u^5-7u^3+2u^2-2 \\ u^7-5u^5+7u^3-2u^2+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2u^7+u^6-9u^5-3u^4+12u^3-u^2-u+2 \\ -u^7-u^6+4u^5+3u^4-5u^3-u^2+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^7-u^6+4u^5+4u^4-3u^3-2u^2-3u-2 \\ 2u^7+u^6-8u^5-2u^4+8u^3-4u^2+4u+2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^7-4u^5+u^4+3u^3-4u^2+5u \\ -u^7+4u^5-u^4-4u^3+4u^2-2u-1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^7-u^6+4u^5+4u^4-3u^3-3u^2-4u \\ -2u^7-u^6+9u^5+3u^4-12u^3+u^2-1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ u^7-5u^5+7u^3-2u^2+1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^7-5u^5+7u^3-u^2+u-1 \\ u^7-5u^5+7u^3-2u^2+u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -11u^7-9u^6+48u^5+36u^4-55u^3-25u^2-9u-23$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^8 - u^7 + u^6 + 3u^4 - 2u^3 - u^2 - u + 1$
c_2, c_8	$u^8 + u^7 + 4u^6 + 3u^5 + 5u^4 + 3u^3 + u^2 - 1$
c_3	$u^8 + 6u^7 + 23u^6 + 61u^5 + 109u^4 + 132u^3 + 96u^2 + 30u + 1$
c_4, c_7	$u^8 - u^7 - 3u^6 + 4u^5 + 5u^4 - 3u^3 - u^2 + 2u - 1$
c_5	$u^8 + u^7 - 5u^6 - 5u^5 + 7u^4 + 8u^3 + 2u^2 + u - 1$
c_6, c_{12}	$u^8 - u^7 + 4u^6 - 3u^5 + 5u^4 - 3u^3 + u^2 - 1$
c_9, c_{10}	$u^8 - u^7 - 5u^6 + 5u^5 + 7u^4 - 8u^3 + 2u^2 - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^8 + y^7 + 7y^6 + 7y^4 - 8y^3 + 3y^2 - 3y + 1$
c_2, c_6, c_8 c_{12}	$y^8 + 7y^7 + 20y^6 + 27y^5 + 13y^4 - 7y^3 - 9y^2 - 2y + 1$
c_3	$y^8 + 10y^7 + 15y^6 - 99y^5 - 165y^4 - 110y^3 + 1514y^2 - 708y + 1$
c_4, c_7	$y^8 - 7y^7 + 27y^6 - 54y^5 + 57y^4 - 29y^3 + 3y^2 - 2y + 1$
c_5, c_9, c_{10}	$y^8 - 11y^7 + 49y^6 - 107y^5 + 105y^4 - 16y^3 - 26y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.42109 + 0.15850I$ $a = -0.66460 + 1.39192I$ $b = -0.33540 - 1.39192I$	$0.69150 - 8.08100I$	$-14.1906 + 8.8184I$
$u = 1.42109 - 0.15850I$ $a = -0.66460 - 1.39192I$ $b = -0.33540 + 1.39192I$	$0.69150 + 8.08100I$	$-14.1906 - 8.8184I$
$u = 0.155711 + 0.547425I$ $a = -1.28585 + 1.25857I$ $b = 0.285850 - 1.258570I$	$5.31999 + 5.75968I$	$-5.35155 - 5.59050I$
$u = 0.155711 - 0.547425I$ $a = -1.28585 - 1.25857I$ $b = 0.285850 + 1.258570I$	$5.31999 - 5.75968I$	$-5.35155 + 5.59050I$
$u = 1.50317$ $a = -0.224711$ $b = -0.775289$	-8.35816	-22.2230
$u = -0.348592$ $a = -1.48556$ $b = 0.485561$	-2.02635	-20.2960
$u = -1.65409 + 0.38144I$ $a = -0.694416 - 0.827388I$ $b = -0.305584 + 0.827388I$	$-4.10911 + 2.85853I$	$-18.1985 + 0.2620I$
$u = -1.65409 - 0.38144I$ $a = -0.694416 + 0.827388I$ $b = -0.305584 - 0.827388I$	$-4.10911 - 2.85853I$	$-18.1985 - 0.2620I$

IV.

$\boldsymbol{I^u_4 = \langle 5u^{14}a - u^{14} + \cdots - a - 6,\ -u^{14}a - u^{13}a + \cdots + 5a + 1,\ u^{15} + u^{14} + \cdots - 2u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ -\frac{5}{4}u^{14}a + \frac{1}{4}u^{14} + \cdots + \frac{1}{4}a + \frac{3}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{5}{4}u^{14}a + \frac{1}{2}u^{14} + \cdots - \frac{1}{2}a - \frac{1}{4} \\ -\frac{3}{2}u^{14}a - u^{14} + \cdots + a - \frac{1}{2} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{2}u^{14}a - u^{14} + \cdots + a + \frac{1}{2} \\ \frac{1}{2}u^{14}a - u^{14} + \cdots + a - \frac{1}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{4}u^{14}a + u^{14} + \cdots + a + \frac{1}{4} \\ -\frac{1}{2}u^{14}a - \frac{3}{4}u^{14} + \cdots + \frac{1}{4}a + \frac{5}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{5}{4}u^{14}a - \frac{7}{4}u^{14} + \cdots - \frac{3}{4}a - \frac{7}{4}u \\ -\frac{1}{2}u^{14}a - \frac{5}{4}u^{14} + \cdots - \frac{1}{4}a + \frac{3}{4} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{5}{4}u^{14}a + \frac{1}{4}u^{14} + \cdots + \frac{5}{4}a + \frac{3}{2} \\ -\frac{5}{4}u^{14}a + \frac{1}{4}u^{14} + \cdots + \frac{1}{4}a + \frac{3}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{3}{4}u^{14}a + \frac{1}{4}u^{14} + \cdots + \frac{1}{4}a + \frac{1}{2} \\ \frac{3}{4}u^{14}a + \frac{1}{4}u^{14} + \cdots + \frac{1}{4}a - \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6u^{14} - 3u^{13} - 56u^{12} + 17u^{11} + 204u^{10} - 29u^9 - 354u^8 + 13u^7 + 273u^6 - 20u^5 - 39u^4 + 61u^3 - 45u^2 - 33u + 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{30} - 3u^{29} + \cdots - 3u + 1$
c_2, c_8	$u^{30} + 2u^{29} + \cdots + 8u + 4$
c_3	$(u^{15} - 4u^{14} + \cdots + 7u - 1)^2$
c_4, c_7	$u^{30} + 2u^{29} + \cdots + 13u + 19$
c_5	$(u^{15} - u^{14} + \cdots - 2u + 1)^2$
c_6, c_{12}	$u^{30} - 2u^{29} + \cdots - 8u + 4$
c_9, c_{10}	$(u^{15} + u^{14} + \cdots - 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{30} + 11y^{29} + \cdots + 17y + 1$
c_2, c_6, c_8 c_{12}	$y^{30} + 10y^{29} + \cdots + 304y + 16$
c_3	$(y^{15} + 12y^{13} + \cdots + 13y - 1)^2$
c_4, c_7	$y^{30} - 12y^{29} + \cdots + 3593y + 361$
c_5, c_9, c_{10}	$(y^{15} - 19y^{14} + \cdots - 10y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.970278 + 0.415597I$ $a = 1.40021 + 0.59761I$ $b = 0.640498 - 0.998111I$	$3.71712 + 1.60117I$	$-9.64962 - 4.05647I$
$u = -0.970278 + 0.415597I$ $a = 0.86440 + 1.27791I$ $b = -0.232229 - 0.910622I$	$3.71712 + 1.60117I$	$-9.64962 - 4.05647I$
$u = -0.970278 - 0.415597I$ $a = 1.40021 - 0.59761I$ $b = 0.640498 + 0.998111I$	$3.71712 - 1.60117I$	$-9.64962 + 4.05647I$
$u = -0.970278 - 0.415597I$ $a = 0.86440 - 1.27791I$ $b = -0.232229 + 0.910622I$	$3.71712 - 1.60117I$	$-9.64962 + 4.05647I$
$u = 0.897239 + 0.071943I$ $a = 0.702350 + 0.612636I$ $b = -0.294365 - 1.063190I$	$4.32021 - 3.79093I$	$-7.17450 + 4.38882I$
$u = 0.897239 + 0.071943I$ $a = 1.40812 - 0.53587I$ $b = 0.633328 + 1.157010I$	$4.32021 - 3.79093I$	$-7.17450 + 4.38882I$
$u = 0.897239 - 0.071943I$ $a = 0.702350 - 0.612636I$ $b = -0.294365 + 1.063190I$	$4.32021 + 3.79093I$	$-7.17450 - 4.38882I$
$u = 0.897239 - 0.071943I$ $a = 1.40812 + 0.53587I$ $b = 0.633328 - 1.157010I$	$4.32021 + 3.79093I$	$-7.17450 - 4.38882I$
$u = 0.149563 + 0.663506I$ $a = 0.21462 - 1.77408I$ $b = 0.553384 + 1.232900I$	$2.66400 - 4.93406I$	$-4.77378 + 5.63860I$
$u = 0.149563 + 0.663506I$ $a = -1.57114 + 2.40267I$ $b = -0.042984 - 0.753573I$	$2.66400 - 4.93406I$	$-4.77378 + 5.63860I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.149563 - 0.663506I$ $a = 0.21462 + 1.77408I$ $b = 0.553384 - 1.232900I$	$2.66400 + 4.93406I$	$-4.77378 - 5.63860I$
$u = 0.149563 - 0.663506I$ $a = -1.57114 - 2.40267I$ $b = -0.042984 + 0.753573I$	$2.66400 + 4.93406I$	$-4.77378 - 5.63860I$
$u = -1.42671 + 0.14056I$ $a = -0.514801 - 0.142774I$ $b = -1.159360 + 0.098889I$	$-5.56111 + 2.90302I$	$-13.03720 - 4.01766I$
$u = -1.42671 + 0.14056I$ $a = -1.17044 - 1.41434I$ $b = -0.363014 + 1.007980I$	$-5.56111 + 2.90302I$	$-13.03720 - 4.01766I$
$u = -1.42671 - 0.14056I$ $a = -0.514801 + 0.142774I$ $b = -1.159360 - 0.098889I$	$-5.56111 - 2.90302I$	$-13.03720 + 4.01766I$
$u = -1.42671 - 0.14056I$ $a = -1.17044 + 1.41434I$ $b = -0.363014 - 1.007980I$	$-5.56111 - 2.90302I$	$-13.03720 + 4.01766I$
$u = -1.50914 + 0.14421I$ $a = -0.879156 - 0.697821I$ $b = -0.74401 + 1.37126I$	$-3.31494 + 7.45073I$	$-15.0295 - 2.8762I$
$u = -1.50914 + 0.14421I$ $a = 1.134480 - 0.669507I$ $b = 0.135556 - 0.641151I$	$-3.31494 + 7.45073I$	$-15.0295 - 2.8762I$
$u = -1.50914 - 0.14421I$ $a = -0.879156 + 0.697821I$ $b = -0.74401 - 1.37126I$	$-3.31494 - 7.45073I$	$-15.0295 + 2.8762I$
$u = -1.50914 - 0.14421I$ $a = 1.134480 + 0.669507I$ $b = 0.135556 + 0.641151I$	$-3.31494 - 7.45073I$	$-15.0295 + 2.8762I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.53491 + 0.08290I$ $a = 0.266532 + 0.628795I$ $b = -0.168449 + 0.705580I$	$-6.97650 - 0.29121I$	$-8.82689 - 2.07026I$
$u = 1.53491 + 0.08290I$ $a = -0.499034 + 0.145586I$ $b = -1.254380 + 0.268102I$	$-6.97650 - 0.29121I$	$-8.82689 - 2.07026I$
$u = 1.53491 - 0.08290I$ $a = 0.266532 - 0.628795I$ $b = -0.168449 - 0.705580I$	$-6.97650 + 0.29121I$	$-8.82689 + 2.07026I$
$u = 1.53491 - 0.08290I$ $a = -0.499034 - 0.145586I$ $b = -1.254380 - 0.268102I$	$-6.97650 + 0.29121I$	$-8.82689 + 2.07026I$
$u = -0.126524 + 0.311133I$ $a = -0.065934 + 0.199718I$ $b = 1.305940 + 0.231688I$	$-0.91271 - 1.17975I$	$13.3244 - 8.3971I$
$u = -0.126524 + 0.311133I$ $a = -4.92963 - 2.60498I$ $b = 0.243252 + 0.861223I$	$-0.91271 - 1.17975I$	$13.3244 - 8.3971I$
$u = -0.126524 - 0.311133I$ $a = -0.065934 - 0.199718I$ $b = 1.305940 - 0.231688I$	$-0.91271 + 1.17975I$	$13.3244 + 8.3971I$
$u = -0.126524 - 0.311133I$ $a = -4.92963 + 2.60498I$ $b = 0.243252 - 0.861223I$	$-0.91271 + 1.17975I$	$13.3244 + 8.3971I$
$u = 1.90188$ $a = -0.360578 + 0.614754I$ $b = -0.253166 - 0.820774I$	-4.32151	-20.6660
$u = 1.90188$ $a = -0.360578 - 0.614754I$ $b = -0.253166 + 0.820774I$	-4.32151	-20.6660

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^8 - u^7 + \cdots - u + 1)(u^{30} - 3u^{29} + \cdots - 3u + 1)$ $\cdot (u^{35} + u^{34} + \cdots + 7u + 1)(u^{110} - 10u^{109} + \cdots - 62239u + 5573)$
c_2, c_8	$(u^8 + u^7 + \cdots + u^2 - 1)(u^{30} + 2u^{29} + \cdots + 8u + 4)$ $\cdot (u^{35} + u^{34} + \cdots + 8u + 4)(u^{110} - u^{109} + \cdots + 757u + 161)$
c_3	$(u^8 + 6u^7 + 23u^6 + 61u^5 + 109u^4 + 132u^3 + 96u^2 + 30u + 1)$ $\cdot ((u^{15} - 4u^{14} + \cdots + 7u - 1)^2)(u^{35} + 19u^{34} + \cdots + 3582u + 412)$ $\cdot (u^{55} - 8u^{54} + \cdots + u - 1)^2$
c_4, c_7	$(u^8 - u^7 - 3u^6 + 4u^5 + 5u^4 - 3u^3 - u^2 + 2u - 1)$ $\cdot (u^{30} + 2u^{29} + \cdots + 13u + 19)(u^{35} + u^{34} + \cdots + 4u + 1)$ $\cdot (u^{110} + 5u^{109} + \cdots - 2143u + 1273)$
c_5	$(u^8 + u^7 - 5u^6 - 5u^5 + 7u^4 + 8u^3 + 2u^2 + u - 1)$ $\cdot ((u^{15} - u^{14} + \cdots - 2u + 1)^2)(u^{35} - 10u^{34} + \cdots + 34u + 20)$ $\cdot (u^{55} + 4u^{54} + \cdots + 3u - 1)^2$
c_6, c_{12}	$(u^8 - u^7 + \cdots + u^2 - 1)(u^{30} - 2u^{29} + \cdots - 8u + 4)$ $\cdot (u^{35} + u^{34} + \cdots + 8u + 4)(u^{110} - u^{109} + \cdots + 757u + 161)$
c_9, c_{10}	$(u^8 - u^7 - 5u^6 + 5u^5 + 7u^4 - 8u^3 + 2u^2 - u - 1)$ $\cdot ((u^{15} + u^{14} + \cdots - 2u - 1)^2)(u^{35} - 10u^{34} + \cdots + 34u + 20)$ $\cdot (u^{55} + 4u^{54} + \cdots + 3u - 1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^8+y^7+\cdots-3y+1)(y^{30}+11y^{29}+\cdots+17y+1)$ $\cdot\,(y^{35}+25y^{34}+\cdots+29y-1)$ $\cdot\,(y^{110}+18y^{109}+\cdots+573371397y+31058329)$
c_2, c_6, c_8 c_{12}	$(y^8+7y^7+20y^6+27y^5+13y^4-7y^3-9y^2-2y+1)$ $\cdot\,(y^{30}+10y^{29}+\cdots+304y+16)(y^{35}+23y^{34}+\cdots+144y-16)$ $\cdot\,(y^{110}+53y^{109}+\cdots+1093301y+25921)$
c_3	$(y^8+10y^7+15y^6-99y^5-165y^4-110y^3+1514y^2-708y+1)$ $\cdot\,(y^{15}+12y^{13}+\cdots+13y-1)^2$ $\cdot\,(y^{35}+5y^{34}+\cdots+3024300y-169744)$ $\cdot\,(y^{55}+52y^{53}+\cdots-51y-1)^2$
c_4, c_7	$(y^8-7y^7+27y^6-54y^5+57y^4-29y^3+3y^2-2y+1)$ $\cdot\,(y^{30}-12y^{29}+\cdots+3593y+361)(y^{35}+11y^{34}+\cdots-38y-1)$ $\cdot\,(y^{110}-19y^{109}+\cdots+173836323y+1620529)$
c_5, c_9, c_{10}	$(y^8-11y^7+49y^6-107y^5+105y^4-16y^3-26y^2-5y+1)$ $\cdot\,((y^{15}-19y^{14}+\cdots-10y-1)^2)(y^{35}-38y^{34}+\cdots+1916y-400)$ $\cdot\,(y^{55}-58y^{54}+\cdots+y-1)^2$