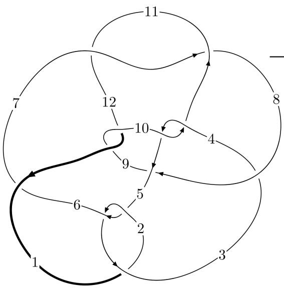
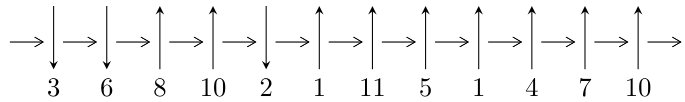
$12n_{0391}$ ($K12n_{0391}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u &= \langle 3u^{32} - 10u^{31} + \cdots + 2b + 4,\ 5u^{32} - 31u^{31} + \cdots + 2a - 35,\ u^{33} - 6u^{32} + \cdots - 10u + 4\rangle \\
I_2^u &= \langle -47109570u^{10}a^3 - 95144015u^{10}a^2 + \cdots - 183653747a - 331708329, \\
&\quad - 2u^{10}a^3 - u^{10}a^2 + \cdots + 3a^2 - 2a,\ u^{11} + u^{10} - 2u^9 - 3u^8 + 2u^7 + 4u^6 - 3u^4 - u^3 + u^2 - 1\rangle \\
I_3^u &= \langle -u^{19} - u^{18} + \cdots + b - 1, \\
&\quad u^{16} + u^{15} - 4u^{14} - 5u^{13} + 7u^{12} + 11u^{11} - 4u^{10} - 12u^9 - 3u^8 + 5u^7 + 5u^6 + 2u^5 - 3u^3 - 3u^2 + a + u + 1, \\
&\quad u^{20} + u^{19} + \cdots + u + 1\rangle
\end{aligned}
$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 97 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. $I_1^u = \langle 3u^{32}-10u^{31}+\cdots+2b+4,\ 5u^{32}-31u^{31}+\cdots+2a-35,\ u^{33}-6u^{32}+\cdots-10u+4\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^5-2u^3+u\\u^5-u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{5}{2}u^{32}+\frac{31}{2}u^{31}+\cdots-27u+\frac{35}{2}\\-\frac{3}{2}u^{32}+5u^{31}+\cdots-\frac{1}{2}u-2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-\frac{1}{4}u^{32}+3u^{31}+\cdots-\frac{21}{4}u+4\\-\frac{5}{2}u^{32}+13u^{31}+\cdots-\frac{29}{2}u+7\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-5u^{32}+\frac{43}{2}u^{31}+\cdots-\frac{39}{2}u+\frac{3}{2}\\\frac{9}{2}u^{32}-31u^{31}+\cdots+\frac{111}{2}u-38\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^{32}+\frac{5}{2}u^{31}+\cdots-\frac{5}{2}u-\frac{9}{2}\\\frac{13}{2}u^{32}-32u^{31}+\cdots+\frac{77}{2}u-24\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}\frac{3}{4}u^{32}-6u^{31}+\cdots+\frac{39}{4}u-11\\\frac{13}{2}u^{32}-32u^{31}+\cdots+\frac{81}{2}u-25\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-\frac{13}{4}u^{32}+18u^{31}+\cdots-\frac{121}{4}u+19\\\frac{3}{2}u^{32}-8u^{31}+\cdots+\frac{21}{2}u-7\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 19u^{32}-93u^{31}+87u^{30}+399u^{29}-1093u^{28}+124u^{27}+3263u^{26}-4355u^{25}-2560u^{24}+11701u^{23}-7466u^{22}-11755u^{21}+22346u^{20}-4792u^{19}-23413u^{18}+26009u^{17}+2484u^{16}-27634u^{15}+20515u^{14}+6968u^{13}-21858u^{12}+11815u^{11}+6157u^{10}-12060u^{9}+4832u^{8}+3318u^{7}-4487u^{6}+1156u^{5}+1213u^{4}-1111u^{3}+245u^{2}+110u-54$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{33} + 16u^{32} + \cdots + 172u + 16$
c_2, c_5	$u^{33} + 6u^{32} + \cdots - 10u - 4$
c_3, c_4, c_{10}	$u^{33} + 9u^{31} + \cdots + 2u - 1$
c_6	$u^{33} + 18u^{32} + \cdots - 1198u - 188$
c_7, c_{11}	$u^{33} - 24u^{32} + \cdots + 26624u - 2048$
c_8	$u^{33} - u^{32} + \cdots + 106u - 23$
c_9, c_{12}	$u^{33} + 2u^{32} + \cdots - 16u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{33} + 4y^{32} + \cdots + 9456y - 256$
c_2, c_5	$y^{33} - 16y^{32} + \cdots + 172y - 16$
c_3, c_4, c_{10}	$y^{33} + 18y^{32} + \cdots - 4y - 1$
c_6	$y^{33} + 8y^{32} + \cdots + 252684y - 35344$
c_7, c_{11}	$y^{33} + 12y^{32} + \cdots + 2097152y - 4194304$
c_8	$y^{33} - 31y^{32} + \cdots + 16020y - 529$
c_9, c_{12}	$y^{33} - 42y^{32} + \cdots + 54y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.615043 + 0.794458I$ $a = -0.931151 + 0.481633I$ $b = -1.158050 + 0.155662I$	$2.15328 - 7.47057I$	$6.28978 + 6.05240I$
$u = 0.615043 - 0.794458I$ $a = -0.931151 - 0.481633I$ $b = -1.158050 - 0.155662I$	$2.15328 + 7.47057I$	$6.28978 - 6.05240I$
$u = 0.934351 + 0.256317I$ $a = 0.138141 - 0.042111I$ $b = -0.307888 - 0.461843I$	$-1.58520 - 0.97498I$	$-1.65033 + 1.59039I$
$u = 0.934351 - 0.256317I$ $a = 0.138141 + 0.042111I$ $b = -0.307888 + 0.461843I$	$-1.58520 + 0.97498I$	$-1.65033 - 1.59039I$
$u = 0.402264 + 0.852871I$ $a = -1.58643 - 1.26589I$ $b = -1.72042 - 0.99064I$	$0.89438 + 10.98450I$	$5.23661 - 5.54944I$
$u = 0.402264 - 0.852871I$ $a = -1.58643 + 1.26589I$ $b = -1.72042 + 0.99064I$	$0.89438 - 10.98450I$	$5.23661 + 5.54944I$
$u = -0.927183 + 0.525541I$ $a = -1.014440 + 0.779993I$ $b = -0.742899 - 0.107800I$	$0.18348 + 3.87388I$	$6.31776 - 7.47791I$
$u = -0.927183 - 0.525541I$ $a = -1.014440 - 0.779993I$ $b = -0.742899 + 0.107800I$	$0.18348 - 3.87388I$	$6.31776 + 7.47791I$
$u = 0.582669 + 0.708437I$ $a = 0.741361 + 0.151629I$ $b = 1.178060 + 0.561251I$	$4.85669 - 0.62382I$	$7.67399 + 3.72585I$
$u = 0.582669 - 0.708437I$ $a = 0.741361 - 0.151629I$ $b = 1.178060 - 0.561251I$	$4.85669 + 0.62382I$	$7.67399 - 3.72585I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.355906 + 0.802794I$ $a = 1.57216 + 0.88862I$ $b = 1.72277 + 0.45864I$	$3.58955 + 3.24533I$	$5.20458 - 3.30279I$
$u = 0.355906 - 0.802794I$ $a = 1.57216 - 0.88862I$ $b = 1.72277 - 0.45864I$	$3.58955 - 3.24533I$	$5.20458 + 3.30279I$
$u = 0.050477 + 0.847272I$ $a = -1.032160 - 0.468103I$ $b = -0.777802 - 0.129336I$	$-5.00986 - 1.85205I$	$6.76082 + 4.03630I$
$u = 0.050477 - 0.847272I$ $a = -1.032160 + 0.468103I$ $b = -0.777802 + 0.129336I$	$-5.00986 + 1.85205I$	$6.76082 - 4.03630I$
$u = 1.010310 + 0.608408I$ $a = -0.98297 - 1.05108I$ $b = -0.855242 + 0.984190I$	$3.58006 - 4.43418I$	$6.35662 + 2.15933I$
$u = 1.010310 - 0.608408I$ $a = -0.98297 + 1.05108I$ $b = -0.855242 - 0.984190I$	$3.58006 + 4.43418I$	$6.35662 - 2.15933I$
$u = -1.159600 + 0.228047I$ $a = 0.786672 + 0.851083I$ $b = -1.034420 + 0.855065I$	$-1.231110 - 0.428619I$	$-1.25867 + 1.75566I$
$u = -1.159600 - 0.228047I$ $a = 0.786672 - 0.851083I$ $b = -1.034420 - 0.855065I$	$-1.231110 + 0.428619I$	$-1.25867 - 1.75566I$
$u = -0.717593 + 0.390417I$ $a = 1.47547 - 0.34302I$ $b = 0.464162 + 0.242439I$	$0.934933 + 0.153832I$	$10.03665 - 0.30542I$
$u = -0.717593 - 0.390417I$ $a = 1.47547 + 0.34302I$ $b = 0.464162 - 0.242439I$	$0.934933 - 0.153832I$	$10.03665 + 0.30542I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.998884 + 0.676093I$ $a = 0.251045 + 1.284470I$ $b = 0.779513 - 0.138727I$	$1.00418 + 1.96266I$	$5.00130 - 1.18904I$
$u = 0.998884 - 0.676093I$ $a = 0.251045 - 1.284470I$ $b = 0.779513 + 0.138727I$	$1.00418 - 1.96266I$	$5.00130 + 1.18904I$
$u = -1.206650 + 0.128661I$ $a = -0.777551 - 0.265371I$ $b = 1.07673 - 1.12681I$	$-4.62253 - 8.29061I$	$-0.38123 + 5.10542I$
$u = -1.206650 - 0.128661I$ $a = -0.777551 + 0.265371I$ $b = 1.07673 + 1.12681I$	$-4.62253 + 8.29061I$	$-0.38123 - 5.10542I$
$u = 1.137250 + 0.591003I$ $a = -1.26745 - 1.33966I$ $b = -1.96175 + 0.78277I$	$1.26915 - 8.46714I$	$2.03049 + 6.90183I$
$u = 1.137250 - 0.591003I$ $a = -1.26745 + 1.33966I$ $b = -1.96175 - 0.78277I$	$1.26915 + 8.46714I$	$2.03049 - 6.90183I$
$u = 1.134040 + 0.622957I$ $a = 1.85392 + 1.17676I$ $b = 1.88230 - 1.28411I$	$-1.3038 - 16.4563I$	$2.44177 + 9.38335I$
$u = 1.134040 - 0.622957I$ $a = 1.85392 - 1.17676I$ $b = 1.88230 + 1.28411I$	$-1.3038 + 16.4563I$	$2.44177 - 9.38335I$
$u = -1.235010 + 0.421827I$ $a = 0.063782 - 0.847588I$ $b = 0.792204 - 0.461041I$	$-8.92302 + 6.29912I$	$2.49834 - 8.51829I$
$u = -1.235010 - 0.421827I$ $a = 0.063782 + 0.847588I$ $b = 0.792204 + 0.461041I$	$-8.92302 - 6.29912I$	$2.49834 + 8.51829I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.223850 + 0.478588I$ $a = 0.363356 + 0.518472I$ $b = 1.022240 - 0.038770I$	$-8.52990 - 2.90559I$	$5.04684 - 0.50243I$
$u = 1.223850 - 0.478588I$ $a = 0.363356 - 0.518472I$ $b = 1.022240 + 0.038770I$	$-8.52990 + 2.90559I$	$5.04684 + 0.50243I$
$u = -0.398026$ $a = 1.69246$ $b = 0.281003$	0.805352	12.7890

II. $\boldsymbol{I_2^u = \langle -4.71\times 10^7 a^3u^{10} - 9.51\times 10^7 a^2u^{10} + \cdots - 1.84\times 10^8 a - 3.32\times 10^8,\ -2u^{10}a^3 - u^{10}a^2 + \cdots + 3a^2 - 2a,\ u^{11} + u^{10} + \cdots + u^2 - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^5-2u^3+u \\ u^5-u^3+u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ 0.292477a^3u^{10} + 0.590697a^2u^{10} + \cdots + 1.14021a + 2.05940 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.326323a^3u^{10} + 0.238038a^2u^{10} + \cdots + 1.88296a + 1.75190 \\ -0.276430a^3u^{10} - 0.0714295a^2u^{10} + \cdots - 0.0211672a + 0.331551 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.00330395a^3u^{10} + 0.297508a^2u^{10} + \cdots + 0.696558a - 0.975173 \\ 0.424962a^3u^{10} + 0.642654a^2u^{10} + \cdots + 2.04544a + 2.56376 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.249089a^3u^{10} - 0.636279a^2u^{10} + \cdots + 1.04188a - 2.44185 \\ 0.224244a^3u^{10} + 0.754589a^2u^{10} + \cdots + 0.602927a + 1.16330 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0482423a^3u^{10} + 0.442391a^2u^{10} + \cdots - 0.454053a + 3.19168 \\ -0.00902801a^3u^{10} - 0.883875a^2u^{10} + \cdots + 0.0444369a - 1.60853 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.171496a^3u^{10} + 0.454263a^2u^{10} + \cdots - 0.0937667a + 4.72095 \\ -0.0960514a^3u^{10} - 0.897715a^2u^{10} + \cdots + 0.429026a - 0.906337 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{3600864}{23010109}u^{10}a^3 - \frac{14406376}{23010109}u^{10}a^2 + \cdots - \frac{22413624}{23010109}a - \frac{195703918}{23010109}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{11}+5u^{10}+\cdots+2u+1)^4$
c_2, c_5	$(u^{11}-u^{10}-2u^9+3u^8+2u^7-4u^6+3u^4-u^3-u^2+1)^4$
c_3, c_4, c_{10}	$u^{44}+u^{43}+\cdots+6594u+4921$
c_6	$(u^{11}-3u^{10}+4u^9-u^8+2u^7-8u^6+8u^5+5u^4-3u^3-u^2+4u-1)^4$
c_7, c_{11}	$(u^2+u+1)^{22}$
c_8	$u^{44}-u^{43}+\cdots+472696u+34447$
c_9, c_{12}	$u^{44}+9u^{43}+\cdots+1718u+241$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{11}+3y^{10}+\cdots-10y-1)^4$
c_2, c_5	$(y^{11}-5y^{10}+\cdots+2y-1)^4$
c_3, c_4, c_{10}	$y^{44}+27y^{43}+\cdots+362915028y+24216241$
c_6	$(y^{11}-y^{10}+\cdots+14y-1)^4$
c_7, c_{11}	$(y^2+y+1)^{22}$
c_8	$y^{44}+3y^{43}+\cdots+16852909668y+1186595809$
c_9, c_{12}	$y^{44}-13y^{43}+\cdots+3475464y+58081$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.959860+0.351396I$ $a=-1.046440+0.210475I$ $b=-0.487010+0.928193I$	$-6.57107+3.30529I$	$-3.47945-4.26507I$
$u=-0.959860+0.351396I$ $a=-0.08726-1.76989I$ $b=\ \ 1.74145-1.57969I$	$-6.57107-0.75447I$	$-3.47945+2.66314I$
$u=-0.959860+0.351396I$ $a=\ \ 1.13540-1.43177I$ $b=\ \ 0.09037+1.50821I$	$-6.57107-0.75447I$	$-3.47945+2.66314I$
$u=-0.959860+0.351396I$ $a=-2.25035+0.48264I$ $b=-0.49081-2.47885I$	$-6.57107+3.30529I$	$-3.47945-4.26507I$
$u=-0.959860-0.351396I$ $a=-1.046440-0.210475I$ $b=-0.487010-0.928193I$	$-6.57107-3.30529I$	$-3.47945+4.26507I$
$u=-0.959860-0.351396I$ $a=-0.08726+1.76989I$ $b=\ \ 1.74145+1.57969I$	$-6.57107+0.75447I$	$-3.47945-2.66314I$
$u=-0.959860-0.351396I$ $a=\ \ 1.13540+1.43177I$ $b=\ \ 0.09037-1.50821I$	$-6.57107+0.75447I$	$-3.47945-2.66314I$
$u=-0.959860-0.351396I$ $a=-2.25035-0.48264I$ $b=-0.49081+2.47885I$	$-6.57107-3.30529I$	$-3.47945+4.26507I$
$u=-0.488025+0.800566I$ $a=-0.562669-0.387878I$ $b=-0.938604-0.140148I$	$4.10386+0.38395I$	$6.04988-3.21929I$
$u=-0.488025+0.800566I$ $a=\ \ 1.339240+0.110888I$ $b=\ \ 1.391310-0.247736I$	$4.10386-3.67581I$	$6.04988+3.70891I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.488025+0.800566I$ $a=-0.98893+1.37600I$ $b=-1.31716+1.07528I$	$4.10386-3.67581I$	$6.04988+3.70891I$
$u=-0.488025+0.800566I$ $a=\quad 1.67519-0.65894I$ $b=\quad 1.61820-0.33784I$	$4.10386+0.38395I$	$6.04988-3.21929I$
$u=-0.488025-0.800566I$ $a=-0.562669+0.387878I$ $b=-0.938604+0.140148I$	$4.10386-0.38395I$	$6.04988+3.21929I$
$u=-0.488025-0.800566I$ $a=\quad 1.339240-0.110888I$ $b=\quad 1.391310+0.247736I$	$4.10386+3.67581I$	$6.04988-3.70891I$
$u=-0.488025-0.800566I$ $a=-0.98893-1.37600I$ $b=-1.31716-1.07528I$	$4.10386+3.67581I$	$6.04988-3.70891I$
$u=-0.488025-0.800566I$ $a=\quad 1.67519+0.65894I$ $b=\quad 1.61820+0.33784I$	$4.10386-0.38395I$	$6.04988+3.21929I$
$u=\quad 1.11640$ $a=-0.674977+0.221102I$ $b=\quad 0.442711-0.889819I$	$-1.55223-2.02988I$	$0.18572+3.46410I$
$u=\quad 1.11640$ $a=-0.674977-0.221102I$ $b=\quad 0.442711+0.889819I$	$-1.55223+2.02988I$	$0.18572-3.46410I$
$u=\quad 1.11640$ $a=\quad 0.601217+0.348857I$ $b=-1.078060+0.210631I$	$-1.55223+2.02988I$	$0.18572-3.46410I$
$u=\quad 1.11640$ $a=\quad 0.601217-0.348857I$ $b=-1.078060-0.210631I$	$-1.55223-2.02988I$	$0.18572+3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.031510 + 0.521913I$ $a = -0.908426 + 0.370296I$ $b = -0.539113 - 0.133729I$	$-5.31149 - 2.72042I$	$0.64109 + 3.31280I$
$u = 1.031510 + 0.521913I$ $a = 1.24853 + 1.39026I$ $b = 2.15369 + 0.09233I$	$-5.31149 - 6.78019I$	$0.64109 + 10.24101I$
$u = 1.031510 + 0.521913I$ $a = -2.33476 - 0.10037I$ $b = -0.285235 + 1.312870I$	$-5.31149 - 6.78019I$	$0.64109 + 10.24101I$
$u = 1.031510 + 0.521913I$ $a = 2.56862 - 0.07454I$ $b = 0.82183 - 2.18700I$	$-5.31149 - 2.72042I$	$0.64109 + 3.31280I$
$u = 1.031510 - 0.521913I$ $a = -0.908426 - 0.370296I$ $b = -0.539113 + 0.133729I$	$-5.31149 + 2.72042I$	$0.64109 - 3.31280I$
$u = 1.031510 - 0.521913I$ $a = 1.24853 - 1.39026I$ $b = 2.15369 - 0.09233I$	$-5.31149 + 6.78019I$	$0.64109 - 10.24101I$
$u = 1.031510 - 0.521913I$ $a = -2.33476 + 0.10037I$ $b = -0.285235 - 1.312870I$	$-5.31149 + 6.78019I$	$0.64109 - 10.24101I$
$u = 1.031510 - 0.521913I$ $a = 2.56862 + 0.07454I$ $b = 0.82183 + 2.18700I$	$-5.31149 + 2.72042I$	$0.64109 - 3.31280I$
$u = -1.081080 + 0.631709I$ $a = 0.087716 - 0.913307I$ $b = 0.687058 + 0.202804I$	$2.33004 + 4.99231I$	$3.50054 - 1.42209I$
$u = -1.081080 + 0.631709I$ $a = -0.87402 + 1.56312I$ $b = -1.238220 - 0.460596I$	$2.33004 + 9.05208I$	$3.50054 - 8.35029I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.081080 + 0.631709I$ $a = -1.37993 + 1.31396I$ $b = -1.64849 - 0.60404I$	$2.33004 + 4.99231I$	$3.50054 - 1.42209I$
$u = -1.081080 + 0.631709I$ $a = 1.86710 - 0.64436I$ $b = 1.37146 + 1.49384I$	$2.33004 + 9.05208I$	$3.50054 - 8.35029I$
$u = -1.081080 - 0.631709I$ $a = 0.087716 + 0.913307I$ $b = 0.687058 - 0.202804I$	$2.33004 - 4.99231I$	$3.50054 + 1.42209I$
$u = -1.081080 - 0.631709I$ $a = -0.87402 - 1.56312I$ $b = -1.238220 + 0.460596I$	$2.33004 - 9.05208I$	$3.50054 + 8.35029I$
$u = -1.081080 - 0.631709I$ $a = -1.37993 - 1.31396I$ $b = -1.64849 + 0.60404I$	$2.33004 - 4.99231I$	$3.50054 + 1.42209I$
$u = -1.081080 - 0.631709I$ $a = 1.86710 + 0.64436I$ $b = 1.37146 - 1.49384I$	$2.33004 - 9.05208I$	$3.50054 + 8.35029I$
$u = 0.439259 + 0.522038I$ $a = 0.62115 + 1.61415I$ $b = -0.087698 - 0.114607I$	$-3.64484 - 1.57512I$	$5.19508 + 2.09453I$
$u = 0.439259 + 0.522038I$ $a = 0.90086 + 1.58512I$ $b = 0.000049 + 1.243830I$	$-3.64484 + 2.48465I$	$5.19508 - 4.83368I$
$u = 0.439259 + 0.522038I$ $a = 0.06157 - 2.48781I$ $b = -0.47411 - 1.63416I$	$-3.64484 - 1.57512I$	$5.19508 + 2.09453I$
$u = 0.439259 + 0.522038I$ $a = -1.99884 - 1.73954I$ $b = -1.233620 + 0.117096I$	$-3.64484 + 2.48465I$	$5.19508 - 4.83368I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.439259 - 0.522038I$ $a = 0.62115 - 1.61415I$ $b = -0.087698 + 0.114607I$	$-3.64484 + 1.57512I$	$5.19508 - 2.09453I$
$u = 0.439259 - 0.522038I$ $a = 0.90086 - 1.58512I$ $b = 0.000049 - 1.243830I$	$-3.64484 - 2.48465I$	$5.19508 + 4.83368I$
$u = 0.439259 - 0.522038I$ $a = 0.06157 + 2.48781I$ $b = -0.47411 + 1.63416I$	$-3.64484 + 1.57512I$	$5.19508 - 2.09453I$
$u = 0.439259 - 0.522038I$ $a = -1.99884 + 1.73954I$ $b = -1.233620 - 0.117096I$	$-3.64484 - 2.48465I$	$5.19508 + 4.83368I$

III.

$$I_3^u = \langle -u^{19} - u^{18} + \cdots + b - 1,\ u^{16} + u^{15} + \cdots + a + 1,\ u^{20} + u^{19} + \cdots + u + 1 \rangle$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{16} - u^{15} + \cdots - u - 1 \\ u^{19} + u^{18} + \cdots - u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{17} + u^{16} + \cdots + u^2 + 3u \\ -u^{19} + 6u^{17} + \cdots - 2u^3 + 3u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{19} + 5u^{17} + \cdots - u - 1 \\ u^{19} + u^{18} + \cdots - u + 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{19} + 5u^{17} + \cdots - u - 2 \\ u^{19} + u^{18} + \cdots - u + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{19} - 6u^{17} + \cdots - u + 2 \\ -u^{18} + u^{17} + \cdots + u - 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{19} - 6u^{17} + \cdots - u + 2 \\ -u^{18} + 5u^{16} + \cdots + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^{19} + 21u^{17} + 3u^{16} - 57u^{15} - 14u^{14} + 89u^{13} + 34u^{12} - 86u^{11} - 45u^{10} + 43u^9 + 36u^8 - 8u^7 - 7u^6 - 3u^5 - 8u^4 - u^3 + 13u^2 - 2u - 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 11u^{19} + \cdots - 5u + 1$
c_2	$u^{20} + u^{19} + \cdots + u + 1$
c_3, c_{10}	$u^{20} + 9u^{18} + \cdots - 3u + 1$
c_4	$u^{20} + 9u^{18} + \cdots + 3u + 1$
c_5	$u^{20} - u^{19} + \cdots - u + 1$
c_6	$u^{20} - 3u^{19} + \cdots - 3u + 1$
c_7	$u^{20} - u^{19} + \cdots + 2u + 1$
c_8	$u^{20} + u^{19} + \cdots + u + 101$
c_9	$u^{20} + 2u^{19} + \cdots - u + 1$
c_{11}	$u^{20} + u^{19} + \cdots - 2u + 1$
c_{12}	$u^{20} - 2u^{19} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} + y^{19} + \cdots - y + 1$
c_2, c_5	$y^{20} - 11y^{19} + \cdots - 5y + 1$
c_3, c_4, c_{10}	$y^{20} + 18y^{19} + \cdots + y + 1$
c_6	$y^{20} + 9y^{19} + \cdots + 5y + 1$
c_7, c_{11}	$y^{20} + 11y^{19} + \cdots - 2y + 1$
c_8	$y^{20} + 5y^{19} + \cdots - 7071y + 10201$
c_9, c_{12}	$y^{20} - 2y^{19} + \cdots + 11y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.986798 + 0.418262I$ $a = 0.916722 + 0.179386I$ $b = -0.72653 + 1.86571I$	$-6.22972 + 0.44184I$	$-0.71189 - 3.55840I$
$u = -0.986798 - 0.418262I$ $a = 0.916722 - 0.179386I$ $b = -0.72653 - 1.86571I$	$-6.22972 - 0.44184I$	$-0.71189 + 3.55840I$
$u = 1.056360 + 0.185688I$ $a = 0.920530 - 0.435659I$ $b = -0.539001 - 0.524223I$	$-0.333887 - 0.354532I$	$3.85326 + 1.48197I$
$u = 1.056360 - 0.185688I$ $a = 0.920530 + 0.435659I$ $b = -0.539001 + 0.524223I$	$-0.333887 + 0.354532I$	$3.85326 - 1.48197I$
$u = -0.463700 + 0.776372I$ $a = 1.094600 - 0.505689I$ $b = 1.34865 - 0.43580I$	$4.58119 - 1.46415I$	$7.52882 + 0.72109I$
$u = -0.463700 - 0.776372I$ $a = 1.094600 + 0.505689I$ $b = 1.34865 + 0.43580I$	$4.58119 + 1.46415I$	$7.52882 - 0.72109I$
$u = 0.998878 + 0.504762I$ $a = -2.38196 - 0.40426I$ $b = -1.20506 + 1.03770I$	$-5.62654 - 5.35911I$	$-0.67945 + 5.04575I$
$u = 0.998878 - 0.504762I$ $a = -2.38196 + 0.40426I$ $b = -1.20506 - 1.03770I$	$-5.62654 + 5.35911I$	$-0.67945 - 5.04575I$
$u = 0.619770 + 0.457053I$ $a = 0.74949 + 2.56110I$ $b = 0.645794 + 0.713320I$	$-4.41314 + 1.30187I$	$1.37797 + 0.73682I$
$u = 0.619770 - 0.457053I$ $a = 0.74949 - 2.56110I$ $b = 0.645794 - 0.713320I$	$-4.41314 - 1.30187I$	$1.37797 - 0.73682I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.696477 + 0.280022I$ $a = 0.431012 - 0.388308I$ $b = 0.11010 + 1.65096I$	$-5.12204 + 2.74361I$	$2.78554 - 4.12363I$
$u = -0.696477 - 0.280022I$ $a = 0.431012 + 0.388308I$ $b = 0.11010 - 1.65096I$	$-5.12204 - 2.74361I$	$2.78554 + 4.12363I$
$u = -1.090000 + 0.616356I$ $a = -1.08636 + 1.09305I$ $b = -1.32363 - 0.76947I$	$2.71510 + 6.72791I$	$4.63472 - 5.67234I$
$u = -1.090000 - 0.616356I$ $a = -1.08636 - 1.09305I$ $b = -1.32363 + 0.76947I$	$2.71510 - 6.72791I$	$4.63472 + 5.67234I$
$u = -1.187500 + 0.437992I$ $a = -0.266528 - 0.704783I$ $b = 0.904799 - 1.025460I$	$-9.61313 + 5.54516I$	$-3.77106 - 2.99593I$
$u = -1.187500 - 0.437992I$ $a = -0.266528 + 0.704783I$ $b = 0.904799 + 1.025460I$	$-9.61313 - 5.54516I$	$-3.77106 + 2.99593I$
$u = 0.060744 + 0.729831I$ $a = -1.29396 - 0.92044I$ $b = -0.566056 - 0.737960I$	$-6.10698 - 1.39664I$	$-0.706411 + 0.849051I$
$u = 0.060744 - 0.729831I$ $a = -1.29396 + 0.92044I$ $b = -0.566056 + 0.737960I$	$-6.10698 + 1.39664I$	$-0.706411 - 0.849051I$
$u = 1.188720 + 0.477485I$ $a = 0.916450 + 0.427522I$ $b = 0.850927 - 0.434222I$	$-9.32928 - 3.08388I$	$-5.31149 + 2.51247I$
$u = 1.188720 - 0.477485I$ $a = 0.916450 - 0.427522I$ $b = 0.850927 + 0.434222I$	$-9.32928 + 3.08388I$	$-5.31149 - 2.51247I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^{11}+5u^{10}+\cdots+2u+1)^4)(u^{20}-11u^{19}+\cdots-5u+1)$ $\cdot(u^{33}+16u^{32}+\cdots+172u+16)$
c_2	$(u^{11}-u^{10}-2u^9+3u^8+2u^7-4u^6+3u^4-u^3-u^2+1)^4$ $\cdot(u^{20}+u^{19}+\cdots+u+1)(u^{33}+6u^{32}+\cdots-10u-4)$
c_3, c_{10}	$(u^{20}+9u^{18}+\cdots-3u+1)(u^{33}+9u^{31}+\cdots+2u-1)$ $\cdot(u^{44}+u^{43}+\cdots+6594u+4921)$
c_4	$(u^{20}+9u^{18}+\cdots+3u+1)(u^{33}+9u^{31}+\cdots+2u-1)$ $\cdot(u^{44}+u^{43}+\cdots+6594u+4921)$
c_5	$(u^{11}-u^{10}-2u^9+3u^8+2u^7-4u^6+3u^4-u^3-u^2+1)^4$ $\cdot(u^{20}-u^{19}+\cdots-u+1)(u^{33}+6u^{32}+\cdots-10u-4)$
c_6	$(u^{11}-3u^{10}+4u^9-u^8+2u^7-8u^6+8u^5+5u^4-3u^3-u^2+4u-1)^4$ $\cdot(u^{20}-3u^{19}+\cdots-3u+1)(u^{33}+18u^{32}+\cdots-1198u-188)$
c_7	$((u^2+u+1)^{22})(u^{20}-u^{19}+\cdots+2u+1)$ $\cdot(u^{33}-24u^{32}+\cdots+26624u-2048)$
c_8	$(u^{20}+u^{19}+\cdots+u+101)(u^{33}-u^{32}+\cdots+106u-23)$ $\cdot(u^{44}-u^{43}+\cdots+472696u+34447)$
c_9	$(u^{20}+2u^{19}+\cdots-u+1)(u^{33}+2u^{32}+\cdots-16u-1)$ $\cdot(u^{44}+9u^{43}+\cdots+1718u+241)$
c_{11}	$((u^2+u+1)^{22})(u^{20}+u^{19}+\cdots-2u+1)$ $\cdot(u^{33}-24u^{32}+\cdots+26624u-2048)$
c_{12}	$(u^{20}-2u^{19}+\cdots+u+1)(u^{33}+2u^{32}+\cdots-16u-1)$ $\cdot(u^{44}+9u^{43}+\cdots+1718u+241)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^{11}+3y^{10}+\cdots-10y-1)^4)(y^{20}+y^{19}+\cdots-y+1)$ $\cdot(y^{33}+4y^{32}+\cdots+9456y-256)$
c_2, c_5	$((y^{11}-5y^{10}+\cdots+2y-1)^4)(y^{20}-11y^{19}+\cdots-5y+1)$ $\cdot(y^{33}-16y^{32}+\cdots+172y-16)$
c_3, c_4, c_{10}	$(y^{20}+18y^{19}+\cdots+y+1)(y^{33}+18y^{32}+\cdots-4y-1)$ $\cdot(y^{44}+27y^{43}+\cdots+362915028y+24216241)$
c_6	$((y^{11}-y^{10}+\cdots+14y-1)^4)(y^{20}+9y^{19}+\cdots+5y+1)$ $\cdot(y^{33}+8y^{32}+\cdots+252684y-35344)$
c_7, c_{11}	$((y^2+y+1)^{22})(y^{20}+11y^{19}+\cdots-2y+1)$ $\cdot(y^{33}+12y^{32}+\cdots+2097152y-4194304)$
c_8	$(y^{20}+5y^{19}+\cdots-7071y+10201)$ $\cdot(y^{33}-31y^{32}+\cdots+16020y-529)$ $\cdot(y^{44}+3y^{43}+\cdots+16852909668y+1186595809)$
c_9, c_{12}	$(y^{20}-2y^{19}+\cdots+11y+1)(y^{33}-42y^{32}+\cdots+54y-1)$ $\cdot(y^{44}-13y^{43}+\cdots+3475464y+58081)$