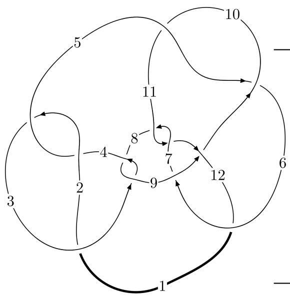
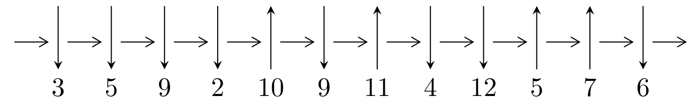
$12n_{0267}$ $(K12n_{0267})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.63228 \times 10^{53} u^{27} + 1.02544 \times 10^{54} u^{26} + \cdots + 3.06469 \times 10^{56} b + 3.90256 \times 10^{56}, \\
& 1.81316 \times 10^{54} u^{27} + 1.29787 \times 10^{55} u^{26} + \cdots + 2.45175 \times 10^{57} a - 9.42098 \times 10^{56}, \\
& u^{28} + 7u^{27} + \cdots - 256u - 1024 \rangle \\
I_2^u = \langle & -15a^5u^4 - 35a^4u^4 + \cdots + 62a + 18,\ 12a^5u^4 + 166a^4u^4 + \cdots + 144010a + 300665, \\
& u^5 - u^4 + 5u^3 - u^2 + 2u + 2 \rangle \\
I_3^u = \langle & -2796800274u^{16} + 1230170348u^{15} + \cdots + 5782655035b + 1488757467, \\
& -115474u^{16} + 4433863u^{15} + \cdots + 2844395a - 26311393,\ u^{17} + 6u^{15} + \cdots - 3u - 1 \rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ 8v^3 - 12v^2 + b + 10v - 3,\ 8v^4 - 12v^3 + 12v^2 - 5v + 1 \rangle \\
I_2^v &= \langle a,\ b^6 - b^5 + 2b^4 - 2b^3 + 2b^2 - 2b + 1,\ v + 1 \rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 85 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. $\boldsymbol{I_1^u} =$
$\boldsymbol{\langle 1.63\times10^{53}u^{27}+1.03\times10^{54}u^{26}+\cdots+3.06\times10^{56}b+3.90\times10^{56},\ 1.81\times10^{54}u^{27}+1.30\times10^{55}u^{26}+\cdots+2.45\times10^{57}a-9.42\times10^{56},\ u^{28}+7u^{27}+\cdots-256u-1024\rangle}$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_3 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-0.000739535u^{27}-0.00529364u^{26}+\cdots+1.32145u+0.384255\\-0.000532608u^{27}-0.00334597u^{26}+\cdots-0.222903u-1.27339\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.0000164451u^{27}-0.000139457u^{26}+\cdots+0.107664u+0.565098\\-0.000174750u^{27}-0.00136950u^{26}+\cdots-0.302799u-0.594774\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.000886322u^{27}-0.00613088u^{26}+\cdots+1.06551u-0.306723\\-0.000917462u^{27}-0.00664824u^{26}+\cdots+2.05507u-0.158393\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.000128059u^{27}-0.000962696u^{26}+\cdots+0.904215u+1.23308\\0.000823960u^{27}+0.00616689u^{26}+\cdots-1.24171u-0.0314143\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-0.000282712u^{27}-0.00211501u^{26}+\cdots-0.172064u-0.00475082\\-0.000128885u^{27}-0.000876415u^{26}+\cdots-0.604047u-0.709139\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-0.000661565u^{27}-0.00488332u^{26}+\cdots+2.13497u+0.559124\\-0.000843467u^{27}-0.00643716u^{26}+\cdots+3.43637u+0.641978\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.000363425u^{27}+0.00276215u^{26}+\cdots-2.04345u-0.341280\\0.00102499u^{27}+0.00764547u^{26}+\cdots-4.17842u-0.900404\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.000405455u^{27}-0.00320663u^{26}+\cdots+2.56297u+0.782535\\-0.000623273u^{27}-0.00509696u^{26}+\cdots+4.09691u+0.746524\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.000805991u^{27}+0.000903953u^{26}+\cdots+16.6786u+9.73356$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{28} + 11u^{27} + \cdots + 38144u + 4096$
c_2, c_4	$u^{28} - 5u^{27} + \cdots + 368u - 64$
c_3, c_8	$u^{28} - 7u^{27} + \cdots + 256u - 1024$
c_5, c_7, c_{10} c_{11}	$u^{28} - u^{26} + \cdots + 6u + 1$
c_6, c_{12}	$u^{28} - u^{27} + \cdots + 5u + 1$
c_9	$u^{28} - 11u^{27} + \cdots - 464u + 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{28} + 17y^{27} + \cdots - 423952384y + 16777216$
c_2, c_4	$y^{28} - 11y^{27} + \cdots - 38144y + 4096$
c_3, c_8	$y^{28} + 21y^{27} + \cdots + 7012352y + 1048576$
c_5, c_7, c_{10} c_{11}	$y^{28} - 2y^{27} + \cdots - 16y + 1$
c_6, c_{12}	$y^{28} + 15y^{27} + \cdots + 59y + 1$
c_9	$y^{28} - 9y^{27} + \cdots - 57088y + 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.700519 + 0.599156I$ $a = 0.801515 - 1.064090I$ $b = 0.037633 - 0.642247I$	$-3.55837 - 1.15126I$	$-11.39772 - 0.05458I$
$u = -0.700519 - 0.599156I$ $a = 0.801515 + 1.064090I$ $b = 0.037633 + 0.642247I$	$-3.55837 + 1.15126I$	$-11.39772 + 0.05458I$
$u = 0.380572 + 0.813474I$ $a = 0.564232 + 0.751884I$ $b = -0.166171 + 0.662526I$	$-0.05630 - 1.72703I$	$-1.78795 + 1.55176I$
$u = 0.380572 - 0.813474I$ $a = 0.564232 - 0.751884I$ $b = -0.166171 - 0.662526I$	$-0.05630 + 1.72703I$	$-1.78795 - 1.55176I$
$u = -0.588263 + 1.018270I$ $a = 0.470372 - 0.902968I$ $b = -0.094878 - 0.756998I$	$-2.26210 + 6.12921I$	$-7.94602 + 0.52990I$
$u = -0.588263 - 1.018270I$ $a = 0.470372 + 0.902968I$ $b = -0.094878 + 0.756998I$	$-2.26210 - 6.12921I$	$-7.94602 - 0.52990I$
$u = 1.069010 + 0.807521I$ $a = -0.138524 - 0.648901I$ $b = 0.903329 - 0.048342I$	$-0.304442 - 0.720791I$	$-1.85900 + 1.85047I$
$u = 1.069010 - 0.807521I$ $a = -0.138524 + 0.648901I$ $b = 0.903329 + 0.048342I$	$-0.304442 + 0.720791I$	$-1.85900 - 1.85047I$
$u = 0.289195 + 0.590850I$ $a = -0.185649 - 0.370483I$ $b = 0.454678 - 1.109670I$	$-4.11561 - 8.14651I$	$-4.6236 + 14.7439I$
$u = 0.289195 - 0.590850I$ $a = -0.185649 + 0.370483I$ $b = 0.454678 + 1.109670I$	$-4.11561 + 8.14651I$	$-4.6236 - 14.7439I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.008090 + 0.619126I$ $a = 0.445860 + 0.546608I$ $b = -0.405809 + 0.656851I$	$0.33084 - 1.64029I$	$3.18047 + 4.70949I$
$u = -0.008090 - 0.619126I$ $a = 0.445860 - 0.546608I$ $b = -0.405809 - 0.656851I$	$0.33084 + 1.64029I$	$3.18047 - 4.70949I$
$u = -1.31770 + 0.54916I$ $a = 0.352145 - 0.329705I$ $b = -1.100510 - 0.409135I$	$3.36539 + 1.37186I$	$-0.78063 - 1.56765I$
$u = -1.31770 - 0.54916I$ $a = 0.352145 + 0.329705I$ $b = -1.100510 + 0.409135I$	$3.36539 - 1.37186I$	$-0.78063 + 1.56765I$
$u = 0.535945$ $a = 1.11271$ $b = 0.260909$	-1.18275	-7.92670
$u = 0.66539 + 1.38340I$ $a = 0.420370 + 0.447189I$ $b = -0.979556 - 0.414826I$	$-0.93155 + 4.11677I$	$-2.65942 - 4.73683I$
$u = 0.66539 - 1.38340I$ $a = 0.420370 - 0.447189I$ $b = -0.979556 + 0.414826I$	$-0.93155 - 4.11677I$	$-2.65942 + 4.73683I$
$u = -1.68431$ $a = 0.112961$ $b = 0.309973$	-10.2990	-65.2260
$u = -1.70473 + 0.38435I$ $a = -0.204716 + 0.352722I$ $b = 1.155650 + 0.736871I$	$2.18156 + 7.22574I$	$-3.09669 - 6.28834I$
$u = -1.70473 - 0.38435I$ $a = -0.204716 - 0.352722I$ $b = 1.155650 - 0.736871I$	$2.18156 - 7.22574I$	$-3.09669 + 6.28834I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.73389 + 1.71578I$ $a = -1.098300 + 0.366340I$ $b = 1.02566 + 1.08507I$	$9.85046 + 9.25719I$	$-3.57812 - 5.07121I$
$u = -0.73389 - 1.71578I$ $a = -1.098300 - 0.366340I$ $b = 1.02566 - 1.08507I$	$9.85046 - 9.25719I$	$-3.57812 + 5.07121I$
$u = -0.84442 + 1.78161I$ $a = 1.062890 - 0.293393I$ $b = -1.07966 - 1.38439I$	$8.3503 + 16.4009I$	$-4.99450 - 7.83007I$
$u = -0.84442 - 1.78161I$ $a = 1.062890 + 0.293393I$ $b = -1.07966 + 1.38439I$	$8.3503 - 16.4009I$	$-4.99450 + 7.83007I$
$u = 0.22185 + 2.03555I$ $a = -0.956969 - 0.026772I$ $b = 1.27197 - 0.92548I$	$11.43660 - 1.44441I$	$-1.83528 + 0.I$
$u = 0.22185 - 2.03555I$ $a = -0.956969 + 0.026772I$ $b = 1.27197 + 0.92548I$	$11.43660 + 1.44441I$	$-1.83528 + 0.I$
$u = 0.34578 + 2.17004I$ $a = 0.853942 + 0.002644I$ $b = -1.30777 + 1.19876I$	$10.24040 - 8.22431I$	$-4.00000 + 4.11200I$
$u = 0.34578 - 2.17004I$ $a = 0.853942 - 0.002644I$ $b = -1.30777 - 1.19876I$	$10.24040 + 8.22431I$	$-4.00000 - 4.11200I$

II. $\boldsymbol{I_2^u = \langle -15a^5u^4 - 35a^4u^4 + \cdots + 62a + 18,\ 12a^5u^4 + 166a^4u^4 + \cdots + 144010a + 300665,\ u^5 - u^4 + 5u^3 - u^2 + 2u + 2\rangle}$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a \\ 0.535714a^5u^4 + 1.25000a^4u^4 + \cdots - 2.21429a - 0.642857 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.607143a^5u^4 + 0.428571a^4u^4 + \cdots + 0.642857a + 2.71429 \\ -4.67857a^5u^4 - 3.57143a^4u^4 + \cdots + 0.928571a + 3.14286 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -3.71429a^5u^4 - 1.03571a^4u^4 + \cdots - 0.928571a - 2.57143 \\ 16.5714a^5u^4 + 9.71429a^4u^4 + \cdots - 7.71429a - 5.42857 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1.21429a^5u^4 - 0.607143a^4u^4 + \cdots + 2.78571a + 1.42857 \\ 7.07143a^5u^4 + 3.64286a^4u^4 + \cdots - 3.42857a - 2.71429 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.607143a^5u^4 + 0.428571a^4u^4 + \cdots + 0.642857a + 1.71429 \\ -4.67857a^5u^4 - 3.57143a^4u^4 + \cdots + 0.928571a + 2.14286 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{4}u^4 - \frac{1}{4}u^2 + \frac{3}{2}u - \frac{1}{2} \\ -u^4 + \frac{1}{2}u^3 - \frac{1}{2}u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^2 + \frac{1}{2}u - 1 \\ -\frac{1}{4}u^4 - \frac{1}{4}u^2 - u - \frac{1}{2} \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{17}{7}a^4u^4 + \frac{5}{7}u^4a^3 + \cdots + \frac{22}{7}a - \frac{92}{7}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^5+6u^3+u^2-u+1)^6$
c_2, c_4	$(u^5-2u^4+2u^3+u^2-u+1)^6$
c_3, c_8	$(u^5+u^4+5u^3+u^2+2u-2)^6$
c_5, c_7, c_{10} c_{11}	$u^{30}-2u^{29}+\cdots-20u+137$
c_6, c_{12}	$u^{30}-6u^{29}+\cdots+392u+191$
c_9	$(u^3+u^2-1)^{10}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^5+12y^4+34y^3-13y^2-y-1)^6$
c_2, c_4	$(y^5+6y^3-y^2-y-1)^6$
c_3, c_8	$(y^5+9y^4+27y^3+23y^2+8y-4)^6$
c_5, c_7, c_{10} c_{11}	$y^{30}+6y^{29}+\cdots+131668y+18769$
c_6, c_{12}	$y^{30}-2y^{29}+\cdots-47468y+36481$
c_9	$(y^3-y^2+2y-1)^{10}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.375669 + 0.888717I$ $a = 0.674585 + 0.800660I$ $b = -0.250372 + 0.453019I$	$-0.05929 - 1.71921I$	$-2.12477 + 0.93832I$
$u = 0.375669 + 0.888717I$ $a = 0.150570 - 0.874514I$ $b = -0.372835 - 1.197460I$	$-0.05929 + 3.93704I$	$-2.12477 - 5.02057I$
$u = 0.375669 + 0.888717I$ $a = 0.865106 + 0.190043I$ $b = -0.079065 - 1.171220I$	$-4.19688 + 1.10891I$	$-8.65403 - 2.04112I$
$u = 0.375669 + 0.888717I$ $a = 0.500602 + 0.675276I$ $b = -0.122646 + 0.883622I$	$-0.05929 - 1.71921I$	$-2.12477 + 0.93832I$
$u = 0.375669 + 0.888717I$ $a = -0.790896 - 0.900150I$ $b = 1.154460 + 0.050802I$	$-0.05929 + 3.93704I$	$-2.12477 - 5.02057I$
$u = 0.375669 + 0.888717I$ $a = -0.156566 - 0.585774I$ $b = 0.62035 + 1.42290I$	$-4.19688 + 1.10891I$	$-8.65403 - 2.04112I$
$u = 0.375669 - 0.888717I$ $a = 0.674585 - 0.800660I$ $b = -0.250372 - 0.453019I$	$-0.05929 + 1.71921I$	$-2.12477 - 0.93832I$
$u = 0.375669 - 0.888717I$ $a = 0.150570 + 0.874514I$ $b = -0.372835 + 1.197460I$	$-0.05929 - 3.93704I$	$-2.12477 + 5.02057I$
$u = 0.375669 - 0.888717I$ $a = 0.865106 - 0.190043I$ $b = -0.079065 + 1.171220I$	$-4.19688 - 1.10891I$	$-8.65403 + 2.04112I$
$u = 0.375669 - 0.888717I$ $a = 0.500602 - 0.675276I$ $b = -0.122646 - 0.883622I$	$-0.05929 + 1.71921I$	$-2.12477 - 0.93832I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.375669 - 0.888717I$ $a = -0.790896 + 0.900150I$ $b = 1.154460 - 0.050802I$	$-0.05929 - 3.93704I$	$-2.12477 + 5.02057I$
$u = 0.375669 - 0.888717I$ $a = -0.156566 + 0.585774I$ $b = 0.62035 - 1.42290I$	$-4.19688 - 1.10891I$	$-8.65403 + 2.04112I$
$u = -0.504107$ $a = -2.97283 + 2.25685I$ $b = -0.436616 - 0.497956I$	$-3.11432 + 2.82812I$	$-13.43328 - 2.97945I$
$u = -0.504107$ $a = -2.97283 - 2.25685I$ $b = -0.436616 + 0.497956I$	$-3.11432 - 2.82812I$	$-13.43328 + 2.97945I$
$u = -0.504107$ $a = -2.46586 + 7.51356I$ $b = -0.07832 + 1.49767I$	-7.25191	$-19.9625 + 0.I$
$u = -0.504107$ $a = -2.46586 - 7.51356I$ $b = -0.07832 - 1.49767I$	-7.25191	$-19.9625 + 0.I$
$u = -0.504107$ $a = 1.11141 + 9.05588I$ $b = 0.377491 + 0.857286I$	$-3.11432 + 2.82812I$	$-13.43328 - 2.97945I$
$u = -0.504107$ $a = 1.11141 - 9.05588I$ $b = 0.377491 - 0.857286I$	$-3.11432 - 2.82812I$	$-13.43328 + 2.97945I$
$u = 0.37638 + 2.02979I$ $a = -0.941568 - 0.072890I$ $b = 0.99031 - 1.34752I$	$9.99924 - 6.95303I$	$-3.38420 + 5.13388I$
$u = 0.37638 + 2.02979I$ $a = 0.895319 + 0.135542I$ $b = -1.30155 + 1.31060I$	$9.99924 - 1.29678I$	$-3.38420 - 0.82502I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.37638 + 2.02979I$ $a = 0.798012 + 0.078062I$ $b = -1.64960 + 0.34874I$	$5.86166 - 4.12490I$	$-9.91347 + 2.15443I$
$u = 0.37638 + 2.02979I$ $a = 0.768176 + 0.214026I$ $b = -1.60645 - 0.98436I$	$9.99924 - 6.95303I$	$-3.38420 + 5.13388I$
$u = 0.37638 + 2.02979I$ $a = -0.750216 + 0.005392I$ $b = 0.616800 - 0.250072I$	$5.86166 - 4.12490I$	$-9.91347 + 2.15443I$
$u = 0.37638 + 2.02979I$ $a = -0.685847 - 0.213681I$ $b = 1.13805 + 1.09576I$	$9.99924 - 1.29678I$	$-3.38420 - 0.82502I$
$u = 0.37638 - 2.02979I$ $a = -0.941568 + 0.072890I$ $b = 0.99031 + 1.34752I$	$9.99924 + 6.95303I$	$-3.38420 - 5.13388I$
$u = 0.37638 - 2.02979I$ $a = 0.895319 - 0.135542I$ $b = -1.30155 - 1.31060I$	$9.99924 + 1.29678I$	$-3.38420 + 0.82502I$
$u = 0.37638 - 2.02979I$ $a = 0.798012 - 0.078062I$ $b = -1.64960 - 0.34874I$	$5.86166 + 4.12490I$	$-9.91347 - 2.15443I$
$u = 0.37638 - 2.02979I$ $a = 0.768176 - 0.214026I$ $b = -1.60645 + 0.98436I$	$9.99924 + 6.95303I$	$-3.38420 - 5.13388I$
$u = 0.37638 - 2.02979I$ $a = -0.750216 - 0.005392I$ $b = 0.616800 + 0.250072I$	$5.86166 + 4.12490I$	$-9.91347 - 2.15443I$
$u = 0.37638 - 2.02979I$ $a = -0.685847 + 0.213681I$ $b = 1.13805 - 1.09576I$	$9.99924 + 1.29678I$	$-3.38420 + 0.82502I$

III.

$\boldsymbol{I^u_3 = \langle -2.80\times 10^9 u^{16} + 1.23\times 10^9 u^{15} + \cdots + 5.78\times 10^9 b + 1.49\times 10^9,\ -1.15\times 10^5 u^{16} + 4.43\times 10^6 u^{15} + \cdots + 2.84\times 10^6 a - 2.63\times 10^7,\ u^{17} + 6u^{15} + \cdots - 3u - 1\rangle}$

(i) Arc colorings

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

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0405970u^{16} - 1.55881u^{15} + \cdots - 7.16863u + 9.25026 \\ 0.483653u^{16} - 0.212735u^{15} + \cdots - 1.67509u - 0.257452 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 3.74840u^{16} - 2.16144u^{15} + \cdots - 23.4255u - 3.72929 \\ 0.0829079u^{16} - 0.0995122u^{15} + \cdots - 1.83555u - 0.881897 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3.61930u^{16} - 2.25286u^{15} + \cdots - 19.3756u + 0.277471 \\ 0.355787u^{16} - 0.159534u^{15} + \cdots - 2.01409u - 0.833403 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.164018u^{16} - 1.84216u^{15} + \cdots - 8.28234u + 10.6964 \\ 0.483653u^{16} - 0.212735u^{15} + \cdots - 1.67509u - 0.257452 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 3.51603u^{16} - 2.28526u^{15} + \cdots - 22.5251u - 2.44974 \\ 0.290525u^{16} - 0.147505u^{15} + \cdots - 2.43936u - 1.00571 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.23077u^{16} - 0.226208u^{15} + \cdots - 4.14992u - 2.86754 \\ 0.0648607u^{16} + 0.00369480u^{15} + \cdots + 0.102878u - 0.137290 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.08969u^{16} + 0.114263u^{15} + \cdots + 3.70066u + 2.95645 \\ 0.141079u^{16} - 0.111945u^{15} + \cdots - 0.449264u + 0.0889186 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.18986u^{16} - 0.118103u^{15} + \cdots - 3.40302u - 2.98180 \\ 0.0172629u^{16} + 0.0956716u^{15} + \cdots + 1.13318u - 0.143448 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{44404088866}{5782655035}u^{16} - \frac{1457732737}{5782655035}u^{15} + \cdots - \frac{34652808542}{1156531007}u - \frac{182738550788}{5782655035}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} - 8u^{16} + \cdots + 3u - 1$
c_2	$u^{17} + 6u^{16} + \cdots + u + 1$
c_3	$u^{17} + 6u^{15} + \cdots - 3u + 1$
c_4	$u^{17} - 6u^{16} + \cdots + u - 1$
c_5, c_{11}	$u^{17} + 6u^{15} + \cdots + 3u - 1$
c_6, c_{12}	$u^{17} - 3u^{16} + \cdots + 6u - 1$
c_7, c_{10}	$u^{17} + 6u^{15} + \cdots + 3u + 1$
c_8	$u^{17} + 6u^{15} + \cdots - 3u - 1$
c_9	$u^{17} - 5u^{16} + \cdots + 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 8y^{16} + \cdots - 25y - 1$
c_2, c_4	$y^{17} - 8y^{16} + \cdots + 3y - 1$
c_3, c_8	$y^{17} + 12y^{16} + \cdots + 3y - 1$
c_5, c_7, c_{10} c_{11}	$y^{17} + 12y^{16} + \cdots - 3y - 1$
c_6, c_{12}	$y^{17} - 19y^{16} + \cdots - 2y - 1$
c_9	$y^{17} - 7y^{16} + \cdots + 17y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.123817 + 0.916477I$ $a = 0.72791 + 1.22000I$ $b = -0.302924 + 0.816439I$	$-0.67196 - 2.40485I$	$-7.80780 + 6.32008I$
$u = 0.123817 - 0.916477I$ $a = 0.72791 - 1.22000I$ $b = -0.302924 - 0.816439I$	$-0.67196 + 2.40485I$	$-7.80780 - 6.32008I$
$u = -0.519605 + 0.973810I$ $a = 0.205092 - 1.101040I$ $b = -0.199212 - 0.760976I$	$-2.24497 + 6.61108I$	$-7.2534 - 15.3751I$
$u = -0.519605 - 0.973810I$ $a = 0.205092 + 1.101040I$ $b = -0.199212 + 0.760976I$	$-2.24497 - 6.61108I$	$-7.2534 + 15.3751I$
$u = -0.718697 + 0.273065I$ $a = 0.143920 - 1.236700I$ $b = -0.503625 + 0.659985I$	$-2.14035 - 2.21103I$	$-3.32753 + 2.55558I$
$u = -0.718697 - 0.273065I$ $a = 0.143920 + 1.236700I$ $b = -0.503625 - 0.659985I$	$-2.14035 + 2.21103I$	$-3.32753 - 2.55558I$
$u = 0.535223 + 1.162140I$ $a = -0.218207 - 0.016209I$ $b = -0.154895 - 1.305200I$	$-4.41311 - 5.07181I$	$-7.38870 + 4.45168I$
$u = 0.535223 - 1.162140I$ $a = -0.218207 + 0.016209I$ $b = -0.154895 + 1.305200I$	$-4.41311 + 5.07181I$	$-7.38870 - 4.45168I$
$u = -0.259361 + 1.266310I$ $a = 0.298735 - 0.200867I$ $b = -0.27641 + 1.42034I$	$-2.77350 - 0.30087I$	$-3.43063 - 0.64342I$
$u = -0.259361 - 1.266310I$ $a = 0.298735 + 0.200867I$ $b = -0.27641 - 1.42034I$	$-2.77350 + 0.30087I$	$-3.43063 + 0.64342I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.642620 + 0.176331I$ $a = -2.73234 - 3.06072I$ $b = 0.06025 - 1.48960I$	$-7.28871 + 0.50220I$	$-14.6902 - 9.4676I$
$u = 0.642620 - 0.176331I$ $a = -2.73234 + 3.06072I$ $b = 0.06025 + 1.48960I$	$-7.28871 - 0.50220I$	$-14.6902 + 9.4676I$
$u = -0.314004 + 0.270023I$ $a = 11.33940 - 1.30281I$ $b = 0.368087 - 0.696391I$	$-3.55921 - 3.00568I$	$-21.0214 - 13.1073I$
$u = -0.314004 - 0.270023I$ $a = 11.33940 + 1.30281I$ $b = 0.368087 + 0.696391I$	$-3.55921 + 3.00568I$	$-21.0214 + 13.1073I$
$u = 1.73212$ $a = -0.0334354$ $b = -0.404382$	-10.2300	50.8770
$u = -0.35606 + 2.09120I$ $a = -0.747795 + 0.030202I$ $b = 1.210930 + 0.258234I$	$6.82265 + 4.21829I$	$0.48138 - 3.10222I$
$u = -0.35606 - 2.09120I$ $a = -0.747795 - 0.030202I$ $b = 1.210930 - 0.258234I$	$6.82265 - 4.21829I$	$0.48138 + 3.10222I$

IV. $\boldsymbol{I_1^v = \langle a,\ 8v^3 - 12v^2 + b + 10v - 3,\ 8v^4 - 12v^3 + 12v^2 - 5v + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ -8v^3 + 12v^2 - 10v + 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -8v^3 + 8v^2 - 8v + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -8v^3 + 12v^2 - 10v + 3 \\ -8v^3 + 8v^2 - 6v \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 8v^3 - 12v^2 + 10v - 3 \\ 16v^3 - 16v^2 + 14v - 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -8v^3 + 8v^2 - 8v + 2 \\ -8v^3 + 8v^2 - 8v + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 8v^3 - 12v^2 + 12v - 5 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -8v^3 + 12v^2 - 12v + 5 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} v - 1 \\ 8v^3 - 12v^2 + 12v - 5 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8v^3 + 5v^2 - 9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_8	y^4
c_5, c_7, c_{10} c_{11}	$y^4 + 2y^3 + 3y^2 + y + 1$
c_6, c_{12}	$y^4 + 2y^3 + 7y^2 + 5y + 1$
c_9	$y^4 - y^3 + 2y^2 + 7y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.447562 + 0.776246I$ $a = 0$ $b = -0.547424 + 0.585652I$	$-0.66484 - 1.39709I$	$-5.25608 + 3.48426I$
$v = 0.447562 - 0.776246I$ $a = 0$ $b = -0.547424 - 0.585652I$	$-0.66484 + 1.39709I$	$-5.25608 - 3.48426I$
$v = 0.302438 + 0.253422I$ $a = 0$ $b = 0.547424 - 1.120870I$	$-4.26996 - 7.64338I$	$-8.61892 + 0.34032I$
$v = 0.302438 - 0.253422I$ $a = 0$ $b = 0.547424 + 1.120870I$	$-4.26996 + 7.64338I$	$-8.61892 - 0.34032I$

V. $\boldsymbol{I_2^v = \langle a,\ b^6 - b^5 + 2b^4 - 2b^3 + 2b^2 - 2b + 1,\ v + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4b^3 + 4b - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = -0.498832 + 1.001300I$	$-1.91067 - 2.82812I$	$-4.49024 + 2.97945I$
$v = -1.00000$ $a = 0$ $b = -0.498832 - 1.001300I$	$-1.91067 + 2.82812I$	$-4.49024 - 2.97945I$
$v = -1.00000$ $a = 0$ $b = 0.284920 + 1.115140I$	-6.04826	$-11.01951 + 0.I$
$v = -1.00000$ $a = 0$ $b = 0.284920 - 1.115140I$	-6.04826	$-11.01951 + 0.I$
$v = -1.00000$ $a = 0$ $b = 0.713912 + 0.305839I$	$-1.91067 - 2.82812I$	$-4.49024 + 2.97945I$
$v = -1.00000$ $a = 0$ $b = 0.713912 - 0.305839I$	$-1.91067 + 2.82812I$	$-4.49024 - 2.97945I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^5+6u^3+u^2-u+1)^6(u^{17}-8u^{16}+\cdots+3u-1)$ $\cdot(u^{28}+11u^{27}+\cdots+38144u+4096)$
c_2	$((u-1)^{10})(u^5-2u^4+\cdots-u+1)^6(u^{17}+6u^{16}+\cdots+u+1)$ $\cdot(u^{28}-5u^{27}+\cdots+368u-64)$
c_3	$u^{10}(u^5+u^4+\cdots+2u-2)^6(u^{17}+6u^{15}+\cdots-3u+1)$ $\cdot(u^{28}-7u^{27}+\cdots+256u-1024)$
c_4	$((u+1)^{10})(u^5-2u^4+\cdots-u+1)^6(u^{17}-6u^{16}+\cdots+u-1)$ $\cdot(u^{28}-5u^{27}+\cdots+368u-64)$
c_5	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{17}+6u^{15}+\cdots+3u-1)(u^{28}-u^{26}+\cdots+6u+1)$ $\cdot(u^{30}-2u^{29}+\cdots-20u+137)$
c_6	$(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{17}-3u^{16}+\cdots+6u-1)(u^{28}-u^{27}+\cdots+5u+1)$ $\cdot(u^{30}-6u^{29}+\cdots+392u+191)$
c_7	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{17}+6u^{15}+\cdots+3u+1)(u^{28}-u^{26}+\cdots+6u+1)$ $\cdot(u^{30}-2u^{29}+\cdots-20u+137)$
c_8	$u^{10}(u^5+u^4+\cdots+2u-2)^6(u^{17}+6u^{15}+\cdots-3u-1)$ $\cdot(u^{28}-7u^{27}+\cdots+256u-1024)$
c_9	$(u^3-u^2+1)^2(u^3+u^2-1)^{10}(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{17}-5u^{16}+\cdots+5u-1)(u^{28}-11u^{27}+\cdots-464u+32)$
c_{10}	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{17}+6u^{15}+\cdots+3u+1)(u^{28}-u^{26}+\cdots+6u+1)$ $\cdot(u^{30}-2u^{29}+\cdots-20u+137)$
c_{11}	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{17}+6u^{15}+\cdots+3u-1)(u^{28}-u^{26}+\cdots+6u+1)$ $\cdot(u^{30}-2u^{29}+\cdots-20u+137)$
c_{12}	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{17}-3u^{16}+\cdots+6u-1)(u^{28}-u^{27}+\cdots+5u+1)$ $\cdot(u^{30}-6u^{29}+\cdots+392u+191)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^{10}(y^5+12y^4+34y^3-13y^2-y-1)^6$ $\cdot(y^{17}+8y^{16}+\cdots-25y-1)$ $\cdot(y^{28}+17y^{27}+\cdots-423952384y+16777216)$
c_2, c_4	$((y-1)^{10})(y^5+6y^3-y^2-y-1)^6(y^{17}-8y^{16}+\cdots+3y-1)$ $\cdot(y^{28}-11y^{27}+\cdots-38144y+4096)$
c_3, c_8	$y^{10}(y^5+9y^4+\cdots+8y-4)^6(y^{17}+12y^{16}+\cdots+3y-1)$ $\cdot(y^{28}+21y^{27}+\cdots+7012352y+1048576)$
c_5, c_7, c_{10} c_{11}	$(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{17}+12y^{16}+\cdots-3y-1)(y^{28}-2y^{27}+\cdots-16y+1)$ $\cdot(y^{30}+6y^{29}+\cdots+131668y+18769)$
c_6, c_{12}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{17}-19y^{16}+\cdots-2y-1)(y^{28}+15y^{27}+\cdots+59y+1)$ $\cdot(y^{30}-2y^{29}+\cdots-47468y+36481)$
c_9	$((y^3-y^2+2y-1)^{12})(y^4-y^3+2y^2+7y+4)(y^{17}-7y^{16}+\cdots+17y-1)$ $\cdot(y^{28}-9y^{27}+\cdots-57088y+1024)$