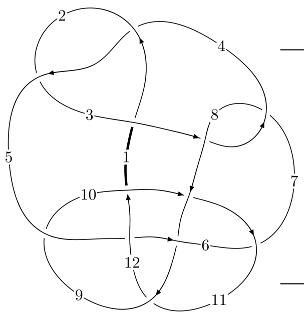
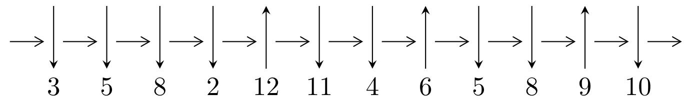
$12n_{0175}$ ($K12n_{0175}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-1.04267 \times 10^{26} u^{13} - 2.24065 \times 10^{27} u^{12} + \cdots + 1.09231 \times 10^{29} b + 2.46093 \times 10^{28}, \\
&- 1.28732 \times 10^{26} u^{13} - 2.92904 \times 10^{27} u^{12} + \cdots + 2.18462 \times 10^{29} a - 1.14504 \times 10^{29}, \\
&u^{14} + 21u^{13} + \cdots + 544u + 256 \rangle \\
I_2^u = \langle &-102u^8 - 440u^7 - 440u^6 - 655u^5 + u^4 - 240u^3 + 269u^2 + 59b - 180u + 261, \\
&- 15u^8 - 30u^7 + 88u^6 + 72u^5 + 283u^4 + 107u^3 + 253u^2 + 59a + 36u + 172, \\
&u^9 + 5u^8 + 8u^7 + 13u^6 + 10u^5 + 11u^4 + 5u^3 + 6u^2 + u + 1 \rangle \\
I_3^u = \langle &-2u^5 a + 10u^4 a - 2u^5 - 30u^3 a + 13u^4 + 33u^2 a - 45u^3 - 14au + 78u^2 + 6b + 4a - 62u + 28, \\
&18u^5 a + 39u^5 + \cdots + 16a - 220,\ u^6 - 7u^5 + 26u^4 - 51u^3 + 52u^2 - 28u + 8 \rangle \\
I_4^u = \langle &2u^2 b + b^2 - bu + 4u^2 + 4b - 2u + 7,\ u^2 + a - u + 2,\ u^3 - u^2 + 2u - 1 \rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ -v^3 - 7v^2 + 4b - 12v - 1,\ v^4 + 7v^3 + 16v^2 + 13v + 4 \rangle \\
I_2^v &= \langle a,\ -v^2 b + b^2 + 2bv - v^2 + b + 2v + 1,\ v^3 - 3v^2 + 2v - 1 \rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 51 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. $\boldsymbol{I_1^u = \langle -1.04 \times 10^{26}u^{13} - 2.24 \times 10^{27}u^{12} + \cdots + 1.09 \times 10^{29}b + 2.46 \times 10^{28},\ -1.29 \times 10^{26}u^{13} - 2.93 \times 10^{27}u^{12} + \cdots + 2.18 \times 10^{29}a - 1.15 \times 10^{29},\ u^{14} + 21u^{13} + \cdots + 544u + 256\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.000589262u^{13} + 0.0134075u^{12} + \cdots - 0.805195u + 0.524136 \\ 0.000954555u^{13} + 0.0205129u^{12} + \cdots + 0.318887u - 0.225296 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.000589262u^{13} + 0.0134075u^{12} + \cdots - 0.805195u + 0.524136 \\ 0.000671621u^{13} + 0.0148039u^{12} + \cdots - 0.393936u - 0.489753 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00121747u^{13} + 0.0251618u^{12} + \cdots + 2.10350u + 0.0491900 \\ 0.000115085u^{13} + 0.00299760u^{12} + \cdots + 0.828767u - 0.0553136 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00122256u^{13} + 0.0260104u^{12} + \cdots + 0.0388506u + 0.499449 \\ 0.000709347u^{13} + 0.0153553u^{12} + \cdots + 0.361561u - 0.145546 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.000261393u^{13} + 0.00718595u^{12} + \cdots - 1.58109u + 0.503456 \\ 0.00106954u^{13} + 0.0235741u^{12} + \cdots - 0.362940u - 0.280603 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.000424271u^{13} + 0.00989082u^{12} + \cdots - 0.674232u + 0.474041 \\ 0.0000149496u^{13} + 0.00111721u^{12} + \cdots - 0.559577u - 0.359209 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.000409321u^{13} - 0.00877361u^{12} + \cdots + 0.114654u - 0.833250 \\ 0.0000359381u^{13} + 0.00108264u^{12} + \cdots - 0.358027u - 0.313673 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.000409321u^{13} + 0.00877361u^{12} + \cdots - 0.114654u + 0.833250 \\ 0.0000149496u^{13} + 0.00111721u^{12} + \cdots - 0.559577u - 0.359209 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.00674689u^{13} - 0.136707u^{12} + \cdots - 11.6248u - 11.8608$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} + 54u^{13} + \cdots - 7647u + 256$
c_2, c_4	$u^{14} - 16u^{13} + \cdots + 31u - 16$
c_3, c_7	$u^{14} + 21u^{13} + \cdots + 544u + 256$
c_5, c_8	$u^{14} + 2u^{13} + \cdots + 4u + 1$
c_6, c_9	$u^{14} - 11u^{13} + \cdots + 9u - 9$
c_{10}, c_{12}	$u^{14} + 27u^{13} + \cdots + 157u - 1$
c_{11}	$u^{14} + 22u^{13} + \cdots + 88u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 910y^{13} + \cdots - 40412737y + 65536$
c_2, c_4	$y^{14} - 54y^{13} + \cdots + 7647y + 256$
c_3, c_7	$y^{14} - 177y^{13} + \cdots - 226304y + 65536$
c_5, c_8	$y^{14} - 2y^{13} + \cdots - 6y + 1$
c_6, c_9	$y^{14} - 61y^{13} + \cdots - 927y + 81$
c_{10}, c_{12}	$y^{14} - 413y^{13} + \cdots - 22155y + 1$
c_{11}	$y^{14} - 64y^{13} + \cdots - 2456y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.126413 + 1.064170I$ $a = 0.0178207 - 0.1327570I$ $b = 0.073229 + 0.409880I$	$2.38888 + 2.31349I$	$1.040974 + 0.185703I$
$u = -0.126413 - 1.064170I$ $a = 0.0178207 + 0.1327570I$ $b = 0.073229 - 0.409880I$	$2.38888 - 2.31349I$	$1.040974 - 0.185703I$
$u = 0.594510 + 0.411375I$ $a = -0.944868 + 0.799301I$ $b = -0.88821 + 1.42199I$	$-3.64308 + 0.88750I$	$-15.9778 + 0.0604I$
$u = 0.594510 - 0.411375I$ $a = -0.944868 - 0.799301I$ $b = -0.88821 - 1.42199I$	$-3.64308 - 0.88750I$	$-15.9778 - 0.0604I$
$u = 1.40610 + 0.22467I$ $a = 0.307958 + 1.309810I$ $b = 0.030088 + 0.287966I$	$0.10775 - 7.50729I$	$-7.28452 + 4.95143I$
$u = 1.40610 - 0.22467I$ $a = 0.307958 - 1.309810I$ $b = 0.030088 - 0.287966I$	$0.10775 + 7.50729I$	$-7.28452 - 4.95143I$
$u = -0.560428$ $a = -0.0120122$ $b = -0.522964$	-1.12206	-9.20330
$u = -0.345517 + 0.363205I$ $a = 1.121570 + 0.274743I$ $b = -0.330774 + 0.391733I$	$-0.921235 + 1.059300I$	$-5.51258 - 4.57245I$
$u = -0.345517 - 0.363205I$ $a = 1.121570 - 0.274743I$ $b = -0.330774 - 0.391733I$	$-0.921235 - 1.059300I$	$-5.51258 + 4.57245I$
$u = -1.80958 + 2.11291I$ $a = -1.248730 - 0.134703I$ $b = -2.16984 + 0.05278I$	$19.0076 + 14.9612I$	$-6.21836 - 5.88234I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.80958 - 2.11291I$ $a = -1.248730 + 0.134703I$ $b = -2.16984 - 0.05278I$	$19.0076 - 14.9612I$	$-6.21836 + 5.88234I$
$u = -3.79852 + 1.13400I$ $a = 1.41552 + 0.05510I$ $b = 2.07852 + 0.02544I$	$-18.1348 - 0.1387I$	$-2.93027 + 5.79154I$
$u = -3.79852 - 1.13400I$ $a = 1.41552 - 0.05510I$ $b = 2.07852 - 0.02544I$	$-18.1348 + 0.1387I$	$-2.93027 - 5.79154I$
$u = -12.2807$ $a = 1.54847$ $b = 2.18693$	-17.8723	0

II. $\boldsymbol{I_2^u = \langle -102u^8 - 440u^7 + \cdots + 59b + 261,\ -15u^8 - 30u^7 + \cdots + 59a + 172,\ u^9 + 5u^8 + \cdots + u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.254237u^8 + 0.508475u^7 + \cdots - 0.610169u - 2.91525\\1.72881u^8 + 7.45763u^7 + \cdots + 3.05085u - 4.42373\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.254237u^8 + 0.508475u^7 + \cdots - 0.610169u - 2.91525\\2.01695u^8 + 9.03390u^7 + \cdots + 3.55932u - 3.66102\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u\\u^3 + u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1.08475u^8 - 6.16949u^7 + \cdots - 4.79661u - 2.69492\\-0.593220u^8 - 4.18644u^7 + \cdots - 3.57627u - 4.86441\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.491525u^8 + 1.98305u^7 + \cdots + 1.22034u - 2.16949\\2.38983u^8 + 10.7797u^7 + \cdots + 5.86441u - 3.20339\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-1.23729u^8 - 6.47458u^7 + \cdots - 7.83051u - 1.74576\\-2.74576u^8 - 14.4915u^7 + \cdots - 13.6102u - 4.91525\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.491525u^8 + 1.98305u^7 + \cdots - 0.779661u - 1.16949\\0.0677966u^8 + 0.135593u^7 + \cdots - 0.762712u - 1.64407\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.423729u^8 + 1.84746u^7 + \cdots - 0.0169492u + 0.474576\\-0.254237u^8 - 0.508475u^7 + \cdots + 0.610169u + 1.91525\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.423729u^8 + 1.84746u^7 + \cdots - 0.0169492u + 0.474576\\0.0677966u^8 + 0.135593u^7 + \cdots - 0.762712u - 1.64407\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{142}{59}u^8 + \frac{756}{59}u^7 + \frac{1287}{59}u^6 + \frac{1997}{59}u^5 + \frac{2096}{59}u^4 + \frac{1528}{59}u^3 + \frac{1554}{59}u^2 + \frac{792}{59}u + \frac{480}{59}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 - 10u^8 + 29u^7 - 39u^6 + 26u^5 - 15u^4 + 19u^3 - 8u^2 - 3u - 1$
c_2	$u^9 + 4u^8 + 3u^7 - 5u^6 - 10u^5 - 5u^4 + 3u^3 + 6u^2 + 3u + 1$
c_3	$u^9 + 5u^8 + 8u^7 + 13u^6 + 10u^5 + 11u^4 + 5u^3 + 6u^2 + u + 1$
c_4	$u^9 - 4u^8 + 3u^7 + 5u^6 - 10u^5 + 5u^4 + 3u^3 - 6u^2 + 3u - 1$
c_5, c_8	$u^9 - 3u^8 + 5u^7 - 4u^6 + 2u^5 - 2u^4 + 4u^3 - 3u^2 + 1$
c_6, c_9	$u^9 - 3u^7 + 4u^6 - 2u^5 + 2u^4 - 4u^3 + 5u^2 - 3u + 1$
c_7	$u^9 - 5u^8 + 8u^7 - 13u^6 + 10u^5 - 11u^4 + 5u^3 - 6u^2 + u - 1$
c_{10}, c_{12}	$u^9 + 6u^8 + 5u^7 + 12u^6 + 6u^5 + 10u^4 + 5u^2 - u + 1$
c_{11}	$u^9 - 3u^8 - 7u^7 + 61u^6 - 171u^5 + 279u^4 - 297u^3 + 212u^2 - 97u + 23$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - 42y^8 + \cdots - 7y - 1$
c_2, c_4	$y^9 - 10y^8 + 29y^7 - 39y^6 + 26y^5 - 15y^4 + 19y^3 - 8y^2 - 3y - 1$
c_3, c_7	$y^9 - 9y^8 - 46y^7 - 109y^6 - 164y^5 - 171y^4 - 113y^3 - 48y^2 - 11y - 1$
c_5, c_8	$y^9 + y^8 + 5y^7 + 10y^5 - 6y^4 + 12y^3 - 5y^2 + 6y - 1$
c_6, c_9	$y^9 - 6y^8 + 5y^7 - 12y^6 + 6y^5 - 10y^4 - 5y^2 - y - 1$
c_{10}, c_{12}	$y^9 - 26y^8 + \cdots - 9y - 1$
c_{11}	$y^9 - 23y^8 + \cdots - 343y - 529$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.699225+0.881171I$ $a=\ \ 0.153901-0.439956I$ $b=-0.480829-0.332872I$	$-1.28188+7.91801I$	$-11.0500-9.5481I$
$u=-0.699225-0.881171I$ $a=\ \ 0.153901+0.439956I$ $b=-0.480829+0.332872I$	$-1.28188-7.91801I$	$-11.0500+9.5481I$
$u=-0.293070+1.131440I$ $a=-0.518996+0.755920I$ $b=-0.365565-0.116422I$	$1.91580-3.10870I$	$-3.25080+5.79361I$
$u=-0.293070-1.131440I$ $a=-0.518996-0.755920I$ $b=-0.365565+0.116422I$	$1.91580+3.10870I$	$-3.25080-5.79361I$
$u=\ \ 0.355075+0.694524I$ $a=-0.776460-0.463249I$ $b=\ \ 0.258201-0.760917I$	$1.44595-4.09337I$	$-1.10458+4.89395I$
$u=\ \ 0.355075-0.694524I$ $a=-0.776460+0.463249I$ $b=\ \ 0.258201+0.760917I$	$1.44595+4.09337I$	$-1.10458-4.89395I$
$u=-0.046807+0.509508I$ $a=-2.11030-0.01768I$ $b=-3.48539+1.47690I$	$-1.03199-3.67986I$	$3.16209+3.89016I$
$u=-0.046807-0.509508I$ $a=-2.11030+0.01768I$ $b=-3.48539-1.47690I$	$-1.03199+3.67986I$	$3.16209-3.89016I$
$u=-3.63195$ $a=\ \ 1.50371$ $b=\ \ 2.14716$	-18.5451	-22.5130

III. $\boldsymbol{I_3^u = \langle -2u^5a - 2u^5 + \cdots + 4a + 28,\ 18u^5a + 39u^5 + \cdots + 16a - 220,\ u^6 - 7u^5 + 26u^4 - 51u^3 + 52u^2 - 28u + 8\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ \frac{1}{3}u^5a + \frac{1}{3}u^5 + \cdots - \frac{2}{3}a - \frac{14}{3} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ \frac{1}{3}u^5a + \frac{1}{3}u^5 + \cdots - \frac{2}{3}a - \frac{14}{3} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{12}u^5a - \frac{1}{3}u^5 + \cdots - 3a + \frac{17}{6} \\ \frac{1}{2}u^5a - \frac{17}{12}u^5 + \cdots - \frac{10}{3}a + 3 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{6}u^5a + \frac{1}{12}u^5 + \cdots + \frac{2}{3}a - \frac{5}{2} \\ \frac{7}{6}u^5a + \frac{7}{12}u^5 + \cdots - \frac{14}{3}a - \frac{19}{3} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{8}u^5 + \frac{7}{8}u^4 + \cdots - \frac{13}{2}u + \frac{7}{2} \\ \frac{1}{6}u^5a - \frac{19}{12}u^5 + \cdots - \frac{8}{3}a + \frac{20}{3} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{19}{24}u^5 - \frac{35}{8}u^4 + \cdots + \frac{35}{3}u - 3 \\ \frac{2}{3}u^5 - \frac{11}{3}u^4 + \cdots + \frac{32}{3}u - \frac{11}{3} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{8}u^5 + \frac{17}{24}u^4 + \cdots - u - \frac{2}{3} \\ \frac{1}{2}u^5 - \frac{17}{6}u^4 + \cdots + 7u - \frac{7}{3} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{8}u^5 - \frac{17}{24}u^4 + \cdots + u + \frac{2}{3} \\ \frac{2}{3}u^5 - \frac{11}{3}u^4 + \cdots + \frac{32}{3}u - \frac{11}{3} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{17}{12}u^5 - \frac{85}{12}u^4 + 21u^3 - \frac{85}{4}u^2 + \frac{25}{6}u - \frac{19}{3}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6+4u^5+24u^4+11u^3+42u^2-11u+1)^2$
c_2,c_4	$(u^6-2u^5+3u^3+6u^2-u+1)^2$
c_3,c_7	$(u^6-7u^5+26u^4-51u^3+52u^2-28u+8)^2$
c_5,c_8	$u^{12}+2u^{11}+\cdots+15u+9$
c_6,c_9	$u^{12}-6u^{11}+\cdots-1017u+603$
c_{10},c_{12}	$u^{12}-u^{11}+\cdots-942u+423$
c_{11}	$(u^6-u^5+5u^3-4u+8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6+32y^5+572y^4+1985y^3+2054y^2-37y+1)^2$
c_2, c_4	$(y^6-4y^5+24y^4-11y^3+42y^2+11y+1)^2$
c_3, c_7	$(y^6+3y^5+66y^4-273y^3+264y^2+48y+64)^2$
c_5, c_8	$y^{12}+16y^{10}+\cdots+189y+81$
c_6, c_9	$y^{12}+16y^{11}+\cdots+402057y+363609$
c_{10}, c_{12}	$y^{12}+29y^{11}+\cdots-1840806y+178929$
c_{11}	$(y^6-y^5+10y^4-17y^3+40y^2-16y+64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.375593 + 0.540780I$ $a = 0.486099 - 0.455368I$ $b = -0.834769 + 0.886986I$	$0.10873 + 3.16633I$	$-6.33370 - 4.19720I$
$u = 0.375593 + 0.540780I$ $a = 0.92528 + 1.97320I$ $b = 0.226390 + 0.446346I$	$0.10873 + 3.16633I$	$-6.33370 - 4.19720I$
$u = 0.375593 - 0.540780I$ $a = 0.486099 + 0.455368I$ $b = -0.834769 - 0.886986I$	$0.10873 - 3.16633I$	$-6.33370 + 4.19720I$
$u = 0.375593 - 0.540780I$ $a = 0.92528 - 1.97320I$ $b = 0.226390 - 0.446346I$	$0.10873 - 3.16633I$	$-6.33370 + 4.19720I$
$u = 1.391620 + 0.251770I$ $a = -0.698843 - 0.090535I$ $b = -2.07845 - 0.66940I$	$-0.10873 - 3.16633I$	$-5.66630 + 4.19720I$
$u = 1.391620 + 0.251770I$ $a = -0.09615 - 1.82357I$ $b = 0.112878 - 1.032920I$	$-0.10873 - 3.16633I$	$-5.66630 + 4.19720I$
$u = 1.391620 - 0.251770I$ $a = -0.698843 + 0.090535I$ $b = -2.07845 + 0.66940I$	$-0.10873 + 3.16633I$	$-5.66630 - 4.19720I$
$u = 1.391620 - 0.251770I$ $a = -0.09615 + 1.82357I$ $b = 0.112878 + 1.032920I$	$-0.10873 + 3.16633I$	$-5.66630 - 4.19720I$
$u = 1.73279 + 2.49487I$ $a = 1.070440 - 0.329156I$ $b = 2.03504 + 0.00711I$	$-19.7392 - 6.3327I$	$-6.00000 + 2.82663I$
$u = 1.73279 + 2.49487I$ $a = -1.186840 - 0.318891I$ $b = -1.96109 - 0.25888I$	$-19.7392 - 6.3327I$	$-6.00000 + 2.82663I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.73279 - 2.49487I$ $a = 1.070440 + 0.329156I$ $b = 2.03504 - 0.00711I$	$19.7392 + 6.3327I$	$-6.00000 - 2.82663I$
$u = 1.73279 - 2.49487I$ $a = -1.186840 + 0.318891I$ $b = -1.96109 + 0.25888I$	$19.7392 + 6.3327I$	$-6.00000 - 2.82663I$

IV. $\boldsymbol{I^u_4 = \langle 2u^2b+b^2-bu+4u^2+4b-2u+7,\ u^2+a-u+2,\ u^3-u^2+2u-1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2+u-2 \\ b \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u \\ u^2-u+1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^2+b+2 \\ 2u^2b+3u^2+b-u+5 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2b-1 \\ -bu+2b+1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2+u-2 \\ b-u \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^2+7u-16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.215080 + 1.307140I$ $a = -0.122561 + 0.744862I$ $b = -0.715080 - 0.241870I$	$1.37919 - 2.82812I$	$-1.19557 + 4.65175I$
$u = \quad 0.215080 + 1.307140I$ $a = -0.122561 + 0.744862I$ $b = \quad 0.254878 + 0.424452I$	$1.37919 - 2.82812I$	$-1.19557 + 4.65175I$
$u = \quad 0.215080 - 1.307140I$ $a = -0.122561 - 0.744862I$ $b = -0.715080 + 0.241870I$	$1.37919 + 2.82812I$	$-1.19557 - 4.65175I$
$u = \quad 0.215080 - 1.307140I$ $a = -0.122561 - 0.744862I$ $b = \quad 0.254878 - 0.424452I$	$1.37919 + 2.82812I$	$-1.19557 - 4.65175I$
$u = \quad 0.569840$ $a = -1.75488$ $b = -2.03980 + 1.73159I$	-2.75839	-14.6090
$u = \quad 0.569840$ $a = -1.75488$ $b = -2.03980 - 1.73159I$	-2.75839	-14.6090

V. $\boldsymbol{I_1^v = \langle a,\ -v^3 - 7v^2 + 4b - 12v - 1,\ v^4 + 7v^3 + 16v^2 + 13v + 4\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ \frac{1}{4}v^3 + \frac{7}{4}v^2 + 3v + \frac{1}{4} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v^3 + 3v^2 + v \\ \frac{1}{4}v^3 + \frac{7}{4}v^2 + 3v + \frac{1}{4} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 2v^3 + 9v^2 + 11v + 4 \\ -\frac{3}{4}v^3 - \frac{17}{4}v^2 - 7v - \frac{11}{4} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -v^3 - 3v^2 - v \\ \frac{1}{4}v^3 + \frac{3}{4}v^2 - \frac{3}{4} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -v \\ \frac{3}{4}v^3 + \frac{17}{4}v^2 + 7v + \frac{7}{4} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -v \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} v \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -v + 1 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{51}{16}v^3 - \frac{217}{16}v^2 - \frac{83}{4}v - \frac{311}{16}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.600768 + 0.325640I$ $a = 0$ $b = -1.112690 + 0.371716I$	$-2.62503 + 1.39709I$	$-10.34643 - 2.46427I$
$v = -0.600768 - 0.325640I$ $a = 0$ $b = -1.112690 - 0.371716I$	$-2.62503 - 1.39709I$	$-10.34643 + 2.46427I$
$v = -2.89923 + 0.40053I$ $a = 0$ $b = 0.237691 - 0.353773I$	$0.98010 + 7.64338I$	$2.12768 - 8.80169I$
$v = -2.89923 - 0.40053I$ $a = 0$ $b = 0.237691 + 0.353773I$	$0.98010 - 7.64338I$	$2.12768 + 8.80169I$

VI. $\boldsymbol{I_2^v = \langle a,\ -v^2b + b^2 + 2bv - v^2 + b + 2v + 1,\ v^3 - 3v^2 + 2v - 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ b \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -v^2b \\ b \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -v^2b + bv - v^2 + 2v \\ -v^2b + 3bv - v^2 - b + 3v - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} v^2b - bv + b + v \\ -bv + v^2 + b - 3v + 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -bv + v^2 - 2v + 1 \\ -v^2 + 3v - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -bv + v^2 - 2v + 1 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} bv - v^2 + 2v - 1 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -bv + v^2 - 2v + 2 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 7v^2 - 13v - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.337641 + 0.562280I$ $a = 0$ $b = -0.960138 + 0.693124I$	$-1.37919 + 2.82812I$	$-10.80443 - 4.65175I$
$v = 0.337641 + 0.562280I$ $a = 0$ $b = -0.91730 - 1.43799I$	$-1.37919 + 2.82812I$	$-10.80443 - 4.65175I$
$v = 0.337641 - 0.562280I$ $a = 0$ $b = -0.960138 - 0.693124I$	$-1.37919 - 2.82812I$	$-10.80443 + 4.65175I$
$v = 0.337641 - 0.562280I$ $a = 0$ $b = -0.91730 + 1.43799I$	$-1.37919 - 2.82812I$	$-10.80443 + 4.65175I$
$v = 2.32472$ $a = 0$ $b = -0.122561 + 0.479689I$	2.75839	2.60890
$v = 2.32472$ $a = 0$ $b = -0.122561 - 0.479689I$	2.75839	2.60890

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^{10}(u^3-u^2+2u-1)^2$ $\cdot(u^6+4u^5+24u^4+11u^3+42u^2-11u+1)^2$ $\cdot(u^9-10u^8+29u^7-39u^6+26u^5-15u^4+19u^3-8u^2-3u-1)$ $\cdot(u^{14}+54u^{13}+\cdots-7647u+256)$
c_2	$(u-1)^{10}(u^3+u^2-1)^2(u^6-2u^5+3u^3+6u^2-u+1)^2$ $\cdot(u^9+4u^8+3u^7-5u^6-10u^5-5u^4+3u^3+6u^2+3u+1)$ $\cdot(u^{14}-16u^{13}+\cdots+31u-16)$
c_3	$u^{10}(u^3-u^2+2u-1)^2(u^6-7u^5+26u^4-51u^3+52u^2-28u+8)^2$ $\cdot(u^9+5u^8+8u^7+13u^6+10u^5+11u^4+5u^3+6u^2+u+1)$ $\cdot(u^{14}+21u^{13}+\cdots+544u+256)$
c_4	$(u+1)^{10}(u^3-u^2+1)^2(u^6-2u^5+3u^3+6u^2-u+1)^2$ $\cdot(u^9-4u^8+3u^7+5u^6-10u^5+5u^4+3u^3-6u^2+3u-1)$ $\cdot(u^{14}-16u^{13}+\cdots+31u-16)$
c_5	$(u^4+2u^3+3u^2+u+1)(u^6-3u^5+5u^4-5u^3+5u^2-3u+1)$ $\cdot(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^9-3u^8+5u^7-4u^6+2u^5-2u^4+4u^3-3u^2+1)$ $\cdot(u^{12}+2u^{11}+\cdots+15u+9)(u^{14}+2u^{13}+\cdots+4u+1)$
c_6	$(u^4+u^2-u+1)(u^6-3u^5+5u^4-5u^3+5u^2-3u+1)$ $\cdot(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^9-3u^7+4u^6-2u^5+2u^4-4u^3+5u^2-3u+1)$ $\cdot(u^{12}-6u^{11}+\cdots-1017u+603)(u^{14}-11u^{13}+\cdots+9u-9)$
c_7	$u^{10}(u^3+u^2+2u+1)^2(u^6-7u^5+26u^4-51u^3+52u^2-28u+8)^2$ $\cdot(u^9-5u^8+8u^7-13u^6+10u^5-11u^4+5u^3-6u^2+u-1)$ $\cdot(u^{14}+21u^{13}+\cdots+544u+256)$
c_8	$(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^6-3u^5+5u^4-5u^3+5u^2-3u+1)$ $\cdot(u^9-3u^8+5u^7-4u^6+2u^5-2u^4+4u^3-3u^2+1)$ $\cdot(u^{12}+2u^{11}+\cdots+15u+9)(u^{14}+2u^{13}+\cdots+4u+1)$
c_9	$(u^4+u^2+u+1)(u^6-3u^5+5u^4-5u^3+5u^2-3u+1)$ $\cdot(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^9-3u^7+4u^6-2u^5+2u^4-4u^3+5u^2-3u+1)$ $\cdot(u^{12}-6u^{11}+\cdots-1017u+603)(u^{14}-11u^{13}+\cdots+9u-9)$
c_{10}, c_{12}	$(u+1)^6(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^9+6u^8+5u^7+12u^6+6u^5+10u^4+5u^2-u+1)$ $\cdot(u^{12}-u^{11}+\cdots-942u+423)(u^{14}+27u^{13}+\cdots+157u-1)$
c_{11}	$u^6(u^3-u^2+1)^2(u^4+3u^3+4u^2+3u+2)(u^6-u^5+5u^3-4u+8)^2$ $\cdot(u^9-3u^8-7u^7+61u^6-171u^5+279u^4-297u^3+212u^2-97u+23)$ $\cdot(u^{14}+22u^{13}+\cdots+88u+4)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^{10}(y^3+3y^2+2y-1)^2$ $\cdot(y^6+32y^5+572y^4+1985y^3+2054y^2-37y+1)^2$ $\cdot(y^9-42y^8+\cdots-7y-1)(y^{14}-910y^{13}+\cdots-4.04127\times 10^7 y+65536)$
c_2, c_4	$(y-1)^{10}(y^3-y^2+2y-1)^2$ $\cdot(y^6-4y^5+24y^4-11y^3+42y^2+11y+1)^2$ $\cdot(y^9-10y^8+29y^7-39y^6+26y^5-15y^4+19y^3-8y^2-3y-1)$ $\cdot(y^{14}-54y^{13}+\cdots+7647y+256)$
c_3, c_7	$y^{10}(y^3+3y^2+2y-1)^2$ $\cdot(y^6+3y^5+66y^4-273y^3+264y^2+48y+64)^2$ $\cdot(y^9-9y^8-46y^7-109y^6-164y^5-171y^4-113y^3-48y^2-11y-1)$ $\cdot(y^{14}-177y^{13}+\cdots-226304y+65536)$
c_5, c_8	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^6+y^5+5y^4+9y^3+5y^2+y+1)$ $\cdot(y^9+y^8+5y^7+10y^5-6y^4+12y^3-5y^2+6y-1)$ $\cdot(y^{12}+16y^{10}+\cdots+189y+81)(y^{14}-2y^{13}+\cdots-6y+1)$
c_6, c_9	$(y^4+2y^3+3y^2+y+1)(y^6+y^5+5y^4+9y^3+5y^2+y+1)$ $\cdot(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^9-6y^8+5y^7-12y^6+6y^5-10y^4-5y^2-y-1)$ $\cdot(y^{12}+16y^{11}+\cdots+402057y+363609)$ $\cdot(y^{14}-61y^{13}+\cdots-927y+81)$
c_{10}, c_{12}	$(y-1)^6(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^9-26y^8+\cdots-9y-1)(y^{12}+29y^{11}+\cdots-1840806y+178929)$ $\cdot(y^{14}-413y^{13}+\cdots-22155y+1)$
c_{11}	$y^6(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot(y^6-y^5+10y^4-17y^3+40y^2-16y+64)^2$ $\cdot(y^9-23y^8+\cdots-343y-529)(y^{14}-64y^{13}+\cdots-2456y+16)$