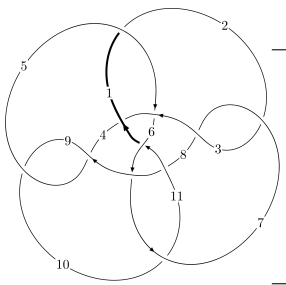
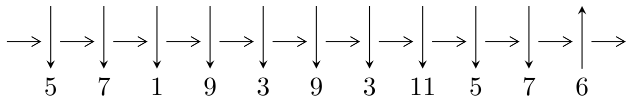
$11n_{183}$ ($K11n_{183}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle b-u,\ 5u^6+6u^5+13u^4-7u^3+29u^2+9a-11u+16,\ u^7+u^6+2u^5-3u^4+5u^3-3u^2+4u-1\rangle \\
I_2^u &= \langle b-u,\ 54u^5-72u^4-84u^3-80u^2+11a-85u-184,\ u^6-u^5-2u^4-2u^3-2u^2-4u-1\rangle \\
I_3^u &= \langle 37u^7-61u^6+51u^5-60u^4+86u^3-191u^2+29b+214u-54, \\
&\quad -41u^7+77u^6-62u^5+61u^4-100u^3+214u^2+29a-292u+81, \\
&\quad u^8-2u^7+2u^6-2u^5+3u^4-6u^3+8u^2-4u+1\rangle \\
I_4^u &= \langle u^3+3u^2+3b+6u+7,\ -2u^3-21u^2+39a-57u-59,\ u^4+4u^3+9u^2+10u+13\rangle \\
I_5^u &= \langle b-u-1,\ a-u-1,\ u^2+u+1\rangle \\
I_6^u &= \langle b+u,\ a+4u-9,\ u^2-2u-1\rangle \\
I_7^u &= \langle b+u-1,\ 3a-2u+2,\ u^2-u+3\rangle \\
I_8^u &= \langle b+u+1,\ a,\ u^2+u+1\rangle \\
I_9^u &= \langle b+1,\ a+1,\ u-1\rangle \\
I_{10}^u &= \langle b+u-1,\ a-u+1,\ u^2-u+1\rangle
\end{aligned}$$

* 10 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 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.

$$I_1^u = \langle b-u,\ 5u^6+6u^5+\cdots+9a+16,\ u^7+u^6+2u^5-3u^4+5u^3-3u^2+4u-1\rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{5}{9}u^6 - \frac{2}{3}u^5 + \cdots + \frac{11}{9}u - \frac{16}{9} \\ u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -\frac{1}{3}u^6 - \frac{2}{3}u^4 + \cdots + \frac{7}{3}u - \frac{5}{3} \\ -\frac{1}{9}u^6 - \frac{1}{3}u^5 + \cdots - \frac{5}{9}u + \frac{4}{9} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{9}u^6 + \frac{1}{3}u^5 + \cdots - \frac{4}{9}u + \frac{14}{9} \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{2}{9}u^6 - \frac{2}{3}u^5 + \cdots - \frac{19}{9}u - \frac{1}{9} \\ -\frac{1}{9}u^6 - \frac{1}{3}u^5 + \cdots - \frac{5}{9}u + \frac{4}{9} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ -\frac{2}{9}u^6 - \frac{2}{3}u^5 + \cdots - \frac{19}{9}u + \frac{8}{9} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{2}{9}u^6 - \frac{2}{3}u^5 + \cdots - \frac{19}{9}u - \frac{1}{9} \\ -\frac{2}{9}u^6 - \frac{2}{3}u^5 + \cdots - \frac{19}{9}u + \frac{8}{9} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{1}{9}u^6 - \frac{1}{3}u^5 + \cdots + \frac{4}{9}u - \frac{14}{9} \\ \frac{4}{9}u^6 + \frac{1}{3}u^5 + \cdots - \frac{7}{9}u + \frac{2}{9} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ \frac{4}{9}u^6 + \frac{1}{3}u^5 + \cdots - \frac{7}{9}u + \frac{2}{9} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ \frac{4}{9}u^6 + \frac{1}{3}u^5 + \cdots - \frac{7}{9}u + \frac{2}{9} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{26}{9}u^6 - \frac{8}{3}u^5 - \frac{28}{9}u^4 + \frac{112}{9}u^3 - \frac{86}{9}u^2 + \frac{14}{9}u - \frac{130}{9}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^7 + 4u^6 + 24u^5 + 58u^4 + 139u^3 + 194u^2 + 120u + 24$
c_2, c_4, c_7 c_9	$u^7 + u^6 + 8u^5 - u^4 + 12u^3 - 10u^2 - 2u + 2$
c_3, c_5, c_6 c_8	$u^7 - u^6 + 2u^5 + 3u^4 + 5u^3 + 3u^2 + 4u + 1$
c_{11}	$u^7 + 7u^6 + 28u^5 + 69u^4 + 106u^3 + 96u^2 + 48u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^7 + 32y^6 + 390y^5 + 1996y^4 + 2385y^3 - 7060y^2 + 5088y - 576$
c_2, c_4, c_7 c_9	$y^7 + 15y^6 + 90y^5 + 207y^4 + 88y^3 - 144y^2 + 44y - 4$
c_3, c_5, c_6 c_8	$y^7 + 3y^6 + 20y^5 + 25y^4 + 25y^3 + 25y^2 + 10y - 1$
c_{11}	$y^7 + 7y^6 + 30y^5 - 73y^4 + 564y^3 - 144y^2 + 768y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.757011 + 0.685123I$ $a = 0.681482 - 1.170220I$ $b = 0.757011 + 0.685123I$	$-1.68375 - 3.49152I$	$-15.3039 + 5.7802I$
$u = 0.757011 - 0.685123I$ $a = 0.681482 + 1.170220I$ $b = 0.757011 - 0.685123I$	$-1.68375 + 3.49152I$	$-15.3039 - 5.7802I$
$u = -0.134406 + 0.899226I$ $a = 0.516003 + 0.736811I$ $b = -0.134406 + 0.899226I$	$10.56250 + 1.19923I$	$-2.68829 - 5.87566I$
$u = -0.134406 - 0.899226I$ $a = 0.516003 - 0.736811I$ $b = -0.134406 - 0.899226I$	$10.56250 - 1.19923I$	$-2.68829 + 5.87566I$
$u = 0.285988$ $a = -1.68483$ $b = 0.285988$	-0.666622	-14.5180
$u = -1.26560 + 1.56709I$ $a = -0.855070 - 0.684725I$ $b = -1.26560 + 1.56709I$	$14.4836 + 11.4109I$	$-7.74903 - 4.57488I$
$u = -1.26560 - 1.56709I$ $a = -0.855070 + 0.684725I$ $b = -1.26560 - 1.56709I$	$14.4836 - 11.4109I$	$-7.74903 + 4.57488I$

II.

$$\boldsymbol{I^u_2 = \langle b-u,\ 54u^5-72u^4+\cdots+11a-184,\ u^6-u^5-2u^4-2u^3-2u^2-4u-1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_3 = \begin{pmatrix}-4.90909u^5+6.54545u^4+\cdots+7.72727u+16.7273\\u\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-4.36364u^5+5.81818u^4+\cdots+7.09091u+15.0909\\-0.272727u^5+0.363636u^4+\cdots+0.818182u-0.181818\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-1.63636u^5+2.18182u^4+\cdots+2.90909u+5.90909\\-u^2\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-2.45455u^5+3.27273u^4+\cdots+3.36364u+8.36364\\-0.272727u^5+0.363636u^4+\cdots+0.818182u-0.181818\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-2.45455u^5+3.27273u^4+\cdots+3.36364u+9.36364\\-0.272727u^5+0.363636u^4+\cdots+0.818182u-0.181818\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-2.72727u^5+3.63636u^4+\cdots+4.18182u+9.18182\\-0.272727u^5+0.363636u^4+\cdots+0.818182u-0.181818\end{pmatrix}$$

$$a_4 = \begin{pmatrix}1.63636u^5-2.18182u^4+\cdots-2.90909u-5.90909\\-0.181818u^5-0.0909091u^4+\cdots+0.545455u+0.545455\end{pmatrix}$$

$$a_8 = \begin{pmatrix}6.72727u^5-8.63636u^4+\cdots-10.1818u-23.1818\\-0.181818u^5-0.0909091u^4+\cdots+0.545455u+0.545455\end{pmatrix}$$

$$a_8 = \begin{pmatrix}6.72727u^5-8.63636u^4+\cdots-10.1818u-23.1818\\-0.181818u^5-0.0909091u^4+\cdots+0.545455u+0.545455\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{84}{11}u^5+\frac{112}{11}u^4+\frac{116}{11}u^3+\frac{188}{11}u^2+\frac{164}{11}u+\frac{274}{11}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.346535 + 1.017670I$ $a = 0.040902 - 0.214369I$ $b = 0.346535 + 1.017670I$	$1.59057 - 4.74950I$	$-3.95625 + 7.59808I$
$u = 0.346535 - 1.017670I$ $a = 0.040902 + 0.214369I$ $b = 0.346535 - 1.017670I$	$1.59057 + 4.74950I$	$-3.95625 - 7.59808I$
$u = -0.920485 + 0.648681I$ $a = -1.37622 - 0.47421I$ $b = -0.920485 + 0.648681I$	$1.59057 + 4.74950I$	$-3.95625 - 7.59808I$
$u = -0.920485 - 0.648681I$ $a = -1.37622 + 0.47421I$ $b = -0.920485 - 0.648681I$	$1.59057 - 4.74950I$	$-3.95625 + 7.59808I$
$u = -0.280929$ $a = 15.0105$ $b = -0.280929$	-8.11594	21.9130
$u = 2.42883$ $a = 0.660157$ $b = 2.42883$	-8.11594	21.9130

III. $\boldsymbol{I^u_3 =}$
$\boldsymbol{\langle 37u^7 - 61u^6 + \cdots + 29b - 54,\ -41u^7 + 77u^6 + \cdots + 29a + 81,\ u^8 - 2u^7 + \cdots - 4u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.41379u^7 - 2.65517u^6 + \cdots + 10.0690u - 2.79310 \\ -1.27586u^7 + 2.10345u^6 + \cdots - 7.37931u + 1.86207 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.482759u^7 - 0.931034u^6 + \cdots + 3.41379u - 0.758621 \\ -u^7 + 2u^6 - 2u^5 + 2u^4 - 3u^3 + 6u^2 - 7u + 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.655172u^7 - 1.62069u^6 + \cdots + 6.27586u - 3.17241 \\ -0.551724u^7 + 1.20690u^6 + \cdots - 4.75862u + 2.72414 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.310345u^7 - 1.24138u^6 + \cdots + 4.55172u - 2.34483 \\ -0.827586u^7 + 1.31034u^6 + \cdots - 4.13793u + 2.58621 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.379310u^7 - 1.51724u^6 + \cdots + 5.89655u - 4.31034 \\ -0.551724u^7 + 1.20690u^6 + \cdots - 4.75862u + 2.72414 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.172414u^7 - 0.310345u^6 + \cdots + 1.13793u - 1.58621 \\ -0.551724u^7 + 1.20690u^6 + \cdots - 4.75862u + 2.72414 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.655172u^7 - 1.62069u^6 + \cdots + 6.27586u - 3.17241 \\ -0.172414u^7 + 0.689655u^6 + \cdots - 2.86207u + 2.41379 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.448276u^7 + 0.206897u^6 + \cdots - 0.758621u + 3.72414 \\ 0.172414u^7 - 0.689655u^6 + \cdots + 2.86207u - 2.41379 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.448276u^7 + 0.206897u^6 + \cdots - 0.758621u + 3.72414 \\ 0.172414u^7 - 0.689655u^6 + \cdots + 2.86207u - 2.41379 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{48}{29}u^7 - \frac{76}{29}u^6 + \frac{74}{29}u^5 - \frac{70}{29}u^4 + \frac{110}{29}u^3 - \frac{218}{29}u^2 + \frac{298}{29}u - \frac{324}{29}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^4 - 4y^3 + 4y^2 + 4)^2$
c_2, c_4, c_7 c_9	$(y^2 + y - 1)^4$
c_3, c_5, c_6 c_8	$y^8 + 2y^6 + 3y^4 + 22y^2 + 1$
c_{11}	$(y^2 - 2y + 5)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.415941 + 1.202090I$ $a = 0.415941 + 0.584059I$ $b = -0.326993 - 0.326993I$	$0.82247 - 3.66386I$	$-8.00000 + 2.00000I$
$u = 0.415941 - 1.202090I$ $a = 0.415941 - 0.584059I$ $b = -0.326993 + 0.326993I$	$0.82247 + 3.66386I$	$-8.00000 - 2.00000I$
$u = 1.202090 + 0.415941I$ $a = 1.202090 - 0.202093I$ $b = 0.945027 + 0.945027I$	$0.82247 - 3.66386I$	$-8.00000 + 2.00000I$
$u = 1.202090 - 0.415941I$ $a = 1.202090 + 0.202093I$ $b = 0.945027 - 0.945027I$	$0.82247 + 3.66386I$	$-8.00000 - 2.00000I$
$u = -0.945027 + 0.945027I$ $a = -0.945027 - 0.673007I$ $b = -1.202090 + 0.415941I$	$0.82247 + 3.66386I$	$-8.00000 - 2.00000I$
$u = -0.945027 - 0.945027I$ $a = -0.945027 + 0.673007I$ $b = -1.202090 - 0.415941I$	$0.82247 - 3.66386I$	$-8.00000 + 2.00000I$
$u = 0.326993 + 0.326993I$ $a = 0.32699 + 1.94503I$ $b = -0.415941 - 1.202090I$	$0.82247 - 3.66386I$	$-8.00000 + 2.00000I$
$u = 0.326993 - 0.326993I$ $a = 0.32699 - 1.94503I$ $b = -0.415941 + 1.202090I$	$0.82247 + 3.66386I$	$-8.00000 - 2.00000I$

IV. $I_4^u =$
$\langle u^3+3u^2+3b+6u+7,\ -2u^3-21u^2+39a-57u-59,\ u^4+4u^3+9u^2+10u+13\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.0512821u^3+0.538462u^2+1.46154u+1.51282\\ -\frac{1}{3}u^3-u^2-2u-\frac{7}{3}\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0512821u^3+1.53846u^2+3.46154u+3.51282\\ -\frac{7}{3}u^3-8u^2-12u-\frac{46}{3}\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.230769u^3+0.923077u^2+1.07692u+0.307692\\ -\frac{2}{3}u^3-u^2-2u+\frac{1}{3}\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.307692u^3-1.23077u^2-3.76923u-5.07692\\ -\frac{4}{3}u^3-3u^2+u-\frac{10}{3}\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.0256410u^3-0.230769u^2-0.769231u-1.74359\\ 1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0256410u^3-0.230769u^2-0.769231u-0.743590\\ 1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.230769u^3-0.923077u^2-1.07692u-0.307692\\ -\frac{1}{3}u^3-u^2-u-\frac{1}{3}\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.435897u^3+1.07692u^2+0.923077u-1.64103\\ -\frac{1}{3}u^3-u^2-u-\frac{1}{3}\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.435897u^3+1.07692u^2+0.923077u-1.64103\\ -\frac{1}{3}u^3-u^2-u-\frac{1}{3}\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$(u^2 - 2u + 10)^2$
c_2, c_4, c_7 c_9	$(u^2 - u + 7)^2$
c_3, c_5, c_6 c_8	$u^4 - 4u^3 + 9u^2 - 10u + 13$
c_{11}	$(u+1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y^2 + 16y + 100)^2$
c_2, c_4, c_7 c_9	$(y^2 + 13y + 49)^2$
c_3, c_5, c_6 c_8	$y^4 + 2y^3 + 27y^2 + 134y + 169$
c_{11}	$(y - 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.13397 + 1.50000I$ $a = 0.16139 + 1.80695I$ $b = -0.13397 - 1.50000I$	13.1595	−6.00000
$u = -0.13397 - 1.50000I$ $a = 0.16139 - 1.80695I$ $b = -0.13397 + 1.50000I$	13.1595	−6.00000
$u = -1.86603 + 1.50000I$ $a = -0.238314 - 0.191568I$ $b = -1.86603 - 1.50000I$	13.1595	−6.00000
$u = -1.86603 - 1.50000I$ $a = -0.238314 + 0.191568I$ $b = -1.86603 + 1.50000I$	13.1595	−6.00000

V. $I_5^u = \langle b - u - 1,\ a - u - 1,\ u^2 + u + 1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} u+1 \\ u+1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 3u+2 \\ 2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -3u-3 \\ -2 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -2u-2 \\ -2u-1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u \\ -2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^2 + 13y + 49$
c_2, c_4, c_7 c_9, c_{11}	$(y+3)^2$
c_3, c_5, c_6 c_8	$y^2 + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0.500000 + 0.866025I$ $b = 0.500000 + 0.866025I$	9.86960	−9.00000
$u = -0.500000 - 0.866025I$ $a = 0.500000 - 0.866025I$ $b = 0.500000 - 0.866025I$	9.86960	−9.00000

VI. $I_6^u = \langle b+u,\ a+4u-9,\ u^2-2u-1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-4u+9\\-u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\2u+1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-3u+8\\2u+1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u-3\\-2u-1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-2u+4\\-2u-1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-2u+5\\0\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-2u+5\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u-3\\-u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}5u-12\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}5u-12\\u\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -52$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.414214$ $a = 10.6569$ $b = 0.414214$	-8.22467	-52.0000
$u = 2.41421$ $a = -0.656854$ $b = -2.41421$	-8.22467	-52.0000

VII. $I_7^u = \langle b + u - 1,\ 3a - 2u + 2,\ u^2 - u + 3\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} \frac{2}{3}u - \frac{2}{3} \\ -u + 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u - 3 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -\frac{2}{3}u - \frac{1}{3} \\ u + 2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{3}u + \frac{8}{3} \\ 2u - 7 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{3}u + \frac{2}{3} \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{3}u - \frac{1}{3} \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{2}{3}u + \frac{1}{3} \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{2}{3}u - \frac{5}{3} \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} \frac{2}{3}u - \frac{5}{3} \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$(y-4)^2$
c_2, c_4, c_7 c_9	$y^2 + y + 25$
c_3, c_5, c_6 c_8	$y^2 + 5y + 9$
c_{11}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.50000 + 1.65831I$ $a = -0.333333 + 1.105540I$ $b = 0.50000 - 1.65831I$	3.28987	-6.00000
$u = 0.50000 - 1.65831I$ $a = -0.333333 - 1.105540I$ $b = 0.50000 + 1.65831I$	3.28987	-6.00000

VIII. $I_8^u = \langle b+u+1,\ a,\ u^2+u+1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_2 = \begin{pmatrix} -u-1 \\ -1 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$	3.28987	−6.00000
$u = -0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$	3.28987	−6.00000

IX. $I^u_9 = \langle b+1,\ a+1,\ u-1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_8	$u - 1$
c_2, c_4, c_7 c_9, c_{11}	u
c_3, c_5, c_{10}	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_6, c_8, c_{10}	$y - 1$
c_2, c_4, c_7 c_9, c_{11}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -1.00000$ $b = -1.00000$	-3.28987	-12.0000

X. $I^u_{10} = \langle b + u - 1,\ a - u + 1,\ u^2 - u + 1\rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} u - 1 \\ -u + 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} u - 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{10}	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.500000 - 0.866025I$	0	-9.00000
$u = 0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.500000 + 0.866025I$	0	-9.00000

XI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u-1)^7(u+1)^2(u+2)^2(u^2-2u+10)^2(u^2+u+1)(u^2+u+7)$ $\cdot((u^4-2u^3+2)^2)(u^7+4u^6+\cdots+120u+24)$
c_2, c_4, c_7 c_9	$u(u+1)^2(u^2-2)(u^2+3)(u^2-u+1)(u^2-u+7)^2(u^2+3u+5)$ $\cdot((u^3-u^2-1)^2)(u^4+u^2-1)^2(u^7+u^6+\cdots-2u+2)$
c_3, c_5	$(u+1)(u^2-u+1)^2(u^2+u+1)(u^2+u+3)(u^2+2u-1)$ $\cdot(u^4-4u^3+9u^2-10u+13)(u^6+u^5-2u^4+2u^3-2u^2+4u-1)$ $\cdot(u^7-u^6+2u^5+3u^4+5u^3+3u^2+4u+1)$ $\cdot(u^8+2u^7+2u^6+2u^5+3u^4+6u^3+8u^2+4u+1)$
c_6, c_8	$(u-1)(u^2-2u-1)(u^2-u+1)(u^2+u+1)^2(u^2+u+3)$ $\cdot(u^4-4u^3+9u^2-10u+13)(u^6+u^5-2u^4+2u^3-2u^2+4u-1)$ $\cdot(u^7-u^6+2u^5+3u^4+5u^3+3u^2+4u+1)$ $\cdot(u^8-2u^7+2u^6-2u^5+3u^4-6u^3+8u^2-4u+1)$
c_{10}	$u^2(u-1)^8(u+1)(u+2)^2(u^2-2u+10)^2(u^2-u+7)(u^2+u+1)$ $\cdot((u^4+2u^3+2)^2)(u^7+4u^6+\cdots+120u+24)$
c_{11}	$u^3(u-1)^4(u+1)^6(u^2+3)(u^3-3u^2+4u-1)^2(u^4-2u^2+5)^2$ $\cdot(u^7+7u^6+28u^5+69u^4+106u^3+96u^2+48u+8)$

XII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^2(y-4)^2(y-1)^9(y^2+y+1)(y^2+13y+49)(y^2+16y+100)^2$ $\cdot (y^4-4y^3+4y^2+4)^2$ $\cdot (y^7+32y^6+390y^5+1996y^4+2385y^3-7060y^2+5088y-576)$
c_2, c_4, c_7 c_9	$y(y-2)^2(y-1)^2(y+3)^2(y^2+y-1)^4(y^2+y+1)(y^2+y+25)$ $\cdot (y^2+13y+49)^2(y^3-y^2-2y-1)^2$ $\cdot (y^7+15y^6+90y^5+207y^4+88y^3-144y^2+44y-4)$
c_3, c_5, c_6 c_8	$(y-1)(y^2-6y+1)(y^2+y+1)^3(y^2+5y+9)$ $\cdot (y^4+2y^3+27y^2+134y+169)(y^6-5y^5+\cdots-12y+1)$ $\cdot (y^7+3y^6+20y^5+25y^4+25y^3+25y^2+10y-1)$ $\cdot (y^8+2y^6+3y^4+22y^2+1)$
c_{11}	$y^3(y-1)^{10}(y+3)^2(y^2-2y+5)^4(y^3-y^2+10y-1)^2$ $\cdot (y^7+7y^6+30y^5-73y^4+564y^3-144y^2+768y-64)$