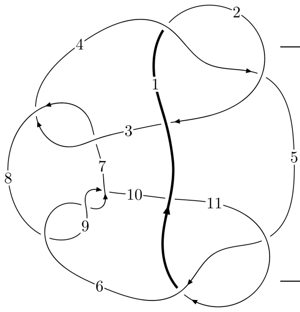
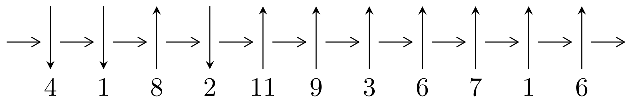
$11n_{76}$ ($K11n_{76}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & u^9 + u^8 - 6u^7 - 4u^6 + 12u^5 + u^4 - 8u^3 + 8u^2 + 2d - u, \\
& u^{10} + 2u^9 - 6u^8 - 12u^7 + 14u^6 + 21u^5 - 21u^4 - 5u^3 + 22u^2 + 2c - 10u, \\
& u^{10} + 2u^9 - 5u^8 - 10u^7 + 8u^6 + 11u^5 - 9u^4 + 4u^3 + 13u^2 + 4b + u,\ a - 1, \\
& u^{11} + 2u^{10} - 6u^9 - 12u^8 + 13u^7 + 21u^6 - 17u^5 - 7u^4 + 18u^3 - 3u^2 - u - 1\rangle \\
I_2^u = \langle & 3u^7 + 5u^6 - 3u^5 - u^4 + 3u^3 - 10u^2 + 4d - 9u - 2,\ 7u^7 + 9u^6 - 15u^5 - u^4 + 15u^3 - 34u^2 + 8c - 9u + 14, \\
& u^7 + u^6 - u^5 + u^4 + u^3 - 4u^2 + 2b - 3u,\ -u^7 - 3u^6 - 3u^5 + 3u^4 + 3u^3 - 6u^2 + 8a + 7u + 18, \\
& u^8 + u^7 - 3u^6 - u^5 + 3u^4 - 4u^3 - 3u^2 + 4u + 4\rangle \\
I_3^u = \langle & d + u,\ c,\ -au + b + a + 1,\ a^2 + a - u - 1,\ u^2 + u - 1\rangle \\
I_4^u = \langle & u^3 + d - u + 1,\ u^3 - u^2 + c,\ u^3 - u^2 + b - u + 2,\ -u^3 + a - 1,\ u^4 - u^3 + 2u - 1\rangle \\
I_5^u = \langle & d + u,\ c,\ b + u + 1,\ a - 1,\ u^2 + u - 1\rangle \\
I_6^u = \langle & d,\ c + 1,\ b,\ a + 1,\ u - 1\rangle \\
I_7^u = \langle & d,\ c - 1,\ b + 1,\ a,\ u - 1\rangle \\
I_8^u = \langle & d,\ cb + 1,\ a + 1,\ u - 1\rangle
\end{aligned}$$

$$I_1^v = \langle a,\ d,\ c - 1,\ b + 1,\ v - 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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

I. $\boldsymbol{I^u_1 = \langle u^9 + u^8 + \cdots + 2d - u,\ u^{10} + 2u^9 + \cdots + 2c - 10u,\ u^{10} + 2u^9 + \cdots + 4b + u,\ a - 1,\ u^{11} + 2u^{10} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{2}u^{10} - u^9 + \cdots - 11u^2 + 5u \\ -\frac{1}{2}u^9 - \frac{1}{2}u^8 + \cdots - 4u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ -\frac{1}{4}u^{10} - \frac{1}{2}u^9 + \cdots - \frac{13}{4}u^2 - \frac{1}{4}u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{10} - \frac{1}{2}u^9 + \cdots - 7u^2 + \frac{9}{2}u \\ -\frac{1}{2}u^9 - \frac{1}{2}u^8 + \cdots - 4u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{10} - \frac{3}{4}u^9 + \cdots + \frac{19}{4}u + \frac{3}{4} \\ -\frac{1}{2}u^{10} - \frac{3}{4}u^9 + \cdots + \frac{3}{4}u + \frac{1}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -\frac{1}{4}u^{10} - \frac{1}{2}u^9 + \cdots - \frac{9}{4}u^2 - \frac{1}{4}u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ \frac{1}{4}u^9 + \frac{1}{2}u^8 + \cdots + \frac{5}{4}u + \frac{1}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{10} + \frac{7}{2}u^9 - 4u^8 - \frac{45}{2}u^7 + u^6 + 47u^5 + \frac{3}{2}u^4 - \frac{71}{2}u^3 + 20u^2 + \frac{23}{2}u + \frac{1}{2}$

in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{11} - 2u^{10} + u^9 + 2u^8 - 5u^6 + 7u^5 + 6u^4 - 13u^3 + 3u^2 + 8u - 4$
c_2	$u^{11} + 2u^{10} + \cdots + 88u + 16$
c_3, c_7	$u^{11} + 2u^{10} - u^9 - 8u^8 - 11u^7 + 46u^5 + 76u^4 + 32u^3 - 12u^2 - 16u - 8$
c_5, c_6, c_8 c_9, c_{11}	$u^{11} + 2u^{10} + \cdots - u - 1$
c_{10}	$u^{11} - 16u^{10} + \cdots - 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{11} - 2y^{10} + \cdots + 88y - 16$
c_2	$y^{11} + 14y^{10} + \cdots + 2336y - 256$
c_3, c_7	$y^{11} - 6y^{10} + \cdots + 64y - 64$
c_5, c_6, c_8 c_9, c_{11}	$y^{11} - 16y^{10} + \cdots - 5y - 1$
c_{10}	$y^{11} - 36y^{10} + \cdots - 93y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.552760 + 0.641799I$ $a = 1.00000$ $b = 0.82545 - 1.53098I$ $c = 0.712390 + 0.815288I$ $d = 1.044080 + 0.152224I$	$0.79689 + 3.53286I$	$6.46290 - 7.08687I$
$u = 0.552760 - 0.641799I$ $a = 1.00000$ $b = 0.82545 + 1.53098I$ $c = 0.712390 - 0.815288I$ $d = 1.044080 - 0.152224I$	$0.79689 - 3.53286I$	$6.46290 + 7.08687I$
$u = 0.590824$ $a = 1.00000$ $b = -1.42161$ $c = 0.0396568$ $d = -0.620148$	0.987118	9.97440
$u = 1.64391 + 0.11631I$ $a = 1.00000$ $b = 0.437522 - 0.637453I$ $c = 0.234439 - 1.284060I$ $d = 0.24685 - 1.67120I$	$10.83450 + 3.51232I$	$10.06687 - 2.29315I$
$u = 1.64391 - 0.11631I$ $a = 1.00000$ $b = 0.437522 + 0.637453I$ $c = 0.234439 + 1.284060I$ $d = 0.24685 + 1.67120I$	$10.83450 - 3.51232I$	$10.06687 + 2.29315I$
$u = -1.60901 + 0.41639I$ $a = 1.00000$ $b = 0.32965 + 2.04536I$ $c = 0.194428 - 1.371430I$ $d = 1.57467 - 0.87175I$	$14.9243 - 12.3125I$	$9.62929 + 5.75829I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.60901 - 0.41639I$ $a = 1.00000$ $b = 0.32965 - 2.04536I$ $c = 0.194428 + 1.371430I$ $d = 1.57467 + 0.87175I$	$14.9243 + 12.3125I$	$9.62929 - 5.75829I$
$u = -0.162723 + 0.277330I$ $a = 1.00000$ $b = 0.160409 + 0.252652I$ $c = -0.22673 + 2.50982I$ $d = 0.267436 + 0.517187I$	$-1.66390 - 0.61823I$	$-3.63835 + 1.22407I$
$u = -0.162723 - 0.277330I$ $a = 1.00000$ $b = 0.160409 - 0.252652I$ $c = -0.22673 - 2.50982I$ $d = 0.267436 - 0.517187I$	$-1.66390 + 0.61823I$	$-3.63835 - 1.22407I$
$u = -1.72035 + 0.28600I$ $a = 1.00000$ $b = -0.04222 + 1.42193I$ $c = -0.434360 + 0.920646I$ $d = -1.82296 + 0.61164I$	$17.3830 - 4.9116I$	$11.49209 + 1.65700I$
$u = -1.72035 - 0.28600I$ $a = 1.00000$ $b = -0.04222 - 1.42193I$ $c = -0.434360 - 0.920646I$ $d = -1.82296 - 0.61164I$	$17.3830 + 4.9116I$	$11.49209 - 1.65700I$

II. $\boldsymbol{I_2^u = \langle 3u^7+5u^6+\cdots+4d-2,\ 7u^7+9u^6+\cdots+8c+14,\ u^7+u^6+\cdots+2b-3u,\ -u^7-3u^6+\cdots+8a+18,\ u^8+u^7+\cdots+4u+4\rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} -\frac{7}{8}u^7 - \frac{9}{8}u^6 + \cdots + \frac{9}{8}u - \frac{7}{4} \\ -\frac{3}{4}u^7 - \frac{5}{4}u^6 + \cdots + \frac{9}{4}u + \frac{1}{2} \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{8}u^7 + \frac{3}{8}u^6 + \cdots - \frac{7}{8}u - \frac{9}{4} \\ -\frac{1}{2}u^7 - \frac{1}{2}u^6 + \cdots + 2u^2 + \frac{3}{2}u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{1}{8}u^7 + \frac{1}{8}u^6 + \cdots - \frac{9}{8}u - \frac{9}{4} \\ -\frac{3}{4}u^7 - \frac{5}{4}u^6 + \cdots + \frac{9}{4}u + \frac{1}{2} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^7 + 2u^5 + \cdots - \frac{1}{2}u - \frac{5}{2} \\ -\frac{3}{4}u^7 - \frac{5}{4}u^6 + \cdots + \frac{13}{4}u + \frac{3}{2} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{8}u^7 + \frac{3}{8}u^6 + \cdots - \frac{7}{8}u - \frac{9}{4} \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^7 + u^6 + \cdots - \frac{5}{2}u + \frac{1}{2} \\ \frac{1}{4}u^7 + \frac{3}{4}u^6 + \cdots - \frac{7}{4}u - \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^7 + 6u^6 - 4u^5 + 6u^3 - 14u^2 - 14u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^4 - u^3 + u + 1)^2$
c_2	$(u^4 + u^3 + 4u^2 + u + 1)^2$
c_3, c_7	$(u^4 - 3u^3 + 3u^2 - 2u + 2)^2$
c_5, c_6, c_8 c_9, c_{11}	$u^8 + u^7 - 3u^6 - u^5 + 3u^4 - 4u^3 - 3u^2 + 4u + 4$
c_{10}	$u^8 - 7u^7 + 17u^6 - 17u^5 + 19u^4 - 50u^3 + 65u^2 - 40u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^4 - y^3 + 4y^2 - y + 1)^2$
c_2	$(y^4 + 7y^3 + 16y^2 + 7y + 1)^2$
c_3, c_7	$(y^4 - 3y^3 + y^2 + 8y + 4)^2$
c_5, c_6, c_8 c_9, c_{11}	$y^8 - 7y^7 + 17y^6 - 17y^5 + 19y^4 - 50y^3 + 65y^2 - 40y + 16$
c_{10}	$y^8 - 15y^7 + 89y^6 - 213y^5 + 343y^4 - 846y^3 + 833y^2 + 480y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.695289 + 0.428533I$ $a = -1.29532 - 0.84192I$ $b = -0.109976 - 0.519497I$ $c = -0.57622 - 2.77692I$ $d = 0.066121 - 0.864054I$	$2.62917 - 1.45022I$	$7.43990 + 4.72374I$
$u = -0.695289 - 0.428533I$ $a = -1.29532 + 0.84192I$ $b = -0.109976 + 0.519497I$ $c = -0.57622 + 2.77692I$ $d = 0.066121 + 0.864054I$	$2.62917 + 1.45022I$	$7.43990 - 4.72374I$
$u = 0.529919 + 1.081980I$ $a = -0.745137 + 1.110160I$ $b = -0.39002 + 1.84237I$ $c = -1.47609 - 1.17606I$ $d = -1.56612 - 0.45882I$	$8.06290 + 6.78371I$	$8.56010 - 4.72374I$
$u = 0.529919 - 1.081980I$ $a = -0.745137 - 1.110160I$ $b = -0.39002 - 1.84237I$ $c = -1.47609 + 1.17606I$ $d = -1.56612 + 0.45882I$	$8.06290 - 6.78371I$	$8.56010 + 4.72374I$
$u = 1.261410 + 0.030288I$ $a = -0.542730 + 0.352757I$ $b = -0.109976 - 0.519497I$ $c = 0.054288 - 0.560610I$ $d = 0.066121 - 0.864054I$	$2.62917 - 1.45022I$	$7.43990 + 4.72374I$
$u = 1.261410 - 0.030288I$ $a = -0.542730 - 0.352757I$ $b = -0.109976 + 0.519497I$ $c = 0.054288 + 0.560610I$ $d = 0.066121 + 0.864054I$	$2.62917 + 1.45022I$	$7.43990 - 4.72374I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.59604+0.21793I$ $a=-0.416815+0.621004I$ $b=-0.39002-1.84237I$ $c=-0.001980+0.777911I$ $d=-1.56612+0.45882I$	$8.06290-6.78371I$	$8.56010+4.72374I$
$u=-1.59604-0.21793I$ $a=-0.416815-0.621004I$ $b=-0.39002+1.84237I$ $c=-0.001980-0.777911I$ $d=-1.56612-0.45882I$	$8.06290+6.78371I$	$8.56010-4.72374I$

III. $I_3^u = \langle d+u,\ c,\ -au+b+a+1,\ a^2+a-u-1,\ u^2+u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0.866760$ $b = -1.33107$ $c = 0$ $d = -0.618034$	0.986960	10.0000
$u = 0.618034$ $a = -1.86676$ $b = -0.286961$ $c = 0$ $d = -0.618034$	0.986960	10.0000
$u = -1.61803$ $a = -0.500000 + 0.606658I$ $b = 0.30902 - 1.58825I$ $c = 0$ $d = 1.61803$	8.88264	10.0000
$u = -1.61803$ $a = -0.500000 - 0.606658I$ $b = 0.30902 + 1.58825I$ $c = 0$ $d = 1.61803$	8.88264	10.0000

IV.

$\boldsymbol{I_4^u = \langle u^3+d-u+1,\ u^3-u^2+c,\ u^3-u^2+b-u+2,\ -u^3+a-1,\ u^4-u^3+2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.15372$ $a = -0.535687$ $b = -0.286961$ $c = 2.86676$ $d = -0.618034$	0.986960	10.0000
$u = 0.809017 + 0.981593I$ $a = -0.809017 + 0.981593I$ $b = 0.30902 + 1.58825I$ $c = 1.50000 + 0.60666I$ $d = 1.61803$	8.88264	10.0000
$u = 0.809017 - 0.981593I$ $a = -0.809017 - 0.981593I$ $b = 0.30902 - 1.58825I$ $c = 1.50000 - 0.60666I$ $d = 1.61803$	8.88264	10.0000
$u = 0.535687$ $a = 1.15372$ $b = -1.33107$ $c = 0.133240$ $d = -0.618034$	0.986960	10.0000

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 1.00000$ $b = -1.61803$ $c = 0$ $d = -0.618034$	0.986960	10.0000
$u = -1.61803$ $a = 1.00000$ $b = 0.618034$ $c = 0$ $d = 1.61803$	8.88264	10.0000

VI. $I_6^u = \langle d,\ c+1,\ b,\ a+1,\ u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = 0$ $c = -1.00000$ $d = 0$	3.28987	12.0000

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

(i) Arc colorings

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

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

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

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_7	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -1.00000$ $c = 1.00000$ $d = 0$	0	0

VIII. $I^u_8 = \langle d,\ cb+1,\ a+1,\ u-1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} c-1 \\ b \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -c^2 - b^2 + 8$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	1.64493	$8.06956 - 0.34732I$

IX. $I_1^v = \langle a,\ d,\ c-1,\ b+1,\ v-1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$		
$a = 0$		
$b = -1.00000$	0	0
$c = 1.00000$		
$d = 0$		

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u-1)^2(u^2+u-1)(u^4-u^3+u+1)^2(u^4-u^3+2u-1)^2$ $\cdot(u^{11}-2u^{10}+u^9+2u^8-5u^6+7u^5+6u^4-13u^3+3u^2+8u-4)$
c_2	$u(u+1)^2(u^2+3u+1)(u^4+u^3+2u^2+4u+1)^2$ $\cdot((u^4+u^3+4u^2+u+1)^2)(u^{11}+2u^{10}+\cdots+88u+16)$
c_3, c_7	$u^3(u^2+u-1)^5(u^4-3u^3+3u^2-2u+2)^2$ $\cdot(u^{11}+2u^{10}-u^9-8u^8-11u^7+46u^5+76u^4+32u^3-12u^2-16u-8)$
c_4	$u(u+1)^2(u^2+u-1)(u^4-u^3+u+1)^2(u^4-u^3+2u-1)^2$ $\cdot(u^{11}-2u^{10}+u^9+2u^8-5u^6+7u^5+6u^4-13u^3+3u^2+8u-4)$
c_5, c_{11}	$u(u-1)(u+1)(u^2+u-1)^3(u^4-u^3+2u-1)$ $\cdot(u^8+u^7+\cdots+4u+4)(u^{11}+2u^{10}+\cdots-u-1)$
c_6	$u(u+1)^2(u^2+u-1)^3(u^4-u^3+2u-1)$ $\cdot(u^8+u^7+\cdots+4u+4)(u^{11}+2u^{10}+\cdots-u-1)$
c_8, c_9	$u(u-1)^2(u^2+u-1)^3(u^4-u^3+2u-1)$ $\cdot(u^8+u^7+\cdots+4u+4)(u^{11}+2u^{10}+\cdots-u-1)$
c_{10}	$u(u+1)^2(u^2-3u+1)^3(u^4-u^3+2u^2-4u+1)$ $\cdot(u^8-7u^7+17u^6-17u^5+19u^4-50u^3+65u^2-40u+16)$ $\cdot(u^{11}-16u^{10}+\cdots-5u-1)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y(y-1)^2(y^2-3y+1)(y^4-y^3+2y^2-4y+1)^2$ $\cdot((y^4-y^3+4y^2-y+1)^2)(y^{11}-2y^{10}+\cdots+88y-16)$
c_2	$y(y-1)^2(y^2-7y+1)(y^4+3y^3-2y^2-12y+1)^2$ $\cdot((y^4+7y^3+16y^2+7y+1)^2)(y^{11}+14y^{10}+\cdots+2336y-256)$
c_3, c_7	$y^3(y^2-3y+1)^5(y^4-3y^3+y^2+8y+4)^2$ $\cdot(y^{11}-6y^{10}+\cdots+64y-64)$
c_5, c_6, c_8 c_9, c_{11}	$y(y-1)^2(y^2-3y+1)^3(y^4-y^3+2y^2-4y+1)$ $\cdot(y^8-7y^7+17y^6-17y^5+19y^4-50y^3+65y^2-40y+16)$ $\cdot(y^{11}-16y^{10}+\cdots-5y-1)$
c_{10}	$y(y-1)^2(y^2-7y+1)^3(y^4+3y^3-2y^2-12y+1)$ $\cdot(y^8-15y^7+89y^6-213y^5+343y^4-846y^3+833y^2+480y+256)$ $\cdot(y^{11}-36y^{10}+\cdots-93y-1)$