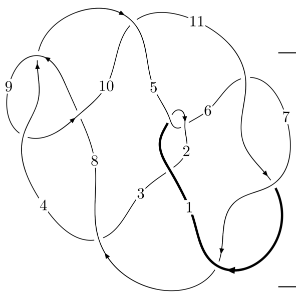
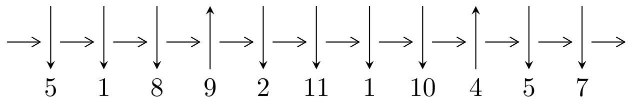
$11n_{104}$ ($K11n_{104}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b - u,\ u^6 - 2u^5 - 9u^4 + 28u^3 - u^2 + 8a + 14u + 1,\ u^8 - 2u^7 - 10u^6 + 30u^5 + 8u^4 - 14u^3 + 2u^2 + 2u - 1\rangle$$
$$I_2^u = \langle b - 1,\ a^4 - 4a^3 + 4a^2 + 1,\ u + 1\rangle$$
$$I_3^u = \langle b + 1,\ a^3 + 3a^2 + 3a + 1,\ u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 15 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.

$$\boldsymbol{I_1^u = \langle b-u,\ u^6-2u^5-9u^4+28u^3-u^2+8a+14u+1,\ u^8-2u^7+\cdots+2u-1\rangle}$$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-\frac{1}{8}u^6+\frac{1}{4}u^5+\cdots-\frac{7}{4}u-\frac{1}{8}\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-\frac{1}{8}u^6+\frac{1}{4}u^5+\cdots-\frac{11}{4}u-\frac{1}{8}\\u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}\frac{1}{8}u^7-\frac{1}{4}u^6+\cdots+\frac{1}{8}u+1\\-u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}\frac{1}{8}u^7-\frac{1}{4}u^6+\cdots+\frac{1}{8}u+1\\-\frac{1}{8}u^7+\frac{1}{4}u^6+\cdots-\frac{7}{4}u^2-\frac{1}{8}u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-\frac{5}{8}u^7+\frac{15}{8}u^6+\cdots-\frac{65}{8}u+\frac{13}{8}\\\frac{1}{2}u^7-\frac{11}{8}u^6+\cdots+4u-\frac{9}{8}\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-\frac{5}{8}u^7+\frac{11}{8}u^6+\cdots-\frac{9}{8}u+\frac{9}{8}\\\frac{1}{8}u^7-\frac{1}{4}u^6+\cdots+\frac{7}{4}u^2+\frac{1}{8}u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-\frac{5}{8}u^7+\frac{11}{8}u^6+\cdots-\frac{9}{8}u+\frac{9}{8}\\\frac{1}{8}u^7-\frac{1}{4}u^6+\cdots+\frac{7}{4}u^2+\frac{1}{8}u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1}{2}u^7-\frac{11}{4}u^6-\frac{1}{2}u^5+\frac{121}{4}u^4-\frac{115}{2}u^3+\frac{43}{4}u^2+\frac{43}{2}u-\frac{65}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_7, c_{11}	$u^8 + 2u^7 - 10u^6 - 30u^5 + 8u^4 + 14u^3 + 2u^2 - 2u - 1$
c_2	$u^8 + 24u^7 + 236u^6 + 1112u^5 + 870u^4 + 264u^3 + 44u^2 + 8u + 1$
c_3, c_{10}	$u^8 - 4u^7 - 12u^6 + 70u^5 - 54u^4 - 46u^3 + 38u^2 + 10u + 10$
c_4, c_9	$u^8 + 4u^7 + 10u^6 + 16u^5 + 18u^4 + 16u^3 + 10u^2 + 6u + 2$
c_8	$u^8 + 4u^7 + 8u^6 - 4u^5 - 32u^4 - 48u^3 - 20u^2 + 4u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_7, c_{11}	$y^8 - 24y^7 + 236y^6 - 1112y^5 + 870y^4 - 264y^3 + 44y^2 - 8y + 1$
c_2	$y^8 - 104y^7 + \cdots + 24y + 1$
c_3, c_{10}	$y^8 - 40y^7 + \cdots + 660y + 100$
c_4, c_9	$y^8 + 4y^7 + 8y^6 - 4y^5 - 32y^4 - 48y^3 - 20y^2 + 4y + 4$
c_8	$y^8 + 32y^6 - 184y^5 + 296y^4 - 928y^3 + 528y^2 - 176y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.594812+0.065631I$ $a=\ \ 1.77892-0.41529I$ $b=-0.594812+0.065631I$	$-4.20158+3.92770I$	$-10.18918-5.00146I$
$u=-0.594812-0.065631I$ $a=\ \ 1.77892+0.41529I$ $b=-0.594812-0.065631I$	$-4.20158-3.92770I$	$-10.18918+5.00146I$
$u=\ \ 0.495898$ $a=-1.31523$ $b=\ \ 0.495898$	-1.19322	-8.17950
$u=\ \ 0.279091+0.329009I$ $a=-0.414734-0.712553I$ $b=\ \ 0.279091+0.329009I$	$-0.535301-1.039080I$	$-7.61110+6.36007I$
$u=\ \ 0.279091-0.329009I$ $a=-0.414734+0.712553I$ $b=\ \ 0.279091-0.329009I$	$-0.535301+1.039080I$	$-7.61110-6.36007I$
$u=\ \ 2.73980+1.24096I$ $a=\ \ 0.621831-0.351657I$ $b=\ \ 2.73980+1.24096I$	$11.45110-7.34942I$	$-11.27453+2.75920I$
$u=\ \ 2.73980-1.24096I$ $a=\ \ 0.621831+0.351657I$ $b=\ \ 2.73980-1.24096I$	$11.45110+7.34942I$	$-11.27453-2.75920I$
$u=-3.34406$ $a=-0.656809$ $b=-3.34406$	15.7287	-9.67090

II. $I_2^u = \langle b-1,\ a^4-4a^3+4a^2+1,\ u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a^2-8a-16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -0.098684 + 0.455090I$ $b = \quad 1.00000$	$-5.75727 + 3.66386I$	$-16.0000 - 4.0000I$
$u = -1.00000$ $a = -0.098684 - 0.455090I$ $b = \quad 1.00000$	$-5.75727 - 3.66386I$	$-16.0000 + 4.0000I$
$u = -1.00000$ $a = \quad 2.09868 + 0.45509I$ $b = \quad 1.00000$	$-5.75727 - 3.66386I$	$-16.0000 + 4.0000I$
$u = -1.00000$ $a = \quad 2.09868 - 0.45509I$ $b = \quad 1.00000$	$-5.75727 + 3.66386I$	$-16.0000 - 4.0000I$

III. $I_3^u = \langle b+1,\ a^3+3a^2+3a+1,\ u-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a^2+8a-8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = -1.00000$	-3.28987	-12.0000
$u = 1.00000$ $a = -1.00000$ $b = -1.00000$	-3.28987	-12.0000
$u = 1.00000$ $a = -1.00000$ $b = -1.00000$	-3.28987	-12.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6, c_7	$((u-1)^3)(u+1)^4(u^8+2u^7+\cdots-2u-1)$
c_2	$(u+1)^7$ $\cdot(u^8+24u^7+236u^6+1112u^5+870u^4+264u^3+44u^2+8u+1)$
c_3, c_{10}	$u^3(u^4-2u^2+2)$ $\cdot(u^8-4u^7-12u^6+70u^5-54u^4-46u^3+38u^2+10u+10)$
c_4, c_9	$u^3(u^4+2u^2+2)(u^8+4u^7+\cdots+6u+2)$
c_5, c_{11}	$((u-1)^4)(u+1)^3(u^8+2u^7+\cdots-2u-1)$
c_8	$u^3(u^2-2u+2)^2(u^8+4u^7+\cdots+4u+4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_7, c_{11}	$(y-1)^7$ $\cdot (y^8 - 24y^7 + 236y^6 - 1112y^5 + 870y^4 - 264y^3 + 44y^2 - 8y + 1)$
c_2	$((y-1)^7)(y^8 - 104y^7 + \cdots + 24y + 1)$
c_3, c_{10}	$y^3(y^2 - 2y + 2)^2(y^8 - 40y^7 + \cdots + 660y + 100)$
c_4, c_9	$y^3(y^2 + 2y + 2)^2(y^8 + 4y^7 + \cdots + 4y + 4)$
c_8	$y^3(y^2 + 4)^2(y^8 + 32y^6 + \cdots - 176y + 16)$