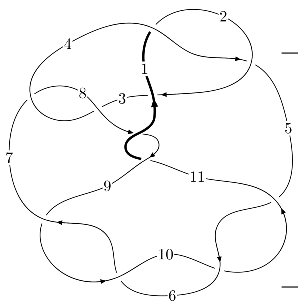
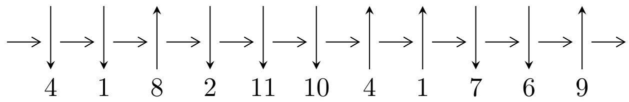
$11n_{79}$ ($K11n_{79}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle &-u^{10} - u^9 + 9u^8 + 4u^7 - 32u^6 + u^5 + 46u^4 - 13u^3 - 12u^2 + 4b - 5u, \\ &u^{10} + 2u^9 - 8u^8 - 13u^7 + 28u^6 + 31u^5 - 47u^4 - 33u^3 + 25u^2 + 4a + 17u + 5, \\ &u^{11} + 5u^{10} + 2u^9 - 21u^8 - 15u^7 + 43u^6 + 30u^5 - 30u^4 - 18u^3 - 12u^2 - 1\rangle \\ I_2^u = \langle &b^4 + b^3 + b^2 + 1,\ a,\ u - 1\rangle \end{aligned}$$

* 2 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.

$$I_1^u = \langle -u^{10} - u^9 + \cdots + 4b - 5u,\ u^{10} + 2u^9 + \cdots + 4a + 5,\ u^{11} + 5u^{10} + \cdots - 12u^2 - 1 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{4}u^{10} - \frac{1}{2}u^9 + \cdots - \frac{17}{4}u - \frac{5}{4} \\ \frac{1}{4}u^{10} + \frac{1}{4}u^9 + \cdots + 3u^2 + \frac{5}{4}u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{4}u^9 - \frac{1}{4}u^8 + \cdots - 3u - \frac{5}{4} \\ \frac{1}{4}u^{10} + \frac{1}{4}u^9 + \cdots + 3u^2 + \frac{5}{4}u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -\frac{1}{4}u^{10} - \frac{1}{2}u^9 + \cdots - \frac{17}{4}u - \frac{5}{4} \\ -u^{10} - \frac{13}{4}u^9 + \cdots + u + \frac{3}{4} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{3}{4}u^{10} - \frac{13}{4}u^9 + \cdots - \frac{3}{4}u - \frac{1}{2} \\ -\frac{1}{2}u^{10} - \frac{3}{2}u^9 + \cdots + 8u^2 + \frac{1}{2} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{4}u^{10} + \frac{5}{4}u^9 + \cdots - \frac{17}{4}u - \frac{1}{2} \\ -\frac{1}{8}u^{10} - \frac{1}{4}u^9 + \cdots + \frac{11}{8}u - \frac{1}{8} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{8}u^{10} + \frac{1}{2}u^9 + \cdots - \frac{15}{8}u + \frac{15}{8} \\ \frac{1}{8}u^{10} + \frac{1}{2}u^9 + \cdots - \frac{7}{8}u - \frac{1}{8} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{8}u^{10} + \frac{1}{2}u^9 + \cdots - \frac{15}{8}u + \frac{15}{8} \\ \frac{1}{8}u^{10} + \frac{1}{2}u^9 + \cdots - \frac{7}{8}u - \frac{1}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{5}{4}u^{10} - \frac{31}{4}u^9 - \frac{29}{4}u^8 + \frac{63}{2}u^7 + 39u^6 - \frac{271}{4}u^5 - 71u^4 + \frac{211}{4}u^3 + \frac{65}{2}u^2 + \frac{91}{4}u + \frac{1}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{11} - 5u^{10} + \cdots + 12u^2 + 1$
c_2	$u^{11} + 21u^{10} + \cdots - 24u + 1$
c_3, c_7	$u^{11} - u^{10} + \cdots + 8u + 16$
c_5, c_6, c_9 c_{10}	$u^{11} - 2u^{10} + \cdots + 2u - 1$
c_8, c_{11}	$u^{11} + 12u^9 + 38u^7 - 2u^6 + 14u^5 - 12u^4 + 13u^3 - u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{11} - 21y^{10} + \cdots - 24y - 1$
c_2	$y^{11} - 73y^{10} + \cdots + 168y - 1$
c_3, c_7	$y^{11} + 27y^{10} + \cdots + 320y - 256$
c_5, c_6, c_9 c_{10}	$y^{11} + 12y^{10} + \cdots + 2y - 1$
c_8, c_{11}	$y^{11} + 24y^{10} + \cdots + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.22744$ $a = -0.642449$ $b = 0.354025$	-2.29341	-5.45610
$u = 1.28076 + 0.60275I$ $a = 0.935338 + 0.483017I$ $b = -0.499697 - 0.386367I$	$1.86679 - 1.71507I$	$-2.68555 + 1.25777I$
$u = 1.28076 - 0.60275I$ $a = 0.935338 - 0.483017I$ $b = -0.499697 + 0.386367I$	$1.86679 + 1.71507I$	$-2.68555 - 1.25777I$
$u = -0.286174 + 0.444607I$ $a = 1.20455 + 0.84468I$ $b = 0.542271 - 0.749372I$	$6.37335 - 2.43510I$	$2.89338 + 1.98880I$
$u = -0.286174 - 0.444607I$ $a = 1.20455 - 0.84468I$ $b = 0.542271 + 0.749372I$	$6.37335 + 2.43510I$	$2.89338 - 1.98880I$
$u = 0.069460 + 0.264957I$ $a = -1.23197 - 1.54081I$ $b = -0.189666 + 0.452281I$	$-0.058810 - 0.998414I$	$-1.10999 + 6.77459I$
$u = 0.069460 - 0.264957I$ $a = -1.23197 + 1.54081I$ $b = -0.189666 - 0.452281I$	$-0.058810 + 0.998414I$	$-1.10999 - 6.77459I$
$u = -2.04088 + 0.26755I$ $a = -0.131689 - 1.255590I$ $b = -0.04048 + 2.41762I$	$-10.35590 + 6.75197I$	$-2.99345 - 2.75276I$
$u = -2.04088 - 0.26755I$ $a = -0.131689 + 1.255590I$ $b = -0.04048 - 2.41762I$	$-10.35590 - 6.75197I$	$-2.99345 + 2.75276I$
$u = -2.13689 + 0.09549I$ $a = 0.044998 + 1.293010I$ $b = 0.01056 - 2.42567I$	$-17.2404 + 2.6821I$	$-5.87634 - 2.38377I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -2.13689 - 0.09549I$ $a = 0.044998 - 1.293010I$ $b = 0.01056 + 2.42567I$	$-17.2404 - 2.6821I$	$-5.87634 + 2.38377I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4b^2 - 3b - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = 0.351808 + 0.720342I$	$-1.85594 + 1.41510I$	$-4.47493 - 4.18840I$
$u = 1.00000$ $a = 0$ $b = 0.351808 - 0.720342I$	$-1.85594 - 1.41510I$	$-4.47493 + 4.18840I$
$u = 1.00000$ $a = 0$ $b = -0.851808 + 0.911292I$	$5.14581 - 3.16396I$	$-2.02507 + 3.47609I$
$u = 1.00000$ $a = 0$ $b = -0.851808 - 0.911292I$	$5.14581 + 3.16396I$	$-2.02507 - 3.47609I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{11}-5u^{10}+\cdots+12u^2+1)$
c_2	$((u+1)^4)(u^{11}+21u^{10}+\cdots-24u+1)$
c_3, c_7	$u^4(u^{11}-u^{10}+\cdots+8u+16)$
c_4	$((u+1)^4)(u^{11}-5u^{10}+\cdots+12u^2+1)$
c_5, c_6	$(u^4-u^3+3u^2-2u+1)(u^{11}-2u^{10}+\cdots+2u-1)$
c_8	$(u^4-u^3+u^2+1)(u^{11}+12u^9+\cdots-u^2+1)$
c_9, c_{10}	$(u^4+u^3+3u^2+2u+1)(u^{11}-2u^{10}+\cdots+2u-1)$
c_{11}	$(u^4+u^3+u^2+1)(u^{11}+12u^9+\cdots-u^2+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^4)(y^{11} - 21y^{10} + \cdots - 24y - 1)$
c_2	$((y-1)^4)(y^{11} - 73y^{10} + \cdots + 168y - 1)$
c_3, c_7	$y^4(y^{11} + 27y^{10} + \cdots + 320y - 256)$
c_5, c_6, c_9 c_{10}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)(y^{11} + 12y^{10} + \cdots + 2y - 1)$
c_8, c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{11} + 24y^{10} + \cdots + 2y - 1)$