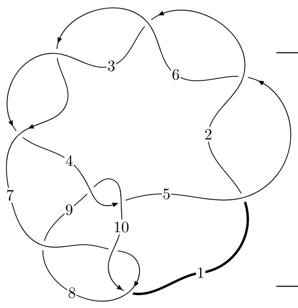
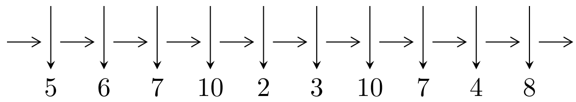
10_{124} $(K10n_{21})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b+u,\ a+u+1,\ u^2+u-1\rangle$$
$$I_2^u = \langle b-u,\ a-u+1,\ u^2-3u+1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 4 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. $\boldsymbol{I_1^u = \langle b+u,\ a+u+1,\ u^2+u-1\rangle}$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.61803$ $b = -0.618034$	-2.63189	-15.0000
$u = -1.61803$ $a = 0.618034$ $b = 1.61803$	-10.5276	-15.0000

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 3u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u - 1 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -3u + 1 \\ -4u + 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -3u + 2 \\ -3u + 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -6u + 3 \\ -7u + 3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 12u - 4 \\ 15u - 6 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -3u + 1 \\ -25u + 10 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -15$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6	$u^2 + 3u + 1$
c_4, c_9	$u^2 - 8u - 4$
c_7, c_{10}	$u^2 - 4u - 1$
c_8	$u^2 + 18u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6	$y^2 - 7y + 1$
c_4, c_9	$y^2 - 72y + 16$
c_7, c_{10}	$y^2 - 18y + 1$
c_8	$y^2 - 322y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.381966$ $a = -0.618034$ $b = 0.381966$	-0.657974	-15.0000
$u = 2.61803$ $a = 1.61803$ $b = 2.61803$	7.23771	-15.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3	$(u^2+u-1)(u^2+3u+1)$
c_4, c_9	$u^2(u^2-8u-4)$
c_5, c_6	$(u^2-u-1)(u^2+3u+1)$
c_7	$(u-1)^2(u^2-4u-1)$
c_8	$(u+1)^2(u^2+18u+1)$
c_{10}	$(u+1)^2(u^2-4u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6	$(y^2 - 7y + 1)(y^2 - 3y + 1)$
c_4, c_9	$y^2(y^2 - 72y + 16)$
c_7, c_{10}	$(y-1)^2(y^2 - 18y + 1)$
c_8	$(y-1)^2(y^2 - 322y + 1)$