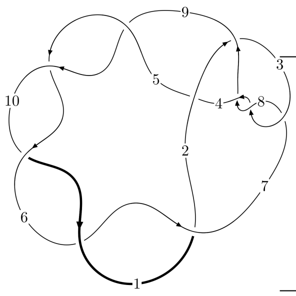
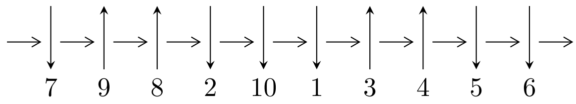
10_9 $(K10a_{110})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{18} - 2u^{17} + \cdots - u + 1 \rangle$$
$$I_2^u = \langle u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 19 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. $I_1^u = \langle u^{18} - 2u^{17} - 10u^{16} + 21u^{15} + 37u^{14} - 85u^{13} - 59u^{12} + 166u^{11} + 27u^{10} - 160u^9 + 30u^8 + 65u^7 - 39u^6 + 5u^5 + 9u^4 - 7u^3 + 2u^2 - u + 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_2 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^7 + 4u^5 - 4u^3 + 2u \\ -u^9 + 5u^7 - 7u^5 + 2u^3 + u \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -2u^{17} + u^{16} + \cdots - u + 2 \\ -3u^{17} + u^{16} + \cdots + 3u^2 + 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{15} + 40u^{13} - 152u^{11} + 4u^{10} + 272u^9 - 28u^8 - 232u^7 + 64u^6 + 84u^5 - 52u^4 + 12u^2 - 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9, c_{10}	$u^{18} - 2u^{17} + \cdots - u + 1$
c_2	$u^{18} - 3u^{17} + \cdots + 3u - 3$
c_3, c_7, c_8	$u^{18} - 8u^{16} + \cdots - u + 1$
c_4	$u^{18} - 4u^{17} + \cdots - 5u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9, c_{10}	$y^{18} - 24y^{17} + \cdots + 3y + 1$
c_2	$y^{18} + 3y^{17} + \cdots - 39y + 9$
c_3, c_7, c_8	$y^{18} - 16y^{17} + \cdots + 3y + 1$
c_4	$y^{18} + 22y^{16} + \cdots - 65y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.972680 + 0.237177I$	$-3.70552 - 3.19755I$	$-8.61366 + 5.32391I$
$u = \ \ 0.972680 - 0.237177I$	$-3.70552 + 3.19755I$	$-8.61366 - 5.32391I$
$u = -0.965445 + 0.329507I$	$1.32984 + 6.64718I$	$-3.24506 - 6.19689I$
$u = -0.965445 - 0.329507I$	$1.32984 - 6.64718I$	$-3.24506 + 6.19689I$
$u = -0.884294$	-1.71487	-4.98730
$u = \ \ 0.572262 + 0.347341I$	$3.49531 + 0.56492I$	$-0.70794 + 1.84066I$
$u = \ \ 0.572262 - 0.347341I$	$3.49531 - 0.56492I$	$-0.70794 - 1.84066I$
$u = \ \ 0.158501 + 0.549521I$	$4.78286 - 3.66002I$	$2.48971 + 4.64953I$
$u = \ \ 0.158501 - 0.549521I$	$4.78286 + 3.66002I$	$2.48971 - 4.64953I$
$u = -0.184698 + 0.383796I$	$-0.150453 + 1.027520I$	$-2.68106 - 6.45577I$
$u = -0.184698 - 0.383796I$	$-0.150453 - 1.027520I$	$-2.68106 + 6.45577I$
$u = -1.62858$	-3.96483	-2.02740
$u = \ \ 1.70718 + 0.02414I$	$-11.15470 - 0.27346I$	$-6.21894 - 1.07083I$
$u = \ \ 1.70718 - 0.02414I$	$-11.15470 + 0.27346I$	$-6.21894 + 1.07083I$
$u = \ \ 1.70822 + 0.08549I$	$-8.11334 - 8.29410I$	$-4.53964 + 4.66449I$
$u = \ \ 1.70822 - 0.08549I$	$-8.11334 + 8.29410I$	$-4.53964 - 4.66449I$
$u = -1.71227 + 0.06112I$	$-13.25300 + 4.38839I$	$-8.97609 - 3.55329I$
$u = -1.71227 - 0.06112I$	$-13.25300 - 4.38839I$	$-8.97609 + 3.55329I$

II. $I_2^u = \langle u+1 \rangle$

(i) Arc colorings

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

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

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

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

$a_2 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(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_{10}	$y - 1$
c_2	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$	-1.64493	-6.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_9, c_{10}	$(u+1)(u^{18} - 2u^{17} + \cdots - u + 1)$
c_2	$u(u^{18} - 3u^{17} + \cdots + 3u - 3)$
c_3, c_7, c_8	$(u+1)(u^{18} - 8u^{16} + \cdots - u + 1)$
c_4	$(u-1)(u^{18} - 4u^{17} + \cdots - 5u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_9, c_{10}	$(y-1)(y^{18} - 24y^{17} + \cdots + 3y + 1)$
c_2	$y(y^{18} + 3y^{17} + \cdots - 39y + 9)$
c_3, c_7, c_8	$(y-1)(y^{18} - 16y^{17} + \cdots + 3y + 1)$
c_4	$(y-1)(y^{18} + 22y^{16} + \cdots - 65y + 1)$