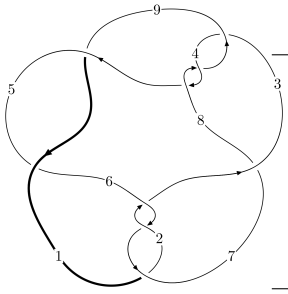
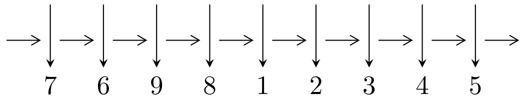
9_{10} $(K9a_{39})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^6 + 3u^4 + u^3 + 2u^2 + 2u - 1 \rangle$$
$$I_2^u = \langle u^{10} - u^9 + 4u^8 - 4u^7 + 6u^6 - 6u^5 + 3u^4 - 3u^3 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 16 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. $I_1^u = \langle u^6 + 3u^4 + u^3 + 2u^2 + 2u - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^5 - 4u^4 - 8u^3 - 12u^2 - 4u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$u^6 + 3u^4 - u^3 + 2u^2 - 2u - 1$
c_5, c_7, c_9	$u^6 - 3u^5 + 2u^4 - u^3 + 5u^2 - 3u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$y^6 + 6y^5 + 13y^4 + 9y^3 - 6y^2 - 8y + 1$
c_5, c_7, c_9	$y^6 - 5y^5 + 8y^4 - 3y^3 + 11y^2 - 29y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.841864$	-6.52764	-14.6820
$u = -0.126468 + 1.352400I$	$8.36373 + 3.39374I$	$-1.63982 - 3.51762I$
$u = -0.126468 - 1.352400I$	$8.36373 - 3.39374I$	$-1.63982 + 3.51762I$
$u = \quad 0.376468 + 1.319680I$	$1.76812 - 8.77346I$	$-6.43784 + 5.90094I$
$u = \quad 0.376468 - 1.319680I$	$1.76812 + 8.77346I$	$-6.43784 - 5.90094I$
$u = \quad 0.341865$	-0.576591	-17.1630

II. $I_2^u = \langle u^{10} - u^9 + 4u^8 - 4u^7 + 6u^6 - 6u^5 + 3u^4 - 3u^3 + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^9 + 12u^7 + 12u^5 - 4u^3 - 8u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$u^{10} + u^9 + 4u^8 + 4u^7 + 6u^6 + 6u^5 + 3u^4 + 3u^3 + 1$
c_5, c_7, c_9	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$y^{10} + 7y^9 + 20y^8 + 26y^7 + 6y^6 - 22y^5 - 19y^4 + 3y^3 + 6y^2 + 1$
c_5, c_7, c_9	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.839548 + 0.070481I$	$-2.58269 - 4.40083I$	$-10.74431 + 3.49859I$
$u = 0.839548 - 0.070481I$	$-2.58269 + 4.40083I$	$-10.74431 - 3.49859I$
$u = 0.090539 + 1.215350I$	$2.96077 - 1.53058I$	$-6.51511 + 4.43065I$
$u = 0.090539 - 1.215350I$	$2.96077 + 1.53058I$	$-6.51511 - 4.43065I$
$u = 0.383413 + 1.200420I$	0.888787	$-7.48114 + 0.I$
$u = 0.383413 - 1.200420I$	0.888787	$-7.48114 + 0.I$
$u = -0.383851 + 1.270630I$	$-2.58269 + 4.40083I$	$-10.74431 - 3.49859I$
$u = -0.383851 - 1.270630I$	$-2.58269 - 4.40083I$	$-10.74431 + 3.49859I$
$u = -0.429649 + 0.392970I$	$2.96077 + 1.53058I$	$-6.51511 - 4.43065I$
$u = -0.429649 - 0.392970I$	$2.96077 - 1.53058I$	$-6.51511 + 4.43065I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$(u^6 + 3u^4 - u^3 + 2u^2 - 2u - 1)$ $\cdot (u^{10} + u^9 + 4u^8 + 4u^7 + 6u^6 + 6u^5 + 3u^4 + 3u^3 + 1)$
c_5, c_7, c_9	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2(u^6 - 3u^5 + 2u^4 - u^3 + 5u^2 - 3u - 2)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_6, c_8	$(y^6 + 6y^5 + 13y^4 + 9y^3 - 6y^2 - 8y + 1)$ $\cdot (y^{10} + 7y^9 + 20y^8 + 26y^7 + 6y^6 - 22y^5 - 19y^4 + 3y^3 + 6y^2 + 1)$
c_5, c_7, c_9	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$ $\cdot (y^6 - 5y^5 + 8y^4 - 3y^3 + 11y^2 - 29y + 4)$