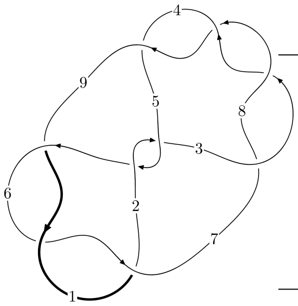
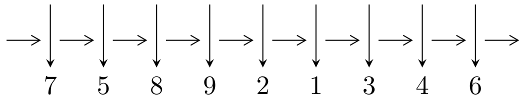
9_9 $(K9a_{33})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{15} - u^{14} - 6u^{13} + 5u^{12} + 14u^{11} - 8u^{10} - 14u^9 + u^8 + 2u^7 + 8u^6 + 6u^5 - 4u^4 - 2u^3 - 2u^2 - 2u + 1\rangle$$

* 1 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. $\boldsymbol{I_1^u = \langle u^{15} - u^{14} - 6u^{13} + 5u^{12} + 14u^{11} - 8u^{10} - 14u^9 + u^8 + 2u^7 + 8u^6 + 6u^5 - 4u^4 - 2u^3 - 2u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -4u^{12} + 20u^{10} + 4u^9 - 36u^8 - 16u^7 + 20u^6 + 20u^5 + 12u^4 - 4u^3 - 12u^2 - 4u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_9	$u^{15} + u^{14} + \cdots - 2u - 1$
c_2, c_5	$u^{15} - 3u^{14} + \cdots + 4u^2 - 1$
c_3, c_4, c_7 c_8	$u^{15} - u^{14} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9	$y^{15} - 13y^{14} + \cdots + 8y - 1$
c_2, c_5	$y^{15} + 7y^{14} + \cdots + 8y - 1$
c_3, c_4, c_7 c_8	$y^{15} - 17y^{14} + \cdots + 8y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.897290 + 0.288232I$	$-6.76384 - 0.15908I$	$-13.79403 - 0.85194I$
$u = -0.897290 - 0.288232I$	$-6.76384 + 0.15908I$	$-13.79403 + 0.85194I$
$u = -0.200931 + 0.760138I$	$-4.52273 + 4.11725I$	$-10.59688 - 3.71929I$
$u = -0.200931 - 0.760138I$	$-4.52273 - 4.11725I$	$-10.59688 + 3.71929I$
$u = 1.224710 + 0.250895I$	$-1.29895 - 1.64925I$	$-9.60633 + 0.16522I$
$u = 1.224710 - 0.250895I$	$-1.29895 + 1.64925I$	$-9.60633 - 0.16522I$
$u = 0.074720 + 0.708028I$	$2.17425 - 1.81248I$	$-6.14381 + 4.33913I$
$u = 0.074720 - 0.708028I$	$2.17425 + 1.81248I$	$-6.14381 - 4.33913I$
$u = -1.30332$	-5.52548	-17.0390
$u = -1.314200 + 0.295245I$	$-2.18329 + 5.45324I$	$-11.99532 - 6.35130I$
$u = -1.314200 - 0.295245I$	$-2.18329 - 5.45324I$	$-11.99532 + 6.35130I$
$u = 1.378140 + 0.316043I$	$-9.51895 - 8.01682I$	$-15.0413 + 4.8968I$
$u = 1.378140 - 0.316043I$	$-9.51895 + 8.01682I$	$-15.0413 - 4.8968I$
$u = 1.43385$	-13.8020	-17.9770
$u = 0.339181$	-0.597930	-16.6280

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6, c_9	$u^{15} + u^{14} + \cdots - 2u - 1$
c_2, c_5	$u^{15} - 3u^{14} + \cdots + 4u^2 - 1$
c_3, c_4, c_7 c_8	$u^{15} - u^{14} + \cdots - 2u - 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6, c_9	$y^{15} - 13y^{14} + \cdots + 8y - 1$
c_2, c_5	$y^{15} + 7y^{14} + \cdots + 8y - 1$
c_3, c_4, c_7 c_8	$y^{15} - 17y^{14} + \cdots + 8y - 1$