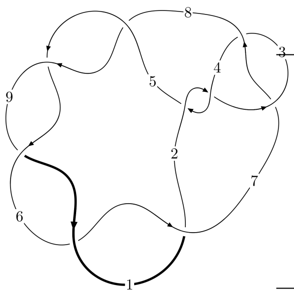
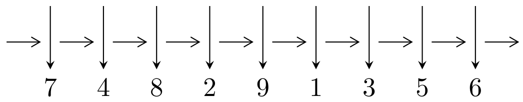
9_6 $(K9a_{23})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{12} - 2u^{10} - u^9 + 4u^8 + u^7 - 3u^6 - 3u^5 + 3u^4 + u^3 - u^2 - 2u + 1 \rangle$$
$$I_2^u = \langle u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 13 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. $I_1^u = \langle u^{12} - 2u^{10} - u^9 + 4u^8 + u^7 - 3u^6 - 3u^5 + 3u^4 + u^3 - u^2 - 2u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{11} - 8u^9 - 4u^8 + 12u^7 + 4u^6 - 8u^5 - 8u^4 + 4u^3 + 4u^2 - 4u - 14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_8, c_9	$y^{12} - 16y^{11} + \cdots - 6y + 1$
c_2, c_4	$y^{12} + 8y^{11} + \cdots - 14y + 1$
c_3, c_7	$y^{12} - 4y^{11} + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.511432+0.812623I$	$-8.67410-1.70959I$	$-11.87181+0.16720I$
$u=-0.511432-0.812623I$	$-8.67410+1.70959I$	$-11.87181-0.16720I$
$u=-0.850204+0.630914I$	$1.76919+2.46907I$	$-6.47747-3.95252I$
$u=-0.850204-0.630914I$	$1.76919-2.46907I$	$-6.47747+3.95252I$
$u=\ \ 0.635020+0.640255I$	$-0.207771+0.498503I$	$-10.63137-1.38008I$
$u=\ \ 0.635020-0.640255I$	$-0.207771-0.498503I$	$-10.63137+1.38008I$
$u=\ \ 1.16193$	-14.5896	-17.6670
$u=\ \ 0.985497+0.634576I$	$-1.23208-5.52285I$	$-12.56374+6.48307I$
$u=\ \ 0.985497-0.634576I$	$-1.23208+5.52285I$	$-12.56374-6.48307I$
$u=-1.075030+0.655125I$	$-10.34900+7.20360I$	$-14.0875-4.7166I$
$u=-1.075030-0.655125I$	$-10.34900-7.20360I$	$-14.0875+4.7166I$
$u=\ \ 0.470358$	-0.660692	-15.0690

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -18$

(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	$u-1$
c_2, c_4	$u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_6 c_7, c_8, c_9	$y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$	-4.93480	-18.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_6 c_8, c_9	$(u-1)(u^{12}+2u^{11}+\cdots+4u+1)$
c_2, c_4	$(u+1)(u^{12}+4u^{11}+\cdots+6u+1)$
c_3, c_7	$(u-1)(u^{12}-2u^{10}+\cdots+2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_6 c_8, c_9	$(y-1)(y^{12}-16y^{11}+\cdots-6y+1)$
c_2, c_4	$(y-1)(y^{12}+8y^{11}+\cdots-14y+1)$
c_3, c_7	$(y-1)(y^{12}-4y^{11}+\cdots-6y+1)$