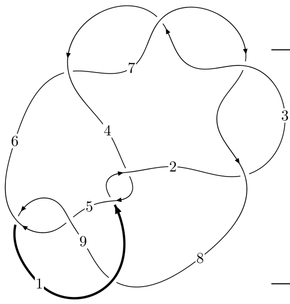
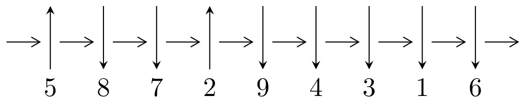
9_{12} $(K9a_{22})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{17} + u^{16} - 4u^{15} - 5u^{14} + 7u^{13} + 11u^{12} - 4u^{11} - 12u^{10} - 3u^9 + 5u^8 + 6u^7 + 2u^6 - 2u^5 - 2u^4 + u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 17 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. $I_1^u = \langle u^{17} + u^{16} - 4u^{15} - 5u^{14} + 7u^{13} + 11u^{12} - 4u^{11} - 12u^{10} - 3u^9 + 5u^8 + 6u^7 + 2u^6 - 2u^5 - 2u^4 + u + 1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{14} + 3u^{12} - 4u^{10} + u^8 + 2u^6 - 2u^4 + 1 \\ -u^{14} + 4u^{12} - 7u^{10} + 6u^8 - 2u^6 + u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{11} + 2u^9 - 2u^7 - u^3 \\ -u^{13} + 3u^{11} - 5u^9 + 4u^7 - 2u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -4u^{16} + 20u^{14} + 4u^{13} - 44u^{12} - 16u^{11} + 44u^{10} + 28u^9 - 8u^8 - 20u^7 - 24u^6 + 16u^4 + 8u^3 - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{17} + 3u^{16} + \cdots + 9u + 3$
c_2, c_3, c_6 c_7	$u^{17} - u^{16} + \cdots + u + 1$
c_5, c_9	$u^{17} + u^{16} + \cdots + u + 1$
c_8	$u^{17} + 9u^{16} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{17} + 11y^{16} + \cdots + 57y - 9$
c_2, c_3, c_6 c_7	$y^{17} + 19y^{16} + \cdots + y - 1$
c_5, c_9	$y^{17} - 9y^{16} + \cdots + y - 1$
c_8	$y^{17} - y^{16} + \cdots + 9y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.774885 + 0.615952I$	$8.77101 + 2.39923I$	$0.86600 - 3.27109I$
$u = -0.774885 - 0.615952I$	$8.77101 - 2.39923I$	$0.86600 + 3.27109I$
$u = \ \ 0.758174 + 0.422247I$	$1.12328 - 1.83062I$	$-0.40697 + 5.22267I$
$u = \ \ 0.758174 - 0.422247I$	$1.12328 + 1.83062I$	$-0.40697 - 5.22267I$
$u = -0.231761 + 0.782357I$	$6.15100 - 3.91820I$	$-0.40216 + 2.39256I$
$u = -0.231761 - 0.782357I$	$6.15100 + 3.91820I$	$-0.40216 - 2.39256I$
$u = \ \ 1.172060 + 0.309872I$	$1.86779 + 0.50801I$	$-5.57451 + 0.23246I$
$u = \ \ 1.172060 - 0.309872I$	$1.86779 - 0.50801I$	$-5.57451 - 0.23246I$
$u = -1.151920 + 0.412149I$	$-4.14236 + 2.05778I$	$-9.01930 - 0.37816I$
$u = -1.151920 - 0.412149I$	$-4.14236 - 2.05778I$	$-9.01930 + 0.37816I$
$u = -0.756727$	-1.00476	-10.8690
$u = \ \ 1.156820 + 0.481476I$	$-3.64564 - 6.09306I$	$-7.29297 + 6.87425I$
$u = \ \ 1.156820 - 0.481476I$	$-3.64564 + 6.09306I$	$-7.29297 - 6.87425I$
$u = -1.162590 + 0.537552I$	$3.41234 + 8.83664I$	$-3.62632 - 5.87120I$
$u = -1.162590 - 0.537552I$	$3.41234 - 8.83664I$	$-3.62632 + 5.87120I$
$u = \ \ 0.112463 + 0.679715I$	$-0.69802 + 1.70542I$	$-4.10923 - 4.02096I$
$u = \ \ 0.112463 - 0.679715I$	$-0.69802 - 1.70542I$	$-4.10923 + 4.02096I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{17}+3u^{16}+\cdots+9u+3$
c_2, c_3, c_6 c_7	$u^{17}-u^{16}+\cdots+u+1$
c_5, c_9	$u^{17}+u^{16}+\cdots+u+1$
c_8	$u^{17}+9u^{16}+\cdots+u+1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{17} + 11y^{16} + \cdots + 57y - 9$
c_2, c_3, c_6 c_7	$y^{17} + 19y^{16} + \cdots + y - 1$
c_5, c_9	$y^{17} - 9y^{16} + \cdots + y - 1$
c_8	$y^{17} - y^{16} + \cdots + 9y - 1$