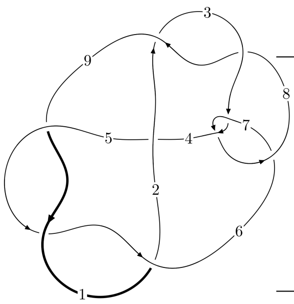
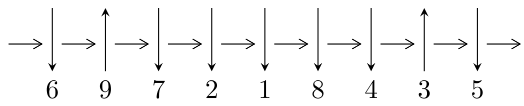
9_{20} $(K9a_{19})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{20} + u^{19} + \cdots - 2u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 20 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. $\boldsymbol{I_1^u = \langle u^{20} + u^{19} - 5u^{18} - 6u^{17} + 11u^{16} + 16u^{15} - 10u^{14} - 22u^{13} - 2u^{12} + 13u^{11} + 13u^{10} + 4u^9 - 9u^8 - 10u^7 + 4u^5 + 3u^4 + u^3 - u^2 - 2u - 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^6 - u^4 + 1 \\ u^6 - 2u^4 + u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{14} + 3u^{12} - 4u^{10} + u^8 + 2u^6 - 2u^4 + 1 \\ -u^{14} + 4u^{12} - 7u^{10} + 6u^8 - 2u^6 + u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{14} + 3u^{12} - 4u^{10} + u^8 + 2u^6 - 2u^4 + 1 \\ -u^{16} + 4u^{14} - 8u^{12} + 8u^{10} - 4u^8 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{14} + 3u^{12} - 4u^{10} + u^8 + 2u^6 - 2u^4 + 1 \\ -u^{16} + 4u^{14} - 8u^{12} + 8u^{10} - 4u^8 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{19} - 24u^{17} - 4u^{16} + 64u^{15} + 20u^{14} - 84u^{13} - 44u^{12} + 36u^{11} + 44u^{10} + 44u^9 - 8u^8 - 60u^7 - 24u^6 + 16u^5 + 16u^4 + 12u^3 - 8u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$u^{20} + u^{19} + \cdots - 2u - 1$
c_2, c_8	$u^{20} + 3u^{19} + \cdots + 12u + 1$
c_3, c_7	$u^{20} + u^{19} + \cdots - 2u - 1$
c_4	$u^{20} - 3u^{19} + \cdots + 2u + 5$
c_6	$u^{20} + 11u^{19} + \cdots + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9	$y^{20} - 19y^{19} + \cdots - 2y + 1$
c_2, c_8	$y^{20} + 17y^{19} + \cdots - 62y + 1$
c_3, c_7	$y^{20} - 11y^{19} + \cdots - 2y + 1$
c_4	$y^{20} - 7y^{19} + \cdots - 274y + 25$
c_6	$y^{20} - 3y^{19} + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.912041 + 0.514968I$	$-2.98499 + 4.84109I$	$-7.63163 - 6.37981I$
$u = -0.912041 - 0.514968I$	$-2.98499 - 4.84109I$	$-7.63163 + 6.37981I$
$u = \quad 1.06181$	-6.53321	-13.9000
$u = \quad 0.774874 + 0.460321I$	$1.25618 - 1.94645I$	$-1.05320 + 4.81876I$
$u = \quad 0.774874 - 0.460321I$	$1.25618 + 1.94645I$	$-1.05320 - 4.81876I$
$u = -0.113113 + 0.821783I$	$-6.78373 - 4.79919I$	$-8.69810 + 3.09464I$
$u = -0.113113 - 0.821783I$	$-6.78373 + 4.79919I$	$-8.69810 - 3.09464I$
$u = -1.170970 + 0.421653I$	$-4.43833 + 2.14390I$	$-9.45592 - 0.24308I$
$u = -1.170970 - 0.421653I$	$-4.43833 - 2.14390I$	$-9.45592 + 0.24308I$
$u = -0.529602 + 0.535861I$	$-1.94274 - 0.58469I$	$-5.20205 + 0.00910I$
$u = -0.529602 - 0.535861I$	$-1.94274 + 0.58469I$	$-5.20205 - 0.00910I$
$u = -0.733657$	-0.976841	-10.9390
$u = \quad 1.174860 + 0.481002I$	$-4.01054 - 6.27316I$	$-8.10015 + 6.54347I$
$u = \quad 1.174860 - 0.481002I$	$-4.01054 + 6.27316I$	$-8.10015 - 6.54347I$
$u = \quad 0.092790 + 0.716473I$	$-0.91595 + 1.80448I$	$-4.82463 - 3.70058I$
$u = \quad 0.092790 - 0.716473I$	$-0.91595 - 1.80448I$	$-4.82463 + 3.70058I$
$u = \quad 1.224930 + 0.393654I$	$-10.81800 + 0.63661I$	$-12.96035 + 0.16989I$
$u = \quad 1.224930 - 0.393654I$	$-10.81800 - 0.63661I$	$-12.96035 - 0.16989I$
$u = -1.205800 + 0.505812I$	$-10.02010 + 9.64430I$	$-11.65468 - 6.20543I$
$u = -1.205800 - 0.505812I$	$-10.02010 - 9.64430I$	$-11.65468 + 6.20543I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_9	$u^{20} + u^{19} + \cdots - 2u - 1$
c_2, c_8	$u^{20} + 3u^{19} + \cdots + 12u + 1$
c_3, c_7	$u^{20} + u^{19} + \cdots - 2u - 1$
c_4	$u^{20} - 3u^{19} + \cdots + 2u + 5$
c_6	$u^{20} + 11u^{19} + \cdots + 2u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_9	$y^{20} - 19y^{19} + \cdots - 2y + 1$
c_2, c_8	$y^{20} + 17y^{19} + \cdots - 62y + 1$
c_3, c_7	$y^{20} - 11y^{19} + \cdots - 2y + 1$
c_4	$y^{20} - 7y^{19} + \cdots - 274y + 25$
c_6	$y^{20} - 3y^{19} + \cdots - 6y + 1$