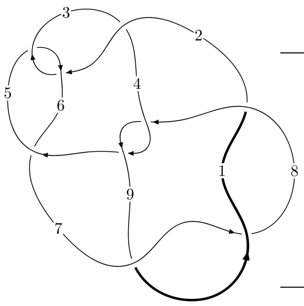
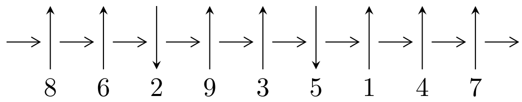
9_{36} $(K9a_9)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{19} - u^{18} + \cdots + b - 1,\ -u^{19} + 3u^{18} + \cdots + a + 2u,\ u^{20} - 2u^{19} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle b - 1,\ a + u + 1,\ u^2 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 22 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.

$$\boldsymbol{I_1^u = \langle -u^{19} - u^{18} + \cdots + b - 1,\ -u^{19} + 3u^{18} + \cdots + a + 2u,\ u^{20} - 2u^{19} + \cdots + 2u + 1 \rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{19} - 3u^{18} + \cdots + u^2 - 2u \\ u^{19} + u^{18} + \cdots + 2u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{19} - u^{18} + \cdots + 3u + 1 \\ u^{18} - u^{17} + \cdots + u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{19} - 2u^{18} + \cdots + u + 1 \\ u^{18} - u^{17} + \cdots + 2u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{19} - 2u^{18} + \cdots + u + 1 \\ u^{18} - u^{17} + \cdots + 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{19} - 5u^{18} + 9u^{17} - 18u^{16} + 24u^{15} - 43u^{14} + 43u^{13} - 64u^{12} + 51u^{11} - 69u^{10} + 27u^9 - 40u^8 - 10u^7 - 4u^6 - 38u^5 + 14u^4 - 37u^3 + 11u^2 - 9u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7, c_9	$u^{20} + 3u^{19} + \cdots - u - 1$
c_2, c_5	$u^{20} + 2u^{19} + \cdots - 2u + 1$
c_3, c_6	$u^{20} + 6u^{19} + \cdots - 2u + 1$
c_4, c_8	$u^{20} - u^{19} + \cdots + 8u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_9	$y^{20} - 21y^{19} + \cdots - 13y + 1$
c_2, c_5	$y^{20} + 6y^{19} + \cdots - 2y + 1$
c_3, c_6	$y^{20} + 18y^{19} + \cdots - 86y + 1$
c_4, c_8	$y^{20} - 15y^{19} + \cdots - 24y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.584423 + 0.858889I$ $a = 0.243370 + 0.067189I$ $b = 0.199938 - 0.169761I$	$0.46628 - 2.30782I$	$1.88733 + 3.58910I$
$u = -0.584423 - 0.858889I$ $a = 0.243370 - 0.067189I$ $b = 0.199938 + 0.169761I$	$0.46628 + 2.30782I$	$1.88733 - 3.58910I$
$u = -0.178424 + 0.888583I$ $a = 0.314733 - 0.630728I$ $b = -0.504299 - 0.392204I$	$-1.44173 - 1.82256I$	$0.87459 + 5.12436I$
$u = -0.178424 - 0.888583I$ $a = 0.314733 + 0.630728I$ $b = -0.504299 + 0.392204I$	$-1.44173 + 1.82256I$	$0.87459 - 5.12436I$
$u = 0.792511 + 0.823295I$ $a = 1.20713 + 1.81447I$ $b = 0.53718 - 2.43181I$	$4.53977 + 0.19167I$	$9.73570 + 0.22109I$
$u = 0.792511 - 0.823295I$ $a = 1.20713 - 1.81447I$ $b = 0.53718 + 2.43181I$	$4.53977 - 0.19167I$	$9.73570 - 0.22109I$
$u = -0.840464$ $a = -0.636029$ $b = -0.534560$	7.40368	12.6680
$u = -0.303359 + 1.135910I$ $a = -0.484298 + 0.279243I$ $b = 0.170280 + 0.634831I$	$3.57238 - 3.88098I$	$8.06498 + 4.02252I$
$u = -0.303359 - 1.135910I$ $a = -0.484298 - 0.279243I$ $b = 0.170280 - 0.634831I$	$3.57238 + 3.88098I$	$8.06498 - 4.02252I$
$u = 0.914869 + 0.748366I$ $a = -0.87489 - 1.67983I$ $b = -0.45672 + 2.19157I$	$11.87210 - 3.56941I$	$11.71587 + 1.00735I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.914869 - 0.748366I$ $a = -0.87489 + 1.67983I$ $b = -0.45672 - 2.19157I$	$11.87210 + 3.56941I$	$11.71587 - 1.00735I$
$u = -0.791805 + 0.888234I$ $a = -0.389342 - 0.061647I$ $b = -0.363039 + 0.297014I$	$6.53428 - 2.97363I$	$9.92336 + 2.68538I$
$u = -0.791805 - 0.888234I$ $a = -0.389342 + 0.061647I$ $b = -0.363039 - 0.297014I$	$6.53428 + 2.97363I$	$9.92336 - 2.68538I$
$u = 0.764902 + 0.939137I$ $a = -1.51148 - 1.52126I$ $b = -0.27254 + 2.58310I$	$4.18332 + 5.67427I$	$8.59597 - 5.66395I$
$u = 0.764902 - 0.939137I$ $a = -1.51148 + 1.52126I$ $b = -0.27254 - 2.58310I$	$4.18332 - 5.67427I$	$8.59597 + 5.66395I$
$u = 0.795971 + 1.032250I$ $a = 1.43808 + 1.21025I$ $b = 0.10460 - 2.44777I$	$10.9814 + 9.8846I$	$10.38252 - 5.77638I$
$u = 0.795971 - 1.032250I$ $a = 1.43808 - 1.21025I$ $b = 0.10460 + 2.44777I$	$10.9814 - 9.8846I$	$10.38252 + 5.77638I$
$u = 0.175936 + 0.650679I$ $a = -0.26288 + 1.68135I$ $b = 1.140270 - 0.124755I$	$1.21872 + 0.86143I$	$5.55325 + 0.99952I$
$u = 0.175936 - 0.650679I$ $a = -0.26288 - 1.68135I$ $b = 1.140270 + 0.124755I$	$1.21872 - 0.86143I$	$5.55325 - 0.99952I$
$u = -0.331892$ $a = 1.27519$ $b = 0.423225$	0.859562	11.8650

II. $I_2^u = \langle b-1,\ a+u+1,\ u^2+u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u + 11$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_9	$(u-1)^2$
c_2, c_3, c_6	u^2+u+1
c_4, c_8	u^2
c_5	u^2-u+1
c_7	$(u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_9	$(y-1)^2$
c_2, c_3, c_5 c_6	y^2+y+1
c_4, c_8	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = \quad 1.00000$	$1.64493 - 2.02988I$	$9.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = \quad 1.00000$	$1.64493 + 2.02988I$	$9.00000 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_9	$((u-1)^2)(u^{20}+3u^{19}+\cdots-u-1)$
c_2	$(u^2+u+1)(u^{20}+2u^{19}+\cdots-2u+1)$
c_3, c_6	$(u^2+u+1)(u^{20}+6u^{19}+\cdots-2u+1)$
c_4, c_8	$u^2(u^{20}-u^{19}+\cdots+8u-4)$
c_5	$(u^2-u+1)(u^{20}+2u^{19}+\cdots-2u+1)$
c_7	$((u+1)^2)(u^{20}+3u^{19}+\cdots-u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7, c_9	$((y-1)^2)(y^{20}-21y^{19}+\cdots-13y+1)$
c_2, c_5	$(y^2+y+1)(y^{20}+6y^{19}+\cdots-2y+1)$
c_3, c_6	$(y^2+y+1)(y^{20}+18y^{19}+\cdots-86y+1)$
c_4, c_8	$y^2(y^{20}-15y^{19}+\cdots-24y+16)$