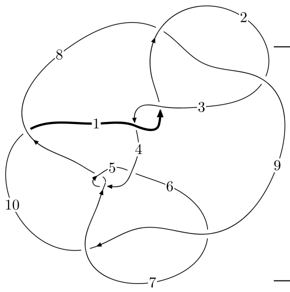
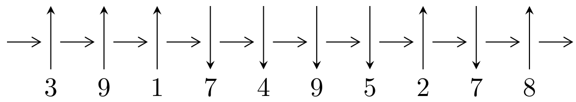
10_{135} $(K10n_5)$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$2,8 \xrightarrow[c_8]{} 9 \xrightarrow[c_2]{} 3 \xrightarrow[c_1]{} 1,5 \xrightarrow[c_7]{} 7 \xrightarrow[c_4]{} 4 \xrightarrow[c_5]{} 6 \xrightarrow[c_{10}]{} 10 \twoheadrightarrow c_3, c_6, c_9$$

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

$$I_1^u = \langle -u^{20} - u^{19} + \cdots + b - 2u,\ u^{18} + u^{17} + \cdots + a + 2,\ u^{21} + 2u^{20} + \cdots + u - 1 \rangle$$
$$I_2^u = \langle b + 1,\ a + u,\ u^3 - u^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 24 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.

$$I_1^u = \langle -u^{20} - u^{19} + \cdots + b - 2u,\ u^{18} + u^{17} + \cdots + a + 2,\ u^{21} + 2u^{20} + \cdots + u - 1\rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{18} - u^{17} + \cdots - u - 2 \\ u^{20} + u^{19} + \cdots + 4u^2 + 2u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{20} - u^{19} + \cdots + u + 3 \\ -u^{20} - u^{19} + \cdots - 5u^2 - u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^5 + u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2u^{20} + 3u^{19} + \cdots + 2u - 4 \\ 2u^{20} + u^{19} + \cdots + 8u^3 + 7u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5 - u \\ u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -7u^{20} - 10u^{19} + 19u^{18} + 42u^{17} - 31u^{16} - 99u^{15} + 18u^{14} + 172u^{13} + 44u^{12} - 198u^{11} - 125u^{10} + 168u^9 + 183u^8 - 76u^7 - 166u^6 - 8u^5 + 93u^4 + 26u^3 - 41u^2 - 28u + 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{21} - 8u^{20} + \cdots + 17u - 1$
c_2, c_8	$u^{21} - 2u^{20} + \cdots + u + 1$
c_4, c_7	$u^{21} - 4u^{20} + \cdots - 2u + 1$
c_5	$u^{21} + 6u^{20} + \cdots - 2u + 1$
c_6, c_9	$u^{21} - u^{20} + \cdots + 4u + 8$
c_{10}	$u^{21} + 2u^{20} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{21} + 12y^{20} + \cdots + 137y - 1$
c_2, c_8	$y^{21} - 8y^{20} + \cdots + 17y - 1$
c_4, c_7	$y^{21} - 6y^{20} + \cdots - 2y - 1$
c_5	$y^{21} + 22y^{20} + \cdots + 66y - 1$
c_6, c_9	$y^{21} + 21y^{20} + \cdots - 176y - 64$
c_{10}	$y^{21} - 24y^{20} + \cdots + 17y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.567882 + 0.851579I$ $a = -0.521076 - 0.321393I$ $b = -1.047460 + 0.802568I$	$2.42497 + 4.94435I$	$-1.24866 - 2.70559I$
$u = -0.567882 - 0.851579I$ $a = -0.521076 + 0.321393I$ $b = -1.047460 - 0.802568I$	$2.42497 - 4.94435I$	$-1.24866 + 2.70559I$
$u = -0.848992 + 0.598239I$ $a = 1.09099 - 1.32571I$ $b = 1.272850 + 0.072825I$	$-3.02655 - 2.36605I$	$-0.59037 + 2.67274I$
$u = -0.848992 - 0.598239I$ $a = 1.09099 + 1.32571I$ $b = 1.272850 - 0.072825I$	$-3.02655 + 2.36605I$	$-0.59037 - 2.67274I$
$u = -0.427156 + 0.796867I$ $a = -0.517814 + 0.424717I$ $b = -0.770704 - 0.886977I$	$3.29052 - 1.36266I$	$-0.18856 + 2.27516I$
$u = -0.427156 - 0.796867I$ $a = -0.517814 - 0.424717I$ $b = -0.770704 + 0.886977I$	$3.29052 + 1.36266I$	$-0.18856 - 2.27516I$
$u = 0.707761 + 0.560391I$ $a = -0.427154 - 0.668417I$ $b = 0.837997 + 0.449477I$	$-1.83472 + 0.21101I$	$-3.18710 - 0.57244I$
$u = 0.707761 - 0.560391I$ $a = -0.427154 + 0.668417I$ $b = 0.837997 - 0.449477I$	$-1.83472 - 0.21101I$	$-3.18710 + 0.57244I$
$u = 0.951460 + 0.595395I$ $a = 0.13569 + 1.78932I$ $b = 0.666759 - 0.637720I$	$-1.06863 + 4.45806I$	$-0.43689 - 6.14529I$
$u = 0.951460 - 0.595395I$ $a = 0.13569 - 1.78932I$ $b = 0.666759 + 0.637720I$	$-1.06863 - 4.45806I$	$-0.43689 + 6.14529I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.853051 + 0.160221I$ $a = -0.985793 + 0.858266I$ $b = 0.040042 - 0.421446I$	$1.46918 - 0.34630I$	$5.96536 + 0.53554I$
$u = -0.853051 - 0.160221I$ $a = -0.985793 - 0.858266I$ $b = 0.040042 + 0.421446I$	$1.46918 + 0.34630I$	$5.96536 - 0.53554I$
$u = 1.169830 + 0.051846I$ $a = 0.79206 - 1.88563I$ $b = -0.960607 + 0.961815I$	$8.83595 + 3.51416I$	$4.91512 - 2.66916I$
$u = 1.169830 - 0.051846I$ $a = 0.79206 + 1.88563I$ $b = -0.960607 - 0.961815I$	$8.83595 - 3.51416I$	$4.91512 + 2.66916I$
$u = 0.882737 + 0.780973I$ $a = -0.878224 - 0.429656I$ $b = -0.622642 + 0.052532I$	$-3.85955 + 2.93752I$	$2.97600 - 3.43881I$
$u = 0.882737 - 0.780973I$ $a = -0.878224 + 0.429656I$ $b = -0.622642 - 0.052532I$	$-3.85955 - 2.93752I$	$2.97600 + 3.43881I$
$u = -1.083580 + 0.616829I$ $a = 1.133680 - 0.321228I$ $b = -0.721179 + 1.021470I$	$5.21503 - 3.89686I$	$2.41425 + 2.65107I$
$u = -1.083580 - 0.616829I$ $a = 1.133680 + 0.321228I$ $b = -0.721179 - 1.021470I$	$5.21503 + 3.89686I$	$2.41425 - 2.65107I$
$u = -1.075840 + 0.689537I$ $a = -0.86208 + 1.97593I$ $b = -1.117050 - 0.836949I$	$3.96319 - 10.68720I$	$0.56681 + 6.96141I$
$u = -1.075840 - 0.689537I$ $a = -0.86208 - 1.97593I$ $b = -1.117050 + 0.836949I$	$3.96319 + 10.68720I$	$0.56681 - 6.96141I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.289436$ $a = -1.92057$ $b = 0.843987$	-1.20998	-9.37190

II. $I_2^u = \langle b+1,\ a+u,\ u^3-u^2+1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^2+u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u+1 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u+1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2 - 7u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^3 + u^2 + 2u + 1$
c_2	$u^3 + u^2 - 1$
c_3, c_{10}	$u^3 - u^2 + 2u - 1$
c_4	$(u-1)^3$
c_5, c_7	$(u+1)^3$
c_6, c_9	u^3
c_8	$u^3 - u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_{10}	$y^3 + 3y^2 + 2y - 1$
c_2, c_8	$y^3 - y^2 + 2y - 1$
c_4, c_5, c_7	$(y - 1)^3$
c_6, c_9	y^3

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -0.877439 - 0.744862I$ $b = -1.00000$	$-4.66906 + 2.82812I$	$-7.71191 - 2.59975I$
$u = 0.877439 - 0.744862I$ $a = -0.877439 + 0.744862I$ $b = -1.00000$	$-4.66906 - 2.82812I$	$-7.71191 + 2.59975I$
$u = -0.754878$ $a = 0.754878$ $b = -1.00000$	-0.531480	4.42380

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3+u^2+2u+1)(u^{21}-8u^{20}+\cdots+17u-1)$
c_2	$(u^3+u^2-1)(u^{21}-2u^{20}+\cdots+u+1)$
c_3	$(u^3-u^2+2u-1)(u^{21}-8u^{20}+\cdots+17u-1)$
c_4	$((u-1)^3)(u^{21}-4u^{20}+\cdots-2u+1)$
c_5	$((u+1)^3)(u^{21}+6u^{20}+\cdots-2u+1)$
c_6, c_9	$u^3(u^{21}-u^{20}+\cdots+4u+8)$
c_7	$((u+1)^3)(u^{21}-4u^{20}+\cdots-2u+1)$
c_8	$(u^3-u^2+1)(u^{21}-2u^{20}+\cdots+u+1)$
c_{10}	$(u^3-u^2+2u-1)(u^{21}+2u^{20}+\cdots+3u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y^3+3y^2+2y-1)(y^{21}+12y^{20}+\cdots+137y-1)$
c_2, c_8	$(y^3-y^2+2y-1)(y^{21}-8y^{20}+\cdots+17y-1)$
c_4, c_7	$((y-1)^3)(y^{21}-6y^{20}+\cdots-2y-1)$
c_5	$((y-1)^3)(y^{21}+22y^{20}+\cdots+66y-1)$
c_6, c_9	$y^3(y^{21}+21y^{20}+\cdots-176y-64)$
c_{10}	$(y^3+3y^2+2y-1)(y^{21}-24y^{20}+\cdots+17y-1)$