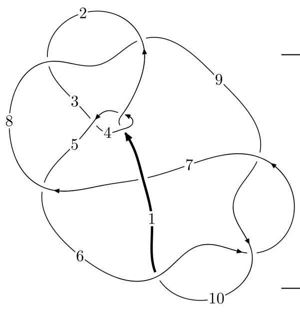
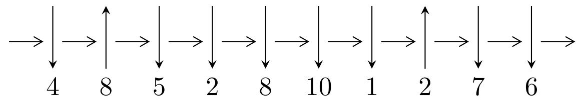
10_{131} $(K10n_{19})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle -5u^{17} - 21u^{16} + \cdots + 4b + 15,\ -15u^{17} - 51u^{16} + \cdots + 4a + 25,\ u^{18} + 4u^{17} + \cdots - 3u - 1 \rangle$
$I_2^u = \langle b - a,\ a^3 - a^2 + 1,\ u - 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 21 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. $I_1^u = \langle -5u^{17} - 21u^{16} + \cdots + 4b + 15,\ -15u^{17} - 51u^{16} + \cdots + 4a + 25,\ u^{18} + 4u^{17} + \cdots - 3u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{15}{4}u^{17} + \frac{51}{4}u^{16} + \cdots - 7u - \frac{25}{4} \\ \frac{5}{4}u^{17} + \frac{21}{4}u^{16} + \cdots - 4u - \frac{15}{4} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{4}u^{17} - \frac{3}{4}u^{16} + \cdots - \frac{3}{2}u + \frac{5}{4} \\ -\frac{1}{4}u^{17} - \frac{3}{4}u^{16} + \cdots + \frac{1}{2}u + \frac{1}{4} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{17}{4}u^{17} + \frac{57}{4}u^{16} + \cdots - 8u - \frac{31}{4} \\ \frac{11}{4}u^{17} + \frac{35}{4}u^{16} + \cdots - 5u - \frac{17}{4} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 5u^{17} + 18u^{16} + \cdots - 11u - 10 \\ \frac{5}{4}u^{17} + \frac{21}{4}u^{16} + \cdots - 4u - \frac{15}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{11}{4}u^{17} + \frac{35}{4}u^{16} + \cdots - 6u - \frac{9}{4} \\ 2u^{17} + \frac{13}{2}u^{16} + \cdots - \frac{9}{2}u - \frac{5}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^{17} + \frac{23}{2}u^{16} + 15u^{15} - \frac{33}{2}u^{14} - \frac{127}{2}u^{13} - \frac{91}{2}u^{12} + 68u^{11} + 110u^{10} + \frac{11}{2}u^9 - \frac{175}{2}u^8 + 2u^7 + 53u^6 - 27u^5 - 75u^4 + 14u^3 + 41u^2 - \frac{21}{2}u - \frac{29}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{18} - 4u^{17} + \cdots + 3u - 1$
c_2, c_8	$u^{18} - u^{17} + \cdots - 4u + 8$
c_3	$u^{18} + 4u^{17} + \cdots + 11u + 1$
c_5	$u^{18} - 2u^{17} + \cdots - 5u^2 + 1$
c_6, c_9, c_{10}	$u^{18} - 2u^{17} + \cdots + 2u - 1$
c_7	$u^{18} + 2u^{17} + \cdots + 18u - 17$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{18} - 4y^{17} + \cdots - 11y + 1$
c_2, c_8	$y^{18} - 21y^{17} + \cdots - 592y + 64$
c_3	$y^{18} + 24y^{17} + \cdots - 11y + 1$
c_5	$y^{18} + 22y^{17} + \cdots - 10y + 1$
c_6, c_9, c_{10}	$y^{18} + 18y^{17} + \cdots - 10y + 1$
c_7	$y^{18} + 10y^{17} + \cdots - 1106y + 289$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.10588$ $a = 0.709778$ $b = 0.371475$	-2.12974	-1.01840
$u = 0.405572 + 0.756937I$ $a = -0.41571 - 1.35816I$ $b = 0.62723 + 1.38475I$	$4.97233 - 2.95811I$	$-1.13170 + 3.60082I$
$u = 0.405572 - 0.756937I$ $a = -0.41571 + 1.35816I$ $b = 0.62723 - 1.38475I$	$4.97233 + 2.95811I$	$-1.13170 - 3.60082I$
$u = 1.189210 + 0.282581I$ $a = -1.088230 - 0.703914I$ $b = -0.228913 - 1.074910I$	$2.07423 - 1.22055I$	$-3.51872 - 0.07112I$
$u = 1.189210 - 0.282581I$ $a = -1.088230 + 0.703914I$ $b = -0.228913 + 1.074910I$	$2.07423 + 1.22055I$	$-3.51872 + 0.07112I$
$u = -0.889957 + 0.956699I$ $a = -0.521993 - 0.815508I$ $b = 0.302646 + 1.124860I$	$5.67221 + 1.09047I$	$-3.82592 + 0.42258I$
$u = -0.889957 - 0.956699I$ $a = -0.521993 + 0.815508I$ $b = 0.302646 - 1.124860I$	$5.67221 - 1.09047I$	$-3.82592 - 0.42258I$
$u = -1.023450 + 0.903197I$ $a = 0.541017 + 1.179680I$ $b = 0.695559 - 1.098830I$	$5.25155 + 5.76942I$	$-4.89628 - 5.17142I$
$u = -1.023450 - 0.903197I$ $a = 0.541017 - 1.179680I$ $b = 0.695559 + 1.098830I$	$5.25155 - 5.76942I$	$-4.89628 + 5.17142I$
$u = 0.509257 + 0.343539I$ $a = 0.44200 + 1.35055I$ $b = -0.332296 - 0.405177I$	$-0.575696 - 1.116820I$	$-6.38496 + 6.15764I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.509257 - 0.343539I$ $a = 0.44200 - 1.35055I$ $b = -0.332296 + 0.405177I$	$-0.575696 + 1.116820I$	$-6.38496 - 6.15764I$
$u = -0.550076 + 0.259421I$ $a = 1.50952 - 0.24668I$ $b = 0.988720 - 0.518259I$	$2.36168 + 3.34376I$	$-0.22641 - 4.65236I$
$u = -0.550076 - 0.259421I$ $a = 1.50952 + 0.24668I$ $b = 0.988720 + 0.518259I$	$2.36168 - 3.34376I$	$-0.22641 + 4.65236I$
$u = -0.841043 + 1.112380I$ $a = 0.821468 + 0.551752I$ $b = -1.23861 - 1.79456I$	$12.50880 - 2.04734I$	$-0.610263 + 0.647242I$
$u = -0.841043 - 1.112380I$ $a = 0.821468 - 0.551752I$ $b = -1.23861 + 1.79456I$	$12.50880 + 2.04734I$	$-0.610263 - 0.647242I$
$u = -1.13145 + 0.93287I$ $a = -0.73214 - 1.39000I$ $b = -1.52394 + 1.51302I$	$11.5470 + 9.4650I$	$-1.80359 - 5.12935I$
$u = -1.13145 - 0.93287I$ $a = -0.73214 + 1.39000I$ $b = -1.52394 - 1.51302I$	$11.5470 - 9.4650I$	$-1.80359 + 5.12935I$
$u = -0.441998$ $a = -1.82163$ $b = -0.952239$	-1.60276	-5.18590

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -a^2 + 5a - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.877439 + 0.744862I$ $b = 0.877439 + 0.744862I$	$1.37919 - 2.82812I$	$-6.82789 + 2.41717I$
$u = 1.00000$ $a = 0.877439 - 0.744862I$ $b = 0.877439 - 0.744862I$	$1.37919 + 2.82812I$	$-6.82789 - 2.41717I$
$u = 1.00000$ $a = -0.754878$ $b = -0.754878$	-2.75839	-15.3440

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^3)(u^{18}-4u^{17}+\cdots+3u-1)$
c_2, c_8	$u^3(u^{18}-u^{17}+\cdots-4u+8)$
c_3	$((u-1)^3)(u^{18}+4u^{17}+\cdots+11u+1)$
c_4	$((u+1)^3)(u^{18}-4u^{17}+\cdots+3u-1)$
c_5	$(u^3+u^2-1)(u^{18}-2u^{17}+\cdots-5u^2+1)$
c_6	$(u^3-u^2+2u-1)(u^{18}-2u^{17}+\cdots+2u-1)$
c_7	$(u^3+u^2-1)(u^{18}+2u^{17}+\cdots+18u-17)$
c_9, c_{10}	$(u^3+u^2+2u+1)(u^{18}-2u^{17}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^3)(y^{18} - 4y^{17} + \cdots - 11y + 1)$
c_2, c_8	$y^3(y^{18} - 21y^{17} + \cdots - 592y + 64)$
c_3	$((y-1)^3)(y^{18} + 24y^{17} + \cdots - 11y + 1)$
c_5	$(y^3 - y^2 + 2y - 1)(y^{18} + 22y^{17} + \cdots - 10y + 1)$
c_6, c_9, c_{10}	$(y^3 + 3y^2 + 2y - 1)(y^{18} + 18y^{17} + \cdots - 10y + 1)$
c_7	$(y^3 - y^2 + 2y - 1)(y^{18} + 10y^{17} + \cdots - 1106y + 289)$