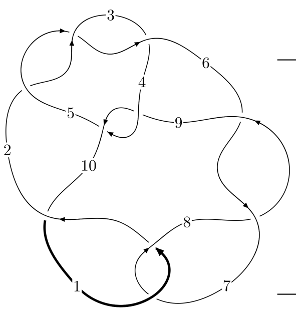
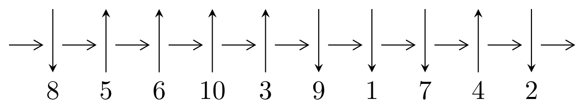
10_{54} $(K10a_{48})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{16} + 2u^{14} - 6u^{12} + 8u^{10} - 2u^9 - 10u^8 + 2u^7 + 8u^6 - 6u^5 - 4u^4 + 4u^3 + b - 2u,\ u^{23} + u^{22} + \cdots + a + 2,$$
$$u^{26} + 2u^{25} + \cdots + 2u - 1\rangle$$
$$I_2^u = \langle u^2 + b,\ a + u,\ u^3 - u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 29 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.
$\boldsymbol{I_1^u = \langle -u^{16}+2u^{14}+\cdots+b-2u,\ u^{23}+u^{22}+\cdots+a+2,\ u^{26}+2u^{25}+\cdots+2u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{23} - u^{22} + \cdots + 2u - 2 \\ u^{16} - 2u^{14} + \cdots - 4u^3 + 2u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^{25} - u^{24} + \cdots - 2u + 3 \\ -u^{25} - 2u^{24} + \cdots - 4u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^5 + u \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2u^{25} + 2u^{24} + \cdots + 2u - 3 \\ 2u^{25} + 4u^{24} + \cdots + 7u - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 3u^{25} + 6u^{24} - 4u^{23} - 20u^{22} + 15u^{21} + 67u^{20} - 6u^{19} - 133u^{18} + 9u^{17} + 243u^{16} + 26u^{15} - 312u^{14} - 14u^{13} + 380u^{12} + 8u^{11} - 325u^{10} + 66u^9 + 275u^8 - 98u^7 - 154u^6 + 121u^5 + 79u^4 - 58u^3 - 13u^2 + 27u + 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{26} + 2u^{25} + \cdots + 2u - 1$
c_2, c_3, c_5	$u^{26} + 4u^{25} + \cdots - u - 1$
c_4, c_9	$u^{26} - u^{25} + \cdots - 12u + 8$
c_6, c_8, c_{10}	$u^{26} + 6u^{25} + \cdots + 14u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{26} - 6y^{25} + \cdots - 14y + 1$
c_2, c_3, c_5	$y^{26} - 28y^{25} + \cdots + 9y + 1$
c_4, c_9	$y^{26} - 21y^{25} + \cdots - 272y + 64$
c_6, c_8, c_{10}	$y^{26} + 30y^{25} + \cdots - 38y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.846572 + 0.426560I$ $a = 0.369102 + 1.145660I$ $b = -0.275280 + 0.265581I$	$0.25133 - 3.55563I$	$0.67279 + 7.82227I$
$u = 0.846572 - 0.426560I$ $a = 0.369102 - 1.145660I$ $b = -0.275280 - 0.265581I$	$0.25133 + 3.55563I$	$0.67279 - 7.82227I$
$u = -1.05838$ $a = 0.930276$ $b = -0.383659$	3.31147	2.10670
$u = 1.024210 + 0.483667I$ $a = -0.41844 - 1.77157I$ $b = -0.06027 - 1.68353I$	$6.23030 - 6.31822I$	$4.39684 + 5.98052I$
$u = 1.024210 - 0.483667I$ $a = -0.41844 + 1.77157I$ $b = -0.06027 + 1.68353I$	$6.23030 + 6.31822I$	$4.39684 - 5.98052I$
$u = 0.352335 + 0.784080I$ $a = -1.72547 - 0.09649I$ $b = -0.633711 - 1.002200I$	$8.43955 + 1.72575I$	$8.31886 - 0.55186I$
$u = 0.352335 - 0.784080I$ $a = -1.72547 + 0.09649I$ $b = -0.633711 + 1.002200I$	$8.43955 - 1.72575I$	$8.31886 + 0.55186I$
$u = -0.714859 + 0.468666I$ $a = 1.90202 - 1.71328I$ $b = 0.66236 - 1.66931I$	$2.60764 + 1.82411I$	$3.14672 - 3.41167I$
$u = -0.714859 - 0.468666I$ $a = 1.90202 + 1.71328I$ $b = 0.66236 + 1.66931I$	$2.60764 - 1.82411I$	$3.14672 + 3.41167I$
$u = 0.884681 + 0.778751I$ $a = -0.886815 - 0.322575I$ $b = -0.169423 - 1.226160I$	$3.71424 - 2.93248I$	$-1.57920 + 3.07432I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.884681 - 0.778751I$ $a = -0.886815 + 0.322575I$ $b = -0.169423 + 1.226160I$	$3.71424 + 2.93248I$	$-1.57920 - 3.07432I$
$u = -0.782649 + 0.135062I$ $a = -0.896199 + 0.591232I$ $b = -0.443229 + 0.258658I$	$-1.320760 + 0.339413I$	$-6.54496 - 0.64162I$
$u = -0.782649 - 0.135062I$ $a = -0.896199 - 0.591232I$ $b = -0.443229 - 0.258658I$	$-1.320760 - 0.339413I$	$-6.54496 + 0.64162I$
$u = -0.890496 + 0.876738I$ $a = 0.197188 - 0.399123I$ $b = 0.018430 - 1.188940I$	$8.31406 + 0.26926I$	$5.67547 + 0.24692I$
$u = -0.890496 - 0.876738I$ $a = 0.197188 + 0.399123I$ $b = 0.018430 + 1.188940I$	$8.31406 - 0.26926I$	$5.67547 - 0.24692I$
$u = -0.851371 + 0.929645I$ $a = -1.80201 + 0.27660I$ $b = -0.91806 + 3.09384I$	$15.7394 - 4.0044I$	$7.52896 + 1.00327I$
$u = -0.851371 - 0.929645I$ $a = -1.80201 - 0.27660I$ $b = -0.91806 - 3.09384I$	$15.7394 + 4.0044I$	$7.52896 - 1.00327I$
$u = 0.920092 + 0.872965I$ $a = 2.37362 + 0.94576I$ $b = 0.20685 + 3.87193I$	$10.46160 - 3.23113I$	$6.21855 + 2.44261I$
$u = 0.920092 - 0.872965I$ $a = 2.37362 - 0.94576I$ $b = 0.20685 - 3.87193I$	$10.46160 + 3.23113I$	$6.21855 - 2.44261I$
$u = -0.942244 + 0.855193I$ $a = 1.174670 - 0.368934I$ $b = 0.172482 - 1.056320I$	$8.15003 + 6.14753I$	$5.18996 - 5.20017I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.942244 - 0.855193I$ $a = 1.174670 + 0.368934I$ $b = 0.172482 + 1.056320I$	$8.15003 - 6.14753I$	$5.18996 + 5.20017I$
$u = -0.996075 + 0.858678I$ $a = -1.86455 + 1.56620I$ $b = 0.61540 + 3.28212I$	$15.2731 + 10.5913I$	$6.79989 - 5.68919I$
$u = -0.996075 - 0.858678I$ $a = -1.86455 - 1.56620I$ $b = 0.61540 - 3.28212I$	$15.2731 - 10.5913I$	$6.79989 + 5.68919I$
$u = 0.493543 + 0.417386I$ $a = -0.243260 - 0.166657I$ $b = 0.698144 + 0.266835I$	$1.336670 + 0.113896I$	$6.51816 + 0.27618I$
$u = 0.493543 - 0.417386I$ $a = -0.243260 + 0.166657I$ $b = 0.698144 - 0.266835I$	$1.336670 - 0.113896I$	$6.51816 - 0.27618I$
$u = 0.370909$ $a = -1.28999$ $b = 0.636266$	1.14285	10.2090

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

(i) Arc colorings

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

(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	$u^3 - u^2 + 1$
c_2, c_3	$(u+1)^3$
c_4, c_9	u^3
c_5	$(u-1)^3$
c_6, c_{10}	$u^3 - u^2 + 2u - 1$
c_7	$u^3 + u^2 - 1$
c_8	$u^3 + u^2 + 2u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = -0.877439 - 0.744862I$ $b = -0.215080 - 1.307140I$	$4.66906 - 2.82812I$	$7.71191 + 2.59975I$
$u = 0.877439 - 0.744862I$ $a = -0.877439 + 0.744862I$ $b = -0.215080 + 1.307140I$	$4.66906 + 2.82812I$	$7.71191 - 2.59975I$
$u = -0.754878$ $a = 0.754878$ $b = -0.569840$	0.531480	-4.42380

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - u^2 + 1)(u^{26} + 2u^{25} + \cdots + 2u - 1)$
c_2, c_3	$((u + 1)^3)(u^{26} + 4u^{25} + \cdots - u - 1)$
c_4, c_9	$u^3(u^{26} - u^{25} + \cdots - 12u + 8)$
c_5	$((u - 1)^3)(u^{26} + 4u^{25} + \cdots - u - 1)$
c_6, c_{10}	$(u^3 - u^2 + 2u - 1)(u^{26} + 6u^{25} + \cdots + 14u + 1)$
c_7	$(u^3 + u^2 - 1)(u^{26} + 2u^{25} + \cdots + 2u - 1)$
c_8	$(u^3 + u^2 + 2u + 1)(u^{26} + 6u^{25} + \cdots + 14u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^3 - y^2 + 2y - 1)(y^{26} - 6y^{25} + \cdots - 14y + 1)$
c_2, c_3, c_5	$((y-1)^3)(y^{26} - 28y^{25} + \cdots + 9y + 1)$
c_4, c_9	$y^3(y^{26} - 21y^{25} + \cdots - 272y + 64)$
c_6, c_8, c_{10}	$(y^3 + 3y^2 + 2y - 1)(y^{26} + 30y^{25} + \cdots - 38y + 1)$