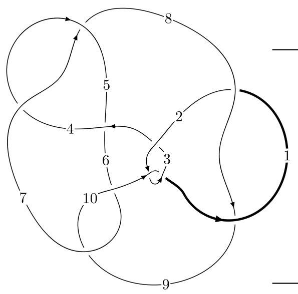
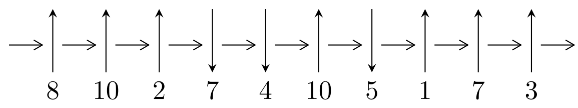
10_{151} ($K10n_8$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle &-833147u^{23} + 1409387u^{22} + \cdots + 10226089b - 1216520, \\ &4990546u^{23} - 13216360u^{22} + \cdots + 10226089a + 40011410,\ u^{24} - 2u^{23} + \cdots - 3u + 1\rangle \\ I_2^u = \langle &b,\ -u^2 + a + 2u - 1,\ u^3 - u^2 + 1\rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 27 representations.

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[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.

$\boldsymbol{I_1^u = \langle -8.33\times 10^{5} u^{23} + 1.41\times 10^{6} u^{22} + \cdots + 1.02\times 10^{7} b - 1.22\times 10^{6},\ 4.99\times 10^{6} u^{23} - 1.32\times 10^{7} u^{22} + \cdots + 1.02\times 10^{7} a + 4.00\times 10^{7},\ u^{24} - 2u^{23} + \cdots - 3u + 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} -0.488021u^{23} + 1.29242u^{22} + \cdots + 5.71281u - 3.91268 \\ 0.0814727u^{23} - 0.137823u^{22} + \cdots + 1.40274u + 0.118962 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.569494u^{23} + 1.43024u^{22} + \cdots + 4.31007u - 4.03164 \\ 0.0814727u^{23} - 0.137823u^{22} + \cdots + 1.40274u + 0.118962 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0477684u^{23} + 0.550317u^{22} + \cdots + 4.78103u - 4.28575 \\ -0.244418u^{23} + 0.413468u^{22} + \cdots + 0.791784u + 0.643113 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.22719u^{23} - 2.03273u^{22} + \cdots - 1.49320u - 0.914334 \\ -0.824903u^{23} + 1.42138u^{22} + \cdots - 1.76223u + 0.824685 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.83274u^{23} - 2.23578u^{22} + \cdots + 0.231291u - 1.31738 \\ -1.42969u^{23} + 2.03524u^{22} + \cdots - 4.18083u + 1.83274 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{65252793}{10226089}u^{23} + \frac{159009903}{10226089}u^{22} + \cdots + \frac{182141648}{10226089}u - \frac{68504184}{10226089}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{24} + 2u^{23} + \cdots - u - 1$
c_2, c_{10}	$u^{24} + 2u^{23} + \cdots + 3u + 1$
c_3	$u^{24} - 14u^{23} + \cdots - u + 1$
c_4, c_7	$u^{24} - 4u^{23} + \cdots + 10u - 1$
c_5	$u^{24} + 8u^{23} + \cdots + 90u + 1$
c_6, c_9	$u^{24} + 3u^{23} + \cdots - 4u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{24} + 6y^{23} + \cdots - y + 1$
c_2, c_{10}	$y^{24} - 14y^{23} + \cdots - y + 1$
c_3	$y^{24} - 6y^{23} + \cdots + 11y + 1$
c_4, c_7	$y^{24} - 8y^{23} + \cdots - 90y + 1$
c_5	$y^{24} + 20y^{23} + \cdots - 6310y + 1$
c_6, c_9	$y^{24} - 21y^{23} + \cdots - 1360y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.133944 + 0.985428I$ $a = -0.133373 - 0.081418I$ $b = 1.35330 - 0.50270I$	$1.59272 - 6.31600I$	$2.35122 + 4.70660I$
$u = 0.133944 - 0.985428I$ $a = -0.133373 + 0.081418I$ $b = 1.35330 + 0.50270I$	$1.59272 + 6.31600I$	$2.35122 - 4.70660I$
$u = -1.032750 + 0.196704I$ $a = -1.025870 - 0.498775I$ $b = 0.009347 - 0.679382I$	$0.987314 - 0.802036I$	$5.27434 - 1.50428I$
$u = -1.032750 - 0.196704I$ $a = -1.025870 + 0.498775I$ $b = 0.009347 + 0.679382I$	$0.987314 + 0.802036I$	$5.27434 + 1.50428I$
$u = 1.020340 + 0.341153I$ $a = 0.651605 + 0.756937I$ $b = -0.08172 - 1.46525I$	$0.26071 + 4.16679I$	$3.46466 - 8.01442I$
$u = 1.020340 - 0.341153I$ $a = 0.651605 - 0.756937I$ $b = -0.08172 + 1.46525I$	$0.26071 - 4.16679I$	$3.46466 + 8.01442I$
$u = -0.902544$ $a = 4.79120$ $b = -0.343821$	-0.317600	45.9600
$u = -0.141058 + 0.853854I$ $a = -0.089032 - 0.200554I$ $b = -1.319370 + 0.101644I$	$2.79538 - 0.43178I$	$4.38138 + 0.30823I$
$u = -0.141058 - 0.853854I$ $a = -0.089032 + 0.200554I$ $b = -1.319370 - 0.101644I$	$2.79538 + 0.43178I$	$4.38138 - 0.30823I$
$u = 0.752210 + 0.267079I$ $a = -1.94833 + 0.55932I$ $b = 1.117460 - 0.519931I$	$-2.35229 + 1.42722I$	$-1.68393 - 3.84628I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.752210 - 0.267079I$ $a = -1.94833 - 0.55932I$ $b = 1.117460 + 0.519931I$	$-2.35229 - 1.42722I$	$-1.68393 + 3.84628I$
$u = 0.880632 + 0.820126I$ $a = -0.090055 + 0.319503I$ $b = 0.608596 + 0.043662I$	$-4.05969 + 3.04416I$	$8.04257 - 4.79385I$
$u = 0.880632 - 0.820126I$ $a = -0.090055 - 0.319503I$ $b = 0.608596 - 0.043662I$	$-4.05969 - 3.04416I$	$8.04257 + 4.79385I$
$u = 1.261230 + 0.403008I$ $a = 1.87210 - 0.55612I$ $b = -1.74618 - 0.41138I$	$7.02540 + 4.75296I$	$7.35135 - 3.93540I$
$u = 1.261230 - 0.403008I$ $a = 1.87210 + 0.55612I$ $b = -1.74618 + 0.41138I$	$7.02540 - 4.75296I$	$7.35135 + 3.93540I$
$u = -1.226420 + 0.541913I$ $a = 1.26642 + 1.12148I$ $b = -1.45013 + 0.30367I$	$6.00062 - 4.69466I$	$6.29135 + 3.58966I$
$u = -1.226420 - 0.541913I$ $a = 1.26642 - 1.12148I$ $b = -1.45013 - 0.30367I$	$6.00062 + 4.69466I$	$6.29135 - 3.58966I$
$u = -0.651560$ $a = -0.544856$ $b = -0.332876$	1.00318	10.1720
$u = -1.333920 + 0.388157I$ $a = -1.36316 - 0.85334I$ $b = 1.45282 + 0.12914I$	$6.33160 + 1.53755I$	$6.60463 - 2.15708I$
$u = -1.333920 - 0.388157I$ $a = -1.36316 + 0.85334I$ $b = 1.45282 - 0.12914I$	$6.33160 - 1.53755I$	$6.60463 + 2.15708I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.275550 + 0.553583I$ $a = -1.75052 + 0.73489I$ $b = 1.54670 + 0.71042I$	$5.11209 + 11.84300I$	$4.87428 - 7.23803I$
$u = 1.275550 - 0.553583I$ $a = -1.75052 - 0.73489I$ $b = 1.54670 - 0.71042I$	$5.11209 - 11.84300I$	$4.87428 + 7.23803I$
$u = 0.187302 + 0.360950I$ $a = -2.01295 + 1.18210I$ $b = 0.347518 + 0.813420I$	$-1.83004 - 1.07762I$	$-2.51766 + 1.69232I$
$u = 0.187302 - 0.360950I$ $a = -2.01295 - 1.18210I$ $b = 0.347518 - 0.813420I$	$-1.83004 + 1.07762I$	$-2.51766 - 1.69232I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^2 - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_8	$y^3 + 3y^2 + 2y - 1$
c_2, c_{10}	$y^3 - y^2 + 2y - 1$
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
$u = 0.877439 + 0.744862I$ $a = -0.539798 - 0.182582I$ $b = 0$	$-4.66906 + 2.82812I$	$-4.21508 - 1.30714I$
$u = 0.877439 - 0.744862I$ $a = -0.539798 + 0.182582I$ $b = 0$	$-4.66906 - 2.82812I$	$-4.21508 + 1.30714I$
$u = -0.754878$ $a = 3.07960$ $b = 0$	-0.531480	-4.56980

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3 - u^2 + 2u - 1)(u^{24} + 2u^{23} + \cdots - u - 1)$
c_2	$(u^3 + u^2 - 1)(u^{24} + 2u^{23} + \cdots + 3u + 1)$
c_3	$(u^3 - u^2 + 2u - 1)(u^{24} - 14u^{23} + \cdots - u + 1)$
c_4	$((u - 1)^3)(u^{24} - 4u^{23} + \cdots + 10u - 1)$
c_5	$((u + 1)^3)(u^{24} + 8u^{23} + \cdots + 90u + 1)$
c_6, c_9	$u^3(u^{24} + 3u^{23} + \cdots - 4u + 8)$
c_7	$((u + 1)^3)(u^{24} - 4u^{23} + \cdots + 10u - 1)$
c_8	$(u^3 + u^2 + 2u + 1)(u^{24} + 2u^{23} + \cdots - u - 1)$
c_{10}	$(u^3 - u^2 + 1)(u^{24} + 2u^{23} + \cdots + 3u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^3 + 3y^2 + 2y - 1)(y^{24} + 6y^{23} + \cdots - y + 1)$
c_2, c_{10}	$(y^3 - y^2 + 2y - 1)(y^{24} - 14y^{23} + \cdots - y + 1)$
c_3	$(y^3 + 3y^2 + 2y - 1)(y^{24} - 6y^{23} + \cdots + 11y + 1)$
c_4, c_7	$((y - 1)^3)(y^{24} - 8y^{23} + \cdots - 90y + 1)$
c_5	$((y - 1)^3)(y^{24} + 20y^{23} + \cdots - 6310y + 1)$
c_6, c_9	$y^3(y^{24} - 21y^{23} + \cdots - 1360y + 64)$