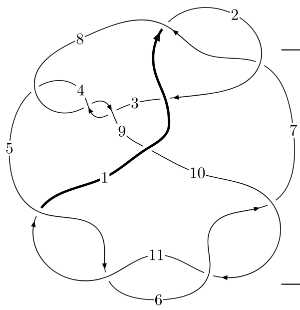
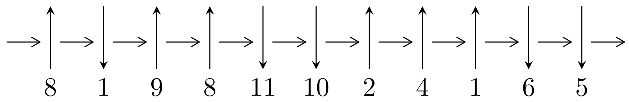
$11n_{141}$ ($K11n_{141}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$5,8 \xrightarrow[c_4]{} 4 \xrightarrow[c_8]{} 9 \xrightarrow[c_3]{} 1,3 \xrightarrow[c_2]{} 2 \xrightarrow[c_{11}]{} 11 \xrightarrow[c_5]{} 6 \xrightarrow[c_{10}]{} 10 \xrightarrow[c_6]{} 7 \twoheadrightarrow c_1, c_7, c_9$$

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

$$I_1^u = \langle -u^7 - u^6 - 6u^5 - 7u^4 - 9u^3 - 15u^2 + 4b - 1,\ a - 1,\ u^8 + 7u^6 + u^5 + 14u^4 + 4u^3 + 5u^2 - u + 1 \rangle$$
$$I_2^u = \langle -u^5 + 2u^4 - u^3 + 5u^2 + 5b - u,\ u^5 + 2u^3 + 2u^2 + 5a + u + 7,\ u^6 - u^5 + 4u^4 - 4u^3 + 6u^2 - 4u + 5 \rangle$$
$$I_3^u = \langle b^2 + bu + 1,\ a + 1,\ u^2 + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 18 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. $\boldsymbol{I_1^u = \langle -u^7 - u^6 - 6u^5 - 7u^4 - 9u^3 - 15u^2 + 4b - 1,\ a - 1,\ u^8 + 7u^6 + u^5 + 14u^4 + 4u^3 + 5u^2 - u + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ \frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots + \frac{15}{4}u^2 + \frac{1}{4} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1 \\ \frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots + \frac{11}{4}u^2 + \frac{1}{4} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots + \frac{15}{4}u^2 + \frac{5}{4} \\ \frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots + \frac{15}{4}u^2 + \frac{1}{4} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots - \frac{1}{2}u + \frac{3}{4} \\ -\frac{1}{2}u^7 - \frac{7}{2}u^5 + \cdots - \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{4}u^7 + \frac{1}{4}u^6 + \cdots + \frac{3}{2}u + \frac{1}{4} \\ \frac{1}{2}u^5 - \frac{1}{2}u^4 + \cdots + 2u - \frac{1}{2} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ \frac{1}{4}u^7 - \frac{1}{4}u^6 + \cdots - \frac{1}{2}u - \frac{1}{4} \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ \frac{1}{4}u^7 - \frac{1}{4}u^6 + \cdots - \frac{1}{2}u - \frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^7 - 2u^6 - 13u^5 - 15u^4 - 25u^3 - 30u^2 - 12u + 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$u^8 + 7u^6 + u^5 + 14u^4 + 4u^3 + 5u^2 - u + 1$
c_2	$u^8 + 14u^7 + 77u^6 + 205u^5 + 260u^4 + 140u^3 + 61u^2 + 9u + 1$
c_5, c_6, c_{10} c_{11}	$u^8 + 3u^7 + 9u^6 + 16u^5 + 23u^4 + 24u^3 + 18u^2 + 7u + 2$
c_9	$u^8 + u^7 + 21u^6 + 24u^5 + 109u^4 + 142u^3 - 10u^2 - 23u + 24$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$y^8 + 14y^7 + 77y^6 + 205y^5 + 260y^4 + 140y^3 + 61y^2 + 9y + 1$
c_2	$y^8 - 42y^7 + \cdots + 41y + 1$
c_5, c_6, c_{10} c_{11}	$y^8 + 9y^7 + 31y^6 + 50y^5 + 47y^4 + 64y^3 + 80y^2 + 23y + 4$
c_9	$y^8 + 41y^7 + \cdots - 1009y + 576$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.405950 + 0.590547I$ $a = 1.00000$ $b = -0.00585 - 1.54991I$	$6.99421 - 1.46497I$	$5.63406 + 4.72165I$
$u = -0.405950 - 0.590547I$ $a = 1.00000$ $b = -0.00585 + 1.54991I$	$6.99421 + 1.46497I$	$5.63406 - 4.72165I$
$u = 0.195934 + 0.349055I$ $a = 1.00000$ $b = -0.218002 + 0.455338I$	$0.133570 + 0.902562I$	$2.84755 - 7.78366I$
$u = 0.195934 - 0.349055I$ $a = 1.00000$ $b = -0.218002 - 0.455338I$	$0.133570 - 0.902562I$	$2.84755 + 7.78366I$
$u = 0.33222 + 1.78481I$ $a = 1.00000$ $b = -0.34865 + 1.60107I$	$-9.04281 + 7.80349I$	$0.02756 - 3.21559I$
$u = 0.33222 - 1.78481I$ $a = 1.00000$ $b = -0.34865 - 1.60107I$	$-9.04281 - 7.80349I$	$0.02756 + 3.21559I$
$u = -0.12220 + 1.91634I$ $a = 1.00000$ $b = -0.927504 - 0.597003I$	$-16.1792 - 3.0379I$	$-2.50917 + 2.22003I$
$u = -0.12220 - 1.91634I$ $a = 1.00000$ $b = -0.927504 + 0.597003I$	$-16.1792 + 3.0379I$	$-2.50917 - 2.22003I$

II. $\boldsymbol{I_2^u = \langle -u^5 + 2u^4 - u^3 + 5u^2 + 5b - u,\ u^5 + 2u^3 + 2u^2 + 5a + u + 7,\ u^6 - u^5 + 4u^4 - 4u^3 + 6u^2 - 4u + 5\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{5}u^5 - \frac{2}{5}u^3 + \cdots - \frac{1}{5}u - \frac{7}{5} \\ \frac{1}{5}u^5 - \frac{2}{5}u^4 + \frac{1}{5}u^3 - u^2 + \frac{1}{5}u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{5}u^5 - \frac{2}{5}u^3 + \cdots - \frac{1}{5}u - \frac{7}{5} \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{2}{5}u^4 - \frac{1}{5}u^3 - \frac{7}{5}u^2 - \frac{7}{5} \\ \frac{1}{5}u^5 - \frac{2}{5}u^4 + \frac{1}{5}u^3 - u^2 + \frac{1}{5}u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{2}{5}u^5 - \frac{2}{5}u^4 + \cdots + \frac{7}{5}u - \frac{8}{5} \\ \frac{2}{5}u^5 - \frac{4}{5}u^4 + \cdots + \frac{7}{5}u - 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} \frac{1}{5}u^5 - \frac{1}{5}u^4 + \cdots + \frac{6}{5}u - \frac{4}{5} \\ \frac{1}{5}u^5 - \frac{2}{5}u^4 + \cdots + \frac{6}{5}u - 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{2}{5}u^5 - \frac{3}{5}u^4 + \cdots + \frac{12}{5}u - \frac{9}{5} \\ \frac{1}{5}u^5 - \frac{2}{5}u^4 + \cdots + \frac{6}{5}u - 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{2}{5}u^5 - \frac{3}{5}u^4 + \cdots + \frac{12}{5}u - \frac{9}{5} \\ \frac{1}{5}u^5 - \frac{2}{5}u^4 + \cdots + \frac{6}{5}u - 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{4}{5}u^5 + \frac{8}{5}u^4 - \frac{24}{5}u^3 + 4u^2 - \frac{24}{5}u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$u^6 - u^5 + 4u^4 - 4u^3 + 6u^2 - 4u + 5$
c_2	$u^6 + 7u^5 + 20u^4 + 34u^3 + 44u^2 + 44u + 25$
c_5, c_6, c_{10} c_{11}	$(u^3 - u^2 + 2u - 1)^2$
c_9	$(u^3 - u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$y^6 + 7y^5 + 20y^4 + 34y^3 + 44y^2 + 44y + 25$
c_2	$y^6 - 9y^5 + 12y^4 + 38y^3 - 56y^2 + 264y + 625$
c_5, c_6, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_9	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.862082 + 0.785389I$ $a = -0.873959 - 0.978854I$ $b = 0.215080 - 1.307140I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$
$u = 0.862082 - 0.785389I$ $a = -0.873959 + 0.978854I$ $b = 0.215080 + 1.307140I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = -0.377439 + 1.194730I$ $a = -0.818504 + 0.574501I$ $b = 0.569840$	-4.40332	$-5.01951 + 0.I$
$u = -0.377439 - 1.194730I$ $a = -0.818504 - 0.574501I$ $b = 0.569840$	-4.40332	$-5.01951 + 0.I$
$u = 0.01536 + 1.53025I$ $a = -0.507537 - 0.568454I$ $b = 0.215080 + 1.307140I$	$-0.26574 - 2.82812I$	$1.50976 + 2.97945I$
$u = 0.01536 - 1.53025I$ $a = -0.507537 + 0.568454I$ $b = 0.215080 - 1.307140I$	$-0.26574 + 2.82812I$	$1.50976 - 2.97945I$

III. $I_3^u = \langle b^2 + bu + 1,\ a + 1,\ u^2 + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ b \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ b - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} b - 1 \\ b \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -bu - b \\ -bu - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} bu + u \\ -b + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ bu \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ bu \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$(y+1)^4$
c_2	$(y-1)^4$
c_5, c_6, c_{10} c_{11}	$(y^2+3y+1)^2$
c_9	$(y^2-3y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -1.00000$ $b = 0.618034I$	-2.30291	0
$u = 1.000000I$ $a = -1.00000$ $b = -1.61803I$	5.59278	0
$u = -1.000000I$ $a = -1.00000$ $b = -0.618034I$	-2.30291	0
$u = -1.000000I$ $a = -1.00000$ $b = 1.61803I$	5.59278	0

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$(u^2+1)^2(u^6-u^5+4u^4-4u^3+6u^2-4u+5)$ $\cdot\,(u^8+7u^6+u^5+14u^4+4u^3+5u^2-u+1)$
c_2	$(u+1)^4(u^6+7u^5+20u^4+34u^3+44u^2+44u+25)$ $\cdot\,(u^8+14u^7+77u^6+205u^5+260u^4+140u^3+61u^2+9u+1)$
c_5, c_6, c_{10} c_{11}	$(u^3-u^2+2u-1)^2(u^4+3u^2+1)$ $\cdot\,(u^8+3u^7+9u^6+16u^5+23u^4+24u^3+18u^2+7u+2)$
c_9	$(u^2-u-1)^2(u^3-u^2+1)^2$ $\cdot\,(u^8+u^7+21u^6+24u^5+109u^4+142u^3-10u^2-23u+24)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_8	$(y+1)^4(y^6+7y^5+20y^4+34y^3+44y^2+44y+25)$ $\cdot\,(y^8+14y^7+77y^6+205y^5+260y^4+140y^3+61y^2+9y+1)$
c_2	$(y-1)^4(y^6-9y^5+12y^4+38y^3-56y^2+264y+625)$ $\cdot\,(y^8-42y^7+\cdots+41y+1)$
c_5, c_6, c_{10} c_{11}	$(y^2+3y+1)^2(y^3+3y^2+2y-1)^2$ $\cdot\,(y^8+9y^7+31y^6+50y^5+47y^4+64y^3+80y^2+23y+4)$
c_9	$((y^2-3y+1)^2)(y^3-y^2+2y-1)^2(y^8+41y^7+\cdots-1009y+576)$