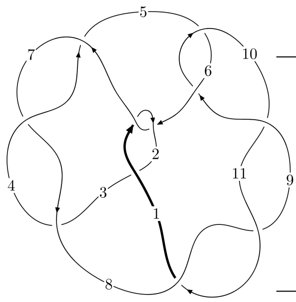
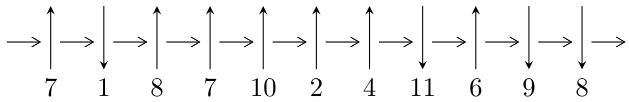
$11n_{101}$ ($K11n_{101}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -u^2 + b,\ -u^{12} + u^{11} + u^9 - 8u^8 + 6u^7 + 5u^6 + 2u^5 - 18u^4 + 5u^3 + 15u^2 + 8a + u - 9, \\
& u^{13} + u^{11} - u^{10} + 7u^9 + 3u^7 - 5u^6 + 8u^5 + u^4 + 4u^3 - 2u^2 - 1\rangle \\
I_2^u = \langle & -201u^{11} - 132u^{10} + \cdots + 281b + 62,\ 247u^{11} + 28u^{10} + \cdots + 281a + 72, \\
& u^{12} + u^{11} + 2u^{10} + 2u^9 + 5u^8 + 5u^7 + 13u^6 + 11u^5 + 15u^4 + 11u^3 + 8u^2 + 4u + 1\rangle \\
I_3^u = \langle & b + 1,\ a^3 - a^2u - 2a + u,\ u^2 + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 31 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. $\boldsymbol{I_1^u = \langle -u^2 + b,\ -u^{12} + u^{11} + \cdots + 8a - 9,\ u^{13} + u^{11} + \cdots - 2u^2 - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} \frac{1}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - \frac{1}{8}u + \frac{9}{8} \\ u^2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} \frac{1}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - \frac{1}{8}u + \frac{9}{8} \\ -u^4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{1}{8}u^{12} + \frac{1}{8}u^{11} + \cdots - \frac{17}{8}u - \frac{1}{8} \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - \frac{1}{8}u + \frac{9}{8} \\ \frac{1}{8}u^{12} - \frac{1}{8}u^{11} + \cdots - \frac{1}{8}u + \frac{1}{8} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{7}{8}u^{12} + \frac{3}{8}u^{11} + \cdots - \frac{17}{8}u - \frac{5}{8} \\ \frac{1}{2}u^{12} + \frac{1}{4}u^{10} + \cdots + \frac{1}{4}u - \frac{1}{4} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{8}u^{12} + \frac{9}{8}u^{11} + \cdots + \frac{7}{8}u - \frac{13}{8} \\ \frac{7}{8}u^{12} - \frac{3}{8}u^{11} + \cdots - \frac{5}{8}u - \frac{3}{8} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{8}u^{12} + \frac{9}{8}u^{11} + \cdots + \frac{7}{8}u - \frac{13}{8} \\ \frac{7}{8}u^{12} - \frac{3}{8}u^{11} + \cdots - \frac{5}{8}u - \frac{3}{8} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 4u^{12} + \frac{7}{2}u^{10} - \frac{7}{2}u^9 + \frac{55}{2}u^8 + u^7 + \frac{15}{2}u^6 - 16u^5 + 30u^4 + 9u^3 + 5u^2 - \frac{1}{2}u + \frac{5}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$u^{13} + u^{11} - u^{10} + 7u^9 + 3u^7 - 5u^6 + 8u^5 + u^4 + 4u^3 - 2u^2 - 1$
c_2	$u^{13} + 2u^{12} + \cdots - 4u - 1$
c_5, c_9	$u^{13} - 3u^{12} + \cdots + 5u - 2$
c_8, c_{10}, c_{11}	$u^{13} + 3u^{12} + \cdots + 5u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$y^{13} + 2y^{12} + \cdots - 4y - 1$
c_2	$y^{13} + 26y^{12} + \cdots + 12y - 1$
c_5, c_9	$y^{13} + 3y^{12} + \cdots + 5y - 4$
c_8, c_{10}, c_{11}	$y^{13} + 15y^{12} + \cdots + 177y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.871545 + 0.665952I$ $a = -0.145280 - 0.753872I$ $b = 0.316099 + 1.160810I$	$2.81429 + 2.20167I$	$6.81300 - 2.37182I$
$u = 0.871545 - 0.665952I$ $a = -0.145280 + 0.753872I$ $b = 0.316099 - 1.160810I$	$2.81429 - 2.20167I$	$6.81300 + 2.37182I$
$u = -0.745925 + 0.860258I$ $a = -0.294264 + 1.109470I$ $b = -0.183640 - 1.283380I$	$1.03858 - 7.07395I$	$2.58380 + 8.11816I$
$u = -0.745925 - 0.860258I$ $a = -0.294264 - 1.109470I$ $b = -0.183640 + 1.283380I$	$1.03858 + 7.07395I$	$2.58380 - 8.11816I$
$u = -0.438163 + 0.579645I$ $a = 0.727972 + 1.025400I$ $b = -0.144001 - 0.507958I$	$-2.29540 - 1.46021I$	$-0.76105 + 4.77537I$
$u = -0.438163 - 0.579645I$ $a = 0.727972 - 1.025400I$ $b = -0.144001 + 0.507958I$	$-2.29540 + 1.46021I$	$-0.76105 - 4.77537I$
$u = 0.622206$ $a = 0.441815$ $b = 0.387141$	0.957360	10.3810
$u = -0.052177 + 0.598239I$ $a = 2.07278 + 0.29749I$ $b = -0.355168 - 0.062429I$	$1.24085 + 2.67797I$	$5.53095 - 2.23117I$
$u = -0.052177 - 0.598239I$ $a = 2.07278 - 0.29749I$ $b = -0.355168 + 0.062429I$	$1.24085 - 2.67797I$	$5.53095 + 2.23117I$
$u = -0.95082 + 1.19131I$ $a = -0.819335 + 0.844166I$ $b = -0.51516 - 2.26544I$	$10.8970 - 11.1670I$	$4.44754 + 6.34112I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.95082 - 1.19131I$ $a = -0.819335 - 0.844166I$ $b = -0.51516 + 2.26544I$	$10.8970 + 11.1670I$	$4.44754 - 6.34112I$
$u = 1.00444 + 1.14917I$ $a = -0.762781 - 0.795622I$ $b = -0.31170 + 2.30854I$	$11.32250 + 4.40088I$	$5.19535 - 1.84237I$
$u = 1.00444 - 1.14917I$ $a = -0.762781 + 0.795622I$ $b = -0.31170 - 2.30854I$	$11.32250 - 4.40088I$	$5.19535 + 1.84237I$

II. $\boldsymbol{I_2^u = \langle -201u^{11} - 132u^{10} + \cdots + 281b + 62,\ 247u^{11} + 28u^{10} + \cdots + 281a + 72,\ u^{12} + u^{11} + \cdots + 4u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.879004u^{11} - 0.0996441u^{10} + \cdots - 4.62633u - 0.256228 \\ 0.715302u^{11} + 0.469751u^{10} + \cdots + 2.23843u - 0.220641 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.59431u^{11} - 0.569395u^{10} + \cdots - 6.86477u - 1.03559 \\ 1.23132u^{11} + 0.868327u^{10} + \cdots + 4.74377u + 0.804270 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.754448u^{11} - 0.555160u^{10} + \cdots - 4.91815u - 3.28470 \\ 0.661922u^{11} - 0.192171u^{10} + \cdots + 0.220641u + 0.362989 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.879004u^{11} - 0.0996441u^{10} + \cdots - 4.62633u - 0.256228 \\ 1.43060u^{11} + 0.939502u^{10} + \cdots + 4.47687u + 0.558719 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.77936u^{11} - 1.06406u^{10} + \cdots - 10.2598u - 4.87900 \\ 1.27046u^{11} + 0.953737u^{10} + \cdots + 6.42349u + 2.30961 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ 1.43060u^{11} + 0.939502u^{10} + \cdots + 4.47687u + 1.55872 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 - 1 \\ 1.43060u^{11} + 0.939502u^{10} + \cdots + 4.47687u + 1.55872 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{212}{281}u^{11} + \frac{1280}{281}u^{10} + \frac{404}{281}u^9 + \frac{1208}{281}u^8 + \frac{1568}{281}u^7 + \frac{4548}{281}u^6 + \frac{3124}{281}u^5 + \frac{10520}{281}u^4 + \frac{2840}{281}u^3 + \frac{6608}{281}u^2 + \frac{1944}{281}u + \frac{1766}{281}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$u^{12} + u^{11} + \cdots + 4u + 1$
c_2	$u^{12} + 3u^{11} + \cdots + 6u^2 + 1$
c_5, c_9	$(u^6 + u^5 + u^4 + 2u^2 + u + 1)^2$
c_8, c_{10}, c_{11}	$(u^6 + u^5 + 5u^4 + 4u^3 + 6u^2 + 3u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$y^{12} + 3y^{11} + \cdots + 6y^2 + 1$
c_2	$y^{12} + 11y^{11} + \cdots + 12y + 1$
c_5, c_9	$(y^6 + y^5 + 5y^4 + 4y^3 + 6y^2 + 3y + 1)^2$
c_8, c_{10}, c_{11}	$(y^6 + 9y^5 + 29y^4 + 40y^3 + 22y^2 + 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.276186 + 0.937280I$ $a = 1.096930 + 0.475717I$ $b = 0.126264 - 0.186282I$	$1.35295 + 2.65597I$	$5.58115 - 3.39809I$
$u = 0.276186 - 0.937280I$ $a = 1.096930 - 0.475717I$ $b = 0.126264 + 0.186282I$	$1.35295 - 2.65597I$	$5.58115 + 3.39809I$
$u = -0.247920 + 0.814674I$ $a = -0.293452 + 0.484072I$ $b = -1.372270 + 0.172983I$	$-3.54796 - 1.10871I$	$0.46385 + 6.18117I$
$u = -0.247920 - 0.814674I$ $a = -0.293452 - 0.484072I$ $b = -1.372270 - 0.172983I$	$-3.54796 + 1.10871I$	$0.46385 - 6.18117I$
$u = -0.073688 + 1.173750I$ $a = 0.321857 + 0.253794I$ $b = -0.602229 + 0.403948I$	$-3.54796 + 1.10871I$	$0.46385 - 6.18117I$
$u = -0.073688 - 1.173750I$ $a = 0.321857 - 0.253794I$ $b = -0.602229 - 0.403948I$	$-3.54796 - 1.10871I$	$0.46385 + 6.18117I$
$u = -1.18584 + 0.84722I$ $a = 0.727937 - 0.977012I$ $b = 0.46202 + 2.13527I$	$12.06460 + 3.42721I$	$5.95500 - 2.25224I$
$u = -1.18584 - 0.84722I$ $a = 0.727937 + 0.977012I$ $b = 0.46202 - 2.13527I$	$12.06460 - 3.42721I$	$5.95500 + 2.25224I$
$u = 1.15037 + 0.92808I$ $a = 0.735494 + 0.949873I$ $b = 0.68843 - 2.00934I$	$12.06460 + 3.42721I$	$5.95500 - 2.25224I$
$u = 1.15037 - 0.92808I$ $a = 0.735494 - 0.949873I$ $b = 0.68843 + 2.00934I$	$12.06460 - 3.42721I$	$5.95500 + 2.25224I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.419110+0.222236I$ $a=\ 1.41124-2.01830I$ $b=-0.802215+0.517727I$	$1.35295+2.65597I$	$5.58115-3.39809I$
$u=-0.419110-0.222236I$ $a=\ 1.41124+2.01830I$ $b=-0.802215-0.517727I$	$1.35295-2.65597I$	$5.58115+3.39809I$

III. $I_3^u = \langle b+1,\ a^3 - a^2u - 2a + u,\ u^2+1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a+1 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} au \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ a-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -a^2u \\ -a^2u + au + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -a^2u - a + u \\ -a^2u + a^2 + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -a^2u - a + u \\ -a^2u + a^2 + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a^2 - 4au - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$(y+1)^6$
c_2	$(y-1)^6$
c_5, c_9	$(y^3+y^2+2y+1)^2$
c_8, c_{10}, c_{11}	$(y^3+3y^2+2y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.307140 + 0.215080I$ $b = -1.00000$	$-0.26574 + 2.82812I$	$-0.49024 - 2.97945I$
$u = 1.000000I$ $a = -1.307140 + 0.215080I$ $b = -1.00000$	$-0.26574 - 2.82812I$	$-0.49024 + 2.97945I$
$u = 1.000000I$ $a = 0.569840I$ $b = -1.00000$	-4.40332	-7.01950
$u = -1.000000I$ $a = -1.307140 - 0.215080I$ $b = -1.00000$	$-0.26574 - 2.82812I$	$-0.49024 + 2.97945I$
$u = -1.000000I$ $a = 1.307140 - 0.215080I$ $b = -1.00000$	$-0.26574 + 2.82812I$	$-0.49024 - 2.97945I$
$u = -1.000000I$ $a = -0.569840I$ $b = -1.00000$	-4.40332	-7.01950

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$((u^2+1)^3)(u^{12}+u^{11}+\cdots+4u+1)$ $\cdot\,(u^{13}+u^{11}-u^{10}+7u^9+3u^7-5u^6+8u^5+u^4+4u^3-2u^2-1)$
c_2	$((u+1)^6)(u^{12}+3u^{11}+\cdots+6u^2+1)(u^{13}+2u^{12}+\cdots-4u-1)$
c_5, c_9	$(u^6+u^4+2u^2+1)(u^6+u^5+u^4+2u^2+u+1)^2$ $\cdot\,(u^{13}-3u^{12}+\cdots+5u-2)$
c_8	$(u^3-u^2+2u-1)^2(u^6+u^5+5u^4+4u^3+6u^2+3u+1)^2$ $\cdot\,(u^{13}+3u^{12}+\cdots+5u-4)$
c_{10}, c_{11}	$(u^3+u^2+2u+1)^2(u^6+u^5+5u^4+4u^3+6u^2+3u+1)^2$ $\cdot\,(u^{13}+3u^{12}+\cdots+5u-4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_6, c_7	$((y+1)^6)(y^{12}+3y^{11}+\cdots+6y^2+1)(y^{13}+2y^{12}+\cdots-4y-1)$
c_2	$((y-1)^6)(y^{12}+11y^{11}+\cdots+12y+1)(y^{13}+26y^{12}+\cdots+12y-1)$
c_5, c_9	$(y^3+y^2+2y+1)^2(y^6+y^5+5y^4+4y^3+6y^2+3y+1)^2$ $\cdot (y^{13}+3y^{12}+\cdots+5y-4)$
c_8, c_{10}, c_{11}	$(y^3+3y^2+2y-1)^2(y^6+9y^5+29y^4+40y^3+22y^2+3y+1)^2$ $\cdot (y^{13}+15y^{12}+\cdots+177y-16)$