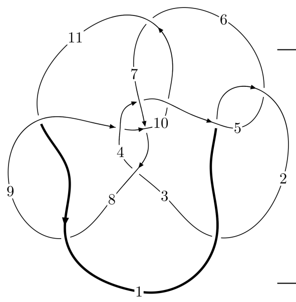
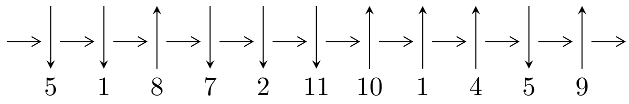
$11n_{96}$ $(K11n_{96})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-49163590906u^{11} + 107218013353u^{10} + \cdots + 21229569666128b + 7549955391253,\\
&-3432579931219u^{11} + 9265624647069u^{10} + \cdots + 891641925977376a + 779226085539559,\\
&u^{12} - 18u^{10} - 3u^9 + 95u^8 + 104u^7 + 172u^6 - 39u^5 - 97u^4 - 126u^3 + 90u^2 + 56u + 21\rangle\\
I_2^u = \langle &u^4 + 2u^3 + b,\ 2u^4 + 4u^3 + u^2 + a + 3u,\ u^5 + 3u^4 + 3u^3 + 3u^2 + 2u + 1\rangle\\
I_3^u = \langle &-2a^3 - a^2 + b - 5a + 3,\ a^4 + 2a^2 - 3a + 1,\ u - 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 21 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. $\boldsymbol{I_1^u = \langle -4.92 \times 10^{10} u^{11} + 1.07 \times 10^{11} u^{10} + \cdots + 2.12 \times 10^{13} b + 7.55 \times 10^{12},\ -3.43 \times 10^{12} u^{11} + 9.27 \times 10^{12} u^{10} + \cdots + 8.92 \times 10^{14} a + 7.79 \times 10^{14},\ u^{12} - 18u^{10} + \cdots + 56u + 21 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.00384973u^{11} - 0.0103916u^{10} + \cdots + 0.0171393u - 0.873923 \\ 0.00231581u^{11} - 0.00505041u^{10} + \cdots + 0.944426u - 0.355634 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00153392u^{11} - 0.00534123u^{10} + \cdots - 0.927287u - 0.518289 \\ 0.00231581u^{11} - 0.00505041u^{10} + \cdots + 0.944426u - 0.355634 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.00463890u^{11} + 0.00727890u^{10} + \cdots - 0.777940u + 1.33085 \\ -0.00697735u^{11} + 0.00595506u^{10} + \cdots - 0.776534u + 0.0957645 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.00463890u^{11} + 0.00727890u^{10} + \cdots - 0.777940u + 1.33085 \\ -0.00382620u^{11} + 0.00729647u^{10} + \cdots - 0.466333u + 0.248621 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0229677u^{11} + 0.00971661u^{10} + \cdots - 4.00235u - 0.352817 \\ -0.00186562u^{11} - 0.00155113u^{10} + \cdots + 0.277243u - 0.308445 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.00384973u^{11} + 0.0103916u^{10} + \cdots - 0.0171393u + 0.873923 \\ 0.00382620u^{11} - 0.00729647u^{10} + \cdots + 0.466333u - 0.248621 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.00384973u^{11} + 0.0103916u^{10} + \cdots - 0.0171393u + 0.873923 \\ 0.00382620u^{11} - 0.00729647u^{10} + \cdots + 0.466333u - 0.248621 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{6189983418965}{84918278664512} u^{11} + \frac{16502343753 73}{84918278664512} u^{10} + \cdots + \frac{95722121856831}{84918278664512} u + \frac{414947504713599}{84918278664512}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{12} - 18u^{10} + \cdots - 56u + 21$
c_2	$u^{12} + 36u^{11} + \cdots - 644u + 441$
c_3	$u^{12} + 43u^{10} + \cdots - 242u + 713$
c_4	$u^{12} - 3u^{11} + 4u^{10} - u^9 + u^8 - 6u^7 + 8u^6 + u^5 - 5u^4 - u^3 + 4u^2 - 3u + 1$
c_6	$u^{12} + 2u^{11} + \cdots + 211u + 199$
c_7	$u^{12} + 4u^{11} + \cdots - 56u + 48$
c_8, c_{11}	$u^{12} + 2u^{11} + \cdots - 2u + 1$
c_9	$u^{12} + 9u^{11} + \cdots + 32u + 8$
c_{10}	$u^{12} - u^{11} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{12} - 36y^{11} + \cdots + 644y + 441$
c_2	$y^{12} - 268y^{11} + \cdots + 15582980y + 194481$
c_3	$y^{12} + 86y^{11} + \cdots - 2050686y + 508369$
c_4	$y^{12} - y^{11} + \cdots - y + 1$
c_6	$y^{12} - 50y^{11} + \cdots - 181433y + 39601$
c_7	$y^{12} + 14y^{11} + \cdots + 19136y + 2304$
c_8, c_{11}	$y^{12} + 30y^{11} + \cdots - 34y + 1$
c_9	$y^{12} - 5y^{11} + \cdots - 160y + 64$
c_{10}	$y^{12} - 31y^{11} + \cdots + 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.695715 + 0.738682I$ $a = 0.84389 - 1.18718I$ $b = -0.353721 - 0.071932I$	$0.40587 + 4.64089I$	$1.41872 - 4.81790I$
$u = -0.695715 - 0.738682I$ $a = 0.84389 + 1.18718I$ $b = -0.353721 + 0.071932I$	$0.40587 - 4.64089I$	$1.41872 + 4.81790I$
$u = 0.778147 + 0.299444I$ $a = -0.811194 - 0.475700I$ $b = 0.333912 - 0.014682I$	$-1.39285 - 0.48352I$	$-6.04456 + 0.14475I$
$u = 0.778147 - 0.299444I$ $a = -0.811194 + 0.475700I$ $b = 0.333912 + 0.014682I$	$-1.39285 + 0.48352I$	$-6.04456 - 0.14475I$
$u = -0.182826 + 1.285270I$ $a = 0.012072 + 0.419952I$ $b = -0.18796 + 1.60199I$	$-4.09909 - 2.92553I$	$-6.51732 + 0.13616I$
$u = -0.182826 - 1.285270I$ $a = 0.012072 - 0.419952I$ $b = -0.18796 - 1.60199I$	$-4.09909 + 2.92553I$	$-6.51732 - 0.13616I$
$u = -0.246048 + 0.302553I$ $a = -0.835828 - 0.015119I$ $b = -0.578983 + 0.267705I$	$1.34063 - 0.78648I$	$4.38906 + 1.25430I$
$u = -0.246048 - 0.302553I$ $a = -0.835828 + 0.015119I$ $b = -0.578983 - 0.267705I$	$1.34063 + 0.78648I$	$4.38906 - 1.25430I$
$u = -3.01586 + 0.46060I$ $a = -0.161563 + 0.704724I$ $b = 0.81768 + 2.58567I$	$18.0497 + 1.3274I$	$-3.03771 + 0.06650I$
$u = -3.01586 - 0.46060I$ $a = -0.161563 - 0.704724I$ $b = 0.81768 - 2.58567I$	$18.0497 - 1.3274I$	$-3.03771 - 0.06650I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 3.36230 + 0.99651I$ $a = -0.214046 - 0.589764I$ $b = 0.96907 - 2.80816I$	$17.7719 - 9.0470I$	$-3.20819 + 3.73893I$
$u = 3.36230 - 0.99651I$ $a = -0.214046 + 0.589764I$ $b = 0.96907 + 2.80816I$	$17.7719 + 9.0470I$	$-3.20819 - 3.73893I$

II.

$\boldsymbol{I_2^u = \langle u^4 + 2u^3 + b,\ 2u^4 + 4u^3 + u^2 + a + 3u,\ u^5 + 3u^4 + 3u^3 + 3u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^4 - 4u^3 - u^2 - 3u \\ -u^4 - 2u^3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^4 - 2u^3 - u^2 - 3u \\ -u^4 - 2u^3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^4 - 3u^3 - 2u^2 - u - 1 \\ u^4 + 3u^3 + 3u^2 + 2u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^4 - 3u^3 - 2u^2 - u - 1 \\ u^3 + 2u^2 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^3 + 2u^2 + u + 2 \\ u^4 + 3u^3 + 4u^2 + 2u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2u^4 + 4u^3 + u^2 + 3u \\ -u^3 - 2u^2 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 2u^4 + 4u^3 + u^2 + 3u \\ -u^3 - 2u^2 - u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -10u^4 - 25u^3 - 19u^2 - 24u - 15$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^5 + 3u^4 + 3u^3 + 3u^2 + 2u + 1$
c_2	$u^5 + 3u^4 - 5u^3 + 3u^2 - 2u + 1$
c_3	$u^5 - u^4 - 2u^3 + 9u^2 - 17u + 11$
c_4	$u^5 - 2u^4 + 2u^3 + u^2 - 2u + 1$
c_5	$u^5 - 3u^4 + 3u^3 - 3u^2 + 2u - 1$
c_6	$u^5 + 3u^4 - 5u^3 - 8u^2 + 9u + 11$
c_7	$u^5 + u^4 - 2u^3 + 3u^2 + 7u + 13$
c_8	$u^5 - u^4 + 3u^3 - 3u^2 + 2u - 1$
c_9	$u^5 - u^3 + u^2 + u - 1$
c_{10}	$u^5 + u^4 - u^3 - u^2 + 1$
c_{11}	$u^5 + u^4 + 3u^3 + 3u^2 + 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^5 - 3y^4 - 5y^3 - 3y^2 - 2y - 1$
c_2	$y^5 - 19y^4 + 3y^3 + 5y^2 - 2y - 1$
c_3	$y^5 - 5y^4 - 12y^3 + 9y^2 + 91y - 121$
c_4	$y^5 + 4y^3 - 5y^2 + 2y - 1$
c_6	$y^5 - 19y^4 + 91y^3 - 220y^2 + 257y - 121$
c_7	$y^5 - 5y^4 + 12y^3 - 63y^2 - 29y - 169$
c_8, c_{11}	$y^5 + 5y^4 + 7y^3 + y^2 - 2y - 1$
c_9	$y^5 - 2y^4 + 3y^3 - 3y^2 + 3y - 1$
c_{10}	$y^5 - 3y^4 + 3y^3 - 3y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.128506 + 0.862169I$ $a = 0.520756 + 0.228796I$ $b = 0.08973 + 1.51845I$	$-3.58220 + 3.70382I$	$-1.95503 - 6.72693I$
$u = 0.128506 - 0.862169I$ $a = 0.520756 - 0.228796I$ $b = 0.08973 - 1.51845I$	$-3.58220 - 3.70382I$	$-1.95503 + 6.72693I$
$u = -0.586994 + 0.535944I$ $a = 1.27460 - 2.43458I$ $b = -0.214528 - 0.727972I$	$-0.27969 + 5.17259I$	$-5.66442 - 10.18801I$
$u = -0.586994 - 0.535944I$ $a = 1.27460 + 2.43458I$ $b = -0.214528 + 0.727972I$	$-0.27969 - 5.17259I$	$-5.66442 + 10.18801I$
$u = -2.08302$ $a = 0.409288$ $b = -0.750397$	-5.43570	-9.76110

III. $\boldsymbol{I_3^u = \langle -2a^3 - a^2 + b - 5a + 3,\ a^4 + 2a^2 - 3a + 1,\ u - 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ 2a^3 + a^2 + 5a - 3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -2a^3 - a^2 - 4a + 3 \\ 2a^3 + a^2 + 5a - 3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a^3 + a^2 + 3a - 1 \\ 2a^3 + a^2 + 5a - 4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a^3 + a^2 + 3a - 1 \\ a^3 + 2a - 3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2a^3 - a^2 - 4a + 3 \\ 2a^3 + a^2 + 5a - 3 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -a \\ -a^3 - 2a + 3 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -a \\ -a^3 - 2a + 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5a^3 - a^2 - 11a + 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.570696 + 0.107280I$ $b = 0.500000 + 0.866025I$	$-1.64493 + 2.02988I$	$-1.42268 - 1.82047I$
$u = 1.00000$ $a = 0.570696 - 0.107280I$ $b = 0.500000 - 0.866025I$	$-1.64493 - 2.02988I$	$-1.42268 + 1.82047I$
$u = 1.00000$ $a = -0.57070 + 1.62477I$ $b = 0.500000 + 0.866025I$	$-1.64493 + 2.02988I$	$-7.07732 - 2.50966I$
$u = 1.00000$ $a = -0.57070 - 1.62477I$ $b = 0.500000 - 0.866025I$	$-1.64493 - 2.02988I$	$-7.07732 + 2.50966I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^5+3u^4+\cdots+2u+1)(u^{12}-18u^{10}+\cdots-56u+21)$
c_2	$(u+1)^4(u^5+3u^4-5u^3+3u^2-2u+1)$ $\cdot(u^{12}+36u^{11}+\cdots-644u+441)$
c_3	$(u^4-2u^3+2u^2-u+1)(u^5-u^4-2u^3+9u^2-17u+11)$ $\cdot(u^{12}+43u^{10}+\cdots-242u+713)$
c_4	$(u^4-2u^3+2u^2-u+1)(u^5-2u^4+2u^3+u^2-2u+1)$ $\cdot(u^{12}-3u^{11}+4u^{10}-u^9+u^8-6u^7+8u^6+u^5-5u^4-u^3+4u^2-3u+1)$
c_5	$((u+1)^4)(u^5-3u^4+\cdots+2u-1)(u^{12}-18u^{10}+\cdots-56u+21)$
c_6	$(u^2-u+1)^2(u^5+3u^4-5u^3-8u^2+9u+11)$ $\cdot(u^{12}+2u^{11}+\cdots+211u+199)$
c_7	$u^4(u^5+u^4+\cdots+7u+13)(u^{12}+4u^{11}+\cdots-56u+48)$
c_8	$((u^2+u+1)^2)(u^5-u^4+\cdots+2u-1)(u^{12}+2u^{11}+\cdots-2u+1)$
c_9	$(u^4-u^3-u^2+u+1)(u^5-u^3+u^2+u-1)(u^{12}+9u^{11}+\cdots+32u+8)$
c_{10}	$(u^4-u^3-u^2+u+1)(u^5+u^4-u^3-u^2+1)(u^{12}-u^{11}+\cdots-u+1)$
c_{11}	$((u^2-u+1)^2)(u^5+u^4+\cdots+2u+1)(u^{12}+2u^{11}+\cdots-2u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y-1)^4(y^5-3y^4-5y^3-3y^2-2y-1)$ $\cdot\,(y^{12}-36y^{11}+\cdots+644y+441)$
c_2	$(y-1)^4(y^5-19y^4+3y^3+5y^2-2y-1)$ $\cdot\,(y^{12}-268y^{11}+\cdots+15582980y+194481)$
c_3	$(y^4+2y^2+3y+1)(y^5-5y^4-12y^3+9y^2+91y-121)$ $\cdot\,(y^{12}+86y^{11}+\cdots-2050686y+508369)$
c_4	$(y^4+2y^2+3y+1)(y^5+4y^3+\cdots+2y-1)(y^{12}-y^{11}+\cdots-y+1)$
c_6	$(y^2+y+1)^2(y^5-19y^4+91y^3-220y^2+257y-121)$ $\cdot\,(y^{12}-50y^{11}+\cdots-181433y+39601)$
c_7	$y^4(y^5-5y^4+12y^3-63y^2-29y-169)$ $\cdot\,(y^{12}+14y^{11}+\cdots+19136y+2304)$
c_8, c_{11}	$(y^2+y+1)^2(y^5+5y^4+7y^3+y^2-2y-1)$ $\cdot\,(y^{12}+30y^{11}+\cdots-34y+1)$
c_9	$(y^4-3y^3+5y^2-3y+1)(y^5-2y^4+3y^3-3y^2+3y-1)$ $\cdot\,(y^{12}-5y^{11}+\cdots-160y+64)$
c_{10}	$(y^4-3y^3+5y^2-3y+1)(y^5-3y^4+3y^3-3y^2+2y-1)$ $\cdot\,(y^{12}-31y^{11}+\cdots+5y+1)$