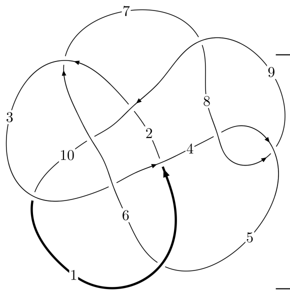
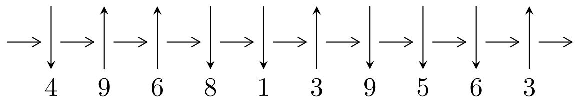
10_{147} $(K10n_{24})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 713770382u^{13} - 2219758738u^{12} + \cdots + 3379396381b + 1752340181,$$
$$-4583934274u^{13} + 15016790197u^{12} + \cdots + 3379396381a + 53453066,\ u^{14} - 3u^{13} + \cdots + 6u + 1\rangle$$
$$I_2^u = \langle -u^3 - u^2 + b - 4u - 1,\ 4u^3 + 6u^2 + a + 17u + 7,\ u^4 + 2u^3 + 5u^2 + 4u + 1\rangle$$
$$I_3^u = \langle b,\ a - 1,\ u^3 + u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 21 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.

$\boldsymbol{I_1^u = \langle 7.14 \times 10^8 u^{13} - 2.22 \times 10^9 u^{12} + \cdots + 3.38 \times 10^9 b + 1.75 \times 10^9,\ -4.58 \times 10^9 u^{13} + 1.50 \times 10^{10} u^{12} + \cdots + 3.38 \times 10^9 a + 5.35 \times 10^7,\ u^{14} - 3u^{13} + \cdots + 6u + 1 \rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.35644u^{13} - 4.44363u^{12} + \cdots + 29.0734u - 0.0158173 \\ -0.211212u^{13} + 0.656851u^{12} + \cdots - 7.55883u - 0.518536 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.35644u^{13} - 4.44363u^{12} + \cdots + 29.0734u - 0.0158173 \\ -0.197062u^{13} + 0.657652u^{12} + \cdots - 6.66932u - 0.144213 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.664129u^{13} + 2.29385u^{12} + \cdots - 12.7349u + 5.55469 \\ 0.0964891u^{13} - 0.391604u^{12} + \cdots + 1.77926u - 1.40855 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.10709u^{13} + 3.17567u^{12} + \cdots - 27.0789u - 7.56641 \\ 0.194643u^{13} - 0.592457u^{12} + \cdots + 4.85079u + 1.66551 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.55350u^{13} - 5.10128u^{12} + \cdots + 35.7427u + 0.128396 \\ -0.197062u^{13} + 0.657652u^{12} + \cdots - 6.66932u - 0.144213 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.144213u^{13} - 0.629701u^{12} + \cdots + 3.65663u - 5.80404 \\ -0.0559147u^{13} + 0.229057u^{12} + \cdots + 0.863012u + 1.51536 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.760618u^{13} + 2.68545u^{12} + \cdots - 14.5142u + 6.96324 \\ 0.0964891u^{13} - 0.391604u^{12} + \cdots + 1.77926u - 1.40855 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{4583624542}{3379396381}u^{13} + \frac{13650120072}{3379396381}u^{12} + \cdots - \frac{173475920162}{3379396381}u - \frac{35870136224}{3379396381}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 5u^{13} + \cdots - 32u + 29$
c_2	$u^{14} - u^{13} + \cdots + 10u + 1$
c_3, c_6	$u^{14} + u^{13} + \cdots - 10u + 1$
c_4, c_8	$u^{14} - 2u^{13} + \cdots - 3u + 2$
c_5	$u^{14} + u^{13} + \cdots - 4u + 1$
c_7	$u^{14} + 8u^{13} + \cdots - 19u + 4$
c_9	$u^{14} - 3u^{13} + \cdots + 6u + 1$
c_{10}	$u^{14} + 3u^{13} + \cdots + 7u + 62$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 17y^{13} + \cdots - 3924y + 841$
c_2	$y^{14} + 29y^{13} + \cdots - 54y + 1$
c_3, c_6	$y^{14} + 21y^{13} + \cdots - 42y + 1$
c_4, c_8	$y^{14} - 8y^{13} + \cdots + 19y + 4$
c_5	$y^{14} + y^{13} + \cdots - 10y + 1$
c_7	$y^{14} - 4y^{13} + \cdots - 417y + 16$
c_9	$y^{14} - 33y^{13} + \cdots + 36y + 1$
c_{10}	$y^{14} + 25y^{13} + \cdots + 20163y + 3844$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.237387 + 0.876423I$ $a = 0.004721 - 0.208169I$ $b = -0.869563 - 0.338885I$	$1.74438 + 2.05841I$	$4.16985 - 4.09365I$
$u = -0.237387 - 0.876423I$ $a = 0.004721 + 0.208169I$ $b = -0.869563 + 0.338885I$	$1.74438 - 2.05841I$	$4.16985 + 4.09365I$
$u = -0.595439 + 0.915402I$ $a = 0.915640 - 0.422475I$ $b = 1.027050 + 0.729987I$	$-1.83211 + 2.08733I$	$-7.27574 - 2.80711I$
$u = -0.595439 - 0.915402I$ $a = 0.915640 + 0.422475I$ $b = 1.027050 - 0.729987I$	$-1.83211 - 2.08733I$	$-7.27574 + 2.80711I$
$u = 0.021578 + 0.347833I$ $a = 1.92553 - 1.06606I$ $b = 0.029013 - 0.667088I$	$-0.11203 + 1.46789I$	$-1.17938 - 4.69179I$
$u = 0.021578 - 0.347833I$ $a = 1.92553 + 1.06606I$ $b = 0.029013 + 0.667088I$	$-0.11203 - 1.46789I$	$-1.17938 + 4.69179I$
$u = -0.113601 + 0.166050I$ $a = -1.16417 + 5.61112I$ $b = 0.064203 - 1.109710I$	$-3.57417 + 4.92202I$	$-5.84899 - 5.58919I$
$u = -0.113601 - 0.166050I$ $a = -1.16417 - 5.61112I$ $b = 0.064203 + 1.109710I$	$-3.57417 - 4.92202I$	$-5.84899 + 5.58919I$
$u = 2.25002 + 0.12421I$ $a = -0.037619 - 0.804931I$ $b = 0.43823 + 1.90805I$	$-13.29020 - 1.42119I$	$-6.81603 + 0.70499I$
$u = 2.25002 - 0.12421I$ $a = -0.037619 + 0.804931I$ $b = 0.43823 - 1.90805I$	$-13.29020 + 1.42119I$	$-6.81603 - 0.70499I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-2.43987+0.07821I$ $a=-0.036182-0.696454I$ $b=\ \ 0.47053+2.07372I$	$-8.54619+3.71322I$	$-3.42485-2.09291I$
$u=-2.43987-0.07821I$ $a=-0.036182+0.696454I$ $b=\ \ 0.47053-2.07372I$	$-8.54619-3.71322I$	$-3.42485+2.09291I$
$u=\ \ 2.61470+0.01753I$ $a=-0.107927+0.663193I$ $b=\ \ 0.34053-2.14014I$	$-12.2232-9.4176I$	$-5.62486+4.99855I$
$u=\ \ 2.61470-0.01753I$ $a=-0.107927-0.663193I$ $b=\ \ 0.34053+2.14014I$	$-12.2232+9.4176I$	$-5.62486-4.99855I$

II.

$$\boldsymbol{I_2^u = \langle -u^3 - u^2 + b - 4u - 1,\ 4u^3 + 6u^2 + a + 17u + 7,\ u^4 + 2u^3 + 5u^2 + 4u + 1 \rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -4u^3 - 6u^2 - 17u - 7 \\ u^3 + u^2 + 4u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -4u^3 - 6u^2 - 17u - 7 \\ -1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 + 2u^2 + 5u + 4 \\ -2u^3 - 3u^2 - 8u - 4 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -4u^3 - 6u^2 - 17u - 7 \\ u^3 + 2u^2 + 4u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -4u^3 - 6u^2 - 17u - 6 \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u^2 + 5u + 4 \\ -u^3 - 2u^2 - 5u - 3 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 3u^3 + 5u^2 + 13u + 8 \\ -2u^3 - 3u^2 - 8u - 4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u^3 + 12u^2 + 32u + 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.133975I$ $a = \quad 0.50000 - 1.86603I$ $b = -0.866025 + 0.500000I$	$-\,2.02988I$	$-2.00000 + 3.46410I$
$u = -0.500000 - 0.133975I$ $a = \quad 0.50000 + 1.86603I$ $b = -0.866025 - 0.500000I$	$2.02988I$	$-2.00000 - 3.46410I$
$u = -0.50000 + 1.86603I$ $a = \quad 0.500000 - 0.133975I$ $b = \quad 0.866025 + 0.500000I$	$2.02988I$	$-2.00000 - 3.46410I$
$u = -0.50000 - 1.86603I$ $a = \quad 0.500000 + 0.133975I$ $b = \quad 0.866025 - 0.500000I$	$-\,2.02988I$	$-2.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.341164 + 1.161540I$ $a = 1.00000$ $b = 0$	-1.64493	-6.00000
$u = 0.341164 - 1.161540I$ $a = 1.00000$ $b = 0$	-1.64493	-6.00000
$u = -0.682328$ $a = 1.00000$ $b = 0$	-1.64493	-6.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3+2u^2+u-1)(u^4-4u^3+\cdots-2u+1)(u^{14}-5u^{13}+\cdots-32u+29)$
c_2	$((u-1)^4)(u^3-2u^2+u+1)(u^{14}-u^{13}+\cdots+10u+1)$
c_3, c_6	$((u^2+1)^2)(u^3+u+1)(u^{14}+u^{13}+\cdots-10u+1)$
c_4, c_8	$((u+1)^3)(u^4-u^2+1)(u^{14}-2u^{13}+\cdots-3u+2)$
c_5	$((u^2+1)^2)(u^3+u+1)(u^{14}+u^{13}+\cdots-4u+1)$
c_7	$((u+1)^3)(u^2-u+1)^2(u^{14}+8u^{13}+\cdots-19u+4)$
c_9	$(u^3+u+1)(u^4+2u^3+\cdots+4u+1)(u^{14}-3u^{13}+\cdots+6u+1)$
c_{10}	$u^3(u^4-u^2+1)(u^{14}+3u^{13}+\cdots+7u+62)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^3-2y^2+5y-1)(y^4-6y^3+11y^2+6y+1)$ $\cdot(y^{14}-17y^{13}+\cdots-3924y+841)$
c_2	$((y-1)^4)(y^3-2y^2+5y-1)(y^{14}+29y^{13}+\cdots-54y+1)$
c_3, c_6	$((y+1)^4)(y^3+2y^2+y-1)(y^{14}+21y^{13}+\cdots-42y+1)$
c_4, c_8	$((y-1)^3)(y^2-y+1)^2(y^{14}-8y^{13}+\cdots+19y+4)$
c_5	$((y+1)^4)(y^3+2y^2+y-1)(y^{14}+y^{13}+\cdots-10y+1)$
c_7	$((y-1)^3)(y^2+y+1)^2(y^{14}-4y^{13}+\cdots-417y+16)$
c_9	$(y^3+2y^2+y-1)(y^4+6y^3+\cdots-6y+1)(y^{14}-33y^{13}+\cdots+36y+1)$
c_{10}	$y^3(y^2-y+1)^2(y^{14}+25y^{13}+\cdots+20163y+3844)$