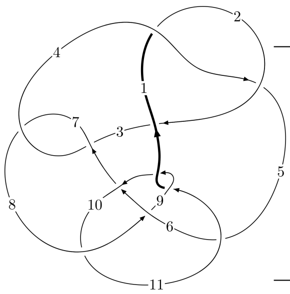
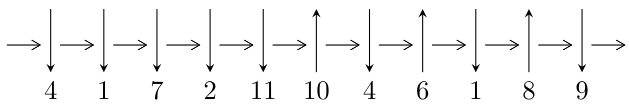
$11n_{47}$ $(K11n_{47})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 7.57271 \times 10^{25} u^{34} + 6.48827 \times 10^{26} u^{33} + \cdots + 7.97336 \times 10^{26} b - 7.26255 \times 10^{26}, \\
& -1.64269 \times 10^{25} u^{34} - 1.05850 \times 10^{26} u^{33} + \cdots + 2.49168 \times 10^{25} a - 1.38382 \times 10^{26},\ u^{35} + 8u^{34} + \cdots + 9u -
\end{aligned}$$

$$I_2^u = \langle b^6 - b^5 - b^4 + 2b^3 - b + 1,\ a - 1,\ u - 1 \rangle$$

$$I_3^u = \langle b + 1,\ 2u^2 + a + 4u + 4,\ u^3 + u^2 - 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 44 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.

$$\boldsymbol{I_1^u = \langle 7.57\times 10^{25}u^{34}+6.49\times 10^{26}u^{33}+\cdots+7.97\times 10^{26}b-7.26\times 10^{26},\ -1.64\times 10^{25}u^{34}-1.06\times 10^{26}u^{33}+\cdots+2.49\times 10^{25}a-1.38\times 10^{26},\ u^{35}+8u^{34}+\cdots+9u+1\rangle}$$

(i) Arc colorings

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

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_9 = \begin{pmatrix} 0.659269u^{34} + 4.24813u^{33} + \cdots + 120.228u + 5.55377 \\ -0.0949751u^{34} - 0.813743u^{33} + \cdots + 1.09979u + 0.910851 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.754244u^{34} + 5.06188u^{33} + \cdots + 119.128u + 4.64292 \\ -0.0949751u^{34} - 0.813743u^{33} + \cdots + 1.09979u + 0.910851 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.894280u^{34} - 6.14049u^{33} + \cdots - 123.987u - 2.97552 \\ -0.0130827u^{34} - 0.0126909u^{33} + \cdots - 5.06131u - 1.20991 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.77774u^{34} + 17.8440u^{33} + \cdots + 23.8681u - 10.0326 \\ -0.414794u^{34} - 1.96166u^{33} + \cdots + 6.00083u + 0.386377 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.135945u^{34} + 1.32830u^{33} + \cdots + 28.8699u - 0.0316372 \\ 0.201606u^{34} + 1.17050u^{33} + \cdots + 2.73205u + 0.337551 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0.135945u^{34} + 1.32830u^{33} + \cdots + 28.8699u - 0.0316372 \\ -0.239495u^{34} - 1.52839u^{33} + \cdots + 0.429444u + 0.0968115 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.135945u^{34} + 1.32830u^{33} + \cdots + 28.8699u - 0.0316372 \\ -0.239495u^{34} - 1.52839u^{33} + \cdots + 0.429444u + 0.0968115 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{3378359165600571190629683677}{3986681917292529601112 15152}u^{34} - \frac{1552639970273317649970593193 7}{1993340958646264800556 07576}u^{33} + \cdots + \frac{6547413537166942371334987778 3}{3986681917292529601112 15152}u + \frac{2429897091838954454446349621}{1993340958646264800556 07576}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{35} - 8u^{34} + \cdots + 9u - 1$
c_2	$u^{35} + 42u^{34} + \cdots - 129u + 1$
c_3, c_7	$u^{35} + 2u^{34} + \cdots - 320u - 64$
c_5	$u^{35} - 8u^{34} + \cdots + 73u + 31$
c_6	$u^{35} - 4u^{34} + \cdots + 1417u + 1219$
c_8	$u^{35} + 3u^{34} + \cdots + 2u + 1$
c_9, c_{11}	$u^{35} - 5u^{34} + \cdots + 67u - 1$
c_{10}	$u^{35} + 6u^{34} + \cdots + 124u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{35} - 42y^{34} + \cdots - 129y - 1$
c_2	$y^{35} - 90y^{34} + \cdots + 6323y - 1$
c_3, c_7	$y^{35} - 36y^{34} + \cdots - 20480y - 4096$
c_5	$y^{35} - 52y^{34} + \cdots + 29509y - 961$
c_6	$y^{35} - 4y^{34} + \cdots + 25178641y - 1485961$
c_8	$y^{35} + y^{34} + \cdots + 14y - 1$
c_9, c_{11}	$y^{35} - 33y^{34} + \cdots + 5091y - 1$
c_{10}	$y^{35} + 18y^{34} + \cdots + 7312y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.964380 + 0.326022I$ $a = 0.35491 - 1.77356I$ $b = 1.401850 + 0.174541I$	$-4.47629 - 0.99972I$	$-15.2464 + 0.4133I$
$u = 0.964380 - 0.326022I$ $a = 0.35491 + 1.77356I$ $b = 1.401850 - 0.174541I$	$-4.47629 + 0.99972I$	$-15.2464 - 0.4133I$
$u = 0.679243 + 0.583622I$ $a = -0.155632 - 1.137360I$ $b = 0.397949 + 0.909235I$	$-1.63296 - 3.48211I$	$-7.94104 + 7.54592I$
$u = 0.679243 - 0.583622I$ $a = -0.155632 + 1.137360I$ $b = 0.397949 - 0.909235I$	$-1.63296 + 3.48211I$	$-7.94104 - 7.54592I$
$u = -0.990139 + 0.655507I$ $a = -0.886995 - 0.313990I$ $b = -0.934664 - 0.185167I$	$1.54213 + 2.47872I$	$0. + 5.93000I$
$u = -0.990139 - 0.655507I$ $a = -0.886995 + 0.313990I$ $b = -0.934664 + 0.185167I$	$1.54213 - 2.47872I$	$0. - 5.93000I$
$u = 1.204600 + 0.063415I$ $a = -0.412107 - 0.706810I$ $b = 0.628022 - 0.554154I$	$-3.08874 + 1.42303I$	$-6.41632 - 5.79805I$
$u = 1.204600 - 0.063415I$ $a = -0.412107 + 0.706810I$ $b = 0.628022 + 0.554154I$	$-3.08874 - 1.42303I$	$-6.41632 + 5.79805I$
$u = 0.779230$ $a = -1.08295$ $b = -0.0140385$	-1.12597	-9.35810
$u = 0.605532 + 0.380104I$ $a = -1.67784 - 0.73020I$ $b = 0.361624 - 0.080090I$	$-1.46738 - 0.11420I$	$-8.20214 + 0.34884I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.605532 - 0.380104I$ $a = -1.67784 + 0.73020I$ $b = 0.361624 + 0.080090I$	$-1.46738 + 0.11420I$	$-8.20214 - 0.34884I$
$u = 0.704998$ $a = 11.0900$ $b = 1.00991$	-2.72892	194.390
$u = -0.686181 + 0.154265I$ $a = -1.246620 - 0.427424I$ $b = -1.126280 - 0.497250I$	$-1.08296 - 5.42643I$	$-0.21975 + 3.30530I$
$u = -0.686181 - 0.154265I$ $a = -1.246620 + 0.427424I$ $b = -1.126280 + 0.497250I$	$-1.08296 + 5.42643I$	$-0.21975 - 3.30530I$
$u = 0.730316 + 1.119100I$ $a = -0.576099 + 0.700870I$ $b = -1.51689 - 0.33803I$	$-7.84770 - 8.00129I$	0
$u = 0.730316 - 1.119100I$ $a = -0.576099 - 0.700870I$ $b = -1.51689 + 0.33803I$	$-7.84770 + 8.00129I$	0
$u = 0.656190 + 1.188230I$ $a = -0.419118 + 0.434391I$ $b = -1.47252 + 0.05220I$	$-7.58070 + 0.56154I$	0
$u = 0.656190 - 1.188230I$ $a = -0.419118 - 0.434391I$ $b = -1.47252 - 0.05220I$	$-7.58070 - 0.56154I$	0
$u = -1.63022 + 0.11868I$ $a = 0.069536 + 0.327596I$ $b = 0.340175 - 0.686101I$	$-9.25057 + 1.88240I$	0
$u = -1.63022 - 0.11868I$ $a = 0.069536 - 0.327596I$ $b = 0.340175 + 0.686101I$	$-9.25057 - 1.88240I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.294421+0.137620I$ $a=-0.647696-1.089550I$ $b=-0.225869-0.594231I$	$1.40601+1.20005I$	$2.74470-1.99044I$
$u=-0.294421-0.137620I$ $a=-0.647696+1.089550I$ $b=-0.225869+0.594231I$	$1.40601-1.20005I$	$2.74470+1.99044I$
$u=-1.68600$ $a=\ \ 2.34569$ $b=\ \ 1.28757$	-11.4779	0
$u=-1.68299+0.18586I$ $a=\ \ 0.383087-0.343481I$ $b=\ \ 0.25892-1.52764I$	$-9.90660+6.51942I$	0
$u=-1.68299-0.18586I$ $a=\ \ 0.383087+0.343481I$ $b=\ \ 0.25892+1.52764I$	$-9.90660-6.51942I$	0
$u=-1.70107+0.39786I$ $a=-1.50913-0.63392I$ $b=-1.58042+0.58476I$	$-15.7071+13.7623I$	0
$u=-1.70107-0.39786I$ $a=-1.50913+0.63392I$ $b=-1.58042-0.58476I$	$-15.7071-13.7623I$	0
$u=\ \ 1.74717+0.03675I$ $a=-1.63248+0.11344I$ $b=-1.54159+0.19584I$	$-10.19430+4.27290I$	0
$u=\ \ 1.74717-0.03675I$ $a=-1.63248-0.11344I$ $b=-1.54159-0.19584I$	$-10.19430-4.27290I$	0
$u=-1.75068+0.06096I$ $a=\ \ 1.46330+0.02059I$ $b=\ \ 1.82396-0.77537I$	$-14.4753+2.5419I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.75068-0.06096I$ $a=\ \ 1.46330-0.02059I$ $b=\ \ 1.82396+0.77537I$	$-14.4753-2.5419I$	0
$u=-1.72022+0.43828I$ $a=-1.34465-0.58112I$ $b=-1.49438+0.29415I$	$-15.2163+5.6356I$	0
$u=-1.72022-0.43828I$ $a=-1.34465+0.58112I$ $b=-1.49438-0.29415I$	$-15.2163-5.6356I$	0
$u=-0.0306219+0.0974691I$ $a=-1.93881+9.66636I$ $b=\ \ 1.038380+0.224787I$	$-1.92040-0.80331I$	$-4.44102-0.15082I$
$u=-0.0306219-0.0974691I$ $a=-1.93881-9.66636I$ $b=\ \ 1.038380-0.224787I$	$-1.92040+0.80331I$	$-4.44102+0.15082I$

II. $\boldsymbol{I^u_2 = \langle b^6 - b^5 - b^4 + 2b^3 - b + 1,\ a - 1,\ u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3b^5 + b^4 + b^3 - 2b^2 + 3b - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.00000$ $b = -1.002190 + 0.295542I$	$-3.53554 + 0.92430I$	$-12.60470 + 5.55069I$
$u = 1.00000$ $a = 1.00000$ $b = -1.002190 - 0.295542I$	$-3.53554 - 0.92430I$	$-12.60470 - 5.55069I$
$u = 1.00000$ $a = 1.00000$ $b = 0.428243 + 0.664531I$	$0.245672 + 0.924305I$	$-5.68949 - 0.25702I$
$u = 1.00000$ $a = 1.00000$ $b = 0.428243 - 0.664531I$	$0.245672 - 0.924305I$	$-5.68949 + 0.25702I$
$u = 1.00000$ $a = 1.00000$ $b = 1.073950 + 0.558752I$	$-1.64493 - 5.69302I$	$-11.7058 + 8.3306I$
$u = 1.00000$ $a = 1.00000$ $b = 1.073950 - 0.558752I$	$-1.64493 + 5.69302I$	$-11.7058 - 8.3306I$

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

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^2+u-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^2-4u-4 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^2-4u-3 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^2-4u-3 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -7u^2-13u-9 \\ -u-2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^2+u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2+u-2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2+u-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -21u^2-53u-51$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = -0.920404 - 0.365165I$ $b = -1.00000$	$1.37919 + 2.82812I$	$-9.0124 - 12.0277I$
$u = -0.877439 - 0.744862I$ $a = -0.920404 + 0.365165I$ $b = -1.00000$	$1.37919 - 2.82812I$	$-9.0124 + 12.0277I$
$u = \quad 0.754878$ $a = -8.15919$ $b = -1.00000$	-2.75839	-102.980

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^3+u^2-1)(u^{35}-8u^{34}+\cdots+9u-1)$
c_2	$((u+1)^6)(u^3+u^2+2u+1)(u^{35}+42u^{34}+\cdots-129u+1)$
c_3	$u^6(u^3-u^2+2u-1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_4	$((u+1)^6)(u^3-u^2+1)(u^{35}-8u^{34}+\cdots+9u-1)$
c_5	$(u^3-2u^2-3u-1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot(u^{35}-8u^{34}+\cdots+73u+31)$
c_6	$(u^3-2u^2-3u-1)(u^6-u^5-u^4+2u^3-u+1)$ $\cdot(u^{35}-4u^{34}+\cdots+1417u+1219)$
c_7	$u^6(u^3+u^2+2u+1)(u^{35}+2u^{34}+\cdots-320u-64)$
c_8	$(u^3-3u^2+2u+1)(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot(u^{35}+3u^{34}+\cdots+2u+1)$
c_9	$((u-1)^3)(u^6+u^5+\cdots+u+1)(u^{35}-5u^{34}+\cdots+67u-1)$
c_{10}	$u^3(u^6+u^5+\cdots+u+1)(u^{35}+6u^{34}+\cdots+124u-8)$
c_{11}	$((u+1)^3)(u^6-u^5+\cdots-u+1)(u^{35}-5u^{34}+\cdots+67u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^6)(y^3 - y^2 + 2y - 1)(y^{35} - 42y^{34} + \cdots - 129y - 1)$
c_2	$((y-1)^6)(y^3 + 3y^2 + 2y - 1)(y^{35} - 90y^{34} + \cdots + 6323y - 1)$
c_3, c_7	$y^6(y^3 + 3y^2 + 2y - 1)(y^{35} - 36y^{34} + \cdots - 20480y - 4096)$
c_5	$(y^3 - 10y^2 + 5y - 1)(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)$ $\cdot (y^{35} - 52y^{34} + \cdots + 29509y - 961)$
c_6	$(y^3 - 10y^2 + 5y - 1)(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)$ $\cdot (y^{35} - 4y^{34} + \cdots + 25178641y - 1485961)$
c_8	$(y^3 - 5y^2 + 10y - 1)(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)$ $\cdot (y^{35} + y^{34} + \cdots + 14y - 1)$
c_9, c_{11}	$(y-1)^3(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)$ $\cdot (y^{35} - 33y^{34} + \cdots + 5091y - 1)$
c_{10}	$y^3(y^6 - 3y^5 + \cdots - y + 1)(y^{35} + 18y^{34} + \cdots + 7312y - 64)$