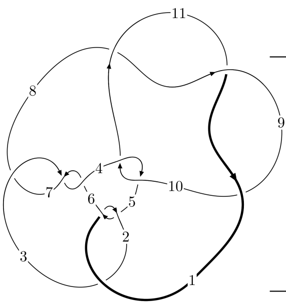
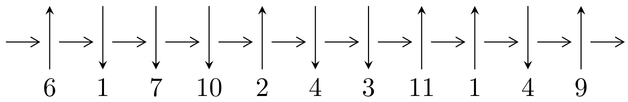
$11n_{97}$ ($K11n_{97}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -30727u^{11} - 34887u^{10} + \cdots + 3039144b - 2595171, \\
& -4836461u^{11} + 12982939u^{10} + \cdots + 36469728a + 72471903, \\
& u^{12} - 2u^{11} + 11u^{10} - 18u^9 + 46u^8 - 52u^7 + 89u^6 - 74u^5 + 120u^4 - 38u^3 + 52u^2 + 9\rangle \\
I_2^u = \langle & b,\ -u^3 - 2u^2 + 2a - 3u - 1,\ u^4 + u^3 + u^2 + 1\rangle \\
I_3^u = \langle & -au + b + u + 1,\ a^2 + 2au - a - u - 2,\ u^2 + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 20 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.

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$$I^u_1 = \langle -3.07\times 10^4 u^{11} - 3.49\times 10^4 u^{10} + \cdots + 3.04\times 10^6 b - 2.60\times 10^6,\ -4.84\times 10^6 u^{11} + 1.30\times 10^7 u^{10} + \cdots + 3.65\times 10^7 a + 7.25\times 10^7,\ u^{12} - 2u^{11} + \cdots + 52u^2 + 9\rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.132616u^{11} - 0.355992u^{10} + \cdots + 7.05457u - 1.98718 \\ 0.0101104u^{11} + 0.0114792u^{10} + \cdots - 0.601162u + 0.853915 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.103120u^{11} + 0.218828u^{10} + \cdots - 3.36335u + 0.0167258 \\ 0.0178412u^{11} - 0.0449113u^{10} + \cdots + 1.11635u + 0.000284291 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.0000315878u^{11} + 0.0179044u^{10} + \cdots - 0.854914u + 2.11635 \\ 0.00740208u^{11} - 0.0289272u^{10} + \cdots + 0.112721u - 0.541350 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0217851u^{11} - 0.0147232u^{10} + \cdots - 0.838473u + 2.20500 \\ 0.0577531u^{11} - 0.0685147u^{10} + \cdots + 0.179624u - 0.829029 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.149942u^{11} - 0.378276u^{10} + \cdots + 8.21373u - 2.31454 \\ -0.0310324u^{11} + 0.110398u^{10} + \cdots - 1.60439u + 1.29258 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.167308u^{11} - 0.446132u^{10} + \cdots + 7.46196u - 1.32551 \\ -0.00135137u^{11} - 0.00746559u^{10} + \cdots - 1.11597u + 0.589375 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.167308u^{11} - 0.446132u^{10} + \cdots + 7.46196u - 1.32551 \\ -0.00135137u^{11} - 0.00746559u^{10} + \cdots - 1.11597u + 0.589375 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{4442973}{8104384}u^{11} - \frac{9147283}{8104384}u^{10} + \cdots + \frac{28543939}{8104384}u + \frac{25892857}{8104384}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{12} - 2u^{11} + \cdots + 52u^2 + 9$
c_2	$u^{12} + 18u^{11} + \cdots + 936u + 81$
c_3, c_6, c_7	$u^{12} - 2u^{11} + \cdots + 12u + 9$
c_4, c_{10}	$u^{12} - 8u^{11} + \cdots - 48u + 64$
c_8, c_9, c_{11}	$u^{12} + 7u^{11} + \cdots - 3u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{12} + 18y^{11} + \cdots + 936y + 81$
c_2	$y^{12} - 42y^{11} + \cdots - 88128y + 6561$
c_3, c_6, c_7	$y^{12} + 2y^{11} + \cdots + 648y + 81$
c_4, c_{10}	$y^{12} - 30y^{11} + \cdots + 13056y + 4096$
c_8, c_9, c_{11}	$y^{12} - y^{11} + \cdots + 559y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.217703 + 0.714491I$ $a = -0.323268 - 0.564378I$ $b = -0.299646 + 0.378751I$	$-0.382669 + 1.142140I$	$-4.20479 - 6.27644I$
$u = 0.217703 - 0.714491I$ $a = -0.323268 + 0.564378I$ $b = -0.299646 - 0.378751I$	$-0.382669 - 1.142140I$	$-4.20479 + 6.27644I$
$u = -0.640918 + 1.176710I$ $a = -0.126668 - 0.646625I$ $b = 0.682857 - 1.234360I$	$9.18153 - 2.19341I$	$4.66853 + 1.23820I$
$u = -0.640918 - 1.176710I$ $a = -0.126668 + 0.646625I$ $b = 0.682857 + 1.234360I$	$9.18153 + 2.19341I$	$4.66853 - 1.23820I$
$u = 1.15244 + 0.97674I$ $a = -0.320357 + 0.241963I$ $b = 1.73050 + 0.90375I$	$-1.62774 + 2.71130I$	$0.00178 - 2.31651I$
$u = 1.15244 - 0.97674I$ $a = -0.320357 - 0.241963I$ $b = 1.73050 - 0.90375I$	$-1.62774 - 2.71130I$	$0.00178 + 2.31651I$
$u = -0.148425 + 0.443858I$ $a = 0.38903 + 3.01143I$ $b = 0.403960 - 0.536532I$	$2.12411 - 0.85388I$	$7.33787 - 1.04083I$
$u = -0.148425 - 0.443858I$ $a = 0.38903 - 3.01143I$ $b = 0.403960 + 0.536532I$	$2.12411 + 0.85388I$	$7.33787 + 1.04083I$
$u = 0.62854 + 1.75953I$ $a = -1.237110 - 0.324756I$ $b = -2.03160 + 1.52165I$	$-9.75530 + 10.18300I$	$1.33053 - 4.09142I$
$u = 0.62854 - 1.75953I$ $a = -1.237110 + 0.324756I$ $b = -2.03160 - 1.52165I$	$-9.75530 - 10.18300I$	$1.33053 + 4.09142I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.20933 + 2.25945I$ $a = 1.035040 - 0.220318I$ $b = 3.51393 - 0.31919I$	$-12.69940 - 0.47600I$	$-0.258917 + 0.098219I$
$u = -0.20933 - 2.25945I$ $a = 1.035040 + 0.220318I$ $b = 3.51393 + 0.31919I$	$-12.69940 + 0.47600I$	$-0.258917 - 0.098219I$

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{1}{2}u^3 + u^2 + \frac{3}{2}u + \frac{1}{2} \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^3 + u^2 + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{1}{2}u^3 + u^2 + \frac{5}{2}u + \frac{1}{2} \\ -u^3 - u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^3 + u^2 + \frac{3}{2}u + \frac{1}{2} \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}u^3 + u^2 + \frac{3}{2}u + \frac{1}{2} \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{1}{4}u^3 - \frac{9}{2}u^2 - \frac{9}{4}u - \frac{5}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.351808 + 0.720342I$ $a = 0.38053 + 1.53420I$ $b = 0$	$1.43393 + 1.41510I$	$-0.38954 - 3.92814I$
$u = 0.351808 - 0.720342I$ $a = 0.38053 - 1.53420I$ $b = 0$	$1.43393 - 1.41510I$	$-0.38954 + 3.92814I$
$u = -0.851808 + 0.911292I$ $a = -0.130534 + 0.427872I$ $b = 0$	$8.43568 - 3.16396I$	$1.51454 + 5.24252I$
$u = -0.851808 - 0.911292I$ $a = -0.130534 - 0.427872I$ $b = 0$	$8.43568 + 3.16396I$	$1.51454 - 5.24252I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.618034 - 1.000000I$ $b = -1.61803I$	8.88264	4.00000
$u = 1.000000I$ $a = 1.61803 - 1.00000I$ $b = 0.618034I$	0.986960	4.00000
$u = -1.000000I$ $a = -0.618034 + 1.000000I$ $b = 1.61803I$	8.88264	4.00000
$u = -1.000000I$ $a = 1.61803 + 1.00000I$ $b = -0.618034I$	0.986960	4.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+1)^2)(u^4-u^3+u^2+1)(u^{12}-2u^{11}+\cdots+52u^2+9)$
c_2	$((u+1)^4)(u^4+u^3+3u^2+2u+1)(u^{12}+18u^{11}+\cdots+936u+81)$
c_3	$((u^2+1)^2)(u^4-u^3+3u^2-2u+1)(u^{12}-2u^{11}+\cdots+12u+9)$
c_4, c_{10}	$u^4(u^4+3u^2+1)(u^{12}-8u^{11}+\cdots-48u+64)$
c_5	$((u^2+1)^2)(u^4+u^3+u^2+1)(u^{12}-2u^{11}+\cdots+52u^2+9)$
c_6, c_7	$((u^2+1)^2)(u^4+u^3+3u^2+2u+1)(u^{12}-2u^{11}+\cdots+12u+9)$
c_8, c_9	$((u+1)^4)(u^2-u-1)^2(u^{12}+7u^{11}+\cdots-3u+4)$
c_{11}	$((u-1)^4)(u^2+u-1)^2(u^{12}+7u^{11}+\cdots-3u+4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y+1)^4)(y^4+y^3+3y^2+2y+1)(y^{12}+18y^{11}+\cdots+936y+81)$
c_2	$((y-1)^4)(y^4+5y^3+\cdots+2y+1)(y^{12}-42y^{11}+\cdots-88128y+6561)$
c_3, c_6, c_7	$((y+1)^4)(y^4+5y^3+\cdots+2y+1)(y^{12}+2y^{11}+\cdots+648y+81)$
c_4, c_{10}	$y^4(y^2+3y+1)^2(y^{12}-30y^{11}+\cdots+13056y+4096)$
c_8, c_9, c_{11}	$((y-1)^4)(y^2-3y+1)^2(y^{12}-y^{11}+\cdots+559y+16)$