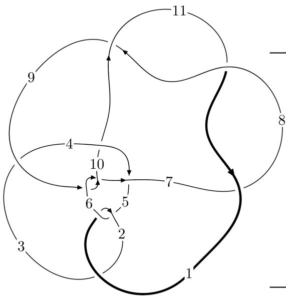
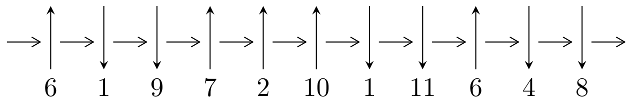
$11n_{83}$ ($K11n_{83}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.65693 \times 10^{21} u^{29} - 1.25426 \times 10^{22} u^{28} + \cdots + 7.78277 \times 10^{21} b - 2.65124 \times 10^{22}, \\
& - 1.16811 \times 10^{22} u^{29} - 8.79857 \times 10^{22} u^{28} + \cdots + 2.33483 \times 10^{22} a - 1.51866 \times 10^{23}, \\
& u^{30} + 8u^{29} + \cdots + 59u + 9 \rangle \\
I_2^u = \langle & b^2 - 2bu - u + 1,\ a - u - 1,\ u^2 + u + 1 \rangle \\
I_3^u = \langle & b + u,\ a + u + 1,\ u^2 + u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 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. $I_1^u = \langle -1.66 \times 10^{21} u^{29} - 1.25 \times 10^{22} u^{28} + \cdots + 7.78 \times 10^{21} b - 2.65 \times 10^{22},\ -1.17 \times 10^{22} u^{29} - 8.80 \times 10^{22} u^{28} + \cdots + 2.33 \times 10^{22} a - 1.52 \times 10^{23},\ u^{30} + 8u^{29} + \cdots + 59u + 9 \rangle$

(i) Arc colorings

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

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

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

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

$$a_{10} = \begin{pmatrix} 0.500296u^{29} + 3.76840u^{28} + \cdots + 34.8145u + 6.50436 \\ 0.212897u^{29} + 1.61159u^{28} + \cdots + 17.2043u + 3.40655 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.195327u^{29} - 1.50953u^{28} + \cdots - 27.9406u - 7.82719 \\ -0.200124u^{29} - 1.50933u^{28} + \cdots - 14.4262u - 3.01543 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00479750u^{29} - 0.000201005u^{28} + \cdots - 13.5144u - 4.81176 \\ -0.200124u^{29} - 1.50933u^{28} + \cdots - 14.4262u - 3.01543 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.582123u^{29} + 4.29047u^{28} + \cdots + 43.1171u + 10.9976 \\ 0.243597u^{29} + 1.73550u^{28} + \cdots + 12.1493u + 1.59905 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.500296u^{29} + 3.76840u^{28} + \cdots + 34.8145u + 6.50436 \\ 0.275979u^{29} + 2.11887u^{28} + \cdots + 26.5057u + 5.51226 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.378505u^{29} - 2.81515u^{28} + \cdots - 27.1883u - 5.12752 \\ 0.163272u^{29} + 1.28132u^{28} + \cdots + 17.0522u + 4.24326 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.378505u^{29} - 2.81515u^{28} + \cdots - 27.1883u - 5.12752 \\ 0.163272u^{29} + 1.28132u^{28} + \cdots + 17.0522u + 4.24326 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1349639825927485091569}{778276993187305907372 4}u^{29} + \frac{9179424603349810678583}{7782769931873059073724}u^{28} + \cdots + \frac{15327902552426985918 7337}{7782769931873059073724}u + \frac{5608854558132017698152}{648564160989421589477}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{30} - 8u^{29} + \cdots - 59u + 9$
c_2	$u^{30} + 32u^{29} + \cdots + 47u + 81$
c_3	$u^{30} - 8u^{28} + \cdots - 3557u + 451$
c_4	$u^{30} + 4u^{29} + \cdots - 295u + 1601$
c_6, c_9	$u^{30} - 3u^{29} + \cdots + 4u + 3$
c_7, c_8, c_{11}	$u^{30} - u^{29} + \cdots - 16u + 4$
c_{10}	$u^{30} + 2u^{29} + \cdots - u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{30} + 32y^{29} + \cdots + 47y + 81$
c_2	$y^{30} - 64y^{29} + \cdots - 221233y + 6561$
c_3	$y^{30} - 16y^{29} + \cdots - 5277497y + 203401$
c_4	$y^{30} + 24y^{29} + \cdots + 28807823y + 2563201$
c_6, c_9	$y^{30} - 9y^{29} + \cdots - 58y + 9$
c_7, c_8, c_{11}	$y^{30} + 25y^{29} + \cdots - 32y + 16$
c_{10}	$y^{30} + 8y^{29} + \cdots + 59y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.289006 + 0.960575I$ $a = 0.341844 + 0.310737I$ $b = 0.004028 - 1.301360I$	$4.98680 - 2.32242I$	$-0.98983 + 4.15024I$
$u = -0.289006 - 0.960575I$ $a = 0.341844 - 0.310737I$ $b = 0.004028 + 1.301360I$	$4.98680 + 2.32242I$	$-0.98983 - 4.15024I$
$u = -0.827863 + 0.788133I$ $a = 0.610296 + 0.163041I$ $b = -0.907811 + 0.765680I$	$0.80409 - 2.85458I$	$-2.92837 + 5.79821I$
$u = -0.827863 - 0.788133I$ $a = 0.610296 - 0.163041I$ $b = -0.907811 - 0.765680I$	$0.80409 + 2.85458I$	$-2.92837 - 5.79821I$
$u = -0.215656 + 1.206980I$ $a = 0.182869 + 1.070300I$ $b = -0.07834 + 1.70158I$	$3.45780 - 2.70205I$	$2.31582 + 3.42763I$
$u = -0.215656 - 1.206980I$ $a = 0.182869 - 1.070300I$ $b = -0.07834 - 1.70158I$	$3.45780 + 2.70205I$	$2.31582 - 3.42763I$
$u = -0.956886 + 0.832908I$ $a = -0.124030 - 0.650953I$ $b = 1.108780 - 0.402600I$	$4.02348 - 1.34734I$	$3.26214 + 0.58804I$
$u = -0.956886 - 0.832908I$ $a = -0.124030 + 0.650953I$ $b = 1.108780 + 0.402600I$	$4.02348 + 1.34734I$	$3.26214 - 0.58804I$
$u = -1.194550 + 0.646359I$ $a = -0.806434 + 0.092426I$ $b = 1.66643 - 0.93121I$	$4.62105 - 5.90679I$	$4.52831 + 6.63187I$
$u = -1.194550 - 0.646359I$ $a = -0.806434 - 0.092426I$ $b = 1.66643 + 0.93121I$	$4.62105 + 5.90679I$	$4.52831 - 6.63187I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.29191 + 1.42887I$ $a = 0.744398 - 0.614810I$ $b = -1.13746 - 1.62619I$	$-3.80529 + 5.57168I$	$-1.0000 - 2.74433I$
$u = 0.29191 - 1.42887I$ $a = 0.744398 + 0.614810I$ $b = -1.13746 + 1.62619I$	$-3.80529 - 5.57168I$	$-1.0000 + 2.74433I$
$u = 0.534931 + 0.013556I$ $a = 1.31577 + 1.24844I$ $b = -0.939218 - 0.571832I$	$0.93475 + 2.30280I$	$-1.24616 - 3.74570I$
$u = 0.534931 - 0.013556I$ $a = 1.31577 - 1.24844I$ $b = -0.939218 + 0.571832I$	$0.93475 - 2.30280I$	$-1.24616 + 3.74570I$
$u = 0.131917 + 0.513534I$ $a = -1.123520 - 0.076835I$ $b = 0.192615 + 0.679919I$	$-1.028650 - 0.891272I$	$-5.65753 + 3.58094I$
$u = 0.131917 - 0.513534I$ $a = -1.123520 + 0.076835I$ $b = 0.192615 - 0.679919I$	$-1.028650 + 0.891272I$	$-5.65753 - 3.58094I$
$u = -0.288296 + 0.396727I$ $a = -1.58170 - 1.42670I$ $b = -0.0250531 - 0.0445070I$	$1.85260 - 1.11432I$	$2.87293 - 2.42323I$
$u = -0.288296 - 0.396727I$ $a = -1.58170 + 1.42670I$ $b = -0.0250531 + 0.0445070I$	$1.85260 + 1.11432I$	$2.87293 + 2.42323I$
$u = -0.473408 + 0.105538I$ $a = 2.08968 + 0.90137I$ $b = -0.08348 + 1.42196I$	$7.52373 - 0.32119I$	$8.17779 - 0.83002I$
$u = -0.473408 - 0.105538I$ $a = 2.08968 - 0.90137I$ $b = -0.08348 - 1.42196I$	$7.52373 + 0.32119I$	$8.17779 + 0.83002I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.01716 + 1.58025I$ $a = -0.639515 - 0.509136I$ $b = -0.029559 - 0.549776I$	$-4.75687 - 1.39165I$	0
$u = 0.01716 - 1.58025I$ $a = -0.639515 + 0.509136I$ $b = -0.029559 + 0.549776I$	$-4.75687 + 1.39165I$	0
$u = 0.09265 + 1.59384I$ $a = -0.666239 + 0.534839I$ $b = 0.455313 + 1.306320I$	$-8.24005 + 0.28940I$	0
$u = 0.09265 - 1.59384I$ $a = -0.666239 - 0.534839I$ $b = 0.455313 - 1.306320I$	$-8.24005 - 0.28940I$	0
$u = -0.17358 + 1.65624I$ $a = 0.598313 - 0.464993I$ $b = 0.030527 - 0.633530I$	$-4.52151 - 5.10629I$	0
$u = -0.17358 - 1.65624I$ $a = 0.598313 + 0.464993I$ $b = 0.030527 + 0.633530I$	$-4.52151 + 5.10629I$	0
$u = -0.22083 + 1.70141I$ $a = 0.625937 + 0.523734I$ $b = -0.49633 + 1.34756I$	$-7.86584 - 6.86749I$	0
$u = -0.22083 - 1.70141I$ $a = 0.625937 - 0.523734I$ $b = -0.49633 - 1.34756I$	$-7.86584 + 6.86749I$	0
$u = -0.42849 + 1.69223I$ $a = -0.623225 - 0.533526I$ $b = 1.23958 - 1.77796I$	$-2.92088 - 12.01220I$	0
$u = -0.42849 - 1.69223I$ $a = -0.623225 + 0.533526I$ $b = 1.23958 + 1.77796I$	$-2.92088 + 12.01220I$	0

II. $I_2^u = \langle b^2 - 2bu - u + 1,\ a - u - 1,\ u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u + 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_{10}	$(y^2+y+1)^2$
c_3, c_4	$y^4-2y^3-5y^2-18y+81$
c_6, c_9	$(y-1)^4$
c_7, c_8, c_{11}	$(y+2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=\quad 0.500000+0.866025I$ $b=-0.500000-0.548188I$	$6.57974-2.02988I$	$6.00000+3.46410I$
$u=-0.500000+0.866025I$ $a=\quad 0.500000+0.866025I$ $b=-0.50000+2.28024I$	$6.57974-2.02988I$	$6.00000+3.46410I$
$u=-0.500000-0.866025I$ $a=\quad 0.500000-0.866025I$ $b=-0.500000+0.548188I$	$6.57974+2.02988I$	$6.00000-3.46410I$
$u=-0.500000-0.866025I$ $a=\quad 0.500000-0.866025I$ $b=-0.50000-2.28024I$	$6.57974+2.02988I$	$6.00000-3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u+2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = \quad 0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$0. + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = \quad 0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$0. - 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{30}-8u^{29}+\cdots-59u+9)$
c_2	$((u^2+u+1)^3)(u^{30}+32u^{29}+\cdots+47u+81)$
c_3	$(u^2+u+1)(u^4-2u^3+u^2-6u+9)(u^{30}-8u^{28}+\cdots-3557u+451)$
c_4	$(u^2+u+1)(u^4+2u^3+u^2+6u+9)(u^{30}+4u^{29}+\cdots-295u+1601)$
c_5	$((u^2-u+1)^3)(u^{30}-8u^{29}+\cdots-59u+9)$
c_6	$((u-1)^4)(u+1)^2(u^{30}-3u^{29}+\cdots+4u+3)$
c_7, c_8, c_{11}	$u^2(u^2+2)^2(u^{30}-u^{29}+\cdots-16u+4)$
c_9	$((u-1)^2)(u+1)^4(u^{30}-3u^{29}+\cdots+4u+3)$
c_{10}	$(u^2-u+1)(u^2+u+1)^2(u^{30}+2u^{29}+\cdots-u+3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^2+y+1)^3)(y^{30}+32y^{29}+\cdots+47y+81)$
c_2	$((y^2+y+1)^3)(y^{30}-64y^{29}+\cdots-221233y+6561)$
c_3	$(y^2+y+1)(y^4-2y^3-5y^2-18y+81)$ $\cdot\,(y^{30}-16y^{29}+\cdots-5277497y+203401)$
c_4	$(y^2+y+1)(y^4-2y^3-5y^2-18y+81)$ $\cdot\,(y^{30}+24y^{29}+\cdots+28807823y+2563201)$
c_6, c_9	$((y-1)^6)(y^{30}-9y^{29}+\cdots-58y+9)$
c_7, c_8, c_{11}	$y^2(y+2)^4(y^{30}+25y^{29}+\cdots-32y+16)$
c_{10}	$((y^2+y+1)^3)(y^{30}+8y^{29}+\cdots+59y+9)$