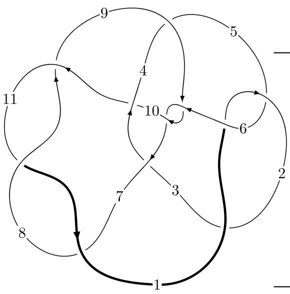
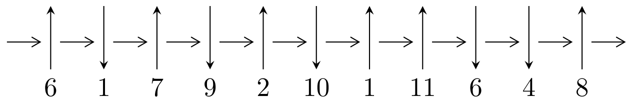
$11n_{49}$ ($K11n_{49}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^5 + u^4 - 4u^3 + 6b - 6u - 2,\ u^3 - 2u^2 + 4a + 4u - 2,\ u^6 - 2u^5 + 8u^4 - 4u^3 + 12u^2 + 8u + 4\rangle$$
$$I_2^u = \langle b + 1,\ 2a^2 + au + 4a + u + 1,\ u^2 + 2\rangle$$

$$I_1^v = \langle a,\ b - 1,\ v^2 - v + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 12 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. $\boldsymbol{I_1^u = \langle -u^5 + u^4 - 4u^3 + 6b - 6u - 2,\ u^3 - 2u^2 + 4a + 4u - 2,\ u^6 - 2u^5 + 8u^4 - 4u^3 + 12u^2 + 8u + 4 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{4}u^3 + \frac{1}{2}u^2 - u + \frac{1}{2} \\ \frac{1}{6}u^5 - \frac{1}{6}u^4 + \frac{2}{3}u^3 + u + \frac{1}{3} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -\frac{1}{12}u^5 + \frac{1}{3}u^4 + \cdots + u^2 + \frac{5}{6} \\ -\frac{1}{3}u^5 + \frac{1}{3}u^4 - \frac{4}{3}u^3 + \frac{1}{3} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{6}u^5 - \frac{2}{3}u^4 + \frac{11}{12}u^3 - u^2 - \frac{1}{6} \\ u^5 - \frac{7}{4}u^4 + 3u^3 - 2u^2 - \frac{1}{2}u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{1}{6}u^5 - \frac{2}{3}u^4 + \frac{11}{12}u^3 - u^2 - \frac{1}{6} \\ -\frac{1}{12}u^5 + \frac{7}{12}u^4 + \cdots + \frac{3}{2}u + \frac{1}{3} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{1}{12}u^5 - \frac{1}{12}u^4 + \cdots + \frac{3}{2}u + \frac{1}{6} \\ -\frac{1}{12}u^5 + \frac{7}{12}u^4 + \cdots + \frac{3}{2}u + \frac{1}{3} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{1}{3}u^5 + \frac{1}{6}u^4 + \frac{13}{12}u^3 - u + \frac{1}{6} \\ -0.416667u^5 + 5.41667u^4 + \cdots + 8.50000u + 3.66667 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^5 - 2u^4 + 8u^3 - 5u^2 + 12u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^6 - 7u^5 + 30u^4 - 59u^3 + 78u^2 - 23u + 9$
c_2	$u^6 + 11u^5 + 230u^4 + 895u^3 + 3910u^2 + 875u + 81$
c_3	$u^6 - u^5 + 4u^4 + 203u^3 + 402u^2 - 199u + 127$
c_4	$u^6 - 13u^5 + 64u^4 - 127u^3 + 74u^2 + 17u + 41$
c_6, c_9	$u^6 + 4u^5 + 9u^4 + 8u^3 + 19u^2 + 4u + 3$
c_7, c_8, c_{11}	$u^6 + 2u^5 + 8u^4 + 4u^3 + 12u^2 - 8u + 4$
c_{10}	$u^6 + u^5 + 4u^4 + u^3 + 8u^2 + 5u + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^6 + 11y^5 + 230y^4 + 895y^3 + 3910y^2 + 875y + 81$
c_2	$y^6 + 339y^5 + \cdots - 132205y + 6561$
c_3	$y^6 + 7y^5 + 1226y^4 - 38137y^3 + 243414y^2 + 62507y + 16129$
c_4	$y^6 - 41y^5 + 942y^4 - 6133y^3 + 15042y^2 + 5779y + 1681$
c_6, c_9	$y^6 + 2y^5 + 55y^4 + 252y^3 + 351y^2 + 98y + 9$
c_7, c_8, c_{11}	$y^6 + 12y^5 + 72y^4 + 216y^3 + 272y^2 + 32y + 16$
c_{10}	$y^6 + 7y^5 + 30y^4 + 59y^3 + 78y^2 + 23y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.327848 + 0.380167I$ $a = 0.782599 - 0.521714I$ $b = 0.089037 + 0.417324I$	$0.080134 - 1.031470I$	$1.24075 + 6.28341I$
$u = -0.327848 - 0.380167I$ $a = 0.782599 + 0.521714I$ $b = 0.089037 - 0.417324I$	$0.080134 + 1.031470I$	$1.24075 - 6.28341I$
$u = 0.31945 + 1.74021I$ $a = -0.565198$ $b = -0.20409 + 1.44525I$	$-4.41014 - 1.50896I$	$-1.48189 + 1.11182I$
$u = 0.31945 - 1.74021I$ $a = -0.565198$ $b = -0.20409 - 1.44525I$	$-4.41014 + 1.50896I$	$-1.48189 - 1.11182I$
$u = 1.00840 + 2.01334I$ $a = 0.782599 + 0.521714I$ $b = 2.11506 - 1.80559I$	$9.26481 + 6.90911I$	$-1.75886 - 2.47219I$
$u = 1.00840 - 2.01334I$ $a = 0.782599 - 0.521714I$ $b = 2.11506 + 1.80559I$	$9.26481 - 6.90911I$	$-1.75886 + 2.47219I$

II. $I_2^u = \langle b+1,\ 2a^2 + au + 4a + u + 1,\ u^2 + 2\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4au - 4u - 4$

(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
$u = 1.414210I$ $a = -0.387628 - 0.353553I$ $b = -1.00000$	$-6.57974 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 1.414210I$ $a = -1.61237 - 0.35355I$ $b = -1.00000$	$-6.57974 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -1.414210I$ $a = -0.387628 + 0.353553I$ $b = -1.00000$	$-6.57974 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -1.414210I$ $a = -1.61237 + 0.35355I$ $b = -1.00000$	$-6.57974 + 2.02988I$	$-6.00000 - 3.46410I$

III. $I_1^v = \langle a,\ b-1,\ v^2-v+1\rangle$

(i) Arc colorings

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2v \\ -v \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2v-1 \\ -v \end{pmatrix}$$

$$a_4 = \begin{pmatrix} v-1 \\ -v \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2v-1 \\ -v \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$u^2 + u + 1$
c_3, c_4, 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_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	$0.500000 + 0.866025I$		
$a =$	0	$-1.64493 + 2.02988I$	$0. - 3.46410I$
$b =$	1.00000		
$v =$	$0.500000 - 0.866025I$		
$a =$	0	$-1.64493 - 2.02988I$	$0. + 3.46410I$
$b =$	1.00000		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)^3(u^6-7u^5+30u^4-59u^3+78u^2-23u+9)$
c_2	$(u^2+u+1)^3(u^6+11u^5+230u^4+895u^3+3910u^2+875u+81)$
c_3	$(u^2-u+1)(u^4-2u^3+u^2-6u+9)$ $\cdot(u^6-u^5+4u^4+203u^3+402u^2-199u+127)$
c_4	$(u^2-u+1)(u^4+2u^3+u^2+6u+9)$ $\cdot(u^6-13u^5+64u^4-127u^3+74u^2+17u+41)$
c_5	$(u^2-u+1)^3(u^6-7u^5+30u^4-59u^3+78u^2-23u+9)$
c_6	$(u-1)^2(u+1)^4(u^6+4u^5+9u^4+8u^3+19u^2+4u+3)$
c_7, c_8, c_{11}	$u^2(u^2+2)^2(u^6+2u^5+8u^4+4u^3+12u^2-8u+4)$
c_9	$(u-1)^4(u+1)^2(u^6+4u^5+9u^4+8u^3+19u^2+4u+3)$
c_{10}	$(u^2-u+1)(u^2+u+1)^2(u^6+u^5+4u^4+u^3+8u^2+5u+3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^2+y+1)^3(y^6+11y^5+230y^4+895y^3+3910y^2+875y+81)$
c_2	$((y^2+y+1)^3)(y^6+339y^5+\cdots-132205y+6561)$
c_3	$(y^2+y+1)(y^4-2y^3-5y^2-18y+81)$ $\cdot\,(y^6+7y^5+1226y^4-38137y^3+243414y^2+62507y+16129)$
c_4	$(y^2+y+1)(y^4-2y^3-5y^2-18y+81)$ $\cdot\,(y^6-41y^5+942y^4-6133y^3+15042y^2+5779y+1681)$
c_6, c_9	$(y-1)^6(y^6+2y^5+55y^4+252y^3+351y^2+98y+9)$
c_7, c_8, c_{11}	$y^2(y+2)^4(y^6+12y^5+72y^4+216y^3+272y^2+32y+16)$
c_{10}	$(y^2+y+1)^3(y^6+7y^5+30y^4+59y^3+78y^2+23y+9)$