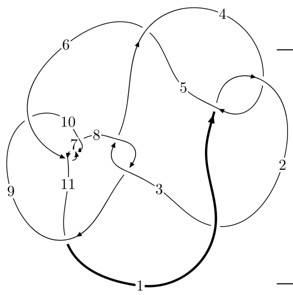
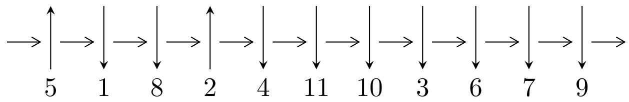
$11a_{61}$ ($K11a_{61}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 8u^{56} - 9u^{55} + \cdots + 4b - 7,\ 11u^{56} - 40u^{55} + \cdots + 4a + 1,\ u^{57} - 4u^{56} + \cdots + 7u - 1 \rangle$$
$$I_2^u = \langle -au + b,\ a^3 + a^2u + a^2 + 1,\ u^2 + u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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. $I^u_1 = \langle 8u^{56}-9u^{55}+\cdots+4b-7,\ 11u^{56}-40u^{55}+\cdots+4a+1,\ u^{57}-4u^{56}+\cdots+7u-1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{11}{4}u^{56}+10u^{55}+\cdots+\frac{67}{4}u-\frac{1}{4} \\ -2u^{56}+\frac{9}{4}u^{55}+\cdots-11u+\frac{7}{4} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{9}{4}u^{56}+16u^{55}+\cdots+\frac{189}{4}u-\frac{23}{4} \\ -7u^{56}+\frac{55}{4}u^{55}+\cdots-10u+\frac{9}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^{56}+\frac{3}{4}u^{55}+\cdots+\frac{13}{4}u+2 \\ \frac{1}{4}u^{56}-u^{55}+\cdots-\frac{11}{4}u+\frac{1}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{11}{4}u^{56}-\frac{47}{4}u^{55}+\cdots-\frac{121}{4}u+4 \\ \frac{3}{4}u^{56}+\frac{1}{4}u^{55}+\cdots+\frac{59}{4}u-\frac{5}{2} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{7}{4}u^{56}+\frac{63}{4}u^{55}+\cdots+\frac{223}{4}u-7 \\ -7u^{56}+\frac{57}{4}u^{55}+\cdots-12u+\frac{11}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{7}{4}u^{56}+\frac{63}{4}u^{55}+\cdots+\frac{223}{4}u-7 \\ -7u^{56}+\frac{57}{4}u^{55}+\cdots-12u+\frac{11}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -8u^{56}+\frac{25}{2}u^{55}+\cdots-20u-7$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{57} + 4u^{56} + \cdots + 7u + 1$
c_2, c_5	$u^{57} + 18u^{56} + \cdots + 23u - 1$
c_3, c_8	$u^{57} + u^{56} + \cdots + 160u + 64$
c_6, c_7, c_{10}	$u^{57} - 3u^{56} + \cdots - 6u + 1$
c_9	$u^{57} + 3u^{56} + \cdots - 624u + 73$
c_{11}	$u^{57} - 11u^{56} + \cdots - 2040u + 209$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{57} + 18y^{56} + \cdots + 23y - 1$
c_2, c_5	$y^{57} + 46y^{56} + \cdots + 1015y - 1$
c_3, c_8	$y^{57} + 35y^{56} + \cdots - 39936y - 4096$
c_6, c_7, c_{10}	$y^{57} + 53y^{56} + \cdots + 6y - 1$
c_9	$y^{57} + 9y^{56} + \cdots - 41762y - 5329$
c_{11}	$y^{57} + 29y^{56} + \cdots - 624082y - 43681$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.411000 + 0.945370I$ $a = 0.758571 + 0.375458I$ $b = -0.159926 + 0.346294I$	$-0.43337 - 1.68301I$	$-2.91269 + 0.I$
$u = -0.411000 - 0.945370I$ $a = 0.758571 - 0.375458I$ $b = -0.159926 - 0.346294I$	$-0.43337 + 1.68301I$	$-2.91269 + 0.I$
$u = -0.070350 + 0.957209I$ $a = 0.843157 + 0.528242I$ $b = 1.012250 + 0.111658I$	$-0.22072 - 2.23623I$	$-9.39240 + 3.87464I$
$u = -0.070350 - 0.957209I$ $a = 0.843157 - 0.528242I$ $b = 1.012250 - 0.111658I$	$-0.22072 + 2.23623I$	$-9.39240 - 3.87464I$
$u = -0.294254 + 0.900156I$ $a = 0.889838 + 0.254291I$ $b = 0.192184 + 0.303495I$	$-0.43103 - 1.63888I$	$-4.79988 + 2.71199I$
$u = -0.294254 - 0.900156I$ $a = 0.889838 - 0.254291I$ $b = 0.192184 - 0.303495I$	$-0.43103 + 1.63888I$	$-4.79988 - 2.71199I$
$u = 0.716145 + 0.819187I$ $a = -0.945498 + 0.434435I$ $b = 1.40998 + 0.63877I$	$4.56397 - 1.17086I$	0
$u = 0.716145 - 0.819187I$ $a = -0.945498 - 0.434435I$ $b = 1.40998 - 0.63877I$	$4.56397 + 1.17086I$	0
$u = -0.722279 + 0.830660I$ $a = 1.00866 - 1.56975I$ $b = -0.112045 + 0.922007I$	$1.73223 - 1.00864I$	$-7.00000 + 0.I$
$u = -0.722279 - 0.830660I$ $a = 1.00866 + 1.56975I$ $b = -0.112045 - 0.922007I$	$1.73223 + 1.00864I$	$-7.00000 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.221111 + 1.079490I$ $a = -0.821842 - 0.181447I$ $b = -0.613293 - 1.011210I$	$-1.42166 - 4.84212I$	$-7.00000 + 7.62059I$
$u = -0.221111 - 1.079490I$ $a = -0.821842 + 0.181447I$ $b = -0.613293 + 1.011210I$	$-1.42166 + 4.84212I$	$-7.00000 - 7.62059I$
$u = 0.864422 + 0.721606I$ $a = 0.74235 + 1.40599I$ $b = -0.62330 - 1.47673I$	$5.87637 - 4.55093I$	0
$u = 0.864422 - 0.721606I$ $a = 0.74235 - 1.40599I$ $b = -0.62330 + 1.47673I$	$5.87637 + 4.55093I$	0
$u = 0.710335 + 0.874003I$ $a = 0.541401 - 0.977846I$ $b = -1.50306 - 0.11683I$	$0.69484 + 2.72065I$	0
$u = 0.710335 - 0.874003I$ $a = 0.541401 + 0.977846I$ $b = -1.50306 + 0.11683I$	$0.69484 - 2.72065I$	0
$u = -0.782668 + 0.823558I$ $a = -1.38003 + 1.86072I$ $b = 0.318434 - 1.211320I$	$7.55130 + 1.74072I$	0
$u = -0.782668 - 0.823558I$ $a = -1.38003 - 1.86072I$ $b = 0.318434 + 1.211320I$	$7.55130 - 1.74072I$	0
$u = 0.846418 + 0.761999I$ $a = -0.471724 - 1.032250I$ $b = 0.571036 + 1.197990I$	$6.72836 - 0.26468I$	0
$u = 0.846418 - 0.761999I$ $a = -0.471724 + 1.032250I$ $b = 0.571036 - 1.197990I$	$6.72836 + 0.26468I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.892838 + 0.709779I$ $a = -0.72817 - 1.72293I$ $b = 0.54713 + 1.65321I$	$11.7431 - 8.1696I$	0
$u = 0.892838 - 0.709779I$ $a = -0.72817 + 1.72293I$ $b = 0.54713 - 1.65321I$	$11.7431 + 8.1696I$	0
$u = -0.579065 + 0.988208I$ $a = -0.527800 - 1.214050I$ $b = 0.733184 + 0.166462I$	$2.70688 - 3.25300I$	0
$u = -0.579065 - 0.988208I$ $a = -0.527800 + 1.214050I$ $b = 0.733184 - 0.166462I$	$2.70688 + 3.25300I$	0
$u = 0.046272 + 0.846532I$ $a = -1.18927 - 0.76890I$ $b = -0.905005 + 0.577259I$	$-2.85410 + 0.74308I$	$-13.57323 - 1.00600I$
$u = 0.046272 - 0.846532I$ $a = -1.18927 + 0.76890I$ $b = -0.905005 - 0.577259I$	$-2.85410 - 0.74308I$	$-13.57323 + 1.00600I$
$u = -0.234257 + 1.130480I$ $a = 0.840745 + 0.057014I$ $b = 0.59116 + 1.34495I$	$4.07584 - 8.10637I$	0
$u = -0.234257 - 1.130480I$ $a = 0.840745 - 0.057014I$ $b = 0.59116 - 1.34495I$	$4.07584 + 8.10637I$	0
$u = -0.386185 + 1.092590I$ $a = -1.129960 - 0.354062I$ $b = 0.360548 - 1.019790I$	$5.00981 + 0.63384I$	0
$u = -0.386185 - 1.092590I$ $a = -1.129960 + 0.354062I$ $b = 0.360548 + 1.019790I$	$5.00981 - 0.63384I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.718160 + 0.909667I$ $a = -0.49430 + 1.92093I$ $b = -0.337710 - 1.036600I$	$1.48928 - 4.49756I$	0
$u = -0.718160 - 0.909667I$ $a = -0.49430 - 1.92093I$ $b = -0.337710 + 1.036600I$	$1.48928 + 4.49756I$	0
$u = 0.711635 + 0.923729I$ $a = -0.071999 + 1.393300I$ $b = 1.46379 - 0.43402I$	$4.23779 + 6.64103I$	0
$u = 0.711635 - 0.923729I$ $a = -0.071999 - 1.393300I$ $b = 1.46379 + 0.43402I$	$4.23779 - 6.64103I$	0
$u = 0.145913 + 0.817129I$ $a = 1.44787 + 1.01076I$ $b = 0.884513 - 1.043560I$	$1.92041 + 4.01720I$	$-8.21820 - 1.67425I$
$u = 0.145913 - 0.817129I$ $a = 1.44787 - 1.01076I$ $b = 0.884513 + 1.043560I$	$1.92041 - 4.01720I$	$-8.21820 + 1.67425I$
$u = -0.610136 + 0.543922I$ $a = -1.393620 + 0.207735I$ $b = 0.544710 + 0.046272I$	$3.98401 - 1.43384I$	$-1.02074 + 3.18853I$
$u = -0.610136 - 0.543922I$ $a = -1.393620 - 0.207735I$ $b = 0.544710 - 0.046272I$	$3.98401 + 1.43384I$	$-1.02074 - 3.18853I$
$u = 0.880016 + 0.800315I$ $a = -0.098223 + 1.121400I$ $b = -0.203921 - 1.080730I$	$13.50000 + 2.10845I$	0
$u = 0.880016 - 0.800315I$ $a = -0.098223 - 1.121400I$ $b = -0.203921 + 1.080730I$	$13.50000 - 2.10845I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.800227 + 0.097770I$ $a = -0.55703 - 1.38837I$ $b = 0.340559 + 1.293110I$	$8.22007 - 4.72575I$	$1.80987 + 3.60964I$
$u = -0.800227 - 0.097770I$ $a = -0.55703 + 1.38837I$ $b = 0.340559 - 1.293110I$	$8.22007 + 4.72575I$	$1.80987 - 3.60964I$
$u = -0.755939 + 0.930694I$ $a = 0.52607 - 2.29910I$ $b = 0.425194 + 1.323000I$	$7.22101 - 7.54444I$	0
$u = -0.755939 - 0.930694I$ $a = 0.52607 + 2.29910I$ $b = 0.425194 - 1.323000I$	$7.22101 + 7.54444I$	0
$u = 0.766562 + 0.991374I$ $a = 0.96808 + 1.47841I$ $b = 0.729701 - 1.117910I$	$6.01697 + 6.28313I$	0
$u = 0.766562 - 0.991374I$ $a = 0.96808 - 1.47841I$ $b = 0.729701 + 1.117910I$	$6.01697 - 6.28313I$	0
$u = 0.759691 + 1.020250I$ $a = -1.13322 - 1.78580I$ $b = -0.76006 + 1.47046I$	$4.95411 + 10.59560I$	0
$u = 0.759691 - 1.020250I$ $a = -1.13322 + 1.78580I$ $b = -0.76006 - 1.47046I$	$4.95411 - 10.59560I$	0
$u = 0.806919 + 0.984385I$ $a = -1.27465 - 1.07750I$ $b = -0.272115 + 0.948431I$	$12.92480 + 4.14012I$	0
$u = 0.806919 - 0.984385I$ $a = -1.27465 + 1.07750I$ $b = -0.272115 - 0.948431I$	$12.92480 - 4.14012I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.708895+0.073284I$ $a=\ 0.351150+0.941533I$ $b=-0.192151-1.042080I$	$2.36739-1.80456I$	$-1.57677+4.11913I$
$u=-0.708895-0.073284I$ $a=\ 0.351150-0.941533I$ $b=-0.192151+1.042080I$	$2.36739+1.80456I$	$-1.57677-4.11913I$
$u=\ 0.767113+1.038140I$ $a=\ 1.33064+1.89314I$ $b=\ 0.64323-1.67431I$	$10.7235+14.3183I$	0
$u=\ 0.767113-1.038140I$ $a=\ 1.33064-1.89314I$ $b=\ 0.64323+1.67431I$	$10.7235-14.3183I$	0
$u=\ 0.293144+0.279322I$ $a=-2.67050-0.08527I$ $b=\ 0.668951+0.608073I$	$3.36777-2.26311I$	$-4.02051+3.80459I$
$u=\ 0.293144-0.279322I$ $a=-2.67050+0.08527I$ $b=\ 0.668951-0.608073I$	$3.36777+2.26311I$	$-4.02051-3.80459I$
$u=\ 0.174207$ $a=\ 3.27862$ $b=-0.507940$	-0.822844	-12.1160

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= a^2u + 5au + a + 5u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.083790 - 0.387453I$ $b = \quad 0.877439 - 0.744862I$	$3.02413 + 0.79824I$	$-6.43615 + 0.68567I$
$u = -0.500000 + 0.866025I$ $a = \quad 0.206350 - 1.132320I$ $b = \quad 0.877439 + 0.744862I$	$3.02413 - 4.85801I$	$-2.88198 + 6.08229I$
$u = -0.500000 + 0.866025I$ $a = \quad 0.377439 + 0.653743I$ $b = -0.754878$	$-1.11345 - 2.02988I$	$-12.18187 + 4.49037I$
$u = -0.500000 - 0.866025I$ $a = -1.083790 + 0.387453I$ $b = \quad 0.877439 + 0.744862I$	$3.02413 - 0.79824I$	$-6.43615 - 0.68567I$
$u = -0.500000 - 0.866025I$ $a = \quad 0.206350 + 1.132320I$ $b = \quad 0.877439 - 0.744862I$	$3.02413 + 4.85801I$	$-2.88198 - 6.08229I$
$u = -0.500000 - 0.866025I$ $a = \quad 0.377439 - 0.653743I$ $b = -0.754878$	$-1.11345 + 2.02988I$	$-12.18187 - 4.49037I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{57}+4u^{56}+\cdots+7u+1)$
c_2, c_5	$((u^2+u+1)^3)(u^{57}+18u^{56}+\cdots+23u-1)$
c_3, c_8	$u^6(u^{57}+u^{56}+\cdots+160u+64)$
c_4	$((u^2-u+1)^3)(u^{57}+4u^{56}+\cdots+7u+1)$
c_6, c_7	$((u^3-u^2+2u-1)^2)(u^{57}-3u^{56}+\cdots-6u+1)$
c_9	$((u^3-u^2+1)^2)(u^{57}+3u^{56}+\cdots-624u+73)$
c_{10}	$((u^3+u^2+2u+1)^2)(u^{57}-3u^{56}+\cdots-6u+1)$
c_{11}	$((u^3-u^2+1)^2)(u^{57}-11u^{56}+\cdots-2040u+209)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{57}+18y^{56}+\cdots+23y-1)$
c_2, c_5	$((y^2+y+1)^3)(y^{57}+46y^{56}+\cdots+1015y-1)$
c_3, c_8	$y^6(y^{57}+35y^{56}+\cdots-39936y-4096)$
c_6, c_7, c_{10}	$((y^3+3y^2+2y-1)^2)(y^{57}+53y^{56}+\cdots+6y-1)$
c_9	$((y^3-y^2+2y-1)^2)(y^{57}+9y^{56}+\cdots-41762y-5329)$
c_{11}	$((y^3-y^2+2y-1)^2)(y^{57}+29y^{56}+\cdots-624082y-43681)$