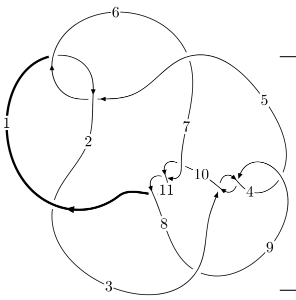
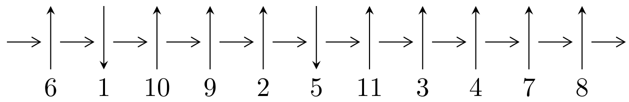
$11a_{143}$ $(K11a_{143})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.31268 \times 10^{32} u^{49} - 5.56961 \times 10^{32} u^{48} + \cdots + 3.84136 \times 10^{32} b + 1.21137 \times 10^{33}, \\
& - 1.01160 \times 10^{33} u^{49} - 2.15416 \times 10^{33} u^{48} + \cdots + 4.60963 \times 10^{33} a + 6.11980 \times 10^{33}, \\
& u^{50} - 3u^{49} + \cdots - 14u - 3 \rangle \\
I_2^u = \langle & -2a^3 + 3a^2 + 5b - 15a + 7,\ a^4 - 2a^3 + 7a^2 - 6a + 3,\ u + 1 \rangle \\
I_3^u = \langle & b,\ a^2 - a + 1,\ u - 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 56 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. $\boldsymbol{I^u_1 = \langle 3.31 \times 10^{32} u^{49} - 5.57 \times 10^{32} u^{48} + \cdots + 3.84 \times 10^{32} b + 1.21 \times 10^{33},\ -1.01 \times 10^{33} u^{49} - 2.15 \times 10^{33} u^{48} + \cdots + 4.61 \times 10^{33} a + 6.12 \times 10^{33},\ u^{50} - 3u^{49} + \cdots - 14u - 3\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.219454u^{49} + 0.467318u^{48} + \cdots + 9.86130u - 1.32761 \\ -0.862372u^{49} + 1.44991u^{48} + \cdots - 16.7135u - 3.15351 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1.08183u^{49} - 0.982587u^{48} + \cdots + 26.5748u + 1.82589 \\ -0.862372u^{49} + 1.44991u^{48} + \cdots - 16.7135u - 3.15351 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.247278u^{49} + 0.359922u^{48} + \cdots + 11.7803u - 0.445043 \\ -0.895841u^{49} + 1.30207u^{48} + \cdots - 19.0363u - 3.62861 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.694954u^{49} + 1.84791u^{48} + \cdots + 28.4151u + 4.77905 \\ 0.141172u^{49} - 0.0191976u^{48} + \cdots + 5.14402u - 0.584566 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.562523u^{49} + 0.817800u^{48} + \cdots - 8.66416u + 1.58746 \\ 0.649198u^{49} - 0.790264u^{48} + \cdots + 15.0431u + 2.83582 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.152066u^{49} + 0.970436u^{48} + \cdots + 28.0155u + 3.66927 \\ -0.384959u^{49} + 0.691554u^{48} + \cdots - 5.39208u - 2.02124 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.152066u^{49} + 0.970436u^{48} + \cdots + 28.0155u + 3.66927 \\ -0.384959u^{49} + 0.691554u^{48} + \cdots - 5.39208u - 2.02124 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.874649u^{49} + 2.02419u^{48} + \cdots + 4.43493u + 1.54316$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{50} - 2u^{49} + \cdots - 3u + 3$
c_2, c_6	$u^{50} + 16u^{49} + \cdots - 39u + 9$
c_3, c_4, c_9	$u^{50} - u^{49} + \cdots + 16u - 4$
c_7, c_{10}, c_{11}	$u^{50} - 3u^{49} + \cdots - 14u - 3$
c_8	$u^{50} + u^{49} + \cdots + 928u - 404$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{50} + 16y^{49} + \cdots - 39y + 9$
c_2, c_6	$y^{50} + 40y^{49} + \cdots - 11439y + 81$
c_3, c_4, c_9	$y^{50} + 45y^{49} + \cdots - 480y^2 + 16$
c_7, c_{10}, c_{11}	$y^{50} - 49y^{49} + \cdots + 68y + 9$
c_8	$y^{50} - 15y^{49} + \cdots + 470400y + 163216$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.768044+0.620254I$ $a=0.51382+1.55754I$ $b=0.223518+1.133800I$	$0.52020-1.74042I$	$8.32117+2.63326I$
$u=-0.768044-0.620254I$ $a=0.51382-1.55754I$ $b=0.223518-1.133800I$	$0.52020+1.74042I$	$8.32117-2.63326I$
$u=-0.357982+0.888739I$ $a=-0.66589-2.42275I$ $b=0.310740-1.355660I$	$-1.38805-9.13876I$	$5.39526+7.47528I$
$u=-0.357982-0.888739I$ $a=-0.66589+2.42275I$ $b=0.310740+1.355660I$	$-1.38805+9.13876I$	$5.39526-7.47528I$
$u=-0.419643+0.836664I$ $a=0.70010+2.28634I$ $b=-0.299889+1.309250I$	$-0.58057-3.35428I$	$6.95050+2.72855I$
$u=-0.419643-0.836664I$ $a=0.70010-2.28634I$ $b=-0.299889-1.309250I$	$-0.58057+3.35428I$	$6.95050-2.72855I$
$u=-0.875258+0.621898I$ $a=-0.48983-1.56500I$ $b=-0.261961-1.228410I$	$0.20741+3.87448I$	$7.86992-3.23394I$
$u=-0.875258-0.621898I$ $a=-0.48983+1.56500I$ $b=-0.261961+1.228410I$	$0.20741-3.87448I$	$7.86992+3.23394I$
$u=0.600873+0.702881I$ $a=-0.263588-0.464164I$ $b=-0.718050-0.066541I$	$3.72925-0.33634I$	$12.06779-0.57902I$
$u=0.600873-0.702881I$ $a=-0.263588+0.464164I$ $b=-0.718050+0.066541I$	$3.72925+0.33634I$	$12.06779+0.57902I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.494891 + 0.774626I$ $a = 0.302543 + 0.581565I$ $b = 0.737047 + 0.149487I$	$3.36565 + 5.33408I$	$10.62323 - 6.45202I$
$u = 0.494891 - 0.774626I$ $a = 0.302543 - 0.581565I$ $b = 0.737047 - 0.149487I$	$3.36565 - 5.33408I$	$10.62323 + 6.45202I$
$u = -1.065360 + 0.257655I$ $a = -0.23062 - 1.52209I$ $b = -0.10488 - 1.42170I$	$-4.48476 + 0.36744I$	$2.34065 + 0.74088I$
$u = -1.065360 - 0.257655I$ $a = -0.23062 + 1.52209I$ $b = -0.10488 + 1.42170I$	$-4.48476 - 0.36744I$	$2.34065 - 0.74088I$
$u = 1.100360 + 0.172393I$ $a = -0.0409123 + 0.0182444I$ $b = -0.313724 + 0.372597I$	$1.27025 + 1.19184I$	$7.00000 + 2.50368I$
$u = 1.100360 - 0.172393I$ $a = -0.0409123 - 0.0182444I$ $b = -0.313724 - 0.372597I$	$1.27025 - 1.19184I$	$7.00000 - 2.50368I$
$u = -0.207647 + 0.672129I$ $a = -1.26448 - 2.57161I$ $b = 0.182493 - 1.383300I$	$-6.96148 - 3.84491I$	$-1.20333 + 4.74598I$
$u = -0.207647 - 0.672129I$ $a = -1.26448 + 2.57161I$ $b = 0.182493 + 1.383300I$	$-6.96148 + 3.84491I$	$-1.20333 - 4.74598I$
$u = -1.349830 + 0.119644I$ $a = 0.951187 + 0.404966I$ $b = -0.680112 + 0.135570I$	$2.86347 - 3.60406I$	0
$u = -1.349830 - 0.119644I$ $a = 0.951187 - 0.404966I$ $b = -0.680112 - 0.135570I$	$2.86347 + 3.60406I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.419371+0.489432I$ $a=\ \ 1.23676+1.66984I$ $b=-0.103698+1.289300I$	$-3.33666-1.69681I$	$6.02735+3.86873I$
$u=-0.419371-0.489432I$ $a=\ \ 1.23676-1.66984I$ $b=-0.103698-1.289300I$	$-3.33666+1.69681I$	$6.02735-3.86873I$
$u=\ \ 1.352170+0.098819I$ $a=\ \ 1.161170+0.144436I$ $b=-0.211969-1.214280I$	$-0.313966-0.436878I$	0
$u=\ \ 1.352170-0.098819I$ $a=\ \ 1.161170-0.144436I$ $b=-0.211969+1.214280I$	$-0.313966+0.436878I$	0
$u=-1.356110+0.045936I$ $a=-0.03253-1.71582I$ $b=-0.02262-1.56889I$	$-0.83159-2.75739I$	0
$u=-1.356110-0.045936I$ $a=-0.03253+1.71582I$ $b=-0.02262+1.56889I$	$-0.83159+2.75739I$	0
$u=\ \ 1.391060+0.243928I$ $a=\ \ 1.57875-0.80925I$ $b=-0.287890-1.351540I$	$-1.84682+7.14521I$	0
$u=\ \ 1.391060-0.243928I$ $a=\ \ 1.57875+0.80925I$ $b=-0.287890+1.351540I$	$-1.84682-7.14521I$	0
$u=-1.43839$ $a=-0.748101$ $b=\ \ 0.770058$	6.46721	0
$u=\ \ 1.43734+0.14823I$ $a=-1.093440+0.493494I$ $b=\ \ 0.323552+1.255700I$	$2.58460+3.94905I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.43734 - 0.14823I$ $a = -1.093440 - 0.493494I$ $b = 0.323552 - 1.255700I$	$2.58460 - 3.94905I$	0
$u = -0.513376 + 0.156185I$ $a = 0.12350 + 1.97974I$ $b = 0.024574 + 0.485591I$	$0.74464 - 2.36364I$	$3.62478 + 4.11961I$
$u = -0.513376 - 0.156185I$ $a = 0.12350 - 1.97974I$ $b = 0.024574 - 0.485591I$	$0.74464 + 2.36364I$	$3.62478 - 4.11961I$
$u = 0.099189 + 0.524649I$ $a = -0.042705 + 1.015670I$ $b = 0.469409 + 0.309538I$	$-1.63114 + 1.42356I$	$2.31879 - 5.63109I$
$u = 0.099189 - 0.524649I$ $a = -0.042705 - 1.015670I$ $b = 0.469409 - 0.309538I$	$-1.63114 - 1.42356I$	$2.31879 + 5.63109I$
$u = 1.48543 + 0.34428I$ $a = 1.24716 - 1.34114I$ $b = -0.36507 - 1.42866I$	$4.5437 + 13.6084I$	0
$u = 1.48543 - 0.34428I$ $a = 1.24716 + 1.34114I$ $b = -0.36507 + 1.42866I$	$4.5437 - 13.6084I$	0
$u = 1.51636 + 0.16091I$ $a = 0.098166 + 0.420372I$ $b = -0.558023 + 0.923611I$	$7.88001 + 4.14120I$	0
$u = 1.51636 - 0.16091I$ $a = 0.098166 - 0.420372I$ $b = -0.558023 - 0.923611I$	$7.88001 - 4.14120I$	0
$u = 1.50169 + 0.30522I$ $a = -1.16719 + 1.21068I$ $b = 0.37957 + 1.39957I$	$5.64838 + 7.50037I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.50169 - 0.30522I$ $a = -1.16719 - 1.21068I$ $b = 0.37957 - 1.39957I$	$5.64838 - 7.50037I$	0
$u = 1.53335 + 0.09779I$ $a = -0.209409 - 0.465882I$ $b = 0.526883 - 0.998341I$	$8.31731 - 1.99153I$	0
$u = 1.53335 - 0.09779I$ $a = -0.209409 + 0.465882I$ $b = 0.526883 + 0.998341I$	$8.31731 + 1.99153I$	0
$u = -1.51832 + 0.26912I$ $a = 0.407229 + 0.580854I$ $b = -0.874042 + 0.265626I$	$9.92580 - 9.13602I$	0
$u = -1.51832 - 0.26912I$ $a = 0.407229 - 0.580854I$ $b = -0.874042 - 0.265626I$	$9.92580 + 9.13602I$	0
$u = -1.53487 + 0.21619I$ $a = -0.418285 - 0.467881I$ $b = 0.882710 - 0.212600I$	$10.74210 - 2.95976I$	0
$u = -1.53487 - 0.21619I$ $a = -0.418285 + 0.467881I$ $b = 0.882710 + 0.212600I$	$10.74210 + 2.95976I$	0
$u = 0.377548$ $a = 0.538429$ $b = -0.387989$	0.630546	15.8700
$u = -0.096486 + 0.258092I$ $a = -4.46333 - 1.70481I$ $b = 0.050400 - 1.397800I$	$-5.03824 + 1.88230I$	$-0.03756 - 2.83434I$
$u = -0.096486 - 0.258092I$ $a = -4.46333 + 1.70481I$ $b = 0.050400 + 1.397800I$	$-5.03824 - 1.88230I$	$-0.03756 + 2.83434I$

II. $\boldsymbol{I^u_2 = \langle -2a^3 + 3a^2 + 5b - 15a + 7,\ a^4 - 2a^3 + 7a^2 - 6a + 3,\ u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ \frac{2}{5}a^3 - \frac{3}{5}a^2 + 3a - \frac{7}{5} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{2}{5}a^3 + \frac{3}{5}a^2 - 2a + \frac{7}{5} \\ \frac{2}{5}a^3 - \frac{3}{5}a^2 + 3a - \frac{7}{5} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{2}{5}a^3 + \frac{3}{5}a^2 - 2a + \frac{7}{5} \\ \frac{4}{5}a^3 - \frac{6}{5}a^2 + 5a - \frac{14}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{5}a^3 + \frac{1}{5}a^2 + a - \frac{1}{5} \\ -2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{2}{5}a^3 - \frac{3}{5}a^2 + 2a - \frac{7}{5} \\ -\frac{2}{5}a^3 + \frac{3}{5}a^2 - 3a + \frac{7}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{2}{5}a^3 - \frac{3}{5}a^2 + 2a - \frac{2}{5} \\ -\frac{1}{5}a^3 - \frac{1}{5}a^2 - a - \frac{9}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{2}{5}a^3 - \frac{3}{5}a^2 + 2a - \frac{2}{5} \\ -\frac{1}{5}a^3 - \frac{1}{5}a^2 - a - \frac{9}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{8}{5}a^3 + \frac{12}{5}a^2 - 8a + \frac{48}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_6	$(y^2 + y + 1)^2$
c_3, c_4, c_8 c_9	$(y + 2)^4$
c_7, c_{10}, 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
$u = -1.00000$ $a = \quad 0.500000 + 0.548188I$ $b = \quad 1.414210I$	$-3.28987 + 2.02988I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 - 0.548188I$ $b = \quad - 1.414210I$	$-3.28987 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.50000 + 2.28024I$ $b = \quad 1.414210I$	$-3.28987 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.50000 - 2.28024I$ $b = \quad - 1.414210I$	$-3.28987 + 2.02988I$	$6.00000 - 3.46410I$

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

(i) Arc colorings

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

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

$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

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

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

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

$$a_3 = \begin{pmatrix} a \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ -a \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	1.00000		
$a=$	$0.500000+0.866025I$	$1.64493-2.02988I$	$12.00000+3.46410I$
$b=$	0		
$u=$	1.00000		
$a=$	$0.500000-0.866025I$	$1.64493+2.02988I$	$12.00000-3.46410I$
$b=$	0		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^2+u+1)(u^{50}-2u^{49}+\cdots-3u+3)$
c_2, c_6	$((u^2+u+1)^3)(u^{50}+16u^{49}+\cdots-39u+9)$
c_3, c_4, c_9	$u^2(u^2+2)^2(u^{50}-u^{49}+\cdots+16u-4)$
c_5	$(u^2-u+1)(u^2+u+1)^2(u^{50}-2u^{49}+\cdots-3u+3)$
c_7	$((u-1)^4)(u+1)^2(u^{50}-3u^{49}+\cdots-14u-3)$
c_8	$u^2(u^2+2)^2(u^{50}+u^{49}+\cdots+928u-404)$
c_{10}, c_{11}	$((u-1)^2)(u+1)^4(u^{50}-3u^{49}+\cdots-14u-3)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y^2+y+1)^3)(y^{50}+16y^{49}+\cdots-39y+9)$
c_2, c_6	$((y^2+y+1)^3)(y^{50}+40y^{49}+\cdots-11439y+81)$
c_3, c_4, c_9	$y^2(y+2)^4(y^{50}+45y^{49}+\cdots-480y^2+16)$
c_7, c_{10}, c_{11}	$((y-1)^6)(y^{50}-49y^{49}+\cdots+68y+9)$
c_8	$y^2(y+2)^4(y^{50}-15y^{49}+\cdots+470400y+163216)$