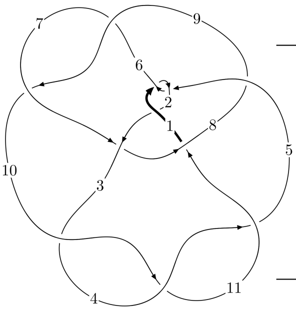
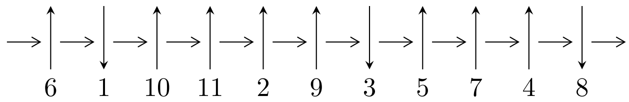
$11a_{129}$ ($K11a_{129}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$3{,}10 \underset{c_3}{\rightarrow} 4 \underset{c_{10}}{\longrightarrow} 11 \underset{c_4}{\rightarrow} 5{,}8 \underset{c_{11}}{\longrightarrow} 1 \underset{c_2}{\longrightarrow} 2 \underset{c_7}{\longrightarrow} 7 \underset{c_9}{\longrightarrow} 9 \underset{c_6}{\longrightarrow} 6 \longrightarrow\!\!\!\!\rightarrow c_1, c_5, c_8$$

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

$$\begin{aligned} I_1^u = \langle & 3.90365 \times 10^{58} u^{58} + 1.01441 \times 10^{59} u^{57} + \cdots + 8.38498 \times 10^{58} b - 3.01985 \times 10^{57}, \\ & 7.15963 \times 10^{59} u^{58} + 1.21631 \times 10^{60} u^{57} + \cdots + 9.22348 \times 10^{59} a - 2.03520 \times 10^{59},\ u^{59} + 2u^{58} + \cdots + 5u^2 - \\ I_2^u = \langle & 4u^2 + 7b + 2u - 1,\ 3u^2 + 7a + 5u + 1,\ u^3 + u^2 - 1\rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 62 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. $I_1^u =$
$\langle 3.90\times10^{58}u^{58}+1.01\times10^{59}u^{57}+\cdots+8.38\times10^{58}b-3.02\times10^{57},\ 7.16\times10^{59}u^{58}+1.22\times10^{60}u^{57}+\cdots+9.22\times10^{59}a-2.04\times10^{59},\ u^{59}+2u^{58}+\cdots+5u^2-1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.776240u^{58}-1.31871u^{57}+\cdots-5.39605u+0.220655\\-0.465552u^{58}-1.20979u^{57}+\cdots-0.0812092u+0.0360150\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.239979u^{58}+0.405379u^{57}+\cdots-1.25169u-0.147253\\-0.137513u^{58}-0.253368u^{57}+\cdots-1.66158u+0.0969722\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.166747u^{58}+0.266603u^{57}+\cdots+0.146341u+0.989129\\-0.000963728u^{58}-0.0132996u^{57}+\cdots+0.189286u-0.00637696\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-1.24179u^{58}-2.52850u^{57}+\cdots-5.47726u+0.256670\\-0.465552u^{58}-1.20979u^{57}+\cdots-0.0812092u+0.0360150\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-1.16012u^{58}-2.33933u^{57}+\cdots-5.42935u+0.193474\\-0.485917u^{58}-1.19021u^{57}+\cdots+1.07906u+0.0222353\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.225910u^{58}-0.512221u^{57}+\cdots-0.169913u+0.169646\\0.0153499u^{58}-0.101739u^{57}+\cdots-1.19569u+0.0827941\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.225910u^{58}-0.512221u^{57}+\cdots-0.169913u+0.169646\\0.0153499u^{58}-0.101739u^{57}+\cdots-1.19569u+0.0827941\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.22898u^{58}-6.33023u^{57}+\cdots-0.906990u+1.85953$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{59} - 2u^{58} + \cdots - 4u + 1$
c_2	$u^{59} + 24u^{58} + \cdots + 10u - 1$
c_3, c_4, c_{10}	$u^{59} - 2u^{58} + \cdots - 5u^2 + 1$
c_6, c_9	$u^{59} + 4u^{58} + \cdots - 257u + 49$
c_7	$7(7u^{59} - 22u^{58} + \cdots - 126239u + 81841)$
c_8	$7(7u^{59} - 6u^{58} + \cdots + 6234u + 1903)$
c_{11}	$u^{59} + 5u^{58} + \cdots - 868u + 392$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{59} + 24y^{58} + \cdots + 10y - 1$
c_2	$y^{59} + 24y^{58} + \cdots + 462y - 1$
c_3, c_4, c_{10}	$y^{59} - 60y^{58} + \cdots + 10y - 1$
c_6, c_9	$y^{59} - 50y^{58} + \cdots + 74183y - 2401$
c_7	$49(49y^{59} + 3394y^{58} + \cdots - 9.08304 \times 10^{10}y - 6.69795 \times 10^{9})$
c_8	$49(49y^{59} - 64y^{58} + \cdots + 2.29562 \times 10^{8}y - 3621409)$
c_{11}	$y^{59} + 21y^{58} + \cdots - 2147376y - 153664$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.622068 + 0.787958I$ $a = 0.481268 + 0.468907I$ $b = 0.71713 - 1.28444I$	$4.44674 + 11.62550I$	0
$u = 0.622068 - 0.787958I$ $a = 0.481268 - 0.468907I$ $b = 0.71713 + 1.28444I$	$4.44674 - 11.62550I$	0
$u = 0.506194 + 0.887762I$ $a = 0.672945 - 0.231781I$ $b = -0.249130 - 0.995558I$	$4.02435 - 6.11409I$	0
$u = 0.506194 - 0.887762I$ $a = 0.672945 + 0.231781I$ $b = -0.249130 + 0.995558I$	$4.02435 + 6.11409I$	0
$u = 0.857653 + 0.464032I$ $a = -0.033575 + 0.146733I$ $b = 0.707909 - 0.257892I$	$-1.83113 + 3.37489I$	$0. - 6.31964I$
$u = 0.857653 - 0.464032I$ $a = -0.033575 - 0.146733I$ $b = 0.707909 + 0.257892I$	$-1.83113 - 3.37489I$	$0. + 6.31964I$
$u = -0.627541 + 0.812622I$ $a = -0.518848 + 0.363833I$ $b = -0.548211 - 1.240870I$	$6.17346 - 5.56581I$	0
$u = -0.627541 - 0.812622I$ $a = -0.518848 - 0.363833I$ $b = -0.548211 + 1.240870I$	$6.17346 + 5.56581I$	0
$u = -0.970195$ $a = 0.167848$ $b = -0.593313$	1.61678	5.00000
$u = -0.555862 + 0.900899I$ $a = -0.619428 - 0.061218I$ $b = 0.036940 - 1.051180I$	$5.85876 - 0.11889I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.555862 - 0.900899I$ $a = -0.619428 + 0.061218I$ $b = 0.036940 + 1.051180I$	$5.85876 + 0.11889I$	0
$u = 0.741521 + 0.922413I$ $a = 0.318033 + 0.111847I$ $b = 0.354088 - 0.782867I$	$-1.23742 + 3.26694I$	0
$u = 0.741521 - 0.922413I$ $a = 0.318033 - 0.111847I$ $b = 0.354088 + 0.782867I$	$-1.23742 - 3.26694I$	0
$u = 0.444629 + 0.510368I$ $a = -0.46434 - 1.56907I$ $b = -0.808317 + 0.689154I$	$-0.33205 + 6.44214I$	$4.62600 - 9.28024I$
$u = 0.444629 - 0.510368I$ $a = -0.46434 + 1.56907I$ $b = -0.808317 - 0.689154I$	$-0.33205 - 6.44214I$	$4.62600 + 9.28024I$
$u = 0.313615 + 0.597705I$ $a = -0.041562 - 1.003380I$ $b = -0.545415 + 0.167871I$	$-3.28171 + 0.39501I$	$-2.00061 - 1.54672I$
$u = 0.313615 - 0.597705I$ $a = -0.041562 + 1.003380I$ $b = -0.545415 - 0.167871I$	$-3.28171 - 0.39501I$	$-2.00061 + 1.54672I$
$u = -0.418675 + 0.447852I$ $a = 0.77452 - 1.30125I$ $b = 0.552817 + 0.774161I$	$0.92823 - 1.58622I$	$7.27802 + 5.02607I$
$u = -0.418675 - 0.447852I$ $a = 0.77452 + 1.30125I$ $b = 0.552817 - 0.774161I$	$0.92823 + 1.58622I$	$7.27802 - 5.02607I$
$u = -0.556478 + 0.207218I$ $a = 2.56199 - 0.99726I$ $b = -0.135387 + 0.940443I$	$3.71804 - 4.17211I$	$12.3249 + 7.4178I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.556478 - 0.207218I$ $a = 2.56199 + 0.99726I$ $b = -0.135387 - 0.940443I$	$3.71804 + 4.17211I$	$12.3249 - 7.4178I$
$u = 0.559723 + 0.140117I$ $a = -2.77388 - 0.66591I$ $b = 0.244493 + 0.672850I$	$4.05953 - 0.76565I$	$13.67462 - 0.08522I$
$u = 0.559723 - 0.140117I$ $a = -2.77388 + 0.66591I$ $b = 0.244493 - 0.672850I$	$4.05953 + 0.76565I$	$13.67462 + 0.08522I$
$u = 0.423114 + 0.391843I$ $a = -0.472532 + 0.185081I$ $b = 0.957559 + 0.540672I$	$-0.25044 - 3.21979I$	$3.90025 + 0.90131I$
$u = 0.423114 - 0.391843I$ $a = -0.472532 - 0.185081I$ $b = 0.957559 - 0.540672I$	$-0.25044 + 3.21979I$	$3.90025 - 0.90131I$
$u = -1.42183 + 0.07250I$ $a = 1.57296 - 1.41800I$ $b = -1.32202 + 1.36648I$	$5.48223 + 1.81992I$	0
$u = -1.42183 - 0.07250I$ $a = 1.57296 + 1.41800I$ $b = -1.32202 - 1.36648I$	$5.48223 - 1.81992I$	0
$u = 1.44289 + 0.04366I$ $a = 0.12384 - 3.55457I$ $b = -0.75861 + 3.44954I$	$6.34398 + 2.28663I$	0
$u = 1.44289 - 0.04366I$ $a = 0.12384 + 3.55457I$ $b = -0.75861 - 3.44954I$	$6.34398 - 2.28663I$	0
$u = -1.44268 + 0.15844I$ $a = -0.095089 - 1.313110I$ $b = 0.121163 + 0.706508I$	$2.38922 - 3.00723I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.44268 - 0.15844I$ $a = -0.095089 + 1.313110I$ $b = 0.121163 - 0.706508I$	$2.38922 + 3.00723I$	0
$u = 1.45554 + 0.08236I$ $a = -0.41802 - 2.00373I$ $b = -0.05710 + 1.65402I$	$6.50215 + 2.38989I$	0
$u = 1.45554 - 0.08236I$ $a = -0.41802 + 2.00373I$ $b = -0.05710 - 1.65402I$	$6.50215 - 2.38989I$	0
$u = -1.48770$ $a = -0.815446$ $b = 1.74556$	8.30655	0
$u = 1.49253 + 0.12922I$ $a = 0.04923 - 1.94060I$ $b = -0.422930 + 1.117500I$	$7.23997 + 3.63562I$	0
$u = 1.49253 - 0.12922I$ $a = 0.04923 + 1.94060I$ $b = -0.422930 - 1.117500I$	$7.23997 - 3.63562I$	0
$u = -1.49781 + 0.14706I$ $a = -0.27642 - 1.94523I$ $b = 0.530534 + 1.009310I$	$6.06759 - 8.77463I$	0
$u = -1.49781 - 0.14706I$ $a = -0.27642 + 1.94523I$ $b = 0.530534 - 1.009310I$	$6.06759 + 8.77463I$	0
$u = -1.52791 + 0.03503I$ $a = 0.720143 - 1.079900I$ $b = 0.482971 + 0.730580I$	$11.01860 + 0.16153I$	0
$u = -1.52791 - 0.03503I$ $a = 0.720143 + 1.079900I$ $b = 0.482971 - 0.730580I$	$11.01860 - 0.16153I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.52787+0.04986I$ $a = -0.71061-1.45487I$ $b = -0.434084+0.962095I$	$10.66650+5.04841I$	0
$u = 1.52787-0.04986I$ $a = -0.71061+1.45487I$ $b = -0.434084-0.962095I$	$10.66650-5.04841I$	0
$u = -0.304004+0.352318I$ $a = 0.725827+0.031622I$ $b = -0.401580+1.001260I$	$0.818669-1.086870I$	$6.95263+5.92982I$
$u = -0.304004-0.352318I$ $a = 0.725827-0.031622I$ $b = -0.401580-1.001260I$	$0.818669+1.086870I$	$6.95263-5.92982I$
$u = -0.336012+0.317334I$ $a = 1.151780-0.392616I$ $b = 0.165774+0.934262I$	$0.674447-1.055540I$	$6.88917+6.16079I$
$u = -0.336012-0.317334I$ $a = 1.151780+0.392616I$ $b = 0.165774-0.934262I$	$0.674447+1.055540I$	$6.88917-6.16079I$
$u = -1.57375+0.26330I$ $a = -0.02665+1.87772I$ $b = -0.97014-1.69830I$	$11.6590-15.5089I$	0
$u = -1.57375-0.26330I$ $a = -0.02665-1.87772I$ $b = -0.97014+1.69830I$	$11.6590+15.5089I$	0
$u = 1.57863+0.26847I$ $a = 0.12971+1.73446I$ $b = 0.85618-1.61480I$	$13.4212+9.5497I$	0
$u = 1.57863-0.26847I$ $a = 0.12971-1.73446I$ $b = 0.85618+1.61480I$	$13.4212-9.5497I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.59529 + 0.29735I$ $a = 0.350459 + 1.145760I$ $b = 0.534635 - 1.221130I$	$12.98450 + 4.58039I$	0
$u = 1.59529 - 0.29735I$ $a = 0.350459 - 1.145760I$ $b = 0.534635 + 1.221130I$	$12.98450 - 4.58039I$	0
$u = -1.60262 + 0.26158I$ $a = 0.106004 + 1.357480I$ $b = -0.94318 - 1.26607I$	$6.48770 - 7.42956I$	0
$u = -1.60262 - 0.26158I$ $a = 0.106004 - 1.357480I$ $b = -0.94318 + 1.26607I$	$6.48770 + 7.42956I$	0
$u = -1.59529 + 0.32218I$ $a = -0.428036 + 0.868477I$ $b = -0.397894 - 1.029760I$	$10.90240 + 1.52833I$	0
$u = -1.59529 - 0.32218I$ $a = -0.428036 - 0.868477I$ $b = -0.397894 + 1.029760I$	$10.90240 - 1.52833I$	0
$u = -0.046856 + 0.362935I$ $a = 0.240879 + 0.681944I$ $b = -0.04832 + 2.41526I$	$2.15381 + 2.27881I$	$-7.94357 + 3.32360I$
$u = -0.046856 - 0.362935I$ $a = 0.240879 - 0.681944I$ $b = -0.04832 - 2.41526I$	$2.15381 - 2.27881I$	$-7.94357 - 3.32360I$
$u = 0.349995$ $a = -2.41073$ $b = -0.734856$	2.11871	0.678540

II. $I_2^u = \langle 4u^2+7b+2u-1,\ 3u^2+7a+5u+1,\ u^3+u^2-1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ u^2+u-1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^2+1 \\ -u^2+u-1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{3}{7}u^2-\frac{5}{7}u-\frac{1}{7} \\ -\frac{4}{7}u^2-\frac{2}{7}u+\frac{1}{7} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ u^2+u-1 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -u^2-u \\ -\frac{4}{7}u^2-\frac{2}{7}u+\frac{1}{7} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2-u \\ -\frac{4}{7}u^2+\frac{5}{7}u+\frac{1}{7} \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{313}{49}u^2+\frac{188}{49}u+\frac{424}{49}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^3 + 3y^2 + 2y - 1$
c_2	$y^3 - 5y^2 + 10y - 1$
c_3, c_4, c_{10}	$y^3 - y^2 + 2y - 1$
c_6, c_9	$(y-1)^3$
c_7	$49(49y^3 + 13y^2 + 3y - 1)$
c_8	$49(49y^3 - 57y^2 + 14y - 1)$
c_{11}	y^3

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=\ \ 0.391708+0.028159I$ $b=\ \ 0.270651+0.534120I$	$-1.37919-2.82812I$	$6.66044-5.49186I$
$u=-0.877439-0.744862I$ $a=\ \ 0.391708-0.028159I$ $b=\ \ 0.270651-0.534120I$	$-1.37919+2.82812I$	$6.66044+5.49186I$
$u=\ \ 0.754878$ $a=-0.926273$ $b=-0.398445$	2.75839	15.1890

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3+u^2+2u+1)(u^{59}-2u^{58}+\cdots-4u+1)$
c_2	$(u^3+3u^2+2u-1)(u^{59}+24u^{58}+\cdots+10u-1)$
c_3, c_4	$(u^3+u^2-1)(u^{59}-2u^{58}+\cdots-5u^2+1)$
c_5	$(u^3-u^2+2u-1)(u^{59}-2u^{58}+\cdots-4u+1)$
c_6	$((u+1)^3)(u^{59}+4u^{58}+\cdots-257u+49)$
c_7	$49(7u^3+u^2+u-1)(7u^{59}-22u^{58}+\cdots-126239u+81841)$
c_8	$49(7u^3-u^2-4u-1)(7u^{59}-6u^{58}+\cdots+6234u+1903)$
c_9	$((u-1)^3)(u^{59}+4u^{58}+\cdots-257u+49)$
c_{10}	$(u^3-u^2+1)(u^{59}-2u^{58}+\cdots-5u^2+1)$
c_{11}	$u^3(u^{59}+5u^{58}+\cdots-868u+392)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^3+3y^2+2y-1)(y^{59}+24y^{58}+\cdots+10y-1)$
c_2	$(y^3-5y^2+10y-1)(y^{59}+24y^{58}+\cdots+462y-1)$
c_3, c_4, c_{10}	$(y^3-y^2+2y-1)(y^{59}-60y^{58}+\cdots+10y-1)$
c_6, c_9	$((y-1)^3)(y^{59}-50y^{58}+\cdots+74183y-2401)$
c_7	$2401(49y^3+13y^2+3y-1)$ $\cdot\,(49y^{59}+3394y^{58}+\cdots-90830373521y-6697949281)$
c_8	$2401(49y^3-57y^2+14y-1)$ $\cdot\,(49y^{59}-64y^{58}+\cdots+229562386y-3621409)$
c_{11}	$y^3(y^{59}+21y^{58}+\cdots-2147376y-153664)$