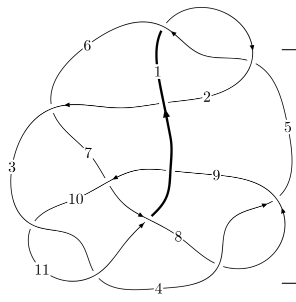
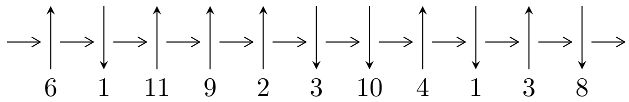
$11n_{92}$ ($K11n_{92}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -74u^9 + 28u^8 + 589u^7 - 208u^6 - 1099u^5 + 580u^4 - 535u^3 - 218u^2 + 439b - 447u + 41, \\
& -90u^9 - 49u^8 + 835u^7 + 364u^6 - 2357u^5 - 576u^4 + 1485u^3 - 277u^2 + 439a + 453u + 38, \\
& u^{10} + u^9 - 8u^8 - 8u^7 + 16u^6 + 16u^5 + 3u^4 - 2u^3 + 2u + 1\rangle \\
I_2^u = \langle & -u^6 + u^5 + 3u^4 - 2u^3 - 2u^2 + b + u,\ u^4 - u^3 - 3u^2 + a + 2u + 2,\ u^7 - u^6 - 4u^5 + 3u^4 + 5u^3 - 2u^2 - 2u - \\
I_3^u = \langle & -2u^3 + 5u^2 + b + 2u - 12,\ 4u^3 - 11u^2 + 7a - 2u + 23,\ u^4 - u^3 - 4u^2 + 4u + 7\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 21 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. $I_1^u = \langle -74u^9 + 28u^8 + \cdots + 439b + 41,\ -90u^9 - 49u^8 + \cdots + 439a + 38,\ u^{10} + u^9 + \cdots + 2u + 1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.205011u^9 + 0.111617u^8 + \cdots - 1.03189u - 0.0865604 \\ 0.168565u^9 - 0.0637813u^8 + \cdots + 1.01822u - 0.0933941 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.931663u^9 - 0.296128u^8 + \cdots - 1.34396u - 0.362187 \\ 0.558087u^9 + 0.248292u^8 + \cdots + 1.35763u + 0.542141 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.39180u^9 - 0.635535u^8 + \cdots - 1.96128u - 1.32346 \\ 1.29841u^9 + 0.373576u^8 + \cdots + 1.46469u + 2.11845 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.275626u^9 + 0.138952u^8 + \cdots - 0.753986u + 0.239180 \\ 0.0979499u^9 - 0.0911162u^8 + \cdots + 0.740319u - 0.419134 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.373576u^9 + 0.0478360u^8 + \cdots - 0.0136674u - 0.179954 \\ 0.0979499u^9 - 0.0911162u^8 + \cdots + 0.740319u - 0.419134 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0933941u^9 - 0.261959u^8 + \cdots - 0.496583u - 1.20501 \\ -0.232346u^9 + 0.00683371u^8 + \cdots - 0.430524u - 0.168565 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.205011u^9 + 0.111617u^8 + \cdots - 0.0318907u - 0.0865604 \\ 0.168565u^9 - 0.0637813u^8 + \cdots + 1.01822u - 0.0933941 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.205011u^9 + 0.111617u^8 + \cdots - 0.0318907u - 0.0865604 \\ 0.168565u^9 - 0.0637813u^8 + \cdots + 1.01822u - 0.0933941 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{1240}{439}u^9 - \frac{480}{439}u^8 + \frac{9846}{439}u^7 + \frac{3503}{439}u^6 - \frac{18914}{439}u^5 - \frac{5302}{439}u^4 - \frac{7197}{439}u^3 + \frac{1354}{439}u^2 - \frac{490}{439}u - \frac{452}{439}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{10} - 6u^9 + \cdots - 10u + 4$
c_2	$u^{10} + 2u^9 + \cdots + 20u + 16$
c_3, c_4, c_8 c_{10}	$u^{10} + u^9 - 8u^8 - 8u^7 + 16u^6 + 16u^5 + 3u^4 - 2u^3 + 2u + 1$
c_6	$u^{10} + 12u^9 + \cdots + 1072u + 712$
c_7, c_9	$u^{10} + 2u^9 + \cdots - 12u + 1$
c_{11}	$u^{10} + 5u^9 + 12u^8 + 15u^7 + 10u^6 + 4u^5 + 6u^4 + 8u^3 + 5u^2 + 3u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{10} + 2y^9 + \cdots + 20y + 16$
c_2	$y^{10} + 38y^9 + \cdots + 3216y + 256$
c_3, c_4, c_8 c_{10}	$y^{10} - 17y^9 + \cdots - 4y + 1$
c_6	$y^{10} + 68y^9 + \cdots + 2222848y + 506944$
c_7, c_9	$y^{10} + 46y^9 + \cdots - 38y + 1$
c_{11}	$y^{10} - y^9 + 14y^8 - 13y^7 + 54y^6 - 42y^5 + 30y^4 + 12y^3 + y^2 + 11y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.303786+0.554609I$ $a=-1.19659-1.04112I$ $b=-0.210597-0.072758I$	$-1.58196+1.29510I$	$-1.93721+1.18186I$
$u=-0.303786-0.554609I$ $a=-1.19659+1.04112I$ $b=-0.210597+0.072758I$	$-1.58196-1.29510I$	$-1.93721-1.18186I$
$u=-0.595593+0.161209I$ $a=1.251620-0.570638I$ $b=-0.897475+0.589151I$	$-0.62036+3.20996I$	$3.63110-5.43743I$
$u=-0.595593-0.161209I$ $a=1.251620+0.570638I$ $b=-0.897475-0.589151I$	$-0.62036-3.20996I$	$3.63110+5.43743I$
$u=0.470796+0.374659I$ $a=-0.742938-0.762785I$ $b=0.262089+0.698748I$	$1.01700+1.01665I$	$4.69191-3.41900I$
$u=0.470796-0.374659I$ $a=-0.742938+0.762785I$ $b=0.262089-0.698748I$	$1.01700-1.01665I$	$4.69191+3.41900I$
$u=2.01532+0.15224I$ $a=0.624248+0.501185I$ $b=-0.19806-2.25477I$	$-19.7069+0.3487I$	$4.25811+0.03534I$
$u=2.01532-0.15224I$ $a=0.624248-0.501185I$ $b=-0.19806+2.25477I$	$-19.7069-0.3487I$	$4.25811-0.03534I$
$u=-2.08674+0.29586I$ $a=-0.436339-0.622756I$ $b=0.54405+2.41435I$	$-19.4087-8.7708I$	$4.35608+3.79545I$
$u=-2.08674-0.29586I$ $a=-0.436339+0.622756I$ $b=0.54405-2.41435I$	$-19.4087+8.7708I$	$4.35608-3.79545I$

II. $\boldsymbol{I_2^u = \langle -u^6 + u^5 + 3u^4 - 2u^3 - 2u^2 + b + u,\ u^4 - u^3 - 3u^2 + a + 2u + 2,\ u^7 - u^6 - 4u^5 + 3u^4 + 5u^3 - 2u^2 - 2u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^6 + 2u^5 - 8u^4 - 3u^3 + 12u^2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^7 - u^6 + 2u^5 - 2u^4 + 2u^3 - 3u^2 + u - 1$
c_2	$u^7 + 3u^6 + 4u^5 - 6u^3 - 9u^2 - 5u - 1$
c_3, c_8	$u^7 - u^6 - 4u^5 + 3u^4 + 5u^3 - 2u^2 - 2u - 1$
c_4, c_{10}	$u^7 + u^6 - 4u^5 - 3u^4 + 5u^3 + 2u^2 - 2u + 1$
c_5	$u^7 + u^6 + 2u^5 + 2u^4 + 2u^3 + 3u^2 + u + 1$
c_6	$u^7 + 2u^6 - 2u^5 - 3u^4 - 3u^3 + 6u^2 - u + 1$
c_7, c_9	$u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u^2 + 2u + 1$
c_{11}	$u^7 - 2u^6 + u^5 + 2u^4 - 3u^3 + u^2 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^7 + 3y^6 + 4y^5 - 6y^3 - 9y^2 - 5y - 1$
c_2	$y^7 - y^6 + 4y^5 - 4y^4 + 2y^3 - 21y^2 + 7y - 1$
c_3, c_4, c_8 c_{10}	$y^7 - 9y^6 + 32y^5 - 57y^4 + 51y^3 - 18y^2 - 1$
c_6	$y^7 - 8y^6 + 10y^5 - 23y^4 + 45y^3 - 24y^2 - 11y - 1$
c_7, c_9	$y^7 - 6y^6 + 9y^5 - 5y^4 + 2y^3 - 3y^2 + 2y - 1$
c_{11}	$y^7 - 2y^6 + 3y^5 - 2y^4 + 5y^3 - 9y^2 + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.212610 + 0.314318I$ $a = -0.186986 + 0.922572I$ $b = -0.25287 - 1.43719I$	$4.41567 + 1.74618I$	$3.81474 - 1.89982I$
$u = 1.212610 - 0.314318I$ $a = -0.186986 - 0.922572I$ $b = -0.25287 + 1.43719I$	$4.41567 - 1.74618I$	$3.81474 + 1.89982I$
$u = -1.303070 + 0.139348I$ $a = 0.819449 + 0.558129I$ $b = -0.275124 - 0.778615I$	$2.10492 - 4.17967I$	$2.47305 + 4.17814I$
$u = -1.303070 - 0.139348I$ $a = 0.819449 - 0.558129I$ $b = -0.275124 + 0.778615I$	$2.10492 + 4.17967I$	$2.47305 - 4.17814I$
$u = -0.278087 + 0.369158I$ $a = -1.48979 - 1.34313I$ $b = 0.466038 - 0.754209I$	$-1.45284 + 2.44043I$	$-0.66357 - 2.79895I$
$u = -0.278087 - 0.369158I$ $a = -1.48979 + 1.34313I$ $b = 0.466038 + 0.754209I$	$-1.45284 - 2.44043I$	$-0.66357 + 2.79895I$
$u = 1.73710$ $a = -0.285336$ $b = -0.876095$	6.31383	6.75150

III.

$$\boldsymbol{I^u_3 = \langle -2u^3+5u^2+b+2u-12,\ 4u^3-11u^2+7a-2u+23,\ u^4-u^3-4u^2+4u+7\rangle}$$

(i) Arc colorings

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

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

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

$$a_8 = \begin{pmatrix} -\frac{4}{7}u^3 + \frac{11}{7}u^2 + \frac{2}{7}u - \frac{23}{7} \\ 2u^3 - 5u^2 - 2u + 12 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{5}{7}u^3 + \frac{12}{7}u^2 + \frac{6}{7}u - \frac{27}{7} \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{5}{7}u^3 - \frac{12}{7}u^2 - \frac{6}{7}u + \frac{34}{7} \\ -1 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} \frac{10}{7}u^3 - \frac{24}{7}u^2 - \frac{12}{7}u + \frac{75}{7} \\ -2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} \frac{10}{7}u^3 - \frac{24}{7}u^2 - \frac{12}{7}u + \frac{61}{7} \\ -2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{15}{7}u^3 - \frac{36}{7}u^2 - \frac{18}{7}u + \frac{95}{7} \\ -3 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{3}{7}u^3 - \frac{3}{7}u^2 - \frac{12}{7}u + \frac{12}{7} \\ u^3 - 2u^2 + u + 5 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{3}{7}u^3 - \frac{3}{7}u^2 - \frac{12}{7}u + \frac{12}{7} \\ u^3 - 2u^2 + u + 5 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 + 8u^2 + 4u - 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u+1)^4$
c_2	$(u-1)^4$
c_3, c_4, c_8 c_{10}	$u^4 - u^3 - 4u^2 + 4u + 7$
c_6	$(u+2)^4$
c_7, c_9	$u^4 - 3u^3 + 2u^2 + 6u + 13$
c_{11}	$(u^2 - u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^4$
c_3, c_4, c_8 c_{10}	$y^4 - 9y^3 + 38y^2 - 72y + 49$
c_6	$(y-4)^4$
c_7, c_9	$y^4 - 5y^3 + 66y^2 + 16y + 169$
c_{11}	$(y^2 + y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.328780 + 0.090174I$ $a = 0.418587 - 0.623340I$ $b = 1.24248 + 1.97169I$	$6.57974 + 2.02988I$	$8.00000 - 3.46410I$
$u = -1.328780 - 0.090174I$ $a = 0.418587 + 0.623340I$ $b = 1.24248 - 1.97169I$	$6.57974 - 2.02988I$	$8.00000 + 3.46410I$
$u = 1.82878 + 0.77585I$ $a = -0.061444 + 0.499622I$ $b = 0.257518 - 1.105670I$	$6.57974 + 2.02988I$	$8.00000 - 3.46410I$
$u = 1.82878 - 0.77585I$ $a = -0.061444 - 0.499622I$ $b = 0.257518 + 1.105670I$	$6.57974 - 2.02988I$	$8.00000 + 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u+1)^4(u^7-u^6+2u^5-2u^4+2u^3-3u^2+u-1)$ $\cdot(u^{10}-6u^9+\cdots-10u+4)$
c_2	$(u-1)^4(u^7+3u^6+4u^5-6u^3-9u^2-5u-1)$ $\cdot(u^{10}+2u^9+\cdots+20u+16)$
c_3, c_8	$(u^4-u^3-4u^2+4u+7)(u^7-u^6-4u^5+3u^4+5u^3-2u^2-2u-1)$ $\cdot(u^{10}+u^9-8u^8-8u^7+16u^6+16u^5+3u^4-2u^3+2u+1)$
c_4, c_{10}	$(u^4-u^3-4u^2+4u+7)(u^7+u^6-4u^5-3u^4+5u^3+2u^2-2u+1)$ $\cdot(u^{10}+u^9-8u^8-8u^7+16u^6+16u^5+3u^4-2u^3+2u+1)$
c_5	$(u+1)^4(u^7+u^6+2u^5+2u^4+2u^3+3u^2+u+1)$ $\cdot(u^{10}-6u^9+\cdots-10u+4)$
c_6	$(u+2)^4(u^7+2u^6-2u^5-3u^4-3u^3+6u^2-u+1)$ $\cdot(u^{10}+12u^9+\cdots+1072u+712)$
c_7, c_9	$(u^4-3u^3+2u^2+6u+13)(u^7+2u^6+\cdots+2u+1)$ $\cdot(u^{10}+2u^9+\cdots-12u+1)$
c_{11}	$(u^2-u+1)^2(u^7-2u^6+u^5+2u^4-3u^3+u^2+2u-1)$ $\cdot(u^{10}+5u^9+12u^8+15u^7+10u^6+4u^5+6u^4+8u^3+5u^2+3u+2)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y-1)^4(y^7+3y^6+4y^5-6y^3-9y^2-5y-1)$ $\cdot(y^{10}+2y^9+\cdots+20y+16)$
c_2	$(y-1)^4(y^7-y^6+4y^5-4y^4+2y^3-21y^2+7y-1)$ $\cdot(y^{10}+38y^9+\cdots+3216y+256)$
c_3, c_4, c_8 c_{10}	$(y^4-9y^3+38y^2-72y+49)(y^7-9y^6+\cdots-18y^2-1)$ $\cdot(y^{10}-17y^9+\cdots-4y+1)$
c_6	$(y-4)^4(y^7-8y^6+10y^5-23y^4+45y^3-24y^2-11y-1)$ $\cdot(y^{10}+68y^9+\cdots+2222848y+506944)$
c_7, c_9	$(y^4-5y^3+66y^2+16y+169)$ $\cdot(y^7-6y^6+\cdots+2y-1)(y^{10}+46y^9+\cdots-38y+1)$
c_{11}	$(y^2+y+1)^2(y^7-2y^6+3y^5-2y^4+5y^3-9y^2+6y-1)$ $\cdot(y^{10}-y^9+14y^8-13y^7+54y^6-42y^5+30y^4+12y^3+y^2+11y+4)$