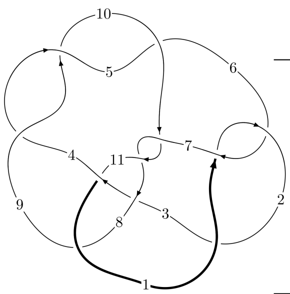
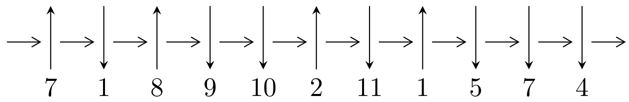
$11n_{111}$ ($K11n_{111}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-249708u^9 - 1442317u^8 + \cdots + 480839 62b - 1389936,\\
&2808285u^9 - 11413026u^8 + \cdots + 625091506a - 1233253,\\
&u^{10} + u^9 - 3u^8 - 11u^7 + 23u^6 + 10u^5 - 40u^4 + 43u^3 + 8u - 13\rangle\\
I_2^u = \langle &-9u^6 + 10u^5 - 29u^4 - 13u^3 + 37u^2 + 41b - 95u + 37,\\
&-7u^6 + 26u^5 - 18u^4 + 40u^3 + 88u^2 + 41a - 124u + 129,\ u^7 + 3u^5 + 3u^4 - 2u^3 + 7u^2 - 2u + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 17 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. $\boldsymbol{I_1^u = \langle -2.50 \times 10^5 u^9 - 1.44 \times 10^6 u^8 + \cdots + 4.81 \times 10^7 b - 1.39 \times 10^6,\ 2.81 \times 10^6 u^9 - 1.14 \times 10^7 u^8 + \cdots + 6.25 \times 10^8 a - 1.23 \times 10^6,\ u^{10} + u^9 + \cdots + 8u - 13\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} -0.00449260u^9 + 0.0182582u^8 + \cdots + 1.32084u + 0.00197292 \\ 0.00519317u^9 + 0.0299958u^8 + \cdots + 0.743464u + 0.0289064 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0220573u^9 - 0.0351316u^8 + \cdots + 0.817782u - 0.322693 \\ 0.0438996u^9 + 0.0820347u^8 + \cdots + 0.685204u + 0.494633 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.00968576u^9 - 0.0117376u^8 + \cdots + 0.577372u - 0.0269335 \\ 0.00519317u^9 + 0.0299958u^8 + \cdots + 0.743464u + 0.0289064 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00968576u^9 - 0.0117376u^8 + \cdots + 0.577372u - 0.0269335 \\ 0.0214765u^9 + 0.0741603u^8 + \cdots + 0.852964u + 0.0555807 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0198337u^9 + 0.0277149u^8 + \cdots - 0.545921u + 0.561441 \\ 0.0210232u^9 + 0.0419173u^8 + \cdots + 0.718255u + 0.381521 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00222357u^9 + 0.00741674u^8 + \cdots - 0.271861u + 0.761252 \\ -0.0347357u^9 - 0.0812062u^8 + \cdots - 0.339580u - 0.451264 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0336232u^9 + 0.0761229u^8 + \cdots - 0.224398u + 0.840205 \\ -0.0855628u^9 - 0.203256u^8 + \cdots - 0.398771u - 1.06216 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0238374u^9 + 0.0435082u^8 + \cdots - 0.0666326u + 0.770268 \\ -0.00441748u^9 + 0.00115972u^8 + \cdots + 0.414900u + 0.184888 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0238374u^9 + 0.0435082u^8 + \cdots - 0.0666326u + 0.770268 \\ -0.00441748u^9 + 0.00115972u^8 + \cdots + 0.414900u + 0.184888 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5126407}{48083962}u^9 - \frac{1515297}{48083962}u^8 + \cdots + \frac{151141541}{48083962}u - \frac{241733105}{48083962}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_6	$u^{10} - 6u^8 - 4u^7 + 31u^6 - 3u^5 + 19u^4 - 2u^3 + u^2 + u - 1$
c_2	$u^{10} - 12u^9 + \cdots - 3u + 1$
c_4, c_5, c_9	$u^{10} - 9u^9 + 36u^8 - 79u^7 + 93u^6 - 36u^5 - 40u^4 + 45u^3 - 8u^2 + 4u - 8$
c_7, c_{10}	$u^{10} + 3u^9 + 11u^8 + u^7 - 9u^6 - 84u^5 - 64u^4 - 11u^3 - 16u^2 - 1$
c_8	$u^{10} - u^9 - 3u^8 + 11u^7 + 23u^6 - 10u^5 - 40u^4 - 43u^3 - 8u - 13$
c_{11}	$u^{10} - 2u^9 + u^8 + 2u^7 + u^6 - 7u^5 + 7u^4 - u^2 - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6	$y^{10} - 12y^9 + \cdots - 3y + 1$
c_2	$y^{10} + 52y^9 + \cdots - 75y + 1$
c_4, c_5, c_9	$y^{10} - 9y^9 + \cdots + 112y + 64$
c_7, c_{10}	$y^{10} + 13y^9 + \cdots + 32y + 1$
c_8	$y^{10} - 7y^9 + \cdots - 64y + 169$
c_{11}	$y^{10} - 2y^9 + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.661040 + 0.972526I$ $a = 0.046863 + 1.141840I$ $b = 0.139003 + 0.708370I$	$-5.08678 + 3.48759I$	$-7.45675 - 0.73295I$
$u = 0.661040 - 0.972526I$ $a = 0.046863 - 1.141840I$ $b = 0.139003 - 0.708370I$	$-5.08678 - 3.48759I$	$-7.45675 + 0.73295I$
$u = 0.672063$ $a = 0.745125$ $b = 0.447351$	-1.57143	-5.48950
$u = -0.334564 + 0.528443I$ $a = -0.220981 + 1.025590I$ $b = -0.178308 + 0.529060I$	$-0.164338 - 1.117660I$	$-2.63384 + 5.74501I$
$u = -0.334564 - 0.528443I$ $a = -0.220981 - 1.025590I$ $b = -0.178308 - 0.529060I$	$-0.164338 + 1.117660I$	$-2.63384 - 5.74501I$
$u = -1.57545$ $a = -0.500640$ $b = -0.399391$	-10.0735	-16.9190
$u = 1.61793 + 0.67025I$ $a = 0.679052 + 0.329399I$ $b = -2.13328 - 0.91289I$	$7.01395 + 1.69275I$	$-4.50434 - 0.09697I$
$u = 1.61793 - 0.67025I$ $a = 0.679052 - 0.329399I$ $b = -2.13328 + 0.91289I$	$7.01395 - 1.69275I$	$-4.50434 + 0.09697I$
$u = -1.99271 + 1.85205I$ $a = -0.050253 - 0.499314I$ $b = 2.14860 - 1.33539I$	$6.52702 - 8.61249I$	$-5.20069 + 4.18606I$
$u = -1.99271 - 1.85205I$ $a = -0.050253 + 0.499314I$ $b = 2.14860 + 1.33539I$	$6.52702 + 8.61249I$	$-5.20069 - 4.18606I$

II. $\boldsymbol{I_2^u = \langle -9u^6 + 10u^5 + \cdots + 41b + 37,\ -7u^6 + 26u^5 + \cdots + 41a + 129,\ u^7 + 3u^5 + 3u^4 - 2u^3 + 7u^2 - 2u + 1 \rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.170732u^6 - 0.634146u^5 + \cdots + 3.02439u - 3.14634 \\ 0.219512u^6 - 0.243902u^5 + \cdots + 2.31707u - 0.902439 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0243902u^6 - 0.804878u^5 + \cdots + 2.14634u - 2.87805 \\ 0.585366u^6 - 0.317073u^5 + \cdots + 2.51220u - 1.07317 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0487805u^6 - 0.390244u^5 + \cdots + 0.707317u - 2.24390 \\ 0.219512u^6 - 0.243902u^5 + \cdots + 2.31707u - 0.902439 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0487805u^6 - 0.390244u^5 + \cdots + 0.707317u - 2.24390 \\ 0.341463u^6 - 0.268293u^5 + \cdots + 3.04878u - 1.29268 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.878049u^6 + 1.02439u^5 + \cdots + 3.26829u + 2.39024 \\ 0.0487805u^6 + 0.390244u^5 + \cdots + 0.292683u + 1.24390 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.902439u^6 - 0.219512u^5 + \cdots - 5.41463u - 0.512195 \\ -0.390244u^6 - 0.121951u^5 + \cdots - 1.34146u - 0.951220 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0487805u^6 - 0.390244u^5 + \cdots - 0.292683u - 2.24390 \\ 0.365854u^6 - 0.0731707u^5 + \cdots + 2.19512u - 1.17073 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.170732u^6 + 0.634146u^5 + \cdots - 3.02439u + 2.14634 \\ -0.121951u^6 + 0.0243902u^5 + \cdots - 1.73171u + 0.390244 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.170732u^6 + 0.634146u^5 + \cdots - 3.02439u + 2.14634 \\ -0.121951u^6 + 0.0243902u^5 + \cdots - 1.73171u + 0.390244 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{167}{41}u^6 + \frac{106}{41}u^5 + \frac{488}{41}u^4 + \frac{715}{41}u^3 - \frac{108}{41}u^2 + \frac{551}{41}u - \frac{190}{41}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6	$y^7 + 5y^6 + 9y^5 + 6y^4 - 4y^2 - 3y - 1$
c_2	$y^7 - 7y^6 + 21y^5 - 2y^4 + 4y^3 - 4y^2 + y - 1$
c_4, c_5, c_9	$y^7 - 9y^6 + 32y^5 - 57y^4 + 51y^3 - 18y^2 - 1$
c_7, c_{10}	$y^7 - 6y^6 + 9y^5 - 5y^4 + 2y^3 - 3y^2 + 2y - 1$
c_8	$y^7 + 6y^6 + 5y^5 - 25y^4 - 50y^3 - 47y^2 - 10y - 1$
c_{11}	$y^7 - y^6 + 8y^5 - 5y^4 + 11y^3 - 6y^2 + 4y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.467003 + 0.976251I$ $a = 0.42070 + 1.39171I$ $b = 0.275124 + 0.778615I$	$-5.39479 + 4.17967I$	$-12.5166 - 9.7446I$
$u = 0.467003 - 0.976251I$ $a = 0.42070 - 1.39171I$ $b = 0.275124 - 0.778615I$	$-5.39479 - 4.17967I$	$-12.5166 + 9.7446I$
$u = -1.52187$ $a = 0.371752$ $b = 0.876095$	-9.60369	0.690320
$u = 0.148823 + 0.381778I$ $a = -2.37616 + 0.93067I$ $b = -0.466038 + 0.754209I$	$-1.83703 - 2.44043I$	$-3.31727 + 3.97577I$
$u = 0.148823 - 0.381778I$ $a = -2.37616 - 0.93067I$ $b = -0.466038 - 0.754209I$	$-1.83703 + 2.44043I$	$-3.31727 - 3.97577I$
$u = 0.14511 + 1.82223I$ $a = -0.230411 - 0.377251I$ $b = 0.25287 - 1.43719I$	$-7.70554 + 1.74618I$	$-7.51126 - 3.54450I$
$u = 0.14511 - 1.82223I$ $a = -0.230411 + 0.377251I$ $b = 0.25287 + 1.43719I$	$-7.70554 - 1.74618I$	$-7.51126 + 3.54450I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^7 - u^6 + 3u^5 - 2u^4 + 2u^3 - 2u^2 + u - 1)$ $\cdot\,(u^{10} - 6u^8 - 4u^7 + 31u^6 - 3u^5 + 19u^4 - 2u^3 + u^2 + u - 1)$
c_2	$(u^7 + 5u^6 + \cdots - 3u - 1)(u^{10} - 12u^9 + \cdots - 3u + 1)$
c_3, c_6	$(u^7 + u^6 + 3u^5 + 2u^4 + 2u^3 + 2u^2 + u + 1)$ $\cdot\,(u^{10} - 6u^8 - 4u^7 + 31u^6 - 3u^5 + 19u^4 - 2u^3 + u^2 + u - 1)$
c_4, c_5	$(u^7 + u^6 - 4u^5 - 3u^4 + 5u^3 + 2u^2 - 2u + 1)$ $\cdot\,(u^{10} - 9u^9 + 36u^8 - 79u^7 + 93u^6 - 36u^5 - 40u^4 + 45u^3 - 8u^2 + 4u - 8)$
c_7	$(u^7 + 2u^6 - u^5 - 3u^4 - 2u^3 + u^2 + 2u + 1)$ $\cdot\,(u^{10} + 3u^9 + 11u^8 + u^7 - 9u^6 - 84u^5 - 64u^4 - 11u^3 - 16u^2 - 1)$
c_8	$(u^7 + 3u^5 + 3u^4 - 2u^3 + 7u^2 - 2u + 1)$ $\cdot\,(u^{10} - u^9 - 3u^8 + 11u^7 + 23u^6 - 10u^5 - 40u^4 - 43u^3 - 8u - 13)$
c_9	$(u^7 - u^6 - 4u^5 + 3u^4 + 5u^3 - 2u^2 - 2u - 1)$ $\cdot\,(u^{10} - 9u^9 + 36u^8 - 79u^7 + 93u^6 - 36u^5 - 40u^4 + 45u^3 - 8u^2 + 4u - 8)$
c_{10}	$(u^7 - 2u^6 - u^5 + 3u^4 - 2u^3 - u^2 + 2u - 1)$ $\cdot\,(u^{10} + 3u^9 + 11u^8 + u^7 - 9u^6 - 84u^5 - 64u^4 - 11u^3 - 16u^2 - 1)$
c_{11}	$(u^7 - 3u^6 + 4u^5 - u^4 - u^3 + 2u - 1)$ $\cdot\,(u^{10} - 2u^9 + u^8 + 2u^7 + u^6 - 7u^5 + 7u^4 - u^2 - 2u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_6	$(y^7 + 5y^6 + \cdots - 3y - 1)(y^{10} - 12y^9 + \cdots - 3y + 1)$
c_2	$(y^7 - 7y^6 + \cdots + y - 1)(y^{10} + 52y^9 + \cdots - 75y + 1)$
c_4, c_5, c_9	$(y^7 - 9y^6 + 32y^5 - 57y^4 + 51y^3 - 18y^2 - 1)$ $\cdot (y^{10} - 9y^9 + \cdots + 112y + 64)$
c_7, c_{10}	$(y^7 - 6y^6 + \cdots + 2y - 1)(y^{10} + 13y^9 + \cdots + 32y + 1)$
c_8	$(y^7 + 6y^6 + 5y^5 - 25y^4 - 50y^3 - 47y^2 - 10y - 1)$ $\cdot (y^{10} - 7y^9 + \cdots - 64y + 169)$
c_{11}	$(y^7 - y^6 + \cdots + 4y - 1)(y^{10} - 2y^9 + \cdots - 6y + 1)$