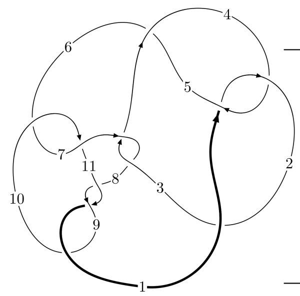
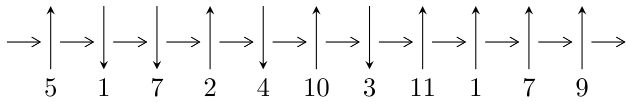
$11n_{80}$ ($K11n_{80}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 35u^{14} - 160u^{13} + \cdots + 2098b - 1482,\ -1803u^{14} - 7193u^{13} + \cdots + 2098a - 16837, \\
&\quad u^{15} + 4u^{14} + \cdots + 12u + 1 \rangle \\
I_2^u &= \langle -u^2 + b - u - 1,\ -u^3 - u^2 + a - u + 1,\ u^4 + u^3 + u^2 + 1 \rangle \\
I_3^u &= \langle b^2 - bu + b + u,\ a + u,\ u^2 - u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 23 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. $\boldsymbol{I_1^u = \langle 35u^{14} - 160u^{13} + \cdots + 2098b - 1482,\ -1803u^{14} - 7193u^{13} + \cdots + 2098a - 16837,\ u^{15} + 4u^{14} + \cdots + 12u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.859390u^{14} + 3.42850u^{13} + \cdots + 8.95853u + 8.02526 \\ -0.0166826u^{14} + 0.0762631u^{13} + \cdots + 2.44423u + 0.706387 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.477121u^{14} - 1.81888u^{13} + \cdots - 5.69495u - 3.69733 \\ 0.0319352u^{14} + 0.211153u^{13} + \cdots - 0.407531u - 0.337941 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.277407u^{14} - 0.946139u^{13} + \cdots - 3.19876u - 3.48236 \\ 0.167779u^{14} + 0.661582u^{13} + \cdots - 1.09628u - 0.447092 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.715443u^{14} + 2.87226u^{13} + \cdots + 8.20591u + 7.89180 \\ 0.00905624u^{14} + 0.0300286u^{13} + \cdots + 3.28742u + 0.859390 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.782173u^{14} + 3.06721u^{13} + \cdots + 7.92898u + 6.06625 \\ -0.0619638u^{14} - 0.0738799u^{13} + \cdots + 1.00715u + 0.409438 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.782173u^{14} + 3.06721u^{13} + \cdots + 7.92898u + 6.06625 \\ -0.0619638u^{14} - 0.0738799u^{13} + \cdots + 1.00715u + 0.409438 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{713}{2098}u^{14} - \frac{2585}{2098}u^{13} + \cdots + \frac{20215}{2098}u + \frac{10090}{1049}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{15} + 4u^{14} + \cdots + 12u + 1$
c_2, c_5	$u^{15} + 10u^{14} + \cdots + 112u - 1$
c_3, c_7	$u^{15} - 2u^{14} + \cdots + 16u - 16$
c_6, c_{10}	$u^{15} - 3u^{14} + \cdots - 24u - 16$
c_8, c_9, c_{11}	$u^{15} + 7u^{14} + \cdots - 16u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{15} + 10y^{14} + \cdots + 112y - 1$
c_2, c_5	$y^{15} - 6y^{14} + \cdots + 13488y - 1$
c_3, c_7	$y^{15} - 20y^{14} + \cdots + 128y - 256$
c_6, c_{10}	$y^{15} + 21y^{14} + \cdots - 1984y - 256$
c_8, c_9, c_{11}	$y^{15} - 3y^{14} + \cdots + 134y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.443471 + 0.899923I$ $a = -2.22456 - 0.69076I$ $b = -0.00537 + 2.93789I$	$1.31612 + 1.82919I$	$23.9935 - 13.4254I$
$u = 0.443471 - 0.899923I$ $a = -2.22456 + 0.69076I$ $b = -0.00537 - 2.93789I$	$1.31612 - 1.82919I$	$23.9935 + 13.4254I$
$u = -1.154120 + 0.257445I$ $a = -0.114455 - 1.265520I$ $b = 0.21776 + 1.65198I$	$-5.23991 + 4.29122I$	$5.74651 - 1.92061I$
$u = -1.154120 - 0.257445I$ $a = -0.114455 + 1.265520I$ $b = 0.21776 - 1.65198I$	$-5.23991 - 4.29122I$	$5.74651 + 1.92061I$
$u = -0.707815 + 0.947595I$ $a = 0.362571 - 0.587039I$ $b = -0.068426 - 0.205683I$	$9.44393 - 2.71266I$	$11.43593 + 3.34052I$
$u = -0.707815 - 0.947595I$ $a = 0.362571 + 0.587039I$ $b = -0.068426 + 0.205683I$	$9.44393 + 2.71266I$	$11.43593 - 3.34052I$
$u = 0.416218 + 0.666363I$ $a = -0.168507 - 0.746645I$ $b = -0.225041 + 0.497206I$	$-0.075833 + 1.377120I$	$-0.42484 - 4.74084I$
$u = 0.416218 - 0.666363I$ $a = -0.168507 + 0.746645I$ $b = -0.225041 - 0.497206I$	$-0.075833 - 1.377120I$	$-0.42484 + 4.74084I$
$u = 0.136912 + 1.276840I$ $a = -1.156530 - 0.039261I$ $b = 0.148725 + 0.753403I$	$-2.05262 + 0.52363I$	$2.28909 - 0.30141I$
$u = 0.136912 - 1.276840I$ $a = -1.156530 + 0.039261I$ $b = 0.148725 - 0.753403I$	$-2.05262 - 0.52363I$	$2.28909 + 0.30141I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.68964+1.30605I$ $a=\ \ 1.367780-0.217281I$ $b=-0.35945+1.80414I$	$-8.47013-10.83430I$	$4.46568+4.98924I$
$u=-0.68964-1.30605I$ $a=\ \ 1.367780+0.217281I$ $b=-0.35945-1.80414I$	$-8.47013+10.83430I$	$4.46568-4.98924I$
$u=-0.39863+1.51864I$ $a=-0.749856+0.006232I$ $b=\ \ 0.03559-1.70713I$	$-11.10030-1.26356I$	$2.58190+0.63912I$
$u=-0.39863-1.51864I$ $a=-0.749856-0.006232I$ $b=\ \ 0.03559+1.70713I$	$-11.10030+1.26356I$	$2.58190-0.63912I$
$u=-0.0927870$ $a=\ \ 7.36713$ $b=\ \ 0.512405$	1.10369	8.82440

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

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 + u^2 + u - 1 \\ u^2 + u + 1 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ u^3 + u^2 + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^3 + u^2 + 2u - 1 \\ -u^3 + u^2 + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 + u^2 + u - 1 \\ u^2 + u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 + u^2 + u - 1 \\ u^2 + u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^4 + y^3 + 3y^2 + 2y + 1$
c_2, c_3, c_5 c_7	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_6, c_{10}	y^4
c_8, c_9, 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
$u = 0.351808 + 0.720342I$ $a = -1.54742 + 1.12087I$ $b = 0.95668 + 1.22719I$	$1.43393 + 1.41510I$	$11.48794 - 2.21528I$
$u = 0.351808 - 0.720342I$ $a = -1.54742 - 1.12087I$ $b = 0.95668 - 1.22719I$	$1.43393 - 1.41510I$	$11.48794 + 2.21528I$
$u = -0.851808 + 0.911292I$ $a = -0.452576 + 0.585652I$ $b = 0.043315 - 0.641200I$	$8.43568 - 3.16396I$	$4.01206 + 4.08190I$
$u = -0.851808 - 0.911292I$ $a = -0.452576 - 0.585652I$ $b = 0.043315 + 0.641200I$	$8.43568 + 3.16396I$	$4.01206 - 4.08190I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3bu - 6b - u + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.309017 - 0.535233I$	$8.88264 + 2.02988I$	$4.50000 + 2.34537I$
$u = 0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = -0.80902 + 1.40126I$	$0.98696 + 2.02988I$	$4.50000 - 9.27358I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.309017 + 0.535233I$	$8.88264 - 2.02988I$	$4.50000 - 2.34537I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = -0.80902 - 1.40126I$	$0.98696 - 2.02988I$	$4.50000 + 9.27358I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^2)(u^4-u^3+u^2+1)(u^{15}+4u^{14}+\cdots+12u+1)$
c_2, c_5	$((u^2+u+1)^2)(u^4+u^3+3u^2+2u+1)(u^{15}+10u^{14}+\cdots+112u-1)$
c_3	$u^4(u^4-u^3+3u^2-2u+1)(u^{15}-2u^{14}+\cdots+16u-16)$
c_4	$((u^2-u+1)^2)(u^4+u^3+u^2+1)(u^{15}+4u^{14}+\cdots+12u+1)$
c_6	$u^4(u^2-u-1)^2(u^{15}-3u^{14}+\cdots-24u-16)$
c_7	$u^4(u^4+u^3+3u^2+2u+1)(u^{15}-2u^{14}+\cdots+16u-16)$
c_8, c_9	$((u+1)^4)(u^2-u-1)^2(u^{15}+7u^{14}+\cdots-16u-1)$
c_{10}	$u^4(u^2+u-1)^2(u^{15}-3u^{14}+\cdots-24u-16)$
c_{11}	$((u-1)^4)(u^2+u-1)^2(u^{15}+7u^{14}+\cdots-16u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^2)(y^4+y^3+3y^2+2y+1)(y^{15}+10y^{14}+\cdots+112y-1)$
c_2, c_5	$((y^2+y+1)^2)(y^4+5y^3+\cdots+2y+1)(y^{15}-6y^{14}+\cdots+13488y-1)$
c_3, c_7	$y^4(y^4+5y^3+\cdots+2y+1)(y^{15}-20y^{14}+\cdots+128y-256)$
c_6, c_{10}	$y^4(y^2-3y+1)^2(y^{15}+21y^{14}+\cdots-1984y-256)$
c_8, c_9, c_{11}	$((y-1)^4)(y^2-3y+1)^2(y^{15}-3y^{14}+\cdots+134y-1)$