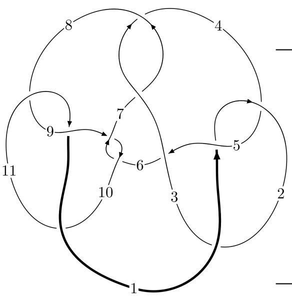
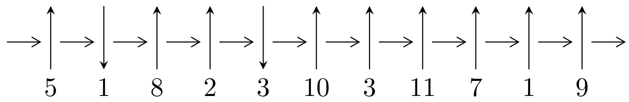
$11n_8$ ($K11n_8$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 17327884311u^{31} - 51370177786u^{30} + \cdots + 507767004280b + 45898407811, \\
& 65060365722u^{31} - 300114124597u^{30} + \cdots + 50776700428a + 117492282989, \\
& u^{32} - 4u^{31} + \cdots + 4u + 1\rangle \\
I_2^u = \langle & -au + b - a + u + 1,\ a^3 - a^2u - 3a^2 + 2au + 3a - u,\ u^2 + u + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 38 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.

$\boldsymbol{I_1^u = \langle 1.73 \times 10^{10} u^{31} - 5.14 \times 10^{10} u^{30} + \cdots + 5.08 \times 10^{10} b + 4.59 \times 10^{10},\ 6.51 \times 10^{10} u^{31} - 3.00 \times 10^{11} u^{30} + \cdots + 5.08 \times 10^{10} a + 1.17 \times 10^{11},\ u^{32} - 4u^{31} + \cdots + 4u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u^5 - 2u^3 - u \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.28130u^{31} + 5.91047u^{30} + \cdots - 2.94899u - 2.31390 \\ -0.341257u^{31} + 1.01169u^{30} + \cdots - 2.34798u - 0.903927 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.466042u^{31} - 2.36981u^{30} + \cdots + 6.05202u + 2.89832 \\ -0.115026u^{31} + 0.296752u^{30} + \cdots + 0.358069u + 0.384294 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.710734u^{31} + 3.43037u^{30} + \cdots - 0.0540527u - 1.07276 \\ -0.587434u^{31} + 1.13312u^{30} + \cdots - 1.77017u - 0.710734 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.23870u^{31} + 3.83973u^{30} + \cdots - 2.78410u - 1.05967 \\ 0.352028u^{31} - 0.853772u^{30} + \cdots - 1.08485u - 0.642279 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.581069u^{31} - 2.66656u^{30} + \cdots + 5.69396u + 2.51403 \\ -0.115026u^{31} + 0.296752u^{30} + \cdots + 0.358069u + 0.384294 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.581069u^{31} - 2.66656u^{30} + \cdots + 5.69396u + 2.51403 \\ -0.115026u^{31} + 0.296752u^{30} + \cdots + 0.358069u + 0.384294 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{19161957911}{12694175107}u^{31} - \frac{109525992335}{25388350214}u^{30} + \cdots + \frac{73849369350}{12694175107}u + \frac{129286515817}{12694175107}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{32} + 4u^{31} + \cdots - 4u + 1$
c_2	$u^{32} + 8u^{31} + \cdots - 4u + 1$
c_3, c_7	$u^{32} + 3u^{31} + \cdots - 32u + 64$
c_5	$u^{32} - 4u^{31} + \cdots - 5956u + 3137$
c_6, c_9	$u^{32} + 3u^{31} + \cdots - 3u - 1$
c_8, c_{11}	$u^{32} + 3u^{31} + \cdots + 5u - 1$
c_{10}	$u^{32} - 21u^{31} + \cdots - 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{32} + 8y^{31} + \cdots - 4y + 1$
c_2	$y^{32} + 36y^{31} + \cdots - 400y + 1$
c_3, c_7	$y^{32} - 35y^{31} + \cdots - 50176y + 4096$
c_5	$y^{32} + 64y^{31} + \cdots + 37894220y + 9840769$
c_6, c_9	$y^{32} + 3y^{31} + \cdots - 11y + 1$
c_8, c_{11}	$y^{32} - 21y^{31} + \cdots - 11y + 1$
c_{10}	$y^{32} - 17y^{31} + \cdots + 225y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.438343+0.910233I$ $a=-1.25471+2.63396I$ $b=-0.961368+0.135359I$	$1.31776-2.35125I$	$21.8207-1.6456I$
$u=-0.438343-0.910233I$ $a=-1.25471-2.63396I$ $b=-0.961368-0.135359I$	$1.31776+2.35125I$	$21.8207+1.6456I$
$u=-0.607222+0.839985I$ $a=-0.488594+0.148224I$ $b=-0.225556+0.193839I$	$0.60688-2.35983I$	$1.68069+4.72936I$
$u=-0.607222-0.839985I$ $a=-0.488594-0.148224I$ $b=-0.225556-0.193839I$	$0.60688+2.35983I$	$1.68069-4.72936I$
$u=-0.246944+1.020470I$ $a=-0.297055+0.703928I$ $b=\ \ 0.195786+0.475797I$	$-1.60404-2.42369I$	$1.66627+4.26671I$
$u=-0.246944-1.020470I$ $a=-0.297055-0.703928I$ $b=\ \ 0.195786-0.475797I$	$-1.60404+2.42369I$	$1.66627-4.26671I$
$u=-1.14802$ $a=-1.35165$ $b=\ \ 1.22763$	5.55891	17.6890
$u=-0.512800+0.618429I$ $a=\ \ 2.43693-0.85304I$ $b=-1.158390+0.012405I$	$2.28712-1.38183I$	$3.82254+3.38886I$
$u=-0.512800-0.618429I$ $a=\ \ 2.43693+0.85304I$ $b=-1.158390-0.012405I$	$2.28712+1.38183I$	$3.82254-3.38886I$
$u=\ \ 0.237631+0.764192I$ $a=\ \ 0.549640+0.448330I$ $b=\ \ 0.754657-0.723151I$	$-3.57711-1.46097I$	$0.39348+5.16672I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.237631 - 0.764192I$ $a = 0.549640 - 0.448330I$ $b = 0.754657 + 0.723151I$	$-3.57711 + 1.46097I$	$0.39348 - 5.16672I$
$u = 0.901533 + 0.826115I$ $a = -0.534327 - 0.197105I$ $b = -0.091685 + 1.072880I$	$6.30379 - 0.82960I$	$8.30496 + 0.12180I$
$u = 0.901533 - 0.826115I$ $a = -0.534327 + 0.197105I$ $b = -0.091685 - 1.072880I$	$6.30379 + 0.82960I$	$8.30496 - 0.12180I$
$u = 0.411691 + 0.642553I$ $a = -1.68228 + 1.31166I$ $b = 0.965567 + 0.732630I$	$-2.97947 + 4.11215I$	$5.06412 + 0.81363I$
$u = 0.411691 - 0.642553I$ $a = -1.68228 - 1.31166I$ $b = 0.965567 - 0.732630I$	$-2.97947 - 4.11215I$	$5.06412 - 0.81363I$
$u = 1.030380 + 0.755077I$ $a = -1.378020 + 0.265871I$ $b = 1.38664 - 0.47203I$	$11.00120 - 6.27983I$	$10.83996 + 2.99292I$
$u = 1.030380 - 0.755077I$ $a = -1.378020 - 0.265871I$ $b = 1.38664 + 0.47203I$	$11.00120 + 6.27983I$	$10.83996 - 2.99292I$
$u = 0.907454 + 0.905430I$ $a = 1.190940 - 0.400729I$ $b = -1.40337 + 0.49810I$	$10.34720 + 1.52704I$	$10.46079 - 1.65098I$
$u = 0.907454 - 0.905430I$ $a = 1.190940 + 0.400729I$ $b = -1.40337 - 0.49810I$	$10.34720 - 1.52704I$	$10.46079 + 1.65098I$
$u = 0.829030 + 0.999225I$ $a = 0.630834 + 0.065885I$ $b = 0.039106 - 1.099540I$	$5.75444 + 7.24046I$	$7.29722 - 4.74884I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.829030 - 0.999225I$ $a = 0.630834 - 0.065885I$ $b = 0.039106 + 1.099540I$	$5.75444 - 7.24046I$	$7.29722 + 4.74884I$
$u = 0.883634 + 0.956116I$ $a = 1.60874 - 1.14616I$ $b = -1.34427 - 0.57687I$	$10.18450 + 5.08130I$	$10.26358 - 3.28255I$
$u = 0.883634 - 0.956116I$ $a = 1.60874 + 1.14616I$ $b = -1.34427 + 0.57687I$	$10.18450 - 5.08130I$	$10.26358 + 3.28255I$
$u = -0.407352 + 1.294030I$ $a = -0.463231 - 0.830063I$ $b = 1.120700 - 0.274244I$	$1.05045 - 5.46747I$	$8.44967 + 8.57452I$
$u = -0.407352 - 1.294030I$ $a = -0.463231 + 0.830063I$ $b = 1.120700 + 0.274244I$	$1.05045 + 5.46747I$	$8.44967 - 8.57452I$
$u = -0.988672 + 0.933470I$ $a = -1.47255 - 0.51973I$ $b = 1.198750 - 0.108112I$	$4.49287 - 3.58059I$	$15.1628 + 6.1458I$
$u = -0.988672 - 0.933470I$ $a = -1.47255 + 0.51973I$ $b = 1.198750 + 0.108112I$	$4.49287 + 3.58059I$	$15.1628 - 6.1458I$
$u = 0.842421 + 1.093730I$ $a = -1.53412 + 1.22066I$ $b = 1.35984 + 0.55004I$	$9.8984 + 13.0980I$	$9.25603 - 7.22038I$
$u = 0.842421 - 1.093730I$ $a = -1.53412 - 1.22066I$ $b = 1.35984 - 0.55004I$	$9.8984 - 13.0980I$	$9.25603 + 7.22038I$
$u = -0.157159 + 0.395434I$ $a = -0.59313 - 2.58536I$ $b = -0.687544 - 0.278246I$	$0.876896 + 0.039424I$	$8.12095 - 0.03456I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.157159 - 0.395434I$ $a = -0.59313 + 2.58536I$ $b = -0.687544 + 0.278246I$	$0.876896 - 0.039424I$	$8.12095 + 0.03456I$
$u = -0.222533$ $a = -3.08647$ $b = -0.525361$	0.954521	10.1030

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = \ \ 1.37744 - 0.65374I$ $b = \ \ 0.754878$	$1.11345 - 2.02988I$	$15.8142 - 4.6579I$
$u = -0.500000 + 0.866025I$ $a = -0.083789 + 0.387453I$ $b = -0.877439 - 0.744862I$	$-3.02413 + 0.79824I$	$7.63258 + 1.54443I$
$u = -0.500000 + 0.866025I$ $a = \ \ 1.20635 + 1.13232I$ $b = -0.877439 + 0.744862I$	$-3.02413 - 4.85801I$	$4.05323 + 9.17563I$
$u = -0.500000 - 0.866025I$ $a = \ \ 1.37744 + 0.65374I$ $b = \ \ 0.754878$	$1.11345 + 2.02988I$	$15.8142 + 4.6579I$
$u = -0.500000 - 0.866025I$ $a = -0.083789 - 0.387453I$ $b = -0.877439 + 0.744862I$	$-3.02413 - 0.79824I$	$7.63258 - 1.54443I$
$u = -0.500000 - 0.866025I$ $a = \ \ 1.20635 - 1.13232I$ $b = -0.877439 - 0.744862I$	$-3.02413 + 4.85801I$	$4.05323 - 9.17563I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{32}+4u^{31}+\cdots-4u+1)$
c_2	$((u^2+u+1)^3)(u^{32}+8u^{31}+\cdots-4u+1)$
c_3, c_7	$u^6(u^{32}+3u^{31}+\cdots-32u+64)$
c_4	$((u^2-u+1)^3)(u^{32}+4u^{31}+\cdots-4u+1)$
c_5	$((u^2+u+1)^3)(u^{32}-4u^{31}+\cdots-5956u+3137)$
c_6	$((u^3+u^2+2u+1)^2)(u^{32}+3u^{31}+\cdots-3u-1)$
c_8	$((u^3-u^2+1)^2)(u^{32}+3u^{31}+\cdots+5u-1)$
c_9	$((u^3-u^2+2u-1)^2)(u^{32}+3u^{31}+\cdots-3u-1)$
c_{10}	$((u^3+u^2+2u+1)^2)(u^{32}-21u^{31}+\cdots-11u+1)$
c_{11}	$((u^3+u^2-1)^2)(u^{32}+3u^{31}+\cdots+5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{32}+8y^{31}+\cdots-4y+1)$
c_2	$((y^2+y+1)^3)(y^{32}+36y^{31}+\cdots-400y+1)$
c_3, c_7	$y^6(y^{32}-35y^{31}+\cdots-50176y+4096)$
c_5	$((y^2+y+1)^3)(y^{32}+64y^{31}+\cdots+3.78942\times 10^7 y+9840769)$
c_6, c_9	$((y^3+3y^2+2y-1)^2)(y^{32}+3y^{31}+\cdots-11y+1)$
c_8, c_{11}	$((y^3-y^2+2y-1)^2)(y^{32}-21y^{31}+\cdots-11y+1)$
c_{10}	$((y^3+3y^2+2y-1)^2)(y^{32}-17y^{31}+\cdots+225y+1)$