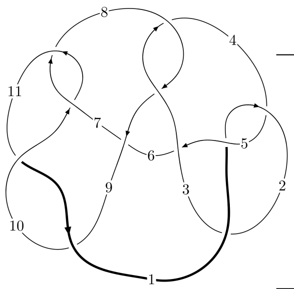
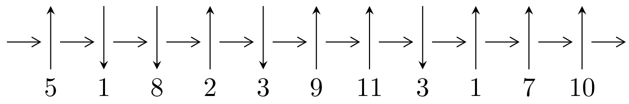
$11n_3$ ($K11n_3$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle -5u^{26} + 11u^{25} + \cdots + 2b - 5,\ u^{25} - 2u^{24} + \cdots + 2a + 5u,\ u^{27} - 3u^{26} + \cdots + 3u - 1 \rangle$
$I_2^u = \langle u^2 a + b - a,\ -u^2 a + a^2 - au + u + 1,\ u^3 + u^2 - 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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. $\boldsymbol{I^u_1 =}$
$\boldsymbol{\langle -5u^{26}+11u^{25}+\cdots+2b-5,\ u^{25}-2u^{24}+\cdots+2a+5u,\ u^{27}-3u^{26}+\cdots+3u-1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{25} + u^{24} + \cdots + \frac{15}{2}u^2 - \frac{5}{2}u \\ \frac{5}{2}u^{26} - \frac{11}{2}u^{25} + \cdots - 5u + \frac{5}{2} \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^{26} + \frac{5}{2}u^{25} + \cdots + \frac{3}{2}u - 2 \\ \frac{1}{2}u^{26} - \frac{3}{2}u^{25} + \cdots + 5u^2 + \frac{1}{2} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -u^{25} + \frac{3}{2}u^{24} + \cdots - \frac{3}{2}u - \frac{1}{2} \\ 2u^{26} - 5u^{25} + \cdots - 4u + 2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u^9 + 2u^7 - 3u^5 + 2u^3 - u \\ -u^9 + u^7 - u^5 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^{25} - u^{24} + \cdots + \frac{3}{2}u - 1 \\ -\frac{1}{2}u^{26} + \frac{3}{2}u^{25} + \cdots + 3u - \frac{1}{2} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^{25} - u^{24} + \cdots + \frac{3}{2}u - 1 \\ -\frac{1}{2}u^{26} + \frac{3}{2}u^{25} + \cdots + 3u - \frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{23}{2}u^{26} - 24u^{25} + \cdots - \frac{69}{2}u + \frac{25}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{27} + 4u^{26} + \cdots + 4u + 1$
c_2	$u^{27} + 6u^{26} + \cdots + 4u - 1$
c_3, c_8	$u^{27} - u^{26} + \cdots - 32u - 64$
c_5	$u^{27} - 4u^{26} + \cdots + 6988u + 1153$
c_6	$u^{27} + 3u^{26} + \cdots - u - 1$
c_7, c_{10}	$u^{27} - 3u^{26} + \cdots + 3u - 1$
c_9, c_{11}	$u^{27} - 11u^{26} + \cdots - 9u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{27} + 6y^{26} + \cdots + 4y - 1$
c_2	$y^{27} + 34y^{26} + \cdots + 136y - 1$
c_3, c_8	$y^{27} + 35y^{26} + \cdots + 1024y - 4096$
c_5	$y^{27} + 62y^{26} + \cdots - 7660244y - 1329409$
c_6	$y^{27} - 47y^{26} + \cdots - 9y - 1$
c_7, c_{10}	$y^{27} - 11y^{26} + \cdots - 9y - 1$
c_9, c_{11}	$y^{27} + 13y^{26} + \cdots + 127y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.456584 + 0.907647I$ $a = -1.48477 - 0.61163I$ $b = -1.25986 + 0.88956I$	$7.22245 + 1.02048I$	$3.69178 - 1.94630I$
$u = 0.456584 - 0.907647I$ $a = -1.48477 + 0.61163I$ $b = -1.25986 - 0.88956I$	$7.22245 - 1.02048I$	$3.69178 + 1.94630I$
$u = 0.964922 + 0.396644I$ $a = -0.252553 + 0.564190I$ $b = 1.21469 + 1.07115I$	$2.07980 + 1.34949I$	$7.85827 - 1.99966I$
$u = 0.964922 - 0.396644I$ $a = -0.252553 - 0.564190I$ $b = 1.21469 - 1.07115I$	$2.07980 - 1.34949I$	$7.85827 + 1.99966I$
$u = 0.524863 + 0.914721I$ $a = 1.55069 + 0.62247I$ $b = 1.39313 - 0.99095I$	$6.79111 - 5.64536I$	$3.12437 + 2.66728I$
$u = 0.524863 - 0.914721I$ $a = 1.55069 - 0.62247I$ $b = 1.39313 + 0.99095I$	$6.79111 + 5.64536I$	$3.12437 - 2.66728I$
$u = -0.974186 + 0.462885I$ $a = 0.529071 - 0.939257I$ $b = 0.169302 - 0.547843I$	$1.69325 - 4.38642I$	$5.48340 + 6.16823I$
$u = -0.974186 - 0.462885I$ $a = 0.529071 + 0.939257I$ $b = 0.169302 + 0.547843I$	$1.69325 + 4.38642I$	$5.48340 - 6.16823I$
$u = -0.838777 + 0.356107I$ $a = -1.00459 + 1.02558I$ $b = -0.373891 + 0.589972I$	$0.942185 + 1.033980I$	$3.86006 + 2.18156I$
$u = -0.838777 - 0.356107I$ $a = -1.00459 - 1.02558I$ $b = -0.373891 - 0.589972I$	$0.942185 - 1.033980I$	$3.86006 - 2.18156I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.685911 + 0.573005I$ $a = 1.282770 - 0.152453I$ $b = 0.13458 - 1.76175I$	$-1.54191 - 1.16661I$	$0.74423 + 1.49202I$
$u = 0.685911 - 0.573005I$ $a = 1.282770 + 0.152453I$ $b = 0.13458 + 1.76175I$	$-1.54191 + 1.16661I$	$0.74423 - 1.49202I$
$u = -0.821117 + 0.748475I$ $a = -0.420089 - 0.037335I$ $b = -0.229956 + 0.061310I$	$-3.44772 - 1.77523I$	$-1.86458 + 4.75426I$
$u = -0.821117 - 0.748475I$ $a = -0.420089 + 0.037335I$ $b = -0.229956 - 0.061310I$	$-3.44772 + 1.77523I$	$-1.86458 - 4.75426I$
$u = 0.960749 + 0.570989I$ $a = 0.404574 - 1.204920I$ $b = -1.74421 - 1.76576I$	$-0.68885 + 5.76088I$	$3.34925 - 6.52520I$
$u = 0.960749 - 0.570989I$ $a = 0.404574 + 1.204920I$ $b = -1.74421 + 1.76576I$	$-0.68885 - 5.76088I$	$3.34925 + 6.52520I$
$u = 0.866757$ $a = -0.0957077$ $b = 0.622584$	1.43125	6.84050
$u = -0.922854 + 0.737156I$ $a = 0.035124 - 0.374638I$ $b = -0.045924 - 0.210874I$	$-3.14099 - 3.86941I$	$0.026459 + 0.626604I$
$u = -0.922854 - 0.737156I$ $a = 0.035124 + 0.374638I$ $b = -0.045924 + 0.210874I$	$-3.14099 + 3.86941I$	$0.026459 - 0.626604I$
$u = -1.242910 + 0.029552I$ $a = 0.02740 - 1.50043I$ $b = 0.006371 - 0.831742I$	$13.47880 - 3.52700I$	$8.35802 + 2.34346I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.242910 - 0.029552I$ $a = 0.02740 + 1.50043I$ $b = 0.006371 + 0.831742I$	$13.47880 + 3.52700I$	$8.35802 - 2.34346I$
$u = 1.135150 + 0.655354I$ $a = 0.445958 + 1.202700I$ $b = 2.34089 + 0.91299I$	$9.30444 + 4.72653I$	$5.93859 - 2.37138I$
$u = 1.135150 - 0.655354I$ $a = 0.445958 - 1.202700I$ $b = 2.34089 - 0.91299I$	$9.30444 - 4.72653I$	$5.93859 + 2.37138I$
$u = 1.118230 + 0.692002I$ $a = -0.51886 - 1.31753I$ $b = -2.49328 - 0.90508I$	$8.6132 + 11.5634I$	$4.87720 - 6.78953I$
$u = 1.118230 - 0.692002I$ $a = -0.51886 + 1.31753I$ $b = -2.49328 + 0.90508I$	$8.6132 - 11.5634I$	$4.87720 + 6.78953I$
$u = 0.020052 + 0.347458I$ $a = -1.54687 - 0.86649I$ $b = -0.423137 + 0.416168I$	$-0.075638 + 1.377020I$	$-0.36727 - 4.75192I$
$u = 0.020052 - 0.347458I$ $a = -1.54687 + 0.86649I$ $b = -0.423137 - 0.416168I$	$-0.075638 - 1.377020I$	$-0.36727 + 4.75192I$

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} u \\ u^2 + u - 1 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} u^2a + au \\ 0 \end{pmatrix}$$

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^2a + 6au - u^2 + 2u + 1$

(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_8	u^6
c_4	$(u^2-u+1)^3$
c_6, c_9	$(u^3+u^2+2u+1)^2$
c_7	$(u^3-u^2+1)^2$
c_{10}	$(u^3+u^2-1)^2$
c_{11}	$(u^3-u^2+2u-1)^2$

(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_8	y^6
c_6, c_9, c_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_7, c_{10}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-0.818128+0.292480I$ $b=-1.024480-0.839835I$	$-3.02413-4.85801I$	$0.94625+7.60556I$
$u=-0.877439+0.744862I$ $a=\quad 0.155769-0.854759I$ $b=\quad 1.239560-0.467306I$	$-3.02413-0.79824I$	$2.23639-1.26697I$
$u=-0.877439-0.744862I$ $a=-0.818128-0.292480I$ $b=-1.024480+0.839835I$	$-3.02413+4.85801I$	$0.94625-7.60556I$
$u=-0.877439-0.744862I$ $a=\quad 0.155769+0.854759I$ $b=\quad 1.239560+0.467306I$	$-3.02413+0.79824I$	$2.23639+1.26697I$
$u=\quad 0.754878$ $a=\quad 0.662359+1.147240I$ $b=\quad 0.284920+0.493496I$	$1.11345-2.02988I$	$5.31735+5.84990I$
$u=\quad 0.754878$ $a=\quad 0.662359-1.147240I$ $b=\quad 0.284920-0.493496I$	$1.11345+2.02988I$	$5.31735-5.84990I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{27}+4u^{26}+\cdots+4u+1)$
c_2	$((u^2+u+1)^3)(u^{27}+6u^{26}+\cdots+4u-1)$
c_3, c_8	$u^6(u^{27}-u^{26}+\cdots-32u-64)$
c_4	$((u^2-u+1)^3)(u^{27}+4u^{26}+\cdots+4u+1)$
c_5	$((u^2+u+1)^3)(u^{27}-4u^{26}+\cdots+6988u+1153)$
c_6	$((u^3+u^2+2u+1)^2)(u^{27}+3u^{26}+\cdots-u-1)$
c_7	$((u^3-u^2+1)^2)(u^{27}-3u^{26}+\cdots+3u-1)$
c_9	$((u^3+u^2+2u+1)^2)(u^{27}-11u^{26}+\cdots-9u-1)$
c_{10}	$((u^3+u^2-1)^2)(u^{27}-3u^{26}+\cdots+3u-1)$
c_{11}	$((u^3-u^2+2u-1)^2)(u^{27}-11u^{26}+\cdots-9u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{27}+6y^{26}+\cdots+4y-1)$
c_2	$((y^2+y+1)^3)(y^{27}+34y^{26}+\cdots+136y-1)$
c_3, c_8	$y^6(y^{27}+35y^{26}+\cdots+1024y-4096)$
c_5	$((y^2+y+1)^3)(y^{27}+62y^{26}+\cdots-7660244y-1329409)$
c_6	$((y^3+3y^2+2y-1)^2)(y^{27}-47y^{26}+\cdots-9y-1)$
c_7, c_{10}	$((y^3-y^2+2y-1)^2)(y^{27}-11y^{26}+\cdots-9y-1)$
c_9, c_{11}	$((y^3+3y^2+2y-1)^2)(y^{27}+13y^{26}+\cdots+127y-1)$