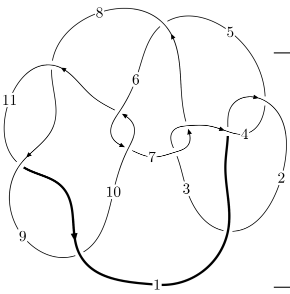
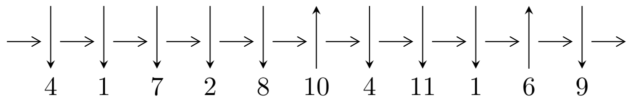
$11n_{27}$ ($K11n_{27}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2085u^{15} - 3383u^{14} + \cdots + 4922b + 953,\ -953u^{15} + 5897u^{14} + \cdots + 4922a + 34271,$$
$$u^{16} - 4u^{15} + \cdots - 10u + 1\rangle$$
$$I_2^u = \langle b,\ -u^2 + a - u + 1,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$$
$$I_3^u = \langle b - a - 1,\ a^2 + a - 1,\ u - 1\rangle$$

* 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. $\boldsymbol{I^u_1 = \langle 2085u^{15} - 3383u^{14} + \cdots + 4922b + 953,\ -953u^{15} + 5897u^{14} + \cdots + 4922a + 34271,\ u^{16} - 4u^{15} + \cdots - 10u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.193620u^{15} - 1.19809u^{14} + \cdots - 13.7284u - 6.96282\\-0.423608u^{15} + 0.687322u^{14} + \cdots - 4.02662u - 0.193620\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.108899u^{15} - 0.139374u^{14} + \cdots - 12.8663u - 4.79846\\-0.576392u^{15} + 1.31268u^{14} + \cdots - 4.97338u + 0.193620\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.878505u^{15} - 2.34579u^{14} + \cdots - 4.05607u - 3.47664\\1.00264u^{15} - 2.16640u^{14} + \cdots + 3.58818u - 0.728769\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.0534336u^{15} - 0.366315u^{14} + \cdots - 11.4854u - 4.89740\\0.340309u^{15} - 0.439456u^{14} + \cdots - 2.29277u - 0.129825\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.136936u^{15} - 0.626981u^{14} + \cdots - 5.58228u - 3.01463\\-0.576392u^{15} + 1.31268u^{14} + \cdots - 4.97338u + 0.193620\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.439456u^{15} + 0.685697u^{14} + \cdots - 10.5557u - 2.82101\\-0.576392u^{15} + 1.31268u^{14} + \cdots - 4.97338u + 0.193620\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.439456u^{15} + 0.685697u^{14} + \cdots - 10.5557u - 2.82101\\-0.576392u^{15} + 1.31268u^{14} + \cdots - 4.97338u + 0.193620\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2411}{2461}u^{15} - \frac{4233}{2461}u^{14} + \cdots + \frac{28620}{2461}u - \frac{24444}{2461}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{16} - 7u^{15} + \cdots + 3u + 1$
c_2	$u^{16} + 29u^{15} + \cdots + 17u + 1$
c_3, c_7	$u^{16} + 2u^{15} + \cdots + 72u^2 - 32$
c_5	$u^{16} - 3u^{15} + \cdots + u - 1$
c_6, c_{10}	$u^{16} - 2u^{15} + \cdots - 20u - 4$
c_8, c_9, c_{11}	$u^{16} - 4u^{15} + \cdots - 10u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{16} - 29y^{15} + \cdots - 17y + 1$
c_2	$y^{16} - 77y^{15} + \cdots - 1761y + 1$
c_3, c_7	$y^{16} - 36y^{15} + \cdots - 4608y + 1024$
c_5	$y^{16} - 37y^{15} + \cdots - 11y + 1$
c_6, c_{10}	$y^{16} + 18y^{15} + \cdots - 168y + 16$
c_8, c_9, c_{11}	$y^{16} - 20y^{15} + \cdots - 146y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.852448+0.278896I$ $a=\ 0.25417-1.55665I$ $b=\ 0.434441+0.614956I$	$-3.23204+0.76102I$	$-14.1078+3.1845I$
$u=-0.852448-0.278896I$ $a=\ 0.25417+1.55665I$ $b=\ 0.434441-0.614956I$	$-3.23204-0.76102I$	$-14.1078-3.1845I$
$u=-1.11713$ $a=\ 1.01314$ $b=\ 0.393183$	-2.15355	-1.76420
$u=\ 0.727902$ $a=\ 1.19391$ $b=\ 1.74112$	-10.0599	-3.26620
$u=-0.665595+1.107720I$ $a=\ 0.109829-0.996426I$ $b=-2.57424+0.30502I$	$-16.5506+3.5813I$	$-12.12116-2.15994I$
$u=-0.665595-1.107720I$ $a=\ 0.109829+0.996426I$ $b=-2.57424-0.30502I$	$-16.5506-3.5813I$	$-12.12116+2.15994I$
$u=-0.374592+0.413898I$ $a=\ 0.238036-0.835224I$ $b=-0.289006+0.411875I$	$-0.428790+1.166930I$	$-5.36023-5.57896I$
$u=-0.374592-0.413898I$ $a=\ 0.238036+0.835224I$ $b=-0.289006-0.411875I$	$-0.428790-1.166930I$	$-5.36023+5.57896I$
$u=\ 1.49641+0.19521I$ $a=-0.467729-0.212663I$ $b=-0.140592-0.934027I$	$-6.69050-3.49798I$	$-9.87558+1.25665I$
$u=\ 1.49641-0.19521I$ $a=-0.467729+0.212663I$ $b=-0.140592+0.934027I$	$-6.69050+3.49798I$	$-9.87558-1.25665I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.70971$ $a = 2.04995$ $b = 2.70628$	-19.0073	-12.9680
$u = 1.67172 + 0.41923I$ $a = -1.56150 + 0.78878I$ $b = -2.44091 - 0.95623I$	$15.4222 - 9.3337I$	$-13.42948 + 3.49093I$
$u = 1.67172 - 0.41923I$ $a = -1.56150 - 0.78878I$ $b = -2.44091 + 0.95623I$	$15.4222 + 9.3337I$	$-13.42948 - 3.49093I$
$u = 1.73172 + 0.08246I$ $a = 1.31289 - 0.53629I$ $b = 1.88369 - 1.19369I$	$-12.66300 - 2.31460I$	$-13.80105 + 1.17558I$
$u = 1.73172 - 0.08246I$ $a = 1.31289 + 0.53629I$ $b = 1.88369 + 1.19369I$	$-12.66300 + 2.31460I$	$-13.80105 - 1.17558I$
$u = 0.0844975$ $a = -8.02839$ $b = -0.587345$	-1.09573	-8.61160

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^4-3u^3-2u^2+8u-14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_7	y^5
c_5	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$
c_6, c_{10}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_8, c_9, c_{11}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 1.70062$ $b = 0$	-4.04602	-8.24330
$u = 0.309916 + 0.549911I$ $a = -0.896438 + 0.890762I$ $b = 0$	$-1.97403 - 1.53058I$	$-10.50099 + 3.45976I$
$u = 0.309916 - 0.549911I$ $a = -0.896438 - 0.890762I$ $b = 0$	$-1.97403 + 1.53058I$	$-10.50099 - 3.45976I$
$u = -1.41878 + 0.21917I$ $a = -0.453870 - 0.402731I$ $b = 0$	$-7.51750 + 4.40083I$	$-14.3774 - 5.8297I$
$u = -1.41878 - 0.21917I$ $a = -0.453870 + 0.402731I$ $b = 0$	$-7.51750 - 4.40083I$	$-14.3774 + 5.8297I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -21$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.618034$ $b = 1.61803$	-10.5276	-21.0000
$u = 1.00000$ $a = -1.61803$ $b = -0.618034$	-2.63189	-21.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^2+u-1)(u^{16}-7u^{15}+\cdots+3u+1)$
c_2	$((u+1)^5)(u^2+3u+1)(u^{16}+29u^{15}+\cdots+17u+1)$
c_3	$u^5(u^2+u-1)(u^{16}+2u^{15}+\cdots+72u^2-32)$
c_4	$((u+1)^5)(u^2-u-1)(u^{16}-7u^{15}+\cdots+3u+1)$
c_5	$(u^2-3u+1)(u^5-3u^4+\cdots-u+1)(u^{16}-3u^{15}+\cdots+u-1)$
c_6	$u^2(u^5-u^4+\cdots+u-1)(u^{16}-2u^{15}+\cdots-20u-4)$
c_7	$u^5(u^2-u-1)(u^{16}+2u^{15}+\cdots+72u^2-32)$
c_8, c_9	$((u-1)^2)(u^5+u^4+\cdots+u-1)(u^{16}-4u^{15}+\cdots-10u+1)$
c_{10}	$u^2(u^5+u^4+\cdots+u+1)(u^{16}-2u^{15}+\cdots-20u-4)$
c_{11}	$((u+1)^2)(u^5-u^4+\cdots+u+1)(u^{16}-4u^{15}+\cdots-10u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^2-3y+1)(y^{16}-29y^{15}+\cdots-17y+1)$
c_2	$((y-1)^5)(y^2-7y+1)(y^{16}-77y^{15}+\cdots-1761y+1)$
c_3, c_7	$y^5(y^2-3y+1)(y^{16}-36y^{15}+\cdots-4608y+1024)$
c_5	$(y^2-7y+1)(y^5-y^4+\cdots+3y-1)(y^{16}-37y^{15}+\cdots-11y+1)$
c_6, c_{10}	$y^2(y^5+3y^4+\cdots-y-1)(y^{16}+18y^{15}+\cdots-168y+16)$
c_8, c_9, c_{11}	$((y-1)^2)(y^5-5y^4+\cdots-y-1)(y^{16}-20y^{15}+\cdots-146y+1)$