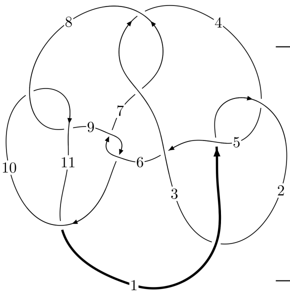
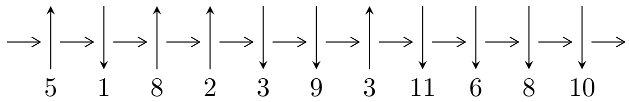
$11n_7$ ($K11n_7$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.20194 \times 10^{21} u^{38} + 4.46582 \times 10^{22} u^{37} + \cdots + 2.15629 \times 10^{22} b + 5.77763 \times 10^{22},$$
$$- 5.60651 \times 10^{22} u^{38} - 2.01892 \times 10^{23} u^{37} + \cdots + 2.15629 \times 10^{22} a + 8.89136 \times 10^{22},\ u^{39} + 3u^{38} + \cdots - 5u -$$
$$I_2^u = \langle u^2 a + b,\ u^2 a + a^2 + 2au + 3u^2 + a + 5u + 4,\ u^3 + u^2 - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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.

$$\boldsymbol{I_1^u = \langle 2.20\times10^{21}u^{38}+4.47\times10^{22}u^{37}+\cdots+2.16\times10^{22}b+5.78\times10^{22},\ -5.61\times10^{22}u^{38}-2.02\times10^{23}u^{37}+\cdots+2.16\times10^{22}a+8.89\times10^{22},\ u^{39}+3u^{38}+\cdots-5u-1\rangle}$$

(i) Arc colorings

$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_3 = \begin{pmatrix}2.60007u^{38}+9.36292u^{37}+\cdots-11.3955u-4.12344\\-0.102117u^{38}-2.07106u^{37}+\cdots-13.0171u-2.67943\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}2.79441u^{38}+10.0298u^{37}+\cdots-13.9989u-5.24015\\-0.0584579u^{38}-2.06978u^{37}+\cdots-13.6305u-2.76324\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.700760u^{38}-0.594268u^{37}+\cdots+7.97882u-0.0611499\\-1.25362u^{38}-2.81386u^{37}+\cdots+0.0129788u-0.500639\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-1.95438u^{38}-3.40813u^{37}+\cdots+7.99180u-0.561789\\-1.25362u^{38}-2.81386u^{37}+\cdots+0.0129788u-0.500639\end{pmatrix}$$

$$a_5 = \begin{pmatrix}2.47112u^{38}+9.86388u^{37}+\cdots+8.27156u+1.66377\\-0.721787u^{38}-4.52792u^{37}+\cdots-15.7237u-2.45051\end{pmatrix}$$

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

$$a_1 = \begin{pmatrix}-u^3\\u^5-u^3+u\end{pmatrix}$$

$$a_2 = \begin{pmatrix}2.46841u^{38}+9.39037u^{37}+\cdots-9.44573u-3.72104\\-0.0315650u^{38}-2.27311u^{37}+\cdots-14.5271u-2.54332\end{pmatrix}$$

$$a_2 = \begin{pmatrix}2.46841u^{38}+9.39037u^{37}+\cdots-9.44573u-3.72104\\-0.0315650u^{38}-2.27311u^{37}+\cdots-14.5271u-2.54332\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{95167190231219974262615}{10781474718762665439818}u^{38}+\frac{642665286688782560331753}{21562949437525330879636}u^{37}+\cdots+\frac{910083121628952116105487}{10781474718762665439818}u+\frac{469851565658388329096693}{21562949437525330879636}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{39} + 4u^{38} + \cdots + 10u - 1$
c_2	$u^{39} + 22u^{38} + \cdots + 170u - 1$
c_3, c_7	$u^{39} + 3u^{38} + \cdots + 160u + 64$
c_5	$u^{39} - 4u^{38} + \cdots + 602u - 49$
c_6, c_9	$u^{39} - 3u^{38} + \cdots - 3u + 1$
c_8, c_{10}	$u^{39} - 3u^{38} + \cdots - 5u + 1$
c_{11}	$u^{39} + 23u^{38} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{39} + 22y^{38} + \cdots + 170y - 1$
c_2	$y^{39} - 6y^{38} + \cdots + 31510y - 1$
c_3, c_7	$y^{39} + 35y^{38} + \cdots - 23552y - 4096$
c_5	$y^{39} - 34y^{38} + \cdots + 391706y - 2401$
c_6, c_9	$y^{39} + 9y^{38} + \cdots + y - 1$
c_8, c_{10}	$y^{39} - 23y^{38} + \cdots + y - 1$
c_{11}	$y^{39} - 11y^{38} + \cdots + 117y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.174715 + 0.953666I$ $a = -0.107736 - 0.141147I$ $b = -0.224524 + 1.376020I$	$-5.68977 + 0.80789I$	$-5.63151 - 0.39749I$
$u = 0.174715 - 0.953666I$ $a = -0.107736 + 0.141147I$ $b = -0.224524 - 1.376020I$	$-5.68977 - 0.80789I$	$-5.63151 + 0.39749I$
$u = -0.113785 + 1.039480I$ $a = 0.1112140 + 0.0706545I$ $b = -0.41499 + 1.53589I$	$-4.49350 - 8.17612I$	$-3.77298 + 5.44747I$
$u = -0.113785 - 1.039480I$ $a = 0.1112140 - 0.0706545I$ $b = -0.41499 - 1.53589I$	$-4.49350 + 8.17612I$	$-3.77298 - 5.44747I$
$u = -0.906304 + 0.258793I$ $a = -0.59831 + 2.09555I$ $b = -0.938219 - 0.467153I$	$0.05191 + 4.16636I$	$-0.57665 - 9.00427I$
$u = -0.906304 - 0.258793I$ $a = -0.59831 - 2.09555I$ $b = -0.938219 + 0.467153I$	$0.05191 - 4.16636I$	$-0.57665 + 9.00427I$
$u = 0.913889 + 0.058300I$ $a = 0.77201 + 4.31604I$ $b = -0.20598 - 3.29592I$	$-1.32570 - 2.15384I$	$-38.3073 + 0.3658I$
$u = 0.913889 - 0.058300I$ $a = 0.77201 - 4.31604I$ $b = -0.20598 + 3.29592I$	$-1.32570 + 2.15384I$	$-38.3073 - 0.3658I$
$u = 0.814464 + 0.380892I$ $a = 0.328778 + 0.693706I$ $b = -0.352686 - 1.052600I$	$-1.92828 + 0.12066I$	$-7.15424 - 0.12690I$
$u = 0.814464 - 0.380892I$ $a = 0.328778 - 0.693706I$ $b = -0.352686 + 1.052600I$	$-1.92828 - 0.12066I$	$-7.15424 + 0.12690I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.062003+0.891851I$ $a=\ \ 0.073492-0.130422I$ $b=\ \ 0.43523-1.38427I$	$-1.45248-3.13609I$	$-0.74981+2.49452I$
$u=-0.062003-0.891851I$ $a=\ \ 0.073492+0.130422I$ $b=\ \ 0.43523+1.38427I$	$-1.45248+3.13609I$	$-0.74981-2.49452I$
$u=-0.791534+0.793494I$ $a=-0.286108+0.284239I$ $b=\ \ 0.033088+0.170270I$	$2.88333+1.52566I$	$-2.95623-6.42875I$
$u=-0.791534-0.793494I$ $a=-0.286108-0.284239I$ $b=\ \ 0.033088-0.170270I$	$2.88333-1.52566I$	$-2.95623+6.42875I$
$u=-1.105650+0.283891I$ $a=-0.916031-0.529536I$ $b=-0.320477+0.011103I$	$-3.35360+5.46941I$	$-6.70822-8.69559I$
$u=-1.105650-0.283891I$ $a=-0.916031+0.529536I$ $b=-0.320477-0.011103I$	$-3.35360-5.46941I$	$-6.70822+8.69559I$
$u=\ \ 1.155090+0.139104I$ $a=-0.289265-1.321470I$ $b=\ \ 0.71983+1.54185I$	$-2.82585-1.96097I$	$-4.21009+0.40138I$
$u=\ \ 1.155090-0.139104I$ $a=-0.289265+1.321470I$ $b=\ \ 0.71983-1.54185I$	$-2.82585+1.96097I$	$-4.21009-0.40138I$
$u=\ \ 0.833700$ $a=\ \ 0.604067$ $b=-0.694607$	-1.20362	-8.91670
$u=-0.952533+0.800887I$ $a=\ \ 0.358525+0.042382I$ $b=\ \ 0.117335-0.110652I$	$2.42328+4.44150I$	$-7.41017-1.05267I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.952533-0.800887I$ $a=\ \ 0.358525-0.042382I$ $b=\ \ 0.117335+0.110652I$	$2.42328-4.44150I$	$-7.41017+1.05267I$
$u=-0.670244+0.249117I$ $a=\ \ 0.35712+1.40517I$ $b=\ \ 0.408266+0.138519I$	$1.33536+1.46808I$	$4.04275-4.37387I$
$u=-0.670244-0.249117I$ $a=\ \ 0.35712-1.40517I$ $b=\ \ 0.408266-0.138519I$	$1.33536-1.46808I$	$4.04275+4.37387I$
$u=\ \ 1.254360+0.453217I$ $a=\ \ 1.01660+1.37116I$ $b=\ \ 0.06649-1.63950I$	$-5.43179-1.52389I$	0
$u=\ \ 1.254360-0.453217I$ $a=\ \ 1.01660-1.37116I$ $b=\ \ 0.06649+1.63950I$	$-5.43179+1.52389I$	0
$u=-1.261920+0.500458I$ $a=-0.67622+1.81078I$ $b=-0.79327-1.68180I$	$-5.09332+8.17367I$	$0.-5.17214I$
$u=-1.261920-0.500458I$ $a=-0.67622-1.81078I$ $b=-0.79327+1.68180I$	$-5.09332-8.17367I$	$0.+5.17214I$
$u=-1.317290+0.384349I$ $a=\ \ 0.50231-1.81838I$ $b=\ \ 0.58706+1.52850I$	$-10.41510+3.75787I$	0
$u=-1.317290-0.384349I$ $a=\ \ 0.50231+1.81838I$ $b=\ \ 0.58706-1.52850I$	$-10.41510-3.75787I$	0
$u=\ \ 1.261720+0.574659I$ $a=-1.09075-1.20453I$ $b=-0.04542+1.54404I$	$-8.99304-6.36082I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.261720 - 0.574659I$ $a = -1.09075 + 1.20453I$ $b = -0.04542 - 1.54404I$	$-8.99304 + 6.36082I$	0
$u = -1.30473 + 0.56143I$ $a = 0.71828 - 1.70677I$ $b = 0.73324 + 1.82635I$	$-8.1954 + 13.8902I$	0
$u = -1.30473 - 0.56143I$ $a = 0.71828 + 1.70677I$ $b = 0.73324 - 1.82635I$	$-8.1954 - 13.8902I$	0
$u = 1.37975 + 0.41298I$ $a = -0.83835 - 1.29118I$ $b = -0.16526 + 1.61657I$	$-9.33600 + 3.03011I$	0
$u = 1.37975 - 0.41298I$ $a = -0.83835 + 1.29118I$ $b = -0.16526 - 1.61657I$	$-9.33600 - 3.03011I$	0
$u = -0.415565 + 0.222377I$ $a = 0.82602 - 1.70438I$ $b = 0.738838 - 0.443010I$	$1.15178 - 1.50599I$	$2.56109 + 2.72315I$
$u = -0.415565 - 0.222377I$ $a = 0.82602 + 1.70438I$ $b = 0.738838 + 0.443010I$	$1.15178 + 1.50599I$	$2.56109 - 2.72315I$
$u = 0.030712 + 0.352609I$ $a = 2.43638 - 1.81010I$ $b = -0.531247 - 0.445633I$	$-0.39510 - 2.82136I$	$0.57403 + 4.29661I$
$u = 0.030712 - 0.352609I$ $a = 2.43638 + 1.81010I$ $b = -0.531247 + 0.445633I$	$-0.39510 + 2.82136I$	$0.57403 - 4.29661I$

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

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^2a - 3au + 3u^2 + 8a + u - 2$

(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	$(u^3 - u^2 + 2u - 1)^2$
c_8	$(u^3 + u^2 - 1)^2$
c_9, c_{11}	$(u^3 + u^2 + 2u + 1)^2$
c_{10}	$(u^3 - u^2 + 1)^2$

(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_{11}	$(y^3 + 3y^2 + 2y - 1)^2$
c_8, c_{10}	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = 0.111778 - 0.558770I$ $b = 0.706350 + 0.266290I$	$3.02413 + 4.85801I$	$2.65209 - 7.50333I$
$u = -0.877439 + 0.744862I$ $a = 0.428020 + 0.376187I$ $b = -0.583789 + 0.478572I$	$3.02413 + 0.79824I$	$-0.92725 + 3.21674I$
$u = -0.877439 - 0.744862I$ $a = 0.111778 + 0.558770I$ $b = 0.706350 - 0.266290I$	$3.02413 - 4.85801I$	$2.65209 + 7.50333I$
$u = -0.877439 - 0.744862I$ $a = 0.428020 - 0.376187I$ $b = -0.583789 - 0.478572I$	$3.02413 - 0.79824I$	$-0.92725 - 3.21674I$
$u = 0.754878$ $a = -1.53980 + 2.66701I$ $b = 0.87744 - 1.51977I$	$-1.11345 + 2.02988I$	$-2.22484 + 4.65789I$
$u = 0.754878$ $a = -1.53980 - 2.66701I$ $b = 0.87744 + 1.51977I$	$-1.11345 - 2.02988I$	$-2.22484 - 4.65789I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{39}+4u^{38}+\cdots+10u-1)$
c_2	$((u^2+u+1)^3)(u^{39}+22u^{38}+\cdots+170u-1)$
c_3, c_7	$u^6(u^{39}+3u^{38}+\cdots+160u+64)$
c_4	$((u^2-u+1)^3)(u^{39}+4u^{38}+\cdots+10u-1)$
c_5	$((u^2+u+1)^3)(u^{39}-4u^{38}+\cdots+602u-49)$
c_6	$((u^3-u^2+2u-1)^2)(u^{39}-3u^{38}+\cdots-3u+1)$
c_8	$((u^3+u^2-1)^2)(u^{39}-3u^{38}+\cdots-5u+1)$
c_9	$((u^3+u^2+2u+1)^2)(u^{39}-3u^{38}+\cdots-3u+1)$
c_{10}	$((u^3-u^2+1)^2)(u^{39}-3u^{38}+\cdots-5u+1)$
c_{11}	$((u^3+u^2+2u+1)^2)(u^{39}+23u^{38}+\cdots+u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{39}+22y^{38}+\cdots+170y-1)$
c_2	$((y^2+y+1)^3)(y^{39}-6y^{38}+\cdots+31510y-1)$
c_3, c_7	$y^6(y^{39}+35y^{38}+\cdots-23552y-4096)$
c_5	$((y^2+y+1)^3)(y^{39}-34y^{38}+\cdots+391706y-2401)$
c_6, c_9	$((y^3+3y^2+2y-1)^2)(y^{39}+9y^{38}+\cdots+y-1)$
c_8, c_{10}	$((y^3-y^2+2y-1)^2)(y^{39}-23y^{38}+\cdots+y-1)$
c_{11}	$((y^3+3y^2+2y-1)^2)(y^{39}-11y^{38}+\cdots+117y-1)$