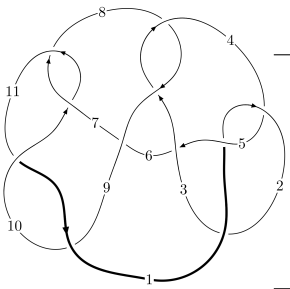
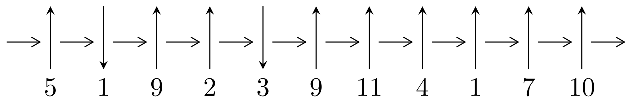
$11n_1$ ($K11n_1$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2u^{18} + 7u^{17} + \cdots + 4b + 5,\ 5u^{18} - 18u^{17} + \cdots + 4a - 5,\ u^{19} - 4u^{18} + \cdots - 12u^2 + 1 \rangle$$
$$I_2^u = \langle -au + b,\ a^3 + a^2u + a^2 + 2au - 1,\ u^2 + u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 25 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. $I^u_1 = \langle -2u^{18}+7u^{17}+\cdots+4b+5,\ 5u^{18}-18u^{17}+\cdots+4a-5,\ u^{19}-4u^{18}+\cdots-12u^2+1 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5-2u^3-u \\ u^5+u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{5}{4}u^{18}+\frac{9}{2}u^{17}+\cdots+\frac{11}{2}u+\frac{5}{4} \\ \frac{1}{2}u^{18}-\frac{7}{4}u^{17}+\cdots-\frac{5}{4}u-\frac{5}{4} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.750000u^{18}+2.75000u^{17}+\cdots-19.2500u^2+4.25000u \\ \frac{1}{2}u^{18}-\frac{7}{4}u^{17}+\cdots-\frac{5}{4}u-\frac{5}{4} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{3}{4}u^{18}+\frac{5}{2}u^{17}+\cdots+\frac{9}{2}u+\frac{3}{4} \\ \frac{1}{2}u^{18}-\frac{9}{4}u^{17}+\cdots+\frac{1}{4}u-\frac{3}{4} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}u^{17}+\frac{3}{4}u^{16}+\cdots+\frac{3}{4}u+\frac{7}{4} \\ \frac{1}{4}u^{18}-u^{17}+\cdots-u-\frac{1}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{4}u^{18}-\frac{3}{4}u^{17}+\cdots-\frac{7}{4}u-1 \\ -\frac{1}{4}u^{18}+u^{17}+\cdots+2u+\frac{1}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{4}u^{18}-\frac{3}{4}u^{17}+\cdots-\frac{7}{4}u-1 \\ -\frac{1}{4}u^{18}+u^{17}+\cdots+2u+\frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 3u^{18}-\frac{23}{2}u^{17}+43u^{16}-99u^{15}+208u^{14}-350u^{13}+\frac{1049}{2}u^{12}-708u^{11}+\frac{1657}{2}u^{10}-926u^9+884u^8-803u^7+\frac{1299}{2}u^6-448u^5+\frac{615}{2}u^4-136u^3+\frac{133}{2}u^2-17u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{19} + 4u^{18} + \cdots + 12u^2 - 1$
c_2	$u^{19} + 14u^{18} + \cdots + 24u - 1$
c_3, c_8	$u^{19} + u^{18} + \cdots + 160u - 64$
c_5	$u^{19} - 4u^{18} + \cdots + u - 2$
c_6	$u^{19} + 3u^{18} + \cdots + 2759u - 937$
c_7, c_{10}	$u^{19} - 3u^{18} + \cdots + u - 1$
c_9, c_{11}	$u^{19} - 3u^{18} + \cdots + 11u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{19} + 14y^{18} + \cdots + 24y - 1$
c_2	$y^{19} - 14y^{18} + \cdots + 612y - 1$
c_3, c_8	$y^{19} + 35y^{18} + \cdots - 15360y - 4096$
c_5	$y^{19} - 42y^{18} + \cdots + 13y - 4$
c_6	$y^{19} + 89y^{18} + \cdots + 15394803y - 877969$
c_7, c_{10}	$y^{19} - 3y^{18} + \cdots + 11y - 1$
c_9, c_{11}	$y^{19} + 29y^{18} + \cdots + 11y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.578849 + 0.831148I$ $a = -0.236375 - 0.103692I$ $b = -0.223009 + 0.136441I$	$0.57171 - 2.29308I$	$0.43534 + 5.97155I$
$u = -0.578849 - 0.831148I$ $a = -0.236375 + 0.103692I$ $b = -0.223009 - 0.136441I$	$0.57171 + 2.29308I$	$0.43534 - 5.97155I$
$u = -0.379573 + 1.066790I$ $a = -0.384017 + 0.248046I$ $b = 0.118852 + 0.503818I$	$-1.34954 - 2.72131I$	$3.10172 + 4.42849I$
$u = -0.379573 - 1.066790I$ $a = -0.384017 - 0.248046I$ $b = 0.118852 - 0.503818I$	$-1.34954 + 2.72131I$	$3.10172 - 4.42849I$
$u = -0.066477 + 0.849480I$ $a = 0.390573 - 0.852872I$ $b = -0.698534 - 0.388480I$	$0.275217 + 0.309939I$	$6.84413 - 1.19842I$
$u = -0.066477 - 0.849480I$ $a = 0.390573 + 0.852872I$ $b = -0.698534 + 0.388480I$	$0.275217 - 0.309939I$	$6.84413 + 1.19842I$
$u = 1.158440 + 0.036055I$ $a = -0.02963 - 1.59757I$ $b = -0.02328 + 1.85176I$	$-13.35980 - 3.50957I$	$4.64823 + 2.14006I$
$u = 1.158440 - 0.036055I$ $a = -0.02963 + 1.59757I$ $b = -0.02328 - 1.85176I$	$-13.35980 + 3.50957I$	$4.64823 - 2.14006I$
$u = 0.239802 + 1.225750I$ $a = 1.218930 - 0.275212I$ $b = -0.62964 - 1.42811I$	$-5.41009 + 5.31951I$	$2.17850 - 4.32462I$
$u = 0.239802 - 1.225750I$ $a = 1.218930 + 0.275212I$ $b = -0.62964 + 1.42811I$	$-5.41009 - 5.31951I$	$2.17850 + 4.32462I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.105421 + 1.309260I$ $a = -0.964760 + 0.228937I$ $b = 0.401445 + 1.238990I$	$-6.74492 - 0.62050I$	$0.784704 + 1.156660I$
$u = 0.105421 - 1.309260I$ $a = -0.964760 - 0.228937I$ $b = 0.401445 - 1.238990I$	$-6.74492 + 0.62050I$	$0.784704 - 1.156660I$
$u = 0.493476 + 0.148245I$ $a = -0.12816 - 2.14991I$ $b = -0.255468 + 1.079930I$	$-2.12600 - 2.49879I$	$4.77209 + 3.99040I$
$u = 0.493476 - 0.148245I$ $a = -0.12816 + 2.14991I$ $b = -0.255468 - 1.079930I$	$-2.12600 + 2.49879I$	$4.77209 - 3.99040I$
$u = 0.58478 + 1.39635I$ $a = 1.225590 + 0.379250I$ $b = -0.18714 - 1.93313I$	$-17.6117 + 9.7005I$	$2.62109 - 4.88323I$
$u = 0.58478 - 1.39635I$ $a = 1.225590 - 0.379250I$ $b = -0.18714 + 1.93313I$	$-17.6117 - 9.7005I$	$2.62109 + 4.88323I$
$u = 0.54417 + 1.43391I$ $a = -1.179380 - 0.320996I$ $b = 0.18150 + 1.86580I$	$-17.9983 + 2.5634I$	$2.10495 - 0.56524I$
$u = 0.54417 - 1.43391I$ $a = -1.179380 + 0.320996I$ $b = 0.18150 - 1.86580I$	$-17.9983 - 2.5634I$	$2.10495 + 0.56524I$
$u = -0.202383$ $a = -1.82553$ $b = -0.369456$	0.846922	12.0190

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5a^2u - 6a^2 - 5au - a + u + 14$

(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	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-1.239560+0.467306I$ $b=\ \ 0.215080-1.307140I$	$-3.02413+0.79824I$	$2.74410-0.29766I$
$u=-0.500000+0.866025I$ $a=\ \ 1.024480-0.839835I$ $b=\ \ 0.215080+1.307140I$	$-3.02413-4.85801I$	$4.03424+5.28153I$
$u=-0.500000+0.866025I$ $a=-0.284920-0.493496I$ $b=\ \ 0.569840$	$1.11345-2.02988I$	$12.72167+1.07831I$
$u=-0.500000-0.866025I$ $a=\ \ 1.024480+0.839835I$ $b=\ \ 0.215080-1.307140I$	$-3.02413-0.79824I$	$2.74410+0.29766I$
$u=-0.500000-0.866025I$ $a=-1.239560-0.467306I$ $b=\ \ 0.215080+1.307140I$	$-3.02413+4.85801I$	$4.03424-5.28153I$
$u=-0.500000-0.866025I$ $a=-0.284920+0.493496I$ $b=\ \ 0.569840$	$1.11345+2.02988I$	$12.72167-1.07831I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^3)(u^{19}+4u^{18}+\cdots+12u^2-1)$
c_2	$((u^2+u+1)^3)(u^{19}+14u^{18}+\cdots+24u-1)$
c_3, c_8	$u^6(u^{19}+u^{18}+\cdots+160u-64)$
c_4	$((u^2-u+1)^3)(u^{19}+4u^{18}+\cdots+12u^2-1)$
c_5	$((u^2+u+1)^3)(u^{19}-4u^{18}+\cdots+u-2)$
c_6	$((u^3+u^2+2u+1)^2)(u^{19}+3u^{18}+\cdots+2759u-937)$
c_7	$((u^3-u^2+1)^2)(u^{19}-3u^{18}+\cdots+u-1)$
c_9	$((u^3+u^2+2u+1)^2)(u^{19}-3u^{18}+\cdots+11u-1)$
c_{10}	$((u^3+u^2-1)^2)(u^{19}-3u^{18}+\cdots+u-1)$
c_{11}	$((u^3-u^2+2u-1)^2)(u^{19}-3u^{18}+\cdots+11u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^3)(y^{19}+14y^{18}+\cdots+24y-1)$
c_2	$((y^2+y+1)^3)(y^{19}-14y^{18}+\cdots+612y-1)$
c_3, c_8	$y^6(y^{19}+35y^{18}+\cdots-15360y-4096)$
c_5	$((y^2+y+1)^3)(y^{19}-42y^{18}+\cdots+13y-4)$
c_6	$((y^3+3y^2+2y-1)^2)(y^{19}+89y^{18}+\cdots+1.53948\times 10^7y-877969)$
c_7, c_{10}	$((y^3-y^2+2y-1)^2)(y^{19}-3y^{18}+\cdots+11y-1)$
c_9, c_{11}	$((y^3+3y^2+2y-1)^2)(y^{19}+29y^{18}+\cdots+11y-1)$