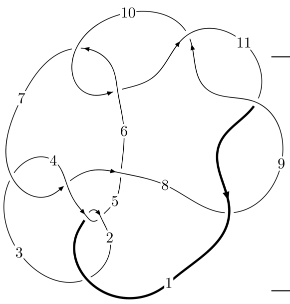
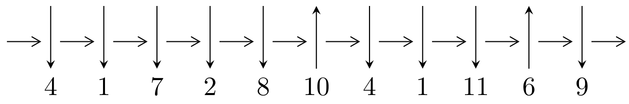
$11n_{30}$ ($K11n_{30}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle u^{19} - 3u^{18} + \cdots + 4b + 8,\ -3u^{19} - 18u^{18} + \cdots + 4a + 9,\ u^{20} + 5u^{19} + \cdots - 6u - 1\rangle$
$I_2^u = \langle b^4 + b^3 + 3b^2 + 2b + 1,\ a,\ u - 1\rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 24 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. $I^u_1 = \langle u^{19}-3u^{18}+\cdots+4b+8,\ -3u^{19}-18u^{18}+\cdots+4a+9,\ u^{20}+5u^{19}+\cdots-6u-1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}\frac{3}{4}u^{19}+\frac{9}{2}u^{18}+\cdots-\frac{71}{4}u-\frac{9}{4}\\-\frac{1}{4}u^{19}+\frac{3}{4}u^{18}+\cdots-\frac{25}{4}u-2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1\\-\frac{1}{8}u^{19}-\frac{1}{2}u^{18}+\cdots+\frac{21}{8}u+\frac{1}{8}\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^{19}+\frac{15}{4}u^{18}+\cdots-\frac{23}{2}u-\frac{1}{4}\\-\frac{1}{4}u^{19}+\frac{3}{4}u^{18}+\cdots-\frac{25}{4}u-2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}\frac{3}{4}u^{19}+\frac{9}{2}u^{18}+\cdots-\frac{71}{4}u-\frac{9}{4}\\2u^{19}+\frac{29}{4}u^{18}+\cdots-\frac{23}{2}u-\frac{11}{4}\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-\frac{1}{8}u^{19}-\frac{1}{2}u^{18}+\cdots-\frac{3}{8}u+\frac{17}{8}\\\frac{1}{8}u^{19}+\frac{1}{2}u^{18}+\cdots-\frac{13}{8}u-\frac{1}{8}\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{1}{4}u^{19}-\frac{5}{4}u^{18}+\cdots-\frac{7}{4}u+\frac{5}{2}\\-\frac{5}{2}u^{19}-10u^{18}+\cdots+13u+3\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-\frac{1}{4}u^{19}-\frac{5}{4}u^{18}+\cdots-\frac{7}{4}u+\frac{5}{2}\\-\frac{5}{2}u^{19}-10u^{18}+\cdots+13u+3\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{7}{2}u^{19}-\frac{65}{4}u^{18}+\frac{33}{4}u^{17}+\frac{241}{2}u^{16}+\frac{57}{4}u^{15}-\frac{877}{2}u^{14}-u^{13}+\frac{4221}{4}u^{12}-344u^{11}-\frac{6731}{4}u^{10}+\frac{2343}{2}u^{9}+\frac{6133}{4}u^{8}-\frac{3593}{2}u^{7}-491u^{6}+1313u^{5}-\frac{457}{2}u^{4}-\frac{783}{2}u^{3}+\frac{281}{4}u^{2}+50u+\frac{21}{4}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{20} - 5u^{19} + \cdots + 6u - 1$
c_2	$u^{20} + 27u^{19} + \cdots - 12u + 1$
c_3, c_7	$u^{20} + u^{19} + \cdots - 40u - 16$
c_5	$u^{20} - 2u^{19} + \cdots + 2u + 1$
c_6, c_{10}	$u^{20} - 2u^{19} + \cdots + 2u + 1$
c_8, c_9, c_{11}	$u^{20} + 6u^{19} + \cdots - 6u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{20} - 27y^{19} + \cdots + 12y + 1$
c_2	$y^{20} - 63y^{19} + \cdots + 564y + 1$
c_3, c_7	$y^{20} - 27y^{19} + \cdots + 960y + 256$
c_5	$y^{20} - 42y^{19} + \cdots - 6y + 1$
c_6, c_{10}	$y^{20} + 6y^{19} + \cdots - 6y + 1$
c_8, c_9, c_{11}	$y^{20} + 18y^{19} + \cdots - 142y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.593945 + 0.749573I$ $a = 0.901534 - 0.870244I$ $b = -0.062242 + 1.190030I$	$1.80617 + 0.15475I$	$-5.78761 + 0.24947I$
$u = 0.593945 - 0.749573I$ $a = 0.901534 + 0.870244I$ $b = -0.062242 - 1.190030I$	$1.80617 - 0.15475I$	$-5.78761 - 0.24947I$
$u = 0.742600 + 0.805837I$ $a = -0.823991 + 0.896190I$ $b = -0.361535 - 1.366300I$	$1.34574 - 5.46019I$	$-7.11600 + 5.63427I$
$u = 0.742600 - 0.805837I$ $a = -0.823991 - 0.896190I$ $b = -0.361535 + 1.366300I$	$1.34574 + 5.46019I$	$-7.11600 - 5.63427I$
$u = 1.049030 + 0.433248I$ $a = -0.533800 + 0.720846I$ $b = -0.786836 - 0.158628I$	$-3.47404 - 1.25358I$	$-14.5901 + 1.6218I$
$u = 1.049030 - 0.433248I$ $a = -0.533800 - 0.720846I$ $b = -0.786836 + 0.158628I$	$-3.47404 + 1.25358I$	$-14.5901 - 1.6218I$
$u = 0.723331$ $a = 0.811887$ $b = 0.0840139$	-1.09578	-8.64200
$u = 1.41765 + 0.08558I$ $a = -0.075401 + 0.848821I$ $b = -0.300271 + 1.184320I$	$-0.40356 + 2.62035I$	$-6.94831 - 3.53102I$
$u = 1.41765 - 0.08558I$ $a = -0.075401 - 0.848821I$ $b = -0.300271 - 1.184320I$	$-0.40356 - 2.62035I$	$-6.94831 + 3.53102I$
$u = -0.494818 + 0.034941I$ $a = 0.071730 - 1.233390I$ $b = -0.12366 - 1.50920I$	$6.00682 - 3.10793I$	$1.19914 + 2.44206I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.494818-0.034941I$ $a=\ \ 0.071730+1.233390I$ $b=-0.12366+1.50920I$	$6.00682+3.10793I$	$1.19914-2.44206I$
$u=-1.67897+0.22535I$ $a=\ \ 1.055750-0.143916I$ $b=\ \ 0.293817-1.327320I$	$-6.07483+3.49044I$	$-7.50331-0.69756I$
$u=-1.67897-0.22535I$ $a=\ \ 1.055750+0.143916I$ $b=\ \ 0.293817+1.327320I$	$-6.07483-3.49044I$	$-7.50331+0.69756I$
$u=-1.73062$ $a=\ \ 1.07368$ $b=\ \ 0.672482$	-10.3113	-7.59680
$u=-1.71507+0.27164I$ $a=-1.083580+0.166912I$ $b=-0.46653+1.62043I$	$-7.04125+9.73657I$	$-8.64627-5.28115I$
$u=-1.71507-0.27164I$ $a=-1.083580-0.166912I$ $b=-0.46653-1.62043I$	$-7.04125-9.73657I$	$-8.64627+5.28115I$
$u=-0.098700+0.173726I$ $a=\ \ 1.16971-1.93438I$ $b=-0.407505-0.376718I$	$-0.333685-1.164940I$	$-4.31355+5.64475I$
$u=-0.098700-0.173726I$ $a=\ \ 1.16971+1.93438I$ $b=-0.407505+0.376718I$	$-0.333685+1.164940I$	$-4.31355-5.64475I$
$u=-1.81202+0.09860I$ $a=-1.124740+0.057142I$ $b=-1.163490+0.628217I$	$-14.0917+3.7151I$	$-12.67457-3.10159I$
$u=-1.81202-0.09860I$ $a=-1.124740-0.057142I$ $b=-1.163490-0.628217I$	$-14.0917-3.7151I$	$-12.67457+3.10159I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2b^3 - 2b^2 - 7b - 13$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_7	y^4
c_5, c_8, c_9 c_{11}	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_6, c_{10}	$y^4 + y^3 + 3y^2 + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -0.395123 + 0.506844I$	$-1.85594 + 1.41510I$	$-10.51825 - 2.96122I$
$u = 1.00000$ $a = 0$ $b = -0.395123 - 0.506844I$	$-1.85594 - 1.41510I$	$-10.51825 + 2.96122I$
$u = 1.00000$ $a = 0$ $b = -0.10488 + 1.55249I$	$5.14581 + 3.16396I$	$-8.98175 - 2.83489I$
$u = 1.00000$ $a = 0$ $b = -0.10488 - 1.55249I$	$5.14581 - 3.16396I$	$-8.98175 + 2.83489I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{20}-5u^{19}+\cdots+6u-1)$
c_2	$((u+1)^4)(u^{20}+27u^{19}+\cdots-12u+1)$
c_3, c_7	$u^4(u^{20}+u^{19}+\cdots-40u-16)$
c_4	$((u+1)^4)(u^{20}-5u^{19}+\cdots+6u-1)$
c_5	$(u^4-u^3+3u^2-2u+1)(u^{20}-2u^{19}+\cdots+2u+1)$
c_6	$(u^4-u^3+u^2+1)(u^{20}-2u^{19}+\cdots+2u+1)$
c_8, c_9	$(u^4-u^3+3u^2-2u+1)(u^{20}+6u^{19}+\cdots-6u+1)$
c_{10}	$(u^4+u^3+u^2+1)(u^{20}-2u^{19}+\cdots+2u+1)$
c_{11}	$(u^4+u^3+3u^2+2u+1)(u^{20}+6u^{19}+\cdots-6u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^4)(y^{20} - 27y^{19} + \cdots + 12y + 1)$
c_2	$((y-1)^4)(y^{20} - 63y^{19} + \cdots + 564y + 1)$
c_3, c_7	$y^4(y^{20} - 27y^{19} + \cdots + 960y + 256)$
c_5	$(y^4 + 5y^3 + 7y^2 + 2y + 1)(y^{20} - 42y^{19} + \cdots - 6y + 1)$
c_6, c_{10}	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{20} + 6y^{19} + \cdots - 6y + 1)$
c_8, c_9, c_{11}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)(y^{20} + 18y^{19} + \cdots - 142y + 1)$