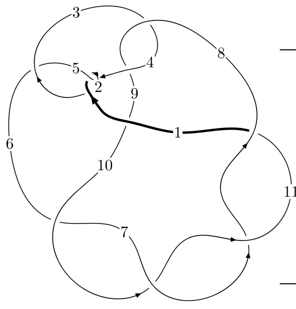
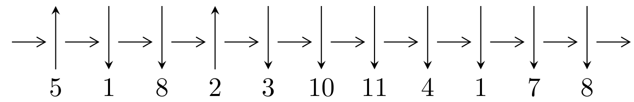
$11n_{13}$ ($K11n_{13}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & u^{10} - 2u^9 + 6u^8 - 8u^7 + 13u^6 - 15u^5 + 14u^4 - 15u^3 + 7u^2 + 2b - 7u + 2, \\ & -2u^{10} + 5u^9 - 16u^8 + 26u^7 - 42u^6 + 51u^5 - 49u^4 + 50u^3 - 29u^2 + 2a + 23u - 9, \\ & u^{11} - 3u^{10} + 9u^9 - 16u^8 + 25u^7 - 32u^6 + 32u^5 - 32u^4 + 22u^3 - 15u^2 + 8u - 1 \rangle \\ I_2^u = \langle & -au + b,\ a^2 + au + a - u,\ u^2 + u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 15 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.

$$\boldsymbol{I_1^u = \langle u^{10}-2u^9+\cdots+2b+2,\ -2u^{10}+5u^9+\cdots+2a-9,\ u^{11}-3u^{10}+\cdots+8u-1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1}{2}u^{10} - 2u^9 + 5u^8 - 9u^7 + \frac{21}{2}u^6 - \frac{19}{2}u^5 + 4u^4 + \frac{5}{2}u^3 - \frac{7}{2}u^2 + \frac{9}{2}u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{11} + 3u^{10} + \cdots + 8u + 1$
c_2	$u^{11} + 9u^{10} + \cdots + 34u - 1$
c_3, c_8	$u^{11} - u^{10} + \cdots - 32u - 16$
c_5	$u^{11} - 3u^{10} + \cdots + 17u + 2$
c_6, c_7, c_{10} c_{11}	$u^{11} + 3u^{10} + \cdots + 2u - 1$
c_9	$u^{11} - 13u^{10} + \cdots - 2u + 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{11} + 9y^{10} + \cdots + 34y - 1$
c_2	$y^{11} - 11y^{10} + \cdots + 1282y - 1$
c_3, c_8	$y^{11} - 25y^{10} + \cdots + 128y - 256$
c_5	$y^{11} - 31y^{10} + \cdots + 109y - 4$
c_6, c_7, c_{10} c_{11}	$y^{11} - 19y^{10} + \cdots + 14y - 1$
c_9	$y^{11} - 79y^{10} + \cdots - 38y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.417699+0.894239I$ $a=\ \ 0.258441+0.135782I$ $b=\ \ 0.229372-0.174392I$	$-0.35168-1.75940I$	$-2.35906+1.98194I$
$u=-0.417699-0.894239I$ $a=\ \ 0.258441-0.135782I$ $b=\ \ 0.229372+0.174392I$	$-0.35168+1.75940I$	$-2.35906-1.98194I$
$u=-0.053436+1.167960I$ $a=-0.409120-0.745046I$ $b=-0.892048+0.438025I$	$-3.73521+0.42312I$	$-13.72245-1.16571I$
$u=-0.053436-1.167960I$ $a=-0.409120+0.745046I$ $b=-0.892048-0.438025I$	$-3.73521-0.42312I$	$-13.72245+1.16571I$
$u=\ \ 1.23651$ $a=\ \ 1.53499$ $b=-1.89802$	19.0799	-11.4300
$u=\ \ 0.732319$ $a=-1.96295$ $b=\ \ 1.43751$	-7.32923	-11.5330
$u=\ \ 0.289180+1.380880I$ $a=\ \ 0.019963+1.125350I$ $b=\ \ 1.54820-0.35299I$	$-11.85310+3.71325I$	$-14.2941-2.2784I$
$u=\ \ 0.289180-1.380880I$ $a=\ \ 0.019963-1.125350I$ $b=\ \ 1.54820+0.35299I$	$-11.85310-3.71325I$	$-14.2941+2.2784I$
$u=\ \ 0.61390+1.45389I$ $a=\ \ 0.404068-1.146040I$ $b=-1.91428+0.11608I$	$14.5460+6.5663I$	$-13.47746-2.65332I$
$u=\ \ 0.61390-1.45389I$ $a=\ \ 0.404068+1.146040I$ $b=-1.91428-0.11608I$	$14.5460-6.5663I$	$-13.47746+2.65332I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.167281$ $a = 2.88126$ $b = -0.481979$	-0.738036	-13.3310

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= au + 2a + 5u - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = \quad 0.309017 + 0.535233I$ $b = -0.618034$	$-0.98696 - 2.02988I$	$-13.5000 + 5.4006I$
$u = -0.500000 + 0.866025I$ $a = -0.80902 - 1.40126I$ $b = \quad 1.61803$	$-8.88264 - 2.02988I$	$-13.50000 + 1.52761I$
$u = -0.500000 - 0.866025I$ $a = \quad 0.309017 - 0.535233I$ $b = -0.618034$	$-0.98696 + 2.02988I$	$-13.5000 - 5.4006I$
$u = -0.500000 - 0.866025I$ $a = -0.80902 + 1.40126I$ $b = \quad 1.61803$	$-8.88264 + 2.02988I$	$-13.50000 - 1.52761I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^2)(u^{11}+3u^{10}+\cdots+8u+1)$
c_2	$((u^2+u+1)^2)(u^{11}+9u^{10}+\cdots+34u-1)$
c_3, c_8	$u^4(u^{11}-u^{10}+\cdots-32u-16)$
c_4	$((u^2-u+1)^2)(u^{11}+3u^{10}+\cdots+8u+1)$
c_5	$((u^2+u+1)^2)(u^{11}-3u^{10}+\cdots+17u+2)$
c_6, c_7	$((u^2+u-1)^2)(u^{11}+3u^{10}+\cdots+2u-1)$
c_9	$((u^2+u-1)^2)(u^{11}-13u^{10}+\cdots-2u+7)$
c_{10}, c_{11}	$((u^2-u-1)^2)(u^{11}+3u^{10}+\cdots+2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^2)(y^{11}+9y^{10}+\cdots+34y-1)$
c_2	$((y^2+y+1)^2)(y^{11}-11y^{10}+\cdots+1282y-1)$
c_3, c_8	$y^4(y^{11}-25y^{10}+\cdots+128y-256)$
c_5	$((y^2+y+1)^2)(y^{11}-31y^{10}+\cdots+109y-4)$
c_6, c_7, c_{10} c_{11}	$((y^2-3y+1)^2)(y^{11}-19y^{10}+\cdots+14y-1)$
c_9	$((y^2-3y+1)^2)(y^{11}-79y^{10}+\cdots-38y-49)$