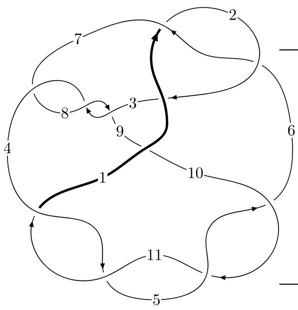
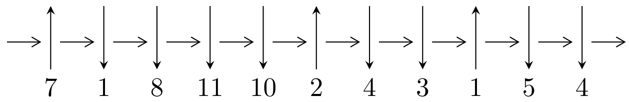
$11n_{139}$ ($K11n_{139}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-7u^7 - 28u^6 - 53u^5 - 79u^4 - 15u^3 + 84u^2 + 188b - 97u + 43,\\
&21u^7 - 104u^6 + 159u^5 - 703u^4 + 797u^3 - 1380u^2 + 940a + 1043u - 1069,\\
&u^8 + u^7 + 9u^6 + 2u^5 + 22u^4 - 5u^3 + 23u^2 + 6u + 5\rangle\\
I_2^u = \langle &b - a + 1,\ a^2 - au - 2a + u + 2,\ u^2 + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 12 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. $\boldsymbol{I_1^u = \langle -7u^7 - 28u^6 + \cdots + 188b + 43,\ 21u^7 - 104u^6 + \cdots + 940a - 1069,\ u^8 + u^7 + \cdots + 6u + 5\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0223404u^7 + 0.110638u^6 + \cdots - 1.10957u + 1.13723 \\ 0.0372340u^7 + 0.148936u^6 + \cdots + 0.515957u - 0.228723 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0861702u^7 - 0.144681u^6 + \cdots - 1.27979u + 1.24362 \\ -0.0265957u^7 - 0.106383u^6 + \cdots + 0.345745u - 0.122340 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0148936u^7 + 0.259574u^6 + \cdots - 0.593617u + 0.908511 \\ 0.0372340u^7 + 0.148936u^6 + \cdots + 0.515957u - 0.228723 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.107447u^7 + 0.229787u^6 + \cdots + 1.00319u + 1.05426 \\ 0.0425532u^7 + 0.170213u^6 + \cdots - 0.0531915u + 0.0957447 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0989362u^7 - 0.204255u^6 + \cdots - 0.586170u + 0.0351064 \\ 0.0744681u^7 - 0.202128u^6 + \cdots + 0.531915u - 0.457447 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.237234u^7 - 0.151064u^6 + \cdots + 1.11596u + 0.471277 \\ 0.0585106u^7 - 0.265957u^6 + \cdots - 0.760638u - 0.430851 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.237234u^7 - 0.151064u^6 + \cdots + 1.11596u + 0.471277 \\ 0.0585106u^7 - 0.265957u^6 + \cdots - 0.760638u - 0.430851 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{46}{47}u^7 - \frac{43}{47}u^6 - \frac{402}{47}u^5 - \frac{76}{47}u^4 - \frac{911}{47}u^3 + \frac{223}{47}u^2 - \frac{765}{47}u - \frac{362}{47}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^8 + u^7 - u^6 - 8u^5 + 2u^4 + 7u^3 + 5u^2 + 4u + 5$
c_2	$u^8 - 3u^7 + 21u^6 - 72u^5 + 108u^4 + 25u^3 - 11u^2 + 34u + 25$
c_3, c_7, c_8	$u^8 + u^7 + 9u^6 + 2u^5 + 22u^4 - 5u^3 + 23u^2 + 6u + 5$
c_4, c_5, c_{10} c_{11}	$u^8 - u^7 + 8u^6 - 4u^5 + 18u^4 + 11u^2 + 5u + 2$
c_9	$u^8 + 11u^7 + 44u^6 + 62u^5 + 426u^4 - 1920u^3 + 1693u^2 - 389u + 136$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^8 - 3y^7 + 21y^6 - 72y^5 + 108y^4 + 25y^3 - 11y^2 + 34y + 25$
c_2	$y^8 + 33y^7 + \cdots - 1706y + 625$
c_3, c_7, c_8	$y^8 + 17y^7 + 121y^6 + 448y^5 + 916y^4 + 1053y^3 + 809y^2 + 194y + 25$
c_4, c_5, c_{10} c_{11}	$y^8 + 15y^7 + 92y^6 + 294y^5 + 514y^4 + 468y^3 + 193y^2 + 19y + 4$
c_9	$y^8 - 33y^7 + \cdots + 309175y + 18496$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.611238 + 0.940914I$ $a = 0.190317 - 0.232859I$ $b = 0.234808 - 1.029490I$	$3.66920 - 1.06491I$	$1.31198 + 1.63429I$
$u = 0.611238 - 0.940914I$ $a = 0.190317 + 0.232859I$ $b = 0.234808 + 1.029490I$	$3.66920 + 1.06491I$	$1.31198 - 1.63429I$
$u = -0.187062 + 0.424849I$ $a = 1.051840 - 0.641967I$ $b = -0.258486 + 0.303432I$	$-0.482455 + 0.984921I$	$-7.02443 - 7.03211I$
$u = -0.187062 - 0.424849I$ $a = 1.051840 + 0.641967I$ $b = -0.258486 - 0.303432I$	$-0.482455 - 0.984921I$	$-7.02443 + 7.03211I$
$u = -0.45395 + 1.85746I$ $a = -0.045979 + 0.950045I$ $b = 0.36613 + 1.66771I$	$12.93020 - 1.89326I$	$1.23462 + 1.04722I$
$u = -0.45395 - 1.85746I$ $a = -0.045979 - 0.950045I$ $b = 0.36613 - 1.66771I$	$12.93020 + 1.89326I$	$1.23462 - 1.04722I$
$u = -0.47023 + 2.19541I$ $a = -0.396174 - 1.205290I$ $b = 0.15755 - 1.96154I$	$-12.82710 + 5.56972I$	$0.47783 - 1.89693I$
$u = -0.47023 - 2.19541I$ $a = -0.396174 + 1.205290I$ $b = 0.15755 + 1.96154I$	$-12.82710 - 5.56972I$	$0.47783 + 1.89693I$

II. $I^u_2 = \langle b-a+1,\ a^2-au-2a+u+2,\ u^2+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u		$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.000000I$		
$a =$	$1.000000 - 0.618034I$	0.986960	0
$b =$	$-0.618034I$		
$u =$	$1.000000I$		
$a =$	$1.00000 + 1.61803I$	8.88264	0
$b =$	$1.61803I$		
$u =$	$-1.000000I$		
$a =$	$1.000000 + 0.618034I$	0.986960	0
$b =$	$0.618034I$		
$u =$	$-1.000000I$		
$a =$	$1.00000 - 1.61803I$	8.88264	0
$b =$	$-1.61803I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^2+1)^2(u^8+u^7-u^6-8u^5+2u^4+7u^3+5u^2+4u+5)$
c_2	$((u+1)^4)(u^8-3u^7+\cdots+34u+25)$
c_3, c_7, c_8	$(u^2+1)^2(u^8+u^7+9u^6+2u^5+22u^4-5u^3+23u^2+6u+5)$
c_4, c_5, c_{10} c_{11}	$(u^4+3u^2+1)(u^8-u^7+8u^6-4u^5+18u^4+11u^2+5u+2)$
c_9	$(u^2-u-1)^2$ $\cdot(u^8+11u^7+44u^6+62u^5+426u^4-1920u^3+1693u^2-389u+136)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$((y+1)^4)(y^8 - 3y^7 + \cdots + 34y + 25)$
c_2	$((y-1)^4)(y^8 + 33y^7 + \cdots - 1706y + 625)$
c_3, c_7, c_8	$(y+1)^4$ $\cdot (y^8 + 17y^7 + 121y^6 + 448y^5 + 916y^4 + 1053y^3 + 809y^2 + 194y + 25)$
c_4, c_5, c_{10} c_{11}	$(y^2+3y+1)^2$ $\cdot (y^8 + 15y^7 + 92y^6 + 294y^5 + 514y^4 + 468y^3 + 193y^2 + 19y + 4)$
c_9	$((y^2-3y+1)^2)(y^8 - 33y^7 + \cdots + 309175y + 18496)$