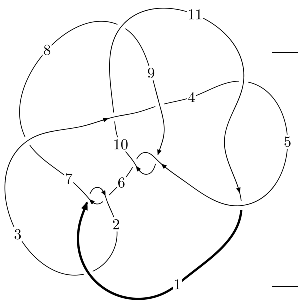
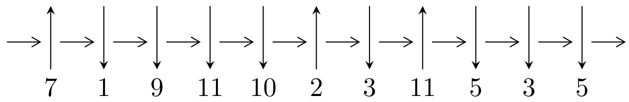
$11n_{135}$ ($K11n_{135}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 7u^9 - 24u^8 - 34u^7 + 183u^6 - 48u^5 - 359u^4 + 366u^3 - 130u^2 + b + 40u - 13, \\
& -13u^9 + 45u^8 + 63u^7 - 343u^6 + 90u^5 + 672u^4 - 681u^3 + 245u^2 + a - 78u + 25, \\
& u^{10} - 4u^9 - 3u^8 + 29u^7 - 21u^6 - 48u^5 + 80u^4 - 47u^3 + 16u^2 - 5u + 1\rangle \\
I_2^u = \langle & -2u^7 - 11u^6 - 18u^5 - 6u^4 + u^3 - 5u^2 + b - u - 2,\ 2u^7 + 12u^6 + 23u^5 + 12u^4 - 4u^3 + u^2 + a + 5u + 3, \\
& u^8 + 7u^7 + 17u^6 + 15u^5 + u^4 + 5u^2 + 2u + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 18 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.

$$\boldsymbol{I_1^u = \langle 7u^9 - 24u^8 + \cdots + b - 13,\ -13u^9 + 45u^8 + \cdots + a + 25,\ u^{10} - 4u^9 + \cdots - 5u + 1\rangle}$$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 13u^9 - 45u^8 + \cdots + 78u - 25 \\ -7u^9 + 24u^8 + \cdots - 40u + 13 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^8 + u^7 + 8u^6 - 7u^5 - 16u^4 + 14u^3 - 6u^2 + u - 1 \\ u^9 - u^8 - 8u^7 + 7u^6 + 16u^5 - 14u^4 + 6u^3 - u^2 + 2u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 13u^9 - 45u^8 + \cdots + 78u - 25 \\ -11u^9 + 37u^8 + \cdots - 62u + 20 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 6u^9 - 21u^8 + \cdots + 38u - 12 \\ -8u^9 + 29u^8 + \cdots - 49u + 16 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 8u^9 - 27u^8 + \cdots + 42u - 11 \\ -10u^9 + 36u^8 + \cdots - 56u + 16 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^9 - 2u^8 - 7u^7 + 15u^6 + 9u^5 - 30u^4 + 20u^3 - 7u^2 + 3u + 1 \\ -u^9 + u^8 + 8u^7 - 7u^6 - 16u^5 + 14u^4 - 7u^3 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -14u^9 + 49u^8 + \cdots - 84u + 27 \\ 5u^9 - 21u^8 + \cdots + 36u - 12 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^9 - 2u^8 - 7u^7 + 15u^6 + 9u^5 - 30u^4 + 20u^3 - 7u^2 + 2u \\ -2u^9 + 4u^8 + 14u^7 - 30u^6 - 18u^5 + 60u^4 - 40u^3 + 13u^2 - 4u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^9 - 2u^8 - 7u^7 + 15u^6 + 9u^5 - 30u^4 + 20u^3 - 7u^2 + 2u \\ -2u^9 + 4u^8 + 14u^7 - 30u^6 - 18u^5 + 60u^4 - 40u^3 + 13u^2 - 4u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -34u^9 + 113u^8 + 180u^7 - 868u^6 + 117u^5 + 1739u^4 - 1537u^3 + 504u^2 - 157u + 39$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{10} + 6u^9 + \cdots + 14u + 4$
c_2	$u^{10} + 4u^9 + \cdots + 36u + 16$
c_3, c_4, c_{11}	$u^{10} + u^9 - 10u^8 - 30u^7 + 42u^6 + 25u^5 - 18u^4 - 7u^3 - 10u^2 - 2u - 1$
c_5, c_9, c_{10}	$u^{10} - 2u^9 - 12u^8 + 41u^7 + 4u^6 + 65u^5 + 12u^4 - 18u^3 - 8u^2 + u + 1$
c_7	$u^{10} - 6u^9 + \cdots - 42u + 180$
c_8	$u^{10} + 4u^9 - 3u^8 - 29u^7 - 21u^6 + 48u^5 + 80u^4 + 47u^3 + 16u^2 + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{10} + 4y^9 + \cdots + 36y + 16$
c_2	$y^{10} + 4y^9 + \cdots - 1648y + 256$
c_3, c_4, c_{11}	$y^{10} - 21y^9 + \cdots + 16y + 1$
c_5, c_9, c_{10}	$y^{10} - 28y^9 + \cdots - 17y + 1$
c_7	$y^{10} - 56y^9 + \cdots + 244836y + 32400$
c_8	$y^{10} - 22y^9 + \cdots + 7y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.636857 + 0.087196I$ $a = 1.74049 + 0.14257I$ $b = -1.096010 - 0.242560I$	$-4.86323 - 4.26845I$	$-7.00188 + 6.39401I$
$u = 0.636857 - 0.087196I$ $a = 1.74049 - 0.14257I$ $b = -1.096010 + 0.242560I$	$-4.86323 + 4.26845I$	$-7.00188 - 6.39401I$
$u = 0.517366$ $a = -1.64352$ $b = 0.850302$	-1.55504	-5.61010
$u = -0.028208 + 0.344442I$ $a = -0.952320 + 0.624641I$ $b = 0.188290 + 0.345639I$	$-0.422559 - 0.990373I$	$-6.71540 + 6.78739I$
$u = -0.028208 - 0.344442I$ $a = -0.952320 - 0.624641I$ $b = 0.188290 - 0.345639I$	$-0.422559 + 0.990373I$	$-6.71540 - 6.78739I$
$u = -2.02110 + 0.32502I$ $a = -0.034489 + 0.196626I$ $b = -0.005798 + 0.408612I$	$5.72141 - 3.10928I$	$-8.09311 + 4.32692I$
$u = -2.02110 - 0.32502I$ $a = -0.034489 - 0.196626I$ $b = -0.005798 - 0.408612I$	$5.72141 + 3.10928I$	$-8.09311 - 4.32692I$
$u = 2.07184 + 0.16391I$ $a = -1.21022 + 1.00746I$ $b = 2.67252 - 1.88893I$	$-17.7391 + 8.0399I$	$-7.30663 - 2.83159I$
$u = 2.07184 - 0.16391I$ $a = -1.21022 - 1.00746I$ $b = 2.67252 + 1.88893I$	$-17.7391 - 8.0399I$	$-7.30663 + 2.83159I$
$u = 2.16387$ $a = 1.55661$ $b = -3.36830$	-13.1860	-6.15590

II. $I_2^u = \langle -2u^7 - 11u^6 + \cdots + b - 2,\ 2u^7 + 12u^6 + \cdots + a + 3,\ u^8 + 7u^7 + 17u^6 + 15u^5 + u^4 + 5u^2 + 2u + 1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -2u^7 - 12u^6 - 23u^5 - 12u^4 + 4u^3 - u^2 - 5u - 3 \\ 2u^7 + 11u^6 + 18u^5 + 6u^4 - u^3 + 5u^2 + u + 2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^6 + 6u^5 + 11u^4 + 4u^3 - 3u^2 + 3u + 2 \\ u^7 + 6u^6 + 11u^5 + 4u^4 - 3u^3 + 3u^2 + 3u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2u^7 - 12u^6 - 23u^5 - 12u^4 + 4u^3 - u^2 - 5u - 3 \\ 5u^7 + 27u^6 + 42u^5 + 9u^4 - 6u^3 + 14u^2 + 3u + 4 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^6 - 5u^5 - 6u^4 + 3u^3 + 4u^2 - 4u - 1 \\ u^4 + 3u^3 + u^2 - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^6 - 4u^5 - u^4 + 9u^3 + 2u^2 - 6u + 2 \\ u^7 + 7u^6 + 16u^5 + 12u^4 + u^2 + 4u + 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^7 + 7u^6 + 17u^5 + 15u^4 + u^3 + 6u + 4 \\ u^7 + 6u^6 + 11u^5 + 4u^4 - 4u^3 + 2u^2 + 4u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^7 - 6u^6 - 12u^5 - 9u^4 - 3u^3 - u^2 - 2 \\ -u^5 - 3u^4 - u^3 + u^2 - u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7 - 7u^6 - 17u^5 - 15u^4 - u^3 - 5u - 1 \\ -u^2 + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7 - 7u^6 - 17u^5 - 15u^4 - u^3 - 5u - 1 \\ -u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^7 + 3u^6 - 4u^5 - 18u^4 - 9u^3 + 7u^2 - 3u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^8 + 2u^6 + 3u^4 - u^3 + 2u^2 - u + 1$
c_2	$u^8 + 4u^7 + 10u^6 + 16u^5 + 19u^4 + 15u^3 + 8u^2 + 3u + 1$
c_3, c_{11}	$u^8 + u^6 + u^5 - 2u^4 - u + 1$
c_4	$u^8 + u^6 - u^5 - 2u^4 + u + 1$
c_5, c_{10}	$u^8 - u^7 - 2u^4 + u^3 + u^2 + 1$
c_6	$u^8 + 2u^6 + 3u^4 + u^3 + 2u^2 + u + 1$
c_7	$u^8 + 2u^6 - 5u^5 + u^4 + u^3 + 5u^2 + 3u + 1$
c_8	$u^8 + 7u^7 + 17u^6 + 15u^5 + u^4 + 5u^2 + 2u + 1$
c_9	$u^8 + u^7 - 2u^4 - u^3 + u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^8 + 4y^7 + 10y^6 + 16y^5 + 19y^4 + 15y^3 + 8y^2 + 3y + 1$
c_2	$y^8 + 4y^7 + 10y^6 + 20y^5 + 19y^4 + 3y^3 + 12y^2 + 7y + 1$
c_3, c_4, c_{11}	$y^8 + 2y^7 - 3y^6 - 5y^5 + 6y^4 + 4y^3 - 4y^2 - y + 1$
c_5, c_9, c_{10}	$y^8 - y^7 - 4y^6 + 4y^5 + 6y^4 - 5y^3 - 3y^2 + 2y + 1$
c_7	$y^8 + 4y^7 + 6y^6 - 11y^5 + 33y^4 + 43y^3 + 21y^2 + y + 1$
c_8	$y^8 - 15y^7 + 81y^6 - 181y^5 + 145y^4 - 16y^3 + 27y^2 + 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500771 + 0.460860I$ $a = -0.735484 + 0.913410I$ $b = -0.789263 + 0.118455I$	$-3.52853 - 0.48963I$	$-9.23600 - 1.05814I$
$u = 0.500771 - 0.460860I$ $a = -0.735484 - 0.913410I$ $b = -0.789263 - 0.118455I$	$-3.52853 + 0.48963I$	$-9.23600 + 1.05814I$
$u = -1.50739 + 0.11112I$ $a = 0.165592 - 0.902942I$ $b = -0.149281 + 1.379480I$	$2.76707 + 1.04226I$	$-7.14108 + 0.01449I$
$u = -1.50739 - 0.11112I$ $a = 0.165592 + 0.902942I$ $b = -0.149281 - 1.379480I$	$2.76707 - 1.04226I$	$-7.14108 - 0.01449I$
$u = -0.172493 + 0.378694I$ $a = -1.50843 - 2.01752I$ $b = 1.024220 - 0.223225I$	$-5.60402 + 3.77609I$	$-14.7696 - 2.3802I$
$u = -0.172493 - 0.378694I$ $a = -1.50843 + 2.01752I$ $b = 1.024220 + 0.223225I$	$-5.60402 - 3.77609I$	$-14.7696 + 2.3802I$
$u = -2.32089 + 0.26670I$ $a = 0.078321 - 0.360330I$ $b = -0.085673 + 0.857175I$	$6.36547 - 2.93267I$	$4.14670 + 1.68828I$
$u = -2.32089 - 0.26670I$ $a = 0.078321 + 0.360330I$ $b = -0.085673 - 0.857175I$	$6.36547 + 2.93267I$	$4.14670 - 1.68828I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^8+2u^6+3u^4-u^3+2u^2-u+1)(u^{10}+6u^9+\cdots+14u+4)$
c_2	$(u^8+4u^7+10u^6+16u^5+19u^4+15u^3+8u^2+3u+1)$ $\cdot(u^{10}+4u^9+\cdots+36u+16)$
c_3, c_{11}	$(u^8+u^6+u^5-2u^4-u+1)$ $\cdot(u^{10}+u^9-10u^8-30u^7+42u^6+25u^5-18u^4-7u^3-10u^2-2u-1)$
c_4	$(u^8+u^6-u^5-2u^4+u+1)$ $\cdot(u^{10}+u^9-10u^8-30u^7+42u^6+25u^5-18u^4-7u^3-10u^2-2u-1)$
c_5, c_{10}	$(u^8-u^7-2u^4+u^3+u^2+1)$ $\cdot(u^{10}-2u^9-12u^8+41u^7+4u^6+65u^5+12u^4-18u^3-8u^2+u+1)$
c_6	$(u^8+2u^6+3u^4+u^3+2u^2+u+1)(u^{10}+6u^9+\cdots+14u+4)$
c_7	$(u^8+2u^6+\cdots+3u+1)(u^{10}-6u^9+\cdots-42u+180)$
c_8	$(u^8+7u^7+17u^6+15u^5+u^4+5u^2+2u+1)$ $\cdot(u^{10}+4u^9-3u^8-29u^7-21u^6+48u^5+80u^4+47u^3+16u^2+5u+1)$
c_9	$(u^8+u^7-2u^4-u^3+u^2+1)$ $\cdot(u^{10}-2u^9-12u^8+41u^7+4u^6+65u^5+12u^4-18u^3-8u^2+u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^8+4y^7+10y^6+16y^5+19y^4+15y^3+8y^2+3y+1)$ $\cdot(y^{10}+4y^9+\cdots+36y+16)$
c_2	$(y^8+4y^7+10y^6+20y^5+19y^4+3y^3+12y^2+7y+1)$ $\cdot(y^{10}+4y^9+\cdots-1648y+256)$
c_3, c_4, c_{11}	$(y^8+2y^7-3y^6-5y^5+6y^4+4y^3-4y^2-y+1)$ $\cdot(y^{10}-21y^9+\cdots+16y+1)$
c_5, c_9, c_{10}	$(y^8-y^7-4y^6+4y^5+6y^4-5y^3-3y^2+2y+1)$ $\cdot(y^{10}-28y^9+\cdots-17y+1)$
c_7	$(y^8+4y^7+6y^6-11y^5+33y^4+43y^3+21y^2+y+1)$ $\cdot(y^{10}-56y^9+\cdots+244836y+32400)$
c_8	$(y^8-15y^7+81y^6-181y^5+145y^4-16y^3+27y^2+6y+1)$ $\cdot(y^{10}-22y^9+\cdots+7y+1)$