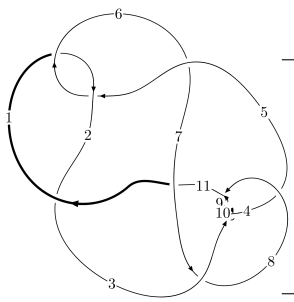
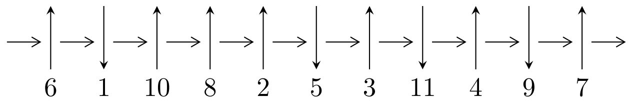
$11a_{121}$ ($K11a_{121}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{11} + 2u^9 + 4u^7 + 4u^5 - u^4 + 3u^3 - u^2 + 2u - 1 \rangle$$
$$I_2^u = \langle u^{48} - u^{47} + \cdots + 2u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 59 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. $I_1^u = \langle u^{11} + 2u^9 + 4u^7 + 4u^5 - u^4 + 3u^3 - u^2 + 2u - 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^9 + 2u^7 + 3u^5 + 2u^3 + u \\ -u^9 - 2u^7 - 3u^5 + u^4 - 2u^3 + u^2 - u + 1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^8 - u^7 + u^6 - 2u^5 + 2u^4 - 2u^3 + u^2 - 2u \\ -u^9 - u^8 - u^7 - u^6 - u^5 - 2u^4 - u^2 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^8 - u^6 - u^4 + 1 \\ u^8 + 2u^6 + 2u^4 + 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^{10} + u^9 + u^8 + 2u^7 + u^6 + 3u^5 + 2u^3 - u^2 + u \\ -u^{10} - u^9 - 2u^8 - 2u^7 - 2u^6 - 3u^5 - u^4 - 2u^3 + u^2 - u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{10} + 2u^8 + u^7 + 3u^6 + u^5 + 2u^4 + u^3 + u^2 + u \\ -u^8 - u^7 - u^6 - u^5 - u^4 - u^3 - u + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{10} + 2u^8 + u^7 + 3u^6 + u^5 + 2u^4 + u^3 + u^2 + u \\ -u^8 - u^7 - u^6 - u^5 - u^4 - u^3 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{10} + 4u^9 + 4u^8 + 8u^7 + 12u^6 + 16u^5 + 8u^4 + 8u^3 + 4u^2 + 8u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5 c_9	$u^{11} + 2u^9 + 4u^7 + 4u^5 - u^4 + 3u^3 - u^2 + 2u - 1$
c_2, c_6, c_8 c_{10}	$u^{11} + 4u^{10} + \cdots + 2u - 1$
c_4, c_{11}	$u^{11} + 2u^9 - 2u^8 + 10u^7 + 12u^5 - 3u^4 + 5u^3 - u^2 - 1$
c_7	$u^{11} - 7u^{10} + \cdots + 28u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_9	$y^{11} + 4y^{10} + \cdots + 2y - 1$
c_2, c_6, c_8 c_{10}	$y^{11} + 8y^{10} + \cdots + 22y - 1$
c_4, c_{11}	$y^{11} + 4y^{10} + \cdots - 2y - 1$
c_7	$y^{11} - 3y^{10} + \cdots + 48y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.111009+1.030810I$	$-5.93919-3.55367I$	$-6.35449+4.86751I$
$u=-0.111009-1.030810I$	$-5.93919+3.55367I$	$-6.35449-4.86751I$
$u=\ \ 0.594105+0.723647I$	$1.48764+1.96750I$	$4.49213-3.23948I$
$u=\ \ 0.594105-0.723647I$	$1.48764-1.96750I$	$4.49213+3.23948I$
$u=-0.817015+0.707633I$	$6.68078+3.13136I$	$8.76083-0.56604I$
$u=-0.817015-0.707633I$	$6.68078-3.13136I$	$8.76083+0.56604I$
$u=-0.617277+0.966546I$	$-0.07920-7.68222I$	$0.97285+8.49443I$
$u=-0.617277-0.966546I$	$-0.07920+7.68222I$	$0.97285-8.49443I$
$u=\ \ 0.729012+1.011350I$	$4.8176+14.7555I$	$5.24582-10.31160I$
$u=\ \ 0.729012-1.011350I$	$4.8176-14.7555I$	$5.24582+10.31160I$
$u=\ \ 0.444369$	0.869046	11.7660

II. $I_2^u = \langle u^{48} - u^{47} + \cdots + 2u + 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2+1 \\ u^4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^3 \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^9+2u^7+3u^5+2u^3+u \\ u^{11}+u^9+2u^7+u^5+u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^{21}-4u^{19}+\cdots-2u^3-u \\ -u^{23}-3u^{21}+\cdots-2u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^8-u^6-u^4+1 \\ u^8+2u^6+2u^4+2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^{27}-4u^{25}+\cdots+10u^5+3u^3 \\ u^{27}+5u^{25}+\cdots-u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{46}-7u^{44}+\cdots-4u^4+1 \\ u^{46}+8u^{44}+\cdots+4u^4+u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{46}-7u^{44}+\cdots-4u^4+1 \\ u^{46}+8u^{44}+\cdots+4u^4+u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{45}+28u^{43}+132u^{41}+448u^{39}+1224u^{37}+2772u^{35}+5348u^{33}+8916u^{31}+12948u^{29}-4u^{28}+16456u^{27}-20u^{26}+18292u^{25}-68u^{24}+17704u^{23}-164u^{22}+14776u^{21}-308u^{20}+10428u^{19}-468u^{18}+6020u^{17}-576u^{16}+2644u^{15}-580u^{14}+720u^{13}-468u^{12}-288u^{10}-88u^9-124u^8-4u^7-24u^6+36u^5+8u^4+24u^3+4u^2+4u+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5 c_9	$u^{48} - u^{47} + \cdots + 2u + 1$
c_2, c_6, c_8 c_{10}	$u^{48} + 15u^{47} + \cdots + 8u^3 + 1$
c_4, c_{11}	$u^{48} + 5u^{47} + \cdots + 12u + 1$
c_7	$(u^{24} + 3u^{23} + \cdots + 18u + 7)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_9	$y^{48} + 15y^{47} + \cdots + 8y^3 + 1$
c_2, c_6, c_8 c_{10}	$y^{48} + 35y^{47} + \cdots + 88y^2 + 1$
c_4, c_{11}	$y^{48} - 5y^{47} + \cdots - 24y + 1$
c_7	$(y^{24} - 9y^{23} + \cdots - 212y + 49)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.447030 + 0.894068I$	$0.85406 + 3.28062I$	$1.88284 - 1.76353I$
$u = -0.447030 - 0.894068I$	$0.85406 - 3.28062I$	$1.88284 + 1.76353I$
$u = -0.037970 + 1.018320I$	$-3.47428 + 2.08425I$	$-3.81787 - 2.59078I$
$u = -0.037970 - 1.018320I$	$-3.47428 - 2.08425I$	$-3.81787 + 2.59078I$
$u = \quad 0.103335 + 0.964930I$	$-2.07060 + 1.71275I$	$0.95839 - 4.38827I$
$u = \quad 0.103335 - 0.964930I$	$-2.07060 - 1.71275I$	$0.95839 + 4.38827I$
$u = \quad 0.709249 + 0.753994I$	$1.54659 + 2.07802I$	$3.74247 - 4.14356I$
$u = \quad 0.709249 - 0.753994I$	$1.54659 - 2.07802I$	$3.74247 + 4.14356I$
$u = \quad 0.161802 + 1.028080I$	$0.15229 + 3.45771I$	$1.61918 - 3.33537I$
$u = \quad 0.161802 - 1.028080I$	$0.15229 - 3.45771I$	$1.61918 + 3.33537I$
$u = \quad 0.786969 + 0.691947I$	$0.15229 - 3.45771I$	$1.61918 + 3.33537I$
$u = \quad 0.786969 - 0.691947I$	$0.15229 + 3.45771I$	$1.61918 - 3.33537I$
$u = -0.156596 + 1.043700I$	$-0.78809 - 9.12338I$	$-0.18249 + 8.13527I$
$u = -0.156596 - 1.043700I$	$-0.78809 + 9.12338I$	$-0.18249 - 8.13527I$
$u = -0.779513 + 0.728650I$	$3.78730 + 1.05884I$	$9.33375 - 1.03697I$
$u = -0.779513 - 0.728650I$	$3.78730 - 1.05884I$	$9.33375 + 1.03697I$
$u = \quad 0.820160 + 0.698926I$	$5.77023 - 8.94227I$	$7.03302 + 5.48937I$
$u = \quad 0.820160 - 0.698926I$	$5.77023 + 8.94227I$	$7.03302 - 5.48937I$
$u = -0.559504 + 0.928720I$	$-3.47428 - 2.08425I$	$-3.81787 + 2.59078I$
$u = -0.559504 - 0.928720I$	$-3.47428 + 2.08425I$	$-3.81787 - 2.59078I$
$u = \quad 0.357761 + 0.828361I$	$1.54659 + 2.07802I$	$3.74247 - 4.14356I$
$u = \quad 0.357761 - 0.828361I$	$1.54659 - 2.07802I$	$3.74247 + 4.14356I$
$u = -0.798379 + 0.782289I$	7.98533	$10.04300 + 0.I$
$u = -0.798379 - 0.782289I$	7.98533	$10.04300 + 0.I$
$u = \quad 0.795531 + 0.794799I$	$7.45278 + 5.81585I$	$8.97012 - 5.48927I$
$u = \quad 0.795531 - 0.794799I$	$7.45278 - 5.81585I$	$8.97012 + 5.48927I$
$u = \quad 0.644764 + 0.924836I$	$0.94545 + 3.01303I$	$3.90717 - 2.47987I$
$u = \quad 0.644764 - 0.924836I$	$0.94545 - 3.01303I$	$3.90717 + 2.47987I$
$u = \quad 0.684868 + 0.970999I$	$0.85406 + 3.28062I$	$1.88284 - 1.76353I$
$u = \quad 0.684868 - 0.970999I$	$0.85406 - 3.28062I$	$1.88284 + 1.76353I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.750786 + 0.945298I$	6.98909	$8.15485 + 0.I$
$u = \quad 0.750786 - 0.945298I$	6.98909	$8.15485 + 0.I$
$u = -0.748039 + 0.955471I$	$7.45278 - 5.81585I$	$8.97012 + 5.48927I$
$u = -0.748039 - 0.955471I$	$7.45278 + 5.81585I$	$8.97012 - 5.48927I$
$u = -0.718495 + 0.983429I$	$3.01107 - 6.72706I$	$7.45449 + 6.34172I$
$u = -0.718495 - 0.983429I$	$3.01107 + 6.72706I$	$7.45449 - 6.34172I$
$u = \quad 0.712082 + 1.003140I$	$-0.78809 + 9.12338I$	$0. - 8.13527I$
$u = \quad 0.712082 - 1.003140I$	$-0.78809 - 9.12338I$	$0. + 8.13527I$
$u = -0.730704 + 1.006040I$	$5.77023 - 8.94227I$	$7.03302 + 5.48937I$
$u = -0.730704 - 1.006040I$	$5.77023 + 8.94227I$	$7.03302 - 5.48937I$
$u = -0.520871 + 0.529700I$	$0.94545 + 3.01303I$	$3.90717 - 2.47987I$
$u = -0.520871 - 0.529700I$	$0.94545 - 3.01303I$	$3.90717 + 2.47987I$
$u = -0.619099 + 0.144052I$	$3.01107 - 6.72706I$	$7.45449 + 6.34172I$
$u = -0.619099 - 0.144052I$	$3.01107 + 6.72706I$	$7.45449 - 6.34172I$
$u = \quad 0.605322 + 0.114770I$	$3.78730 + 1.05884I$	$9.33375 - 1.03697I$
$u = \quad 0.605322 - 0.114770I$	$3.78730 - 1.05884I$	$9.33375 + 1.03697I$
$u = -0.516429 + 0.228211I$	$-2.07060 - 1.71275I$	$0.95839 + 4.38827I$
$u = -0.516429 - 0.228211I$	$-2.07060 + 1.71275I$	$0.95839 - 4.38827I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3, c_5 c_9	$(u^{11} + 2u^9 + \cdots + 2u - 1)(u^{48} - u^{47} + \cdots + 2u + 1)$
c_2, c_6, c_8 c_{10}	$(u^{11} + 4u^{10} + \cdots + 2u - 1)(u^{48} + 15u^{47} + \cdots + 8u^3 + 1)$
c_4, c_{11}	$(u^{11} + 2u^9 - 2u^8 + 10u^7 + 12u^5 - 3u^4 + 5u^3 - u^2 - 1)$ $\cdot (u^{48} + 5u^{47} + \cdots + 12u + 1)$
c_7	$(u^{11} - 7u^{10} + \cdots + 28u - 8)(u^{24} + 3u^{23} + \cdots + 18u + 7)^2$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_5 c_9	$(y^{11} + 4y^{10} + \cdots + 2y - 1)(y^{48} + 15y^{47} + \cdots + 8y^3 + 1)$
c_2, c_6, c_8 c_{10}	$(y^{11} + 8y^{10} + \cdots + 22y - 1)(y^{48} + 35y^{47} + \cdots + 88y^2 + 1)$
c_4, c_{11}	$(y^{11} + 4y^{10} + \cdots - 2y - 1)(y^{48} - 5y^{47} + \cdots - 24y + 1)$
c_7	$(y^{11} - 3y^{10} + \cdots + 48y - 64)(y^{24} - 9y^{23} + \cdots - 212y + 49)^2$