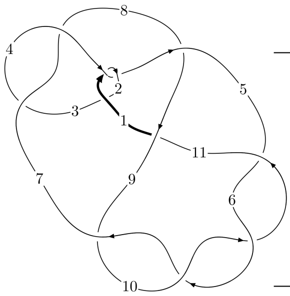
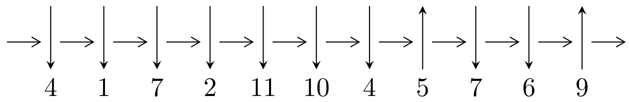
$11n_{63}$ ($K11n_{63}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{14} - 8u^{12} - 23u^{10} - 28u^8 - 14u^6 + 2u^5 - 4u^4 + 6u^3 + u^2 + b + 2u,\ -u^{22} + u^{21} + \cdots + a - 1,$$
$$u^{23} - 2u^{22} + \cdots + 12u^3 + 1\rangle$$
$$I_2^u = \langle -u^3 - u^2 + b - 2u - 1,\ a,\ u^4 + u^3 + 3u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 27 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. $I_1^u =$
$\langle -u^{14} - 8u^{12} + \cdots + b + 2u,\ -u^{22} + u^{21} + \cdots + a - 1,\ u^{23} - 2u^{22} + \cdots + 12u^3 + 1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{22} - u^{21} + \cdots + 4u^2 + 1 \\ u^{14} + 8u^{12} + 23u^{10} + 28u^8 + 14u^6 - 2u^5 + 4u^4 - 6u^3 - u^2 - 2u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^{22} - u^{21} + \cdots + 4u^2 + 1 \\ u^{21} - 2u^{20} + \cdots - u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{13} - 8u^{11} - 23u^9 - 28u^7 - 14u^5 + 2u^4 - 4u^3 + 6u^2 + u + 2 \\ -u^{22} + 2u^{21} + \cdots - u + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^8 + 5u^6 + 7u^4 + 2u^2 + 1 \\ u^{10} + 6u^8 + 11u^6 + 6u^4 + u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^8 + 5u^6 + 7u^4 + 2u^2 + 1 \\ u^{10} + 6u^8 + 11u^6 + 6u^4 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{22} + 2u^{21} - 16u^{20} + 27u^{19} - 108u^{18} + 155u^{17} - 403u^{16} + 495u^{15} - 916u^{14} + 969u^{13} - 1323u^{12} + 1215u^{11} - 1240u^{10} + 1001u^9 - 769u^8 + 558u^7 - 333u^6 + 218u^5 - 114u^4 + 53u^3 - 24u^2 + 3u - 5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{23} - 5u^{22} + \cdots - 4u + 1$
c_2	$u^{23} + 5u^{22} + \cdots + 14u + 1$
c_3, c_7	$u^{23} + u^{22} + \cdots + 24u + 16$
c_5, c_6, c_9 c_{10}	$u^{23} - 2u^{22} + \cdots + 12u^3 + 1$
c_8	$u^{23} - 2u^{22} + \cdots + 2u + 1$
c_{11}	$u^{23} + 8u^{22} + \cdots + 168u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{23} - 5y^{22} + \cdots + 14y - 1$
c_2	$y^{23} + 31y^{22} + \cdots + 14y - 1$
c_3, c_7	$y^{23} + 27y^{22} + \cdots - 2240y - 256$
c_5, c_6, c_9 c_{10}	$y^{23} + 28y^{22} + \cdots + 60y^2 - 1$
c_8	$y^{23} - 28y^{22} + \cdots - 40y^2 - 1$
c_{11}	$y^{23} - 16y^{22} + \cdots + 77224y - 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.430869 + 0.879813I$ $a = -1.53457 - 0.83314I$ $b = -0.032165 - 1.283100I$	$7.83203 - 0.28979I$	$-2.09012 + 1.34957I$
$u = 0.430869 - 0.879813I$ $a = -1.53457 + 0.83314I$ $b = -0.032165 + 1.283100I$	$7.83203 + 0.28979I$	$-2.09012 - 1.34957I$
$u = 0.506895 + 0.810130I$ $a = 1.71344 + 0.53833I$ $b = 0.75596 + 1.83026I$	$7.20945 - 7.39071I$	$-3.32519 + 6.20381I$
$u = 0.506895 - 0.810130I$ $a = 1.71344 - 0.53833I$ $b = 0.75596 - 1.83026I$	$7.20945 + 7.39071I$	$-3.32519 - 6.20381I$
$u = -0.257149 + 0.694856I$ $a = -0.700814 - 0.988990I$ $b = -0.828985 + 0.500798I$	$0.92312 + 1.99790I$	$-2.34638 - 5.92992I$
$u = -0.257149 - 0.694856I$ $a = -0.700814 + 0.988990I$ $b = -0.828985 - 0.500798I$	$0.92312 - 1.99790I$	$-2.34638 + 5.92992I$
$u = -0.474423 + 0.490062I$ $a = 0.599724 - 0.678621I$ $b = -0.223191 - 0.754283I$	$-0.68293 + 1.66090I$	$-3.45266 - 4.83485I$
$u = -0.474423 - 0.490062I$ $a = 0.599724 + 0.678621I$ $b = -0.223191 + 0.754283I$	$-0.68293 - 1.66090I$	$-3.45266 + 4.83485I$
$u = 0.679084 + 0.057677I$ $a = -0.18571 + 2.39295I$ $b = -0.49465 + 1.44023I$	$4.95941 + 3.41645I$	$-6.52166 - 2.22573I$
$u = 0.679084 - 0.057677I$ $a = -0.18571 - 2.39295I$ $b = -0.49465 - 1.44023I$	$4.95941 - 3.41645I$	$-6.52166 + 2.22573I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.167283 + 0.490089I$ $a = 0.742425 + 0.936392I$ $b = 0.580042 - 0.782556I$	$-1.35992 - 0.76790I$	$-3.34761 - 1.39618I$
$u = 0.167283 - 0.490089I$ $a = 0.742425 - 0.936392I$ $b = 0.580042 + 0.782556I$	$-1.35992 + 0.76790I$	$-3.34761 + 1.39618I$
$u = -0.12264 + 1.52753I$ $a = -0.474160 + 0.043990I$ $b = 0.631841 + 0.749566I$	$6.06133 + 3.74831I$	$0.03467 - 4.58469I$
$u = -0.12264 - 1.52753I$ $a = -0.474160 - 0.043990I$ $b = 0.631841 - 0.749566I$	$6.06133 - 3.74831I$	$0.03467 + 4.58469I$
$u = 0.02397 + 1.58265I$ $a = -0.500609 - 0.414161I$ $b = -1.26560 + 1.17058I$	$5.91283 - 1.29853I$	$-3.45106 + 0.05233I$
$u = 0.02397 - 1.58265I$ $a = -0.500609 + 0.414161I$ $b = -1.26560 - 1.17058I$	$5.91283 + 1.29853I$	$-3.45106 - 0.05233I$
$u = -0.06369 + 1.61667I$ $a = 0.281195 + 0.690174I$ $b = 0.861442 - 0.947874I$	$8.92549 + 3.15334I$	$-1.05029 - 3.26062I$
$u = -0.06369 - 1.61667I$ $a = 0.281195 - 0.690174I$ $b = 0.861442 + 0.947874I$	$8.92549 - 3.15334I$	$-1.05029 + 3.26062I$
$u = 0.14770 + 1.64559I$ $a = -1.073510 + 0.242410I$ $b = -0.89607 - 2.20609I$	$15.6090 - 9.9000I$	$-1.58759 + 4.90312I$
$u = 0.14770 - 1.64559I$ $a = -1.073510 - 0.242410I$ $b = -0.89607 + 2.20609I$	$15.6090 + 9.9000I$	$-1.58759 - 4.90312I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.11544 + 1.66378I$ $a = 1.121440 + 0.050156I$ $b = 0.53774 + 1.34352I$	$16.6150 - 2.3845I$	$-0.450202 + 0.532296I$
$u = 0.11544 - 1.66378I$ $a = 1.121440 - 0.050156I$ $b = 0.53774 - 1.34352I$	$16.6150 + 2.3845I$	$-0.450202 - 0.532296I$
$u = -0.306699$ $a = 2.02230$ $b = 0.747269$	-0.900453	-11.8240

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^2 + 1 \\ -u^3 - u^2 - 2u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ -u^3 - u^2 - 2u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^3 - 2u \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^3 + u^2 + 2u + 1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^3 - 5u^2 - 14u - 16$

(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_6	$u^4 - u^3 + 3u^2 - 2u + 1$
c_8, c_{11}	$u^4 + u^3 + u^2 + 1$
c_9, c_{10}	$u^4 + u^3 + 3u^2 + 2u + 1$

(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_6, c_9 c_{10}	$y^4+5y^3+7y^2+2y+1$
c_8, c_{11}	$y^4+y^3+3y^2+2y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.395123 + 0.506844I$ $a = 0$ $b = 0.351808 + 0.720342I$	$-1.85594 + 1.41510I$	$-11.17855 - 5.62908I$
$u = -0.395123 - 0.506844I$ $a = 0$ $b = 0.351808 - 0.720342I$	$-1.85594 - 1.41510I$	$-11.17855 + 5.62908I$
$u = -0.10488 + 1.55249I$ $a = 0$ $b = -0.851808 - 0.911292I$	$5.14581 + 3.16396I$	$-6.32145 - 1.65351I$
$u = -0.10488 - 1.55249I$ $a = 0$ $b = -0.851808 + 0.911292I$	$5.14581 - 3.16396I$	$-6.32145 + 1.65351I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{23}-5u^{22}+\cdots-4u+1)$
c_2	$((u+1)^4)(u^{23}+5u^{22}+\cdots+14u+1)$
c_3, c_7	$u^4(u^{23}+u^{22}+\cdots+24u+16)$
c_4	$((u+1)^4)(u^{23}-5u^{22}+\cdots-4u+1)$
c_5, c_6	$(u^4-u^3+3u^2-2u+1)(u^{23}-2u^{22}+\cdots+12u^3+1)$
c_8	$(u^4+u^3+u^2+1)(u^{23}-2u^{22}+\cdots+2u+1)$
c_9, c_{10}	$(u^4+u^3+3u^2+2u+1)(u^{23}-2u^{22}+\cdots+12u^3+1)$
c_{11}	$(u^4+u^3+u^2+1)(u^{23}+8u^{22}+\cdots+168u+49)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^4)(y^{23} - 5y^{22} + \cdots + 14y - 1)$
c_2	$((y-1)^4)(y^{23} + 31y^{22} + \cdots + 14y - 1)$
c_3, c_7	$y^4(y^{23} + 27y^{22} + \cdots - 2240y - 256)$
c_5, c_6, c_9 c_{10}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)(y^{23} + 28y^{22} + \cdots + 60y^2 - 1)$
c_8	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{23} - 28y^{22} + \cdots - 40y^2 - 1)$
c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{23} - 16y^{22} + \cdots + 77224y - 2401)$