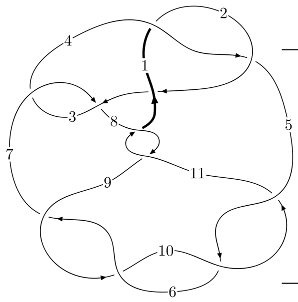
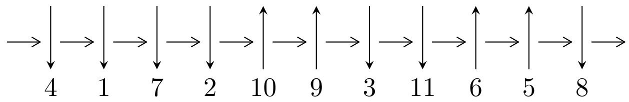
$11a_{45}$ $(K11a_{45})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{43} + u^{42} + \cdots + b + 1,\ -u^{46} - 2u^{45} + \cdots + a - 2,\ u^{47} + 2u^{46} + \cdots + 4u + 1\rangle$$
$$I_2^u = \langle b + 1,\ -u^3 - u^2 + a - 3u,\ u^4 + u^3 + 3u^2 + 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 51 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.

$$\boldsymbol{I_1^u = \langle u^{43}+u^{42}+\cdots+b+1,\ -u^{46}-2u^{45}+\cdots+a-2,\ u^{47}+2u^{46}+\cdots+4u+1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{46}+2u^{45}+\cdots+u+2 \\ -u^{43}-u^{42}+\cdots-9u^3-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{46}+2u^{45}+\cdots-u+2 \\ -u^{43}-u^{42}+\cdots-u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^9+4u^7+3u^5-2u^3+u \\ u^9+5u^7+7u^5+2u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^2+1 \\ -u^4-2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{46}+2u^{45}+\cdots+3u+3 \\ u^{44}-u^{43}+\cdots+u^2-1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^5+2u^3-u \\ u^5+3u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^5+2u^3-u \\ u^5+3u^3+u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{46}+2u^{45}+\cdots-7u-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{47} - 5u^{46} + \cdots - 8u + 1$
c_2	$u^{47} + 21u^{46} + \cdots - 6u + 1$
c_3, c_7	$u^{47} + u^{46} + \cdots + 40u + 16$
c_5, c_6, c_9 c_{10}	$u^{47} + 2u^{46} + \cdots + 4u + 1$
c_8, c_{11}	$u^{47} - 8u^{46} + \cdots + 616u - 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{47} - 21y^{46} + \cdots - 6y - 1$
c_2	$y^{47} + 15y^{46} + \cdots - 262y - 1$
c_3, c_7	$y^{47} + 27y^{46} + \cdots - 3264y - 256$
c_5, c_6, c_9 c_{10}	$y^{47} + 52y^{46} + \cdots + 12y - 1$
c_8, c_{11}	$y^{47} + 32y^{46} + \cdots + 287140y - 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.604283 + 0.592983I$ $a = 1.47187 - 1.86934I$ $b = 1.126700 + 0.685229I$	$4.37990 - 10.31740I$	$-1.65034 + 8.68510I$
$u = -0.604283 - 0.592983I$ $a = 1.47187 + 1.86934I$ $b = 1.126700 - 0.685229I$	$4.37990 + 10.31740I$	$-1.65034 - 8.68510I$
$u = 0.232115 + 0.798027I$ $a = 2.24071 + 0.38222I$ $b = 0.974632 - 0.559034I$	$-1.04927 + 4.94975I$	$-5.93011 - 7.21371I$
$u = 0.232115 - 0.798027I$ $a = 2.24071 - 0.38222I$ $b = 0.974632 + 0.559034I$	$-1.04927 - 4.94975I$	$-5.93011 + 7.21371I$
$u = -0.610300 + 0.553965I$ $a = -0.902531 - 0.046325I$ $b = 0.490595 - 0.918525I$	$6.31726 - 4.42879I$	$1.23708 + 4.26556I$
$u = -0.610300 - 0.553965I$ $a = -0.902531 + 0.046325I$ $b = 0.490595 + 0.918525I$	$6.31726 + 4.42879I$	$1.23708 - 4.26556I$
$u = 0.564268 + 0.532900I$ $a = -0.60777 - 2.13982I$ $b = -0.886230 + 0.571745I$	$1.15387 + 4.21075I$	$-2.42283 - 6.46620I$
$u = 0.564268 - 0.532900I$ $a = -0.60777 + 2.13982I$ $b = -0.886230 - 0.571745I$	$1.15387 - 4.21075I$	$-2.42283 + 6.46620I$
$u = 0.368403 + 0.677743I$ $a = 0.723270 + 1.043890I$ $b = 0.725690 + 0.454437I$	$-0.121886 + 0.686906I$	$-2.62923 - 1.30814I$
$u = 0.368403 - 0.677743I$ $a = 0.723270 - 1.043890I$ $b = 0.725690 - 0.454437I$	$-0.121886 - 0.686906I$	$-2.62923 + 1.30814I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.631315 + 0.431371I$ $a = 0.384246 - 0.958542I$ $b = 0.543018 + 0.899712I$	$6.67942 + 0.21804I$	$2.26501 + 2.20975I$
$u = -0.631315 - 0.431371I$ $a = 0.384246 + 0.958542I$ $b = 0.543018 - 0.899712I$	$6.67942 - 0.21804I$	$2.26501 - 2.20975I$
$u = -0.641272 + 0.383119I$ $a = 0.022026 + 0.485329I$ $b = 1.094550 - 0.696965I$	$4.99878 + 6.09831I$	$0.10454 - 2.74650I$
$u = -0.641272 - 0.383119I$ $a = 0.022026 - 0.485329I$ $b = 1.094550 + 0.696965I$	$4.99878 - 6.09831I$	$0.10454 + 2.74650I$
$u = -0.536843 + 0.494469I$ $a = -0.97848 + 1.17374I$ $b = -1.286310 + 0.037305I$	$-0.20145 - 1.85701I$	$-0.50975 + 4.37782I$
$u = -0.536843 - 0.494469I$ $a = -0.97848 - 1.17374I$ $b = -1.286310 - 0.037305I$	$-0.20145 + 1.85701I$	$-0.50975 - 4.37782I$
$u = 0.565661 + 0.444526I$ $a = 0.741523 + 0.717629I$ $b = -0.806231 - 0.561068I$	$1.41432 - 0.32518I$	$-1.284718 - 0.498489I$
$u = 0.565661 - 0.444526I$ $a = 0.741523 - 0.717629I$ $b = -0.806231 + 0.561068I$	$1.41432 + 0.32518I$	$-1.284718 + 0.498489I$
$u = -0.073145 + 0.598544I$ $a = -2.60222 + 1.37444I$ $b = -1.034680 - 0.259393I$	$-2.92920 - 0.94552I$	$-11.86909 + 0.58583I$
$u = -0.073145 - 0.598544I$ $a = -2.60222 - 1.37444I$ $b = -1.034680 + 0.259393I$	$-2.92920 + 0.94552I$	$-11.86909 - 0.58583I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.284667 + 0.487292I$ $a = 0.588067 + 0.203086I$ $b = 0.141384 + 0.220781I$	$-0.038903 + 1.106530I$	$-0.72417 - 6.07516I$
$u = 0.284667 - 0.487292I$ $a = 0.588067 - 0.203086I$ $b = 0.141384 - 0.220781I$	$-0.038903 - 1.106530I$	$-0.72417 + 6.07516I$
$u = -0.15656 + 1.43102I$ $a = 0.964258 - 0.136228I$ $b = 1.042580 - 0.719852I$	$-0.77593 + 3.28450I$	0
$u = -0.15656 - 1.43102I$ $a = 0.964258 + 0.136228I$ $b = 1.042580 + 0.719852I$	$-0.77593 - 3.28450I$	0
$u = 0.534809 + 0.072952I$ $a = 0.267834 + 0.634733I$ $b = 0.841064 - 0.586379I$	$1.73762 + 2.33285I$	$1.63431 - 3.88919I$
$u = 0.534809 - 0.072952I$ $a = 0.267834 - 0.634733I$ $b = 0.841064 + 0.586379I$	$1.73762 - 2.33285I$	$1.63431 + 3.88919I$
$u = -0.17342 + 1.46958I$ $a = 0.892690 - 0.159044I$ $b = 0.614156 + 0.885412I$	$0.53093 - 2.62820I$	0
$u = -0.17342 - 1.46958I$ $a = 0.892690 + 0.159044I$ $b = 0.614156 - 0.885412I$	$0.53093 + 2.62820I$	0
$u = 0.14450 + 1.50474I$ $a = 0.086605 + 0.128202I$ $b = -0.704621 - 0.592796I$	$-4.99092 + 2.12497I$	0
$u = 0.14450 - 1.50474I$ $a = 0.086605 - 0.128202I$ $b = -0.704621 + 0.592796I$	$-4.99092 - 2.12497I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.14983 + 1.52897I$ $a = -2.18209 + 0.88257I$ $b = -1.313780 + 0.094691I$	$-6.93429 - 4.28271I$	0
$u = -0.14983 - 1.52897I$ $a = -2.18209 - 0.88257I$ $b = -1.313780 - 0.094691I$	$-6.93429 + 4.28271I$	0
$u = 0.04949 + 1.54079I$ $a = 0.359833 + 0.420302I$ $b = 0.022840 + 0.536346I$	$-6.95405 + 2.13733I$	0
$u = 0.04949 - 1.54079I$ $a = 0.359833 - 0.420302I$ $b = 0.022840 - 0.536346I$	$-6.95405 - 2.13733I$	0
$u = 0.16493 + 1.53761I$ $a = -1.47288 - 1.40203I$ $b = -0.945052 + 0.589157I$	$-5.72542 + 6.83119I$	0
$u = 0.16493 - 1.53761I$ $a = -1.47288 + 1.40203I$ $b = -0.945052 - 0.589157I$	$-5.72542 - 6.83119I$	0
$u = -0.18579 + 1.54140I$ $a = -0.364549 - 0.727740I$ $b = 0.443402 - 0.937849I$	$-0.62096 - 7.31850I$	0
$u = -0.18579 - 1.54140I$ $a = -0.364549 + 0.727740I$ $b = 0.443402 + 0.937849I$	$-0.62096 + 7.31850I$	0
$u = -0.01255 + 1.55908I$ $a = -2.70333 + 0.61165I$ $b = -1.133330 - 0.334796I$	$-10.25720 - 1.20723I$	0
$u = -0.01255 - 1.55908I$ $a = -2.70333 - 0.61165I$ $b = -1.133330 + 0.334796I$	$-10.25720 + 1.20723I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.18591 + 1.55945I$ $a = 2.26208 - 1.08076I$ $b = 1.152470 + 0.673628I$	$-2.78197 - 13.21230I$	0
$u = -0.18591 - 1.55945I$ $a = 2.26208 + 1.08076I$ $b = 1.152470 - 0.673628I$	$-2.78197 + 13.21230I$	0
$u = 0.10845 + 1.58073I$ $a = 1.54084 + 0.82842I$ $b = 0.782367 + 0.305537I$	$-7.73076 + 2.45052I$	0
$u = 0.10845 - 1.58073I$ $a = 1.54084 - 0.82842I$ $b = 0.782367 - 0.305537I$	$-7.73076 - 2.45052I$	0
$u = 0.04923 + 1.60296I$ $a = 2.55612 - 0.07351I$ $b = 1.041330 - 0.500879I$	$-9.19770 + 5.90087I$	0
$u = 0.04923 - 1.60296I$ $a = 2.55612 + 0.07351I$ $b = 1.041330 + 0.500879I$	$-9.19770 - 5.90087I$	0
$u = -0.210582$ $a = 2.42377$ $b = -0.853085$	-1.24674	-7.85810

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^3+3u^2+10u-4$

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

(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
$u=-0.395123+0.506844I$ $a=-1.04332+1.22719I$ $b=-1.00000$	$-1.43393-1.41510I$	$-7.52507+4.18840I$
$u=-0.395123-0.506844I$ $a=-1.04332-1.22719I$ $b=-1.00000$	$-1.43393+1.41510I$	$-7.52507-4.18840I$
$u=-0.10488+1.55249I$ $a=-1.95668+0.64120I$ $b=-1.00000$	$-8.43568-3.16396I$	$-9.97493+3.47609I$
$u=-0.10488-1.55249I$ $a=-1.95668-0.64120I$ $b=-1.00000$	$-8.43568+3.16396I$	$-9.97493-3.47609I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{47} - 5u^{46} + \cdots - 8u + 1)$
c_2	$((u+1)^4)(u^{47} + 21u^{46} + \cdots - 6u + 1)$
c_3, c_7	$u^4(u^{47} + u^{46} + \cdots + 40u + 16)$
c_4	$((u+1)^4)(u^{47} - 5u^{46} + \cdots - 8u + 1)$
c_5, c_6	$(u^4 + u^3 + 3u^2 + 2u + 1)(u^{47} + 2u^{46} + \cdots + 4u + 1)$
c_8	$(u^4 + u^3 + u^2 + 1)(u^{47} - 8u^{46} + \cdots + 616u - 49)$
c_9, c_{10}	$(u^4 - u^3 + 3u^2 - 2u + 1)(u^{47} + 2u^{46} + \cdots + 4u + 1)$
c_{11}	$(u^4 - u^3 + u^2 + 1)(u^{47} - 8u^{46} + \cdots + 616u - 49)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^4)(y^{47} - 21y^{46} + \cdots - 6y - 1)$
c_2	$((y-1)^4)(y^{47} + 15y^{46} + \cdots - 262y - 1)$
c_3, c_7	$y^4(y^{47} + 27y^{46} + \cdots - 3264y - 256)$
c_5, c_6, c_9 c_{10}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)(y^{47} + 52y^{46} + \cdots + 12y - 1)$
c_8, c_{11}	$(y^4 + y^3 + 3y^2 + 2y + 1)(y^{47} + 32y^{46} + \cdots + 287140y - 2401)$