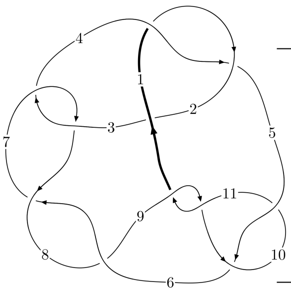
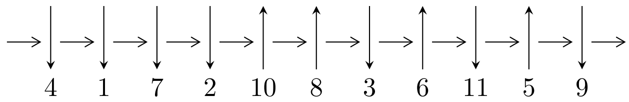
$11a_{42}$ $(K11a_{42})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{53} + u^{52} + \cdots + b + 1,\ -u^{54} - u^{53} + \cdots + a - 1,\ u^{55} + 2u^{54} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle b + 1,\ a - u + 1,\ u^2 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 57 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.

$\boldsymbol{I_1^u = \langle u^{53}+u^{52}+\cdots+b+1,\ -u^{54}-u^{53}+\cdots+a-1,\ u^{55}+2u^{54}+\cdots+2u+1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}u^{54}+u^{53}+\cdots-3u+1\\-u^{53}-u^{52}+\cdots+u-1\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^{54}+9u^{52}+\cdots-4u+1\\-u^{53}-u^{52}+\cdots+u^2-1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^5+u\\u^5+u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^3\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^5-u\\u^7+u^5+2u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^{10}+u^8+2u^6+u^4+u^2+1\\-u^{12}-2u^{10}-4u^8-4u^6-3u^4-2u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^{54}+2u^{53}+\cdots-2u+2\\-u^{53}-u^{52}+\cdots+u-1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u^{54}+2u^{53}+\cdots-2u+2\\-u^{53}-u^{52}+\cdots+u-1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{54}-7u^{53}+\cdots-u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{55} - 3u^{54} + \cdots - 5u + 1$
c_2	$u^{55} + 31u^{54} + \cdots - 7u + 1$
c_3, c_7	$u^{55} + u^{54} + \cdots + 8u + 4$
c_5, c_{10}	$u^{55} + 2u^{54} + \cdots + 2u + 1$
c_6, c_8	$u^{55} - 15u^{54} + \cdots - 168u + 16$
c_9, c_{11}	$u^{55} + 20u^{54} + \cdots + 14u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{55} - 31y^{54} + \cdots - 7y - 1$
c_2	$y^{55} - 11y^{54} + \cdots + 101y - 1$
c_3, c_7	$y^{55} + 15y^{54} + \cdots - 168y - 16$
c_5, c_{10}	$y^{55} + 20y^{54} + \cdots + 14y - 1$
c_6, c_8	$y^{55} + 47y^{54} + \cdots + 3616y - 256$
c_9, c_{11}	$y^{55} + 32y^{54} + \cdots + 490y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.816179 + 0.574717I$ $a = 1.027890 + 0.674902I$ $b = 1.204850 - 0.521092I$	$-2.90431 + 8.91686I$	$-3.42760 - 5.44869I$
$u = -0.816179 - 0.574717I$ $a = 1.027890 - 0.674902I$ $b = 1.204850 + 0.521092I$	$-2.90431 - 8.91686I$	$-3.42760 + 5.44869I$
$u = 0.239129 + 0.986379I$ $a = 2.23250 + 0.41423I$ $b = 0.941364 - 0.397946I$	$-1.92448 + 4.39584I$	$-6.07569 - 8.49319I$
$u = 0.239129 - 0.986379I$ $a = 2.23250 - 0.41423I$ $b = 0.941364 + 0.397946I$	$-1.92448 - 4.39584I$	$-6.07569 + 8.49319I$
$u = -0.779335 + 0.590843I$ $a = 0.007618 - 0.199836I$ $b = 0.147161 + 0.837390I$	$0.24633 + 3.95028I$	$-0.20932 - 2.43300I$
$u = -0.779335 - 0.590843I$ $a = 0.007618 + 0.199836I$ $b = 0.147161 - 0.837390I$	$0.24633 - 3.95028I$	$-0.20932 + 2.43300I$
$u = 0.658398 + 0.801536I$ $a = 0.867357 + 0.882946I$ $b = -0.733611 - 0.391605I$	$0.872499 + 0.772147I$	$-1.84032 + 0.30762I$
$u = 0.658398 - 0.801536I$ $a = 0.867357 - 0.882946I$ $b = -0.733611 + 0.391605I$	$0.872499 - 0.772147I$	$-1.84032 - 0.30762I$
$u = 0.759593 + 0.559351I$ $a = -1.09162 + 0.93530I$ $b = -1.176880 - 0.449966I$	$-3.79702 - 2.69601I$	$-4.74745 + 1.11286I$
$u = 0.759593 - 0.559351I$ $a = -1.09162 - 0.93530I$ $b = -1.176880 + 0.449966I$	$-3.79702 + 2.69601I$	$-4.74745 - 1.11286I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.628216 + 0.858582I$ $a = -1.51296 + 0.91306I$ $b = -1.203820 + 0.035992I$	$-0.64263 - 2.45826I$	$0. + 4.47694I$
$u = -0.628216 - 0.858582I$ $a = -1.51296 - 0.91306I$ $b = -1.203820 - 0.035992I$	$-0.64263 + 2.45826I$	$0. - 4.47694I$
$u = 0.451120 + 0.966547I$ $a = 1.27088 + 0.78560I$ $b = 0.763301 + 0.197825I$	$-0.85220 + 1.53742I$	$-0.475415 + 0.770388I$
$u = 0.451120 - 0.966547I$ $a = 1.27088 - 0.78560I$ $b = 0.763301 - 0.197825I$	$-0.85220 - 1.53742I$	$-0.475415 - 0.770388I$
$u = -0.761308 + 0.748686I$ $a = 0.068239 + 0.640254I$ $b = 0.916664 - 0.588628I$	$4.30983 + 3.18273I$	$1.66711 - 3.75336I$
$u = -0.761308 - 0.748686I$ $a = 0.068239 - 0.640254I$ $b = 0.916664 + 0.588628I$	$4.30983 - 3.18273I$	$1.66711 + 3.75336I$
$u = -0.735974 + 0.536493I$ $a = -1.28675 + 0.70502I$ $b = -1.228780 - 0.367943I$	$-3.97885 - 0.10775I$	$-4.88979 + 0.08750I$
$u = -0.735974 - 0.536493I$ $a = -1.28675 - 0.70502I$ $b = -1.228780 + 0.367943I$	$-3.97885 + 0.10775I$	$-4.88979 - 0.08750I$
$u = -0.740147 + 0.806502I$ $a = 0.213975 - 0.919578I$ $b = 0.579824 + 0.662419I$	$5.27340 - 1.63575I$	$3.78529 + 2.66903I$
$u = -0.740147 - 0.806502I$ $a = 0.213975 + 0.919578I$ $b = 0.579824 - 0.662419I$	$5.27340 + 1.63575I$	$3.78529 - 2.66903I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.034329 + 1.104990I$		
$a = 0.080168 + 1.136900I$	$-5.60698 + 2.95534I$	$-7.15421 - 2.80412I$
$b = 0.053635 + 0.828871I$		
$u = 0.034329 - 1.104990I$		
$a = 0.080168 - 1.136900I$	$-5.60698 - 2.95534I$	$-7.15421 + 2.80412I$
$b = 0.053635 - 0.828871I$		
$u = -0.009089 + 1.113840I$		
$a = -3.11350 + 0.11167I$	$-9.45702 - 1.46557I$	$-10.98966 + 0.I$
$b = -1.231540 - 0.429492I$		
$u = -0.009089 - 1.113840I$		
$a = -3.11350 - 0.11167I$	$-9.45702 + 1.46557I$	$-10.98966 + 0.I$
$b = -1.231540 + 0.429492I$		
$u = 0.660868 + 0.897456I$		
$a = -0.21776 - 2.20899I$	$0.57728 + 4.35301I$	$-2.97848 - 6.56505I$
$b = -0.826919 + 0.421607I$		
$u = 0.660868 - 0.897456I$		
$a = -0.21776 + 2.20899I$	$0.57728 - 4.35301I$	$-2.97848 + 6.56505I$
$b = -0.826919 - 0.421607I$		
$u = 0.757497 + 0.440100I$		
$a = 1.156460 + 0.615207I$	$-3.70073 + 5.77207I$	$-4.07257 - 5.94241I$
$b = 1.177720 - 0.463008I$		
$u = 0.757497 - 0.440100I$		
$a = 1.156460 - 0.615207I$	$-3.70073 - 5.77207I$	$-4.07257 + 5.94241I$
$b = 1.177720 + 0.463008I$		
$u = 0.047537 + 1.140170I$		
$a = 2.98663 + 0.01514I$	$-9.06604 + 7.69131I$	$-10.03059 - 5.89654I$
$b = 1.219040 - 0.483533I$		
$u = 0.047537 - 1.140170I$		
$a = 2.98663 - 0.01514I$	$-9.06604 - 7.69131I$	$-10.03059 + 5.89654I$
$b = 1.219040 + 0.483533I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.718549 + 0.906381I$ $a = -0.652105 + 0.027561I$ $b = 0.517863 - 0.687312I$	$4.96946 - 3.90710I$	0
$u = -0.718549 - 0.906381I$ $a = -0.652105 - 0.027561I$ $b = 0.517863 + 0.687312I$	$4.96946 + 3.90710I$	0
$u = 0.669924 + 0.499239I$ $a = 0.164189 - 0.143161I$ $b = 0.025988 + 0.692151I$	$-0.47649 + 1.47491I$	$-0.96799 - 2.91910I$
$u = 0.669924 - 0.499239I$ $a = 0.164189 + 0.143161I$ $b = 0.025988 - 0.692151I$	$-0.47649 - 1.47491I$	$-0.96799 + 2.91910I$
$u = -0.717366 + 0.952779I$ $a = 1.15907 - 1.72863I$ $b = 0.963009 + 0.589107I$	$3.69457 - 8.78385I$	0
$u = -0.717366 - 0.952779I$ $a = 1.15907 + 1.72863I$ $b = 0.963009 - 0.589107I$	$3.69457 + 8.78385I$	0
$u = 0.629765 + 1.027960I$ $a = 1.069910 - 0.306602I$ $b = -0.051867 - 0.757851I$	$-1.91291 + 3.57990I$	0
$u = 0.629765 - 1.027960I$ $a = 1.069910 + 0.306602I$ $b = -0.051867 + 0.757851I$	$-1.91291 - 3.57990I$	0
$u = 0.362022 + 0.691095I$ $a = 0.432775 + 0.109549I$ $b = 0.059148 + 0.370271I$	$-0.194248 + 1.398020I$	$-2.04153 - 4.84692I$
$u = 0.362022 - 0.691095I$ $a = 0.432775 - 0.109549I$ $b = 0.059148 - 0.370271I$	$-0.194248 - 1.398020I$	$-2.04153 + 4.84692I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.647113 + 1.040820I$ $a = -1.50753 + 1.09395I$ $b = -1.261440 + 0.376282I$	$-5.43130 - 5.17320I$	0
$u = -0.647113 - 1.040820I$ $a = -1.50753 - 1.09395I$ $b = -1.261440 - 0.376282I$	$-5.43130 + 5.17320I$	0
$u = 0.612711 + 1.063030I$ $a = 1.45098 + 1.12168I$ $b = 1.194960 + 0.434256I$	$-5.49641 - 0.62899I$	0
$u = 0.612711 - 1.063030I$ $a = 1.45098 - 1.12168I$ $b = 1.194960 - 0.434256I$	$-5.49641 + 0.62899I$	0
$u = 0.659279 + 1.042970I$ $a = -2.25573 - 2.04389I$ $b = -1.193240 + 0.473729I$	$-5.21292 + 8.08647I$	0
$u = 0.659279 - 1.042970I$ $a = -2.25573 + 2.04389I$ $b = -1.193240 - 0.473729I$	$-5.21292 - 8.08647I$	0
$u = -0.674581 + 1.040260I$ $a = -0.956881 - 0.394384I$ $b = 0.134773 - 0.873581I$	$-1.08802 - 9.45303I$	0
$u = -0.674581 - 1.040260I$ $a = -0.956881 + 0.394384I$ $b = 0.134773 + 0.873581I$	$-1.08802 + 9.45303I$	0
$u = -0.088965 + 0.747457I$ $a = -2.45827 + 1.39779I$ $b = -1.051280 - 0.242889I$	$-3.08639 - 0.93841I$	$-10.69919 - 0.06174I$
$u = -0.088965 - 0.747457I$ $a = -2.45827 - 1.39779I$ $b = -1.051280 + 0.242889I$	$-3.08639 + 0.93841I$	$-10.69919 + 0.06174I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.681167 + 1.057900I$ $a = \quad 2.24142 - 1.78647I$ $b = \quad 1.221340 + 0.526305I$	$-4.3508 - 14.5336I$	0
$u = -0.681167 - 1.057900I$ $a = \quad 2.24142 + 1.78647I$ $b = \quad 1.221340 - 0.526305I$	$-4.3508 + 14.5336I$	0
$u = \quad 0.561929 + 0.106681I$ $a = \quad 0.365566 + 0.579622I$ $b = \quad 0.769448 - 0.437822I$	$1.33757 + 1.88655I$	$2.60483 - 4.69845I$
$u = \quad 0.561929 - 0.106681I$ $a = \quad 0.365566 - 0.579622I$ $b = \quad 0.769448 + 0.437822I$	$1.33757 - 1.88655I$	$2.60483 + 4.69845I$
$u = -0.212225$ $a = \quad 2.51493$ $b = -0.861415$	-1.25349	-8.32260

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

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u-1 \\ -1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.50000 + 0.86603I$ $b = -1.00000$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$
$u = -0.500000 - 0.866025I$ $a = -1.50000 - 0.86603I$ $b = -1.00000$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{55}-3u^{54}+\cdots-5u+1)$
c_2	$((u+1)^2)(u^{55}+31u^{54}+\cdots-7u+1)$
c_3, c_7	$u^2(u^{55}+u^{54}+\cdots+8u+4)$
c_4	$((u+1)^2)(u^{55}-3u^{54}+\cdots-5u+1)$
c_5	$(u^2+u+1)(u^{55}+2u^{54}+\cdots+2u+1)$
c_6, c_8	$u^2(u^{55}-15u^{54}+\cdots-168u+16)$
c_9	$(u^2-u+1)(u^{55}+20u^{54}+\cdots+14u-1)$
c_{10}	$(u^2-u+1)(u^{55}+2u^{54}+\cdots+2u+1)$
c_{11}	$(u^2+u+1)(u^{55}+20u^{54}+\cdots+14u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^2)(y^{55} - 31y^{54} + \cdots - 7y - 1)$
c_2	$((y-1)^2)(y^{55} - 11y^{54} + \cdots + 101y - 1)$
c_3, c_7	$y^2(y^{55} + 15y^{54} + \cdots - 168y - 16)$
c_5, c_{10}	$(y^2 + y + 1)(y^{55} + 20y^{54} + \cdots + 14y - 1)$
c_6, c_8	$y^2(y^{55} + 47y^{54} + \cdots + 3616y - 256)$
c_9, c_{11}	$(y^2 + y + 1)(y^{55} + 32y^{54} + \cdots + 490y - 1)$