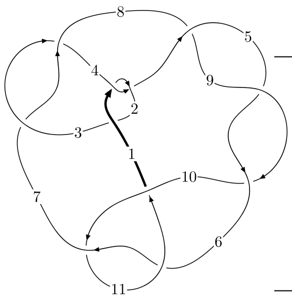
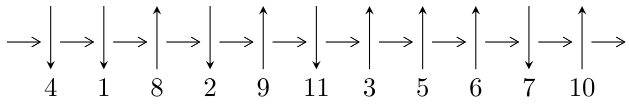
$11a_{33}$ ($K11a_{33}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{50} - u^{49} + \cdots + b - u,\ u^{50} - u^{49} + \cdots + a - 1,\ u^{52} - 2u^{51} + \cdots + u - 1 \rangle$$
$$I_2^u = \langle -u^4 - u^3 - u^2 + b,\ -u^2 + a - u - 1,\ u^5 + u^4 + 2u^3 + u^2 + u + 1 \rangle$$

* 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.

$$\boldsymbol{I_1^u = \langle -u^{50} - u^{49} + \cdots + b - u,\ u^{50} - u^{49} + \cdots + a - 1,\ u^{52} - 2u^{51} + \cdots + u - 1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -u^{50} + u^{49} + \cdots - 2u + 1 \\ u^{50} + u^{49} + \cdots + 2u^2 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^9 + 2u^7 + u^5 - 2u^3 - u \\ -u^9 - 3u^7 - 3u^5 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{47} - u^{46} + \cdots - u^2 - 2u \\ u^{49} - u^{48} + \cdots + 6u^4 + 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^6 - u^4 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{50} - u^{49} + \cdots - 2u^2 - 2u \\ -u^{50} + u^{49} + \cdots - u^3 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{50} - u^{49} + \cdots - 2u^2 - 2u \\ -u^{50} + u^{49} + \cdots - u^3 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{51} + 5u^{50} + \cdots + 2u - 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{52} - 6u^{51} + \cdots + 5u - 1$
c_2	$u^{52} + 22u^{51} + \cdots - 11u + 1$
c_3, c_7	$u^{52} + u^{51} + \cdots - 232u^2 + 32$
c_5, c_8, c_9	$u^{52} - 2u^{51} + \cdots - 25u - 17$
c_6, c_{10}	$u^{52} + 2u^{51} + \cdots - u - 1$
c_{11}	$u^{52} - 30u^{51} + \cdots - 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{52} - 22y^{51} + \cdots + 11y + 1$
c_2	$y^{52} + 22y^{51} + \cdots - 349y + 1$
c_3, c_7	$y^{52} - 33y^{51} + \cdots - 14848y + 1024$
c_5, c_8, c_9	$y^{52} - 58y^{51} + \cdots - 2291y + 289$
c_6, c_{10}	$y^{52} + 30y^{51} + \cdots + 5y + 1$
c_{11}	$y^{52} - 14y^{51} + \cdots + 21y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.280725 + 0.984494I$ $a = 0.654643 + 0.042402I$ $b = -0.595405 - 0.490264I$	$0.986067 - 0.922209I$	$5.57805 + 0.78370I$
$u = 0.280725 - 0.984494I$ $a = 0.654643 - 0.042402I$ $b = -0.595405 + 0.490264I$	$0.986067 + 0.922209I$	$5.57805 - 0.78370I$
$u = -0.377650 + 0.954360I$ $a = 2.41555 - 1.60256I$ $b = -2.28692 - 0.23404I$	$-0.88919 + 2.40502I$	$4.23135 - 7.49678I$
$u = -0.377650 - 0.954360I$ $a = 2.41555 + 1.60256I$ $b = -2.28692 + 0.23404I$	$-0.88919 - 2.40502I$	$4.23135 + 7.49678I$
$u = 0.508227 + 0.805847I$ $a = -0.742914 + 0.724717I$ $b = 0.658582 - 0.670829I$	$-0.0437779 - 0.0269953I$	$1.92084 + 0.19212I$
$u = 0.508227 - 0.805847I$ $a = -0.742914 - 0.724717I$ $b = 0.658582 + 0.670829I$	$-0.0437779 + 0.0269953I$	$1.92084 - 0.19212I$
$u = 0.422777 + 0.995937I$ $a = -0.819376 - 0.080332I$ $b = 1.105830 + 0.262915I$	$-0.04250 - 4.54357I$	$1.88793 + 7.26372I$
$u = 0.422777 - 0.995937I$ $a = -0.819376 + 0.080332I$ $b = 1.105830 - 0.262915I$	$-0.04250 + 4.54357I$	$1.88793 - 7.26372I$
$u = 0.889760 + 0.039446I$ $a = -0.980477 + 0.475985I$ $b = -2.22766 - 0.07116I$	$9.80914 + 2.73925I$	$5.98913 - 0.86649I$
$u = 0.889760 - 0.039446I$ $a = -0.980477 - 0.475985I$ $b = -2.22766 + 0.07116I$	$9.80914 - 2.73925I$	$5.98913 + 0.86649I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.885810 + 0.066307I$ $a = 0.908664 - 0.767749I$ $b = 2.15596 + 0.13200I$	$7.94022 + 8.91057I$	$3.69132 - 5.27448I$
$u = 0.885810 - 0.066307I$ $a = 0.908664 + 0.767749I$ $b = 2.15596 - 0.13200I$	$7.94022 - 8.91057I$	$3.69132 + 5.27448I$
$u = -0.165811 + 1.121200I$ $a = 1.83757 - 0.40541I$ $b = -1.130520 - 0.544612I$	$5.10574 - 3.32861I$	$8.68775 + 2.82645I$
$u = -0.165811 - 1.121200I$ $a = 1.83757 + 0.40541I$ $b = -1.130520 + 0.544612I$	$5.10574 + 3.32861I$	$8.68775 - 2.82645I$
$u = -0.860610 + 0.023085I$ $a = -0.066448 - 0.251952I$ $b = 0.153988 + 0.972076I$	$4.28726 - 2.50747I$	$2.75724 + 2.68671I$
$u = -0.860610 - 0.023085I$ $a = -0.066448 + 0.251952I$ $b = 0.153988 - 0.972076I$	$4.28726 + 2.50747I$	$2.75724 - 2.68671I$
$u = 0.529646 + 0.675176I$ $a = 0.520778 - 1.165510I$ $b = -0.287257 + 0.910625I$	$-0.40755 - 4.20725I$	$0.31053 + 6.85372I$
$u = 0.529646 - 0.675176I$ $a = 0.520778 + 1.165510I$ $b = -0.287257 - 0.910625I$	$-0.40755 + 4.20725I$	$0.31053 - 6.85372I$
$u = -0.511753 + 1.024350I$ $a = 1.26087 - 1.89055I$ $b = -1.78707 + 0.70393I$	$2.58119 + 9.82991I$	$3.68059 - 9.74649I$
$u = -0.511753 - 1.024350I$ $a = 1.26087 + 1.89055I$ $b = -1.78707 - 0.70393I$	$2.58119 - 9.82991I$	$3.68059 + 9.74649I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.848851$ $a = 1.68388$ $b = 2.26297$	2.68190	3.52270
$u = -0.245968 + 1.124790I$ $a = -1.86661 + 0.47174I$ $b = 1.248780 + 0.497288I$	$5.88940 + 2.23703I$	$9.81871 - 3.17171I$
$u = -0.245968 - 1.124790I$ $a = -1.86661 - 0.47174I$ $b = 1.248780 - 0.497288I$	$5.88940 - 2.23703I$	$9.81871 + 3.17171I$
$u = -0.460826 + 1.063150I$ $a = -1.28681 + 1.46544I$ $b = 1.53108 - 0.39330I$	$4.31532 + 4.63289I$	$7.37710 - 5.03996I$
$u = -0.460826 - 1.063150I$ $a = -1.28681 - 1.46544I$ $b = 1.53108 + 0.39330I$	$4.31532 - 4.63289I$	$7.37710 + 5.03996I$
$u = 0.249339 + 0.786720I$ $a = 0.457886 + 0.514045I$ $b = -0.154878 - 0.504949I$	$0.450033 - 1.234720I$	$4.74084 + 5.50358I$
$u = 0.249339 - 0.786720I$ $a = 0.457886 - 0.514045I$ $b = -0.154878 + 0.504949I$	$0.450033 + 1.234720I$	$4.74084 - 5.50358I$
$u = -0.457667 + 1.181360I$ $a = -0.427283 + 0.598681I$ $b = 0.526120 - 0.236335I$	$5.00504 + 4.26604I$	0
$u = -0.457667 - 1.181360I$ $a = -0.427283 - 0.598681I$ $b = 0.526120 + 0.236335I$	$5.00504 - 4.26604I$	0
$u = -0.626363 + 0.365158I$ $a = 0.331365 - 0.906721I$ $b = -1.48252 + 0.06887I$	$0.72885 - 5.40223I$	$0.76570 + 5.29849I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.626363 - 0.365158I$ $a = 0.331365 + 0.906721I$ $b = -1.48252 - 0.06887I$	$0.72885 + 5.40223I$	$0.76570 - 5.29849I$
$u = -0.707531$ $a = -0.0272312$ $b = 0.597785$	1.69898	7.12320
$u = 0.463049 + 1.238040I$ $a = -2.55511 - 0.88903I$ $b = 3.29992 - 1.71101I$	$6.39075 - 4.67632I$	0
$u = 0.463049 - 1.238040I$ $a = -2.55511 + 0.88903I$ $b = 3.29992 + 1.71101I$	$6.39075 + 4.67632I$	0
$u = -0.451975 + 1.246010I$ $a = -0.987426 - 0.642867I$ $b = 0.437332 + 0.795179I$	$8.11586 + 2.13977I$	0
$u = -0.451975 - 1.246010I$ $a = -0.987426 + 0.642867I$ $b = 0.437332 - 0.795179I$	$8.11586 - 2.13977I$	0
$u = -0.475337 + 1.240760I$ $a = 0.772991 + 0.898748I$ $b = -0.203290 - 0.904404I$	$7.94604 + 7.28946I$	0
$u = -0.475337 - 1.240760I$ $a = 0.772991 - 0.898748I$ $b = -0.203290 + 0.904404I$	$7.94604 - 7.28946I$	0
$u = -0.625397 + 0.228924I$ $a = -0.107645 + 0.510658I$ $b = 1.145420 + 0.098339I$	$1.98030 - 0.48005I$	$3.97181 + 0.10468I$
$u = -0.625397 - 0.228924I$ $a = -0.107645 - 0.510658I$ $b = 1.145420 - 0.098339I$	$1.98030 + 0.48005I$	$3.97181 - 0.10468I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.427798 + 1.265370I$ $a = -1.75085 - 0.81280I$ $b = 1.97471 - 1.35185I$	$12.02740 + 4.30908I$	0
$u = 0.427798 - 1.265370I$ $a = -1.75085 + 0.81280I$ $b = 1.97471 + 1.35185I$	$12.02740 - 4.30908I$	0
$u = 0.500173 + 1.244000I$ $a = -2.42580 - 1.28995I$ $b = 3.39254 - 0.69209I$	$11.4963 - 13.8946I$	0
$u = 0.500173 - 1.244000I$ $a = -2.42580 + 1.28995I$ $b = 3.39254 + 0.69209I$	$11.4963 + 13.8946I$	0
$u = 0.445030 + 1.264870I$ $a = 1.99511 + 0.91581I$ $b = -2.37247 + 1.31494I$	$13.79830 - 1.96896I$	0
$u = 0.445030 - 1.264870I$ $a = 1.99511 - 0.91581I$ $b = -2.37247 - 1.31494I$	$13.79830 + 1.96896I$	0
$u = 0.488189 + 1.251510I$ $a = 2.39866 + 1.22603I$ $b = -3.25277 + 0.88645I$	$13.4799 - 7.6731I$	0
$u = 0.488189 - 1.251510I$ $a = 2.39866 - 1.22603I$ $b = -3.25277 - 0.88645I$	$13.4799 + 7.6731I$	0
$u = -0.287199 + 0.547902I$ $a = -0.76127 - 1.80488I$ $b = -0.88257 + 1.12082I$	$-2.08809 + 0.78607I$	$-3.98062 + 1.52380I$
$u = -0.287199 - 0.547902I$ $a = -0.76127 + 1.80488I$ $b = -0.88257 - 1.12082I$	$-2.08809 - 0.78607I$	$-3.98062 - 1.52380I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.385374 + 0.321628I$ $a = -0.10441 - 1.83686I$ $b = 0.102691 + 0.571781I$	$-1.79468 + 0.95889I$	$-4.14280 - 1.57937I$
$u = 0.385374 - 0.321628I$ $a = -0.10441 + 1.83686I$ $b = 0.102691 - 0.571781I$	$-1.79468 - 0.95889I$	$-4.14280 + 1.57937I$

II. $\boldsymbol{I_2^u = \langle -u^4 - u^3 - u^2 + b,\ -u^2 + a - u - 1,\ u^5 + u^4 + 2u^3 + u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} u^3 + u^2 + u + 1 \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^3 \\ u^4 + u^3 + u^2 + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^2 + u + 1 \\ u^4 + u^3 + u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^2 + u + 1 \\ u^4 + u^3 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^5$
c_2, c_4	$(u+1)^5$
c_3, c_7	u^5
c_5	$u^5 - u^4 - 2u^3 + u^2 + u + 1$
c_6	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
c_8, c_9	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
c_{10}	$u^5 - u^4 + 2u^3 - u^2 + u - 1$
c_{11}	$u^5 - 3u^4 + 4u^3 - u^2 - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_7	y^5
c_5, c_8, c_9	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_6, c_{10}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_{11}	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.339110 + 0.822375I$ $a = 0.77780 + 1.38013I$ $b = -1.206350 - 0.340852I$	$-1.31583 - 1.53058I$	$0.02124 + 2.62456I$
$u = 0.339110 - 0.822375I$ $a = 0.77780 - 1.38013I$ $b = -1.206350 + 0.340852I$	$-1.31583 + 1.53058I$	$0.02124 - 2.62456I$
$u = -0.766826$ $a = 0.821196$ $b = 0.482881$	0.756147	-2.67610
$u = -0.455697 + 1.200150I$ $a = -0.688402 + 0.106340I$ $b = 0.964913 + 0.621896I$	$4.22763 + 4.40083I$	$0.31681 - 3.97407I$
$u = -0.455697 - 1.200150I$ $a = -0.688402 - 0.106340I$ $b = 0.964913 - 0.621896I$	$4.22763 - 4.40083I$	$0.31681 + 3.97407I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{52}-6u^{51}+\cdots+5u-1)$
c_2	$((u+1)^5)(u^{52}+22u^{51}+\cdots-11u+1)$
c_3, c_7	$u^5(u^{52}+u^{51}+\cdots-232u^2+32)$
c_4	$((u+1)^5)(u^{52}-6u^{51}+\cdots+5u-1)$
c_5	$(u^5-u^4-2u^3+u^2+u+1)(u^{52}-2u^{51}+\cdots-25u-17)$
c_6	$(u^5+u^4+2u^3+u^2+u+1)(u^{52}+2u^{51}+\cdots-u-1)$
c_8, c_9	$(u^5+u^4-2u^3-u^2+u-1)(u^{52}-2u^{51}+\cdots-25u-17)$
c_{10}	$(u^5-u^4+2u^3-u^2+u-1)(u^{52}+2u^{51}+\cdots-u-1)$
c_{11}	$(u^5-3u^4+4u^3-u^2-u+1)(u^{52}-30u^{51}+\cdots-5u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^{52} - 22y^{51} + \cdots + 11y + 1)$
c_2	$((y-1)^5)(y^{52} + 22y^{51} + \cdots - 349y + 1)$
c_3, c_7	$y^5(y^{52} - 33y^{51} + \cdots - 14848y + 1024)$
c_5, c_8, c_9	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{52} - 58y^{51} + \cdots - 2291y + 289)$
c_6, c_{10}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{52} + 30y^{51} + \cdots + 5y + 1)$
c_{11}	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)(y^{52} - 14y^{51} + \cdots + 21y + 1)$