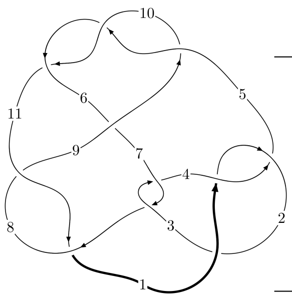
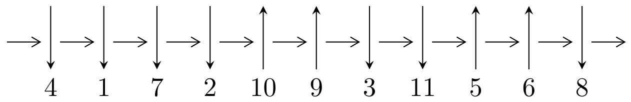
$11a_{39}$ $(K11a_{39})$



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 $X_{\mathbf{par}}$

$$I_1^u = \langle u^{54} - u^{53} + \cdots + b - 3u,\ -2u^{54} + 2u^{53} + \cdots + a + 6u,\ u^{55} - 2u^{54} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle b + 1,\ u^3 + a - 2u,\ u^5 - u^4 - 2u^3 + u^2 + u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 60 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.

$$I_1^u = \langle u^{54}-u^{53}+\cdots+b-3u,\ -2u^{54}+2u^{53}+\cdots+a+6u,\ u^{55}-2u^{54}+\cdots+2u+1\rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}2u^{54}-2u^{53}+\cdots+13u^2-6u\\-u^{54}+u^{53}+\cdots-2u^2+3u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^{54}-u^{53}+\cdots-5u+1\\-u^{54}+u^{53}+\cdots-3u^2+2u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^9-4u^7+5u^5-2u^3+u\\-u^{11}+5u^9-8u^7+3u^5+u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^4+u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}3u^{54}-3u^{53}+\cdots+11u^2-7u\\-u^{54}+u^{53}+\cdots-u^2+3u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^5+2u^3-u\\u^7-3u^5+2u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-u^5+2u^3-u\\u^7-3u^5+2u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2u^{54}+4u^{53}+\cdots+3u-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{55} - 6u^{54} + \cdots - 8u + 1$
c_2	$u^{55} + 24u^{54} + \cdots + 8u + 1$
c_3, c_7	$u^{55} + u^{54} + \cdots + 64u + 32$
c_5, c_9, c_{10}	$u^{55} - 2u^{54} + \cdots + 2u + 1$
c_6	$u^{55} + 6u^{54} + \cdots + 302u + 77$
c_8, c_{11}	$u^{55} - 8u^{54} + \cdots + 94u - 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{55} - 24y^{54} + \cdots + 8y - 1$
c_2	$y^{55} + 20y^{54} + \cdots - 220y - 1$
c_3, c_7	$y^{55} + 33y^{54} + \cdots - 14848y - 1024$
c_5, c_9, c_{10}	$y^{55} - 52y^{54} + \cdots + 14y - 1$
c_6	$y^{55} - 20y^{54} + \cdots + 146490y - 5929$
c_8, c_{11}	$y^{55} + 48y^{54} + \cdots + 4314y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.078520 + 0.133677I$ $a = 0.516431 + 0.026697I$ $b = 0.912992 + 0.503784I$	$1.55049 - 1.99776I$	0
$u = 1.078520 - 0.133677I$ $a = 0.516431 - 0.026697I$ $b = 0.912992 - 0.503784I$	$1.55049 + 1.99776I$	0
$u = -0.405577 + 0.698559I$ $a = 1.19426 - 1.95218I$ $b = 1.131320 + 0.693924I$	$4.79235 - 10.53540I$	$-0.79776 + 8.38025I$
$u = -0.405577 - 0.698559I$ $a = 1.19426 + 1.95218I$ $b = 1.131320 - 0.693924I$	$4.79235 + 10.53540I$	$-0.79776 - 8.38025I$
$u = -0.429702 + 0.678403I$ $a = -0.970506 + 0.157558I$ $b = 0.496725 - 0.933713I$	$6.73070 - 4.57214I$	$1.95904 + 4.03979I$
$u = -0.429702 - 0.678403I$ $a = -0.970506 - 0.157558I$ $b = 0.496725 + 0.933713I$	$6.73070 + 4.57214I$	$1.95904 - 4.03979I$
$u = -0.544877 + 0.580820I$ $a = -0.164386 + 0.526147I$ $b = 1.103900 - 0.704264I$	$5.32499 + 6.24906I$	$0.59828 - 2.50741I$
$u = -0.544877 - 0.580820I$ $a = -0.164386 - 0.526147I$ $b = 1.103900 + 0.704264I$	$5.32499 - 6.24906I$	$0.59828 + 2.50741I$
$u = -0.510509 + 0.609052I$ $a = 0.325943 - 1.106180I$ $b = 0.541319 + 0.917635I$	$7.04434 + 0.29231I$	$2.77654 + 2.24461I$
$u = -0.510509 - 0.609052I$ $a = 0.325943 + 1.106180I$ $b = 0.541319 - 0.917635I$	$7.04434 - 0.29231I$	$2.77654 - 2.24461I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.412834 + 0.641001I$ $a = -0.42450 - 2.15007I$ $b = -0.881787 + 0.589772I$	$1.48241 + 4.33310I$	$-1.64326 - 6.16138I$
$u = 0.412834 - 0.641001I$ $a = -0.42450 + 2.15007I$ $b = -0.881787 - 0.589772I$	$1.48241 - 4.33310I$	$-1.64326 + 6.16138I$
$u = 0.458268 + 0.584600I$ $a = 0.817122 + 0.781457I$ $b = -0.813432 - 0.582817I$	$1.70221 - 0.32794I$	$-0.771677 - 0.468923I$
$u = 0.458268 - 0.584600I$ $a = 0.817122 - 0.781457I$ $b = -0.813432 + 0.582817I$	$1.70221 + 0.32794I$	$-0.771677 + 0.468923I$
$u = -0.415395 + 0.603187I$ $a = -0.756841 + 1.109310I$ $b = -1.302130 + 0.031330I$	$0.07504 - 1.93289I$	$-0.05787 + 3.96687I$
$u = -0.415395 - 0.603187I$ $a = -0.756841 - 1.109310I$ $b = -1.302130 - 0.031330I$	$0.07504 + 1.93289I$	$-0.05787 - 3.96687I$
$u = -1.265410 + 0.116454I$ $a = -0.756900 - 0.079067I$ $b = -1.162780 + 0.205267I$	$0.59955 - 1.29811I$	0
$u = -1.265410 - 0.116454I$ $a = -0.756900 + 0.079067I$ $b = -1.162780 - 0.205267I$	$0.59955 + 1.29811I$	0
$u = 1.297170 + 0.044309I$ $a = 1.149320 + 0.636439I$ $b = -0.351487 - 0.343411I$	$2.99828 + 0.14721I$	0
$u = 1.297170 - 0.044309I$ $a = 1.149320 - 0.636439I$ $b = -0.351487 + 0.343411I$	$2.99828 - 0.14721I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.288550+0.158962I$ $a = -0.51700-2.28808I$ $b = -1.022630+0.390914I$	$1.08244+3.51008I$	0
$u = 1.288550-0.158962I$ $a = -0.51700+2.28808I$ $b = -1.022630-0.390914I$	$1.08244-3.51008I$	0
$u = -1.292250+0.245052I$ $a = 0.94579-1.66072I$ $b = 1.053490+0.579410I$	$3.09735-8.51931I$	0
$u = -1.292250-0.245052I$ $a = 0.94579+1.66072I$ $b = 1.053490-0.579410I$	$3.09735+8.51931I$	0
$u = 0.659363+0.177799I$ $a = 0.370767+0.659351I$ $b = 0.825967-0.561444I$	$1.63950+2.24198I$	$1.57550-4.32492I$
$u = 0.659363-0.177799I$ $a = 0.370767-0.659351I$ $b = 0.825967+0.561444I$	$1.63950-2.24198I$	$1.57550+4.32492I$
$u = 0.108922+0.669976I$ $a = 2.05168+0.39909I$ $b = 0.999297-0.553816I$	$-1.25442+5.19790I$	$-5.46768-6.87562I$
$u = 0.108922-0.669976I$ $a = 2.05168-0.39909I$ $b = 0.999297+0.553816I$	$-1.25442-5.19790I$	$-5.46768+6.87562I$
$u = 0.223843+0.635800I$ $a = 0.619795+0.836958I$ $b = 0.682905+0.426557I$	$-0.093506+0.957018I$	$-1.47250-1.22419I$
$u = 0.223843-0.635800I$ $a = 0.619795-0.836958I$ $b = 0.682905-0.426557I$	$-0.093506-0.957018I$	$-1.47250+1.22419I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.345750+0.196757I$ $a=-0.348002+0.275917I$ $b=\ \ 0.325642-0.591557I$	$4.93016-3.86526I$	0
$u=-1.345750-0.196757I$ $a=-0.348002-0.275917I$ $b=\ \ 0.325642+0.591557I$	$4.93016+3.86526I$	0
$u=-1.39666+0.23010I$ $a=-0.011407-0.386009I$ $b=\ \ 0.636512-0.224540I$	$5.07190-4.05462I$	0
$u=-1.39666-0.23010I$ $a=-0.011407+0.386009I$ $b=\ \ 0.636512+0.224540I$	$5.07190+4.05462I$	0
$u=-1.43083+0.02750I$ $a=-0.66190-1.48550I$ $b=\ \ 0.838321+0.728876I$	$7.99304-2.76322I$	0
$u=-1.43083-0.02750I$ $a=-0.66190+1.48550I$ $b=\ \ 0.838321-0.728876I$	$7.99304+2.76322I$	0
$u=\ \ 0.220263+0.502370I$ $a=\ \ 0.543936+0.221214I$ $b=\ \ 0.182425+0.252129I$	$-0.008201+1.198200I$	$-0.25143-5.38204I$
$u=\ \ 0.220263-0.502370I$ $a=\ \ 0.543936-0.221214I$ $b=\ \ 0.182425-0.252129I$	$-0.008201-1.198200I$	$-0.25143+5.38204I$
$u=-0.046404+0.536106I$ $a=-2.41342+1.29245I$ $b=-1.047030-0.274962I$	$-3.02612-0.98819I$	$-10.81757+0.62676I$
$u=-0.046404-0.536106I$ $a=-2.41342-1.29245I$ $b=-1.047030+0.274962I$	$-3.02612+0.98819I$	$-10.81757-0.62676I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.45734 + 0.22515I$ $a = 0.507704 - 0.942507I$ $b = -1.341850 - 0.047444I$	$6.09964 + 4.98197I$	0
$u = 1.45734 - 0.22515I$ $a = 0.507704 + 0.942507I$ $b = -1.341850 + 0.047444I$	$6.09964 - 4.98197I$	0
$u = -1.46520 + 0.21259I$ $a = 1.47883 - 1.30859I$ $b = -0.786253 + 0.638767I$	$7.88540 - 2.59431I$	0
$u = -1.46520 - 0.21259I$ $a = 1.47883 + 1.30859I$ $b = -0.786253 - 0.638767I$	$7.88540 + 2.59431I$	0
$u = -1.46151 + 0.23703I$ $a = 0.35860 + 2.60378I$ $b = -0.903696 - 0.627740I$	$7.52118 - 7.54900I$	0
$u = -1.46151 - 0.23703I$ $a = 0.35860 - 2.60378I$ $b = -0.903696 + 0.627740I$	$7.52118 + 7.54900I$	0
$u = 1.46676 + 0.25976I$ $a = 0.13179 + 2.56805I$ $b = 1.150220 - 0.701224I$	$10.8274 + 14.0334I$	0
$u = 1.46676 - 0.25976I$ $a = 0.13179 - 2.56805I$ $b = 1.150220 + 0.701224I$	$10.8274 - 14.0334I$	0
$u = 1.47287 + 0.24797I$ $a = -1.38353 - 1.05356I$ $b = 0.483891 + 0.966514I$	$12.8723 + 7.9548I$	0
$u = 1.47287 - 0.24797I$ $a = -1.38353 + 1.05356I$ $b = 0.483891 - 0.966514I$	$12.8723 - 7.9548I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.48811 + 0.18811I$ $a = -1.12025 - 1.22948I$ $b = 1.099520 + 0.737359I$	$11.90410 - 3.49537I$	0
$u = 1.48811 - 0.18811I$ $a = -1.12025 + 1.22948I$ $b = 1.099520 - 0.737359I$	$11.90410 + 3.49537I$	0
$u = 1.48611 + 0.20604I$ $a = -0.20805 + 1.92611I$ $b = 0.576460 - 0.947356I$	$13.50700 + 2.65879I$	0
$u = 1.48611 - 0.20604I$ $a = -0.20805 - 1.92611I$ $b = 0.576460 + 0.947356I$	$13.50700 - 2.65879I$	0
$u = -0.217641$ $a = 2.44944$ $b = -0.855618$	-1.24884	-7.99830

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

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

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

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

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

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

$$a_9 = \begin{pmatrix}-u\\u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-u^4+u^2+1\\u^4-2u^2\end{pmatrix}$$

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

$$a_8 = \begin{pmatrix}-u^4+u^2+1\\u^4-2u^2\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-u^4+u^2+1\\u^4-2u^2\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^3+u^2+8u-3$

(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	$u^5 + 3u^4 + 4u^3 + u^2 - u - 1$
c_8	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
c_9, c_{10}	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
c_{11}	$u^5 - u^4 + 2u^3 - u^2 + u - 1$

(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_9, c_{10}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_6	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$
c_8, c_{11}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.21774$ $a = -0.629714$ $b = -1.00000$	0.756147	−2.23020
$u = -0.309916 + 0.549911I$ $a = -0.871221 + 1.107660I$ $b = -1.00000$	$-1.31583 - 1.53058I$	$-6.94263 + 4.09764I$
$u = -0.309916 - 0.549911I$ $a = -0.871221 - 1.107660I$ $b = -1.00000$	$-1.31583 + 1.53058I$	$-6.94263 - 4.09764I$
$u = 1.41878 + 0.21917I$ $a = 0.186078 - 0.874646I$ $b = -1.00000$	$4.22763 + 4.40083I$	$-2.94226 - 4.18967I$
$u = 1.41878 - 0.21917I$ $a = 0.186078 + 0.874646I$ $b = -1.00000$	$4.22763 - 4.40083I$	$-2.94226 + 4.18967I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{55}-6u^{54}+\cdots-8u+1)$
c_2	$((u+1)^5)(u^{55}+24u^{54}+\cdots+8u+1)$
c_3, c_7	$u^5(u^{55}+u^{54}+\cdots+64u+32)$
c_4	$((u+1)^5)(u^{55}-6u^{54}+\cdots-8u+1)$
c_5	$(u^5-u^4-2u^3+u^2+u+1)(u^{55}-2u^{54}+\cdots+2u+1)$
c_6	$(u^5+3u^4+4u^3+u^2-u-1)(u^{55}+6u^{54}+\cdots+302u+77)$
c_8	$(u^5+u^4+2u^3+u^2+u+1)(u^{55}-8u^{54}+\cdots+94u-7)$
c_9, c_{10}	$(u^5+u^4-2u^3-u^2+u-1)(u^{55}-2u^{54}+\cdots+2u+1)$
c_{11}	$(u^5-u^4+2u^3-u^2+u-1)(u^{55}-8u^{54}+\cdots+94u-7)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^{55} - 24y^{54} + \cdots + 8y - 1)$
c_2	$((y-1)^5)(y^{55} + 20y^{54} + \cdots - 220y - 1)$
c_3, c_7	$y^5(y^{55} + 33y^{54} + \cdots - 14848y - 1024)$
c_5, c_9, c_{10}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{55} - 52y^{54} + \cdots + 14y - 1)$
c_6	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)(y^{55} - 20y^{54} + \cdots + 146490y - 5929)$
c_8, c_{11}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{55} + 48y^{54} + \cdots + 4314y - 49)$