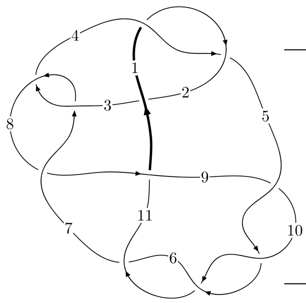
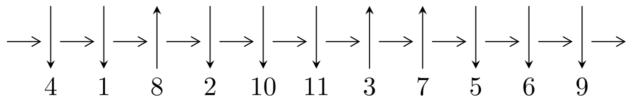
$11a_{40}$ $(K11a_{40})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{45} - u^{44} + \cdots + b + u,\ -u^{45} - u^{44} + \cdots + a + 1,\ u^{46} + 2u^{45} + \cdots - u + 1 \rangle$$
$$I_2^u = \langle b + 1,\ a + 2,\ u^2 + u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 48 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.

$$\boldsymbol{I^u_1 = \langle -u^{45} - u^{44} + \cdots + b + u,\ -u^{45} - u^{44} + \cdots + a + 1,\ u^{46} + 2u^{45} + \cdots - u + 1\rangle}$$

(i) Arc colorings

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

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

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

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

$$a_2 = \begin{pmatrix} u^{45} + u^{44} + \cdots - 3u - 1 \\ u^{45} + u^{44} + \cdots - 2u^2 - u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 2u^{45} + 2u^{44} + \cdots - 6u^3 - 3u \\ u^{45} + u^{44} + \cdots - 2u^2 - 2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^5 - 2u^3 - u \\ u^5 - 3u^3 + u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} u^7 - 4u^5 + 4u^3 \\ u^9 - 5u^7 + 7u^5 - 2u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{38} + 21u^{36} + \cdots - 2u - 1 \\ u^{45} + u^{44} + \cdots - 3u^2 - u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{38} + 21u^{36} + \cdots - 2u - 1 \\ u^{45} + u^{44} + \cdots - 3u^2 - u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{45} + u^{44} + \cdots + 8u - 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{46} - 3u^{45} + \cdots - 4u + 1$
c_2	$u^{46} + 25u^{45} + \cdots + 4u + 1$
c_3, c_7	$u^{46} + u^{45} + \cdots + 8u + 4$
c_5, c_6, c_9 c_{10}	$u^{46} + 2u^{45} + \cdots - u + 1$
c_8	$u^{46} - 15u^{45} + \cdots - 232u + 16$
c_{11}	$u^{46} - 14u^{45} + \cdots - 885u + 207$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{46} - 25y^{45} + \cdots - 4y + 1$
c_2	$y^{46} - 5y^{45} + \cdots - 44y + 1$
c_3, c_7	$y^{46} - 15y^{45} + \cdots - 232y + 16$
c_5, c_6, c_9 c_{10}	$y^{46} - 54y^{45} + \cdots - 9y + 1$
c_8	$y^{46} + 29y^{45} + \cdots - 9760y + 256$
c_{11}	$y^{46} - 18y^{45} + \cdots - 704565y + 42849$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.869521 + 0.344145I$ $a = 1.50416 + 0.73434I$ $b = 1.129120 + 0.456816I$	$-4.45409 - 3.41461I$	$-10.48322 + 2.63232I$
$u = -0.869521 - 0.344145I$ $a = 1.50416 - 0.73434I$ $b = 1.129120 - 0.456816I$	$-4.45409 + 3.41461I$	$-10.48322 - 2.63232I$
$u = 0.755545 + 0.498860I$ $a = 1.99178 - 1.61778I$ $b = 1.180690 + 0.538180I$	$-3.31037 - 10.45050I$	$-8.69927 + 9.35917I$
$u = 0.755545 - 0.498860I$ $a = 1.99178 + 1.61778I$ $b = 1.180690 - 0.538180I$	$-3.31037 + 10.45050I$	$-8.69927 - 9.35917I$
$u = 0.711638 + 0.469005I$ $a = -0.763674 - 0.318200I$ $b = 0.203438 - 0.815815I$	$-0.41848 - 5.45501I$	$-5.35190 + 6.48052I$
$u = 0.711638 - 0.469005I$ $a = -0.763674 + 0.318200I$ $b = 0.203438 + 0.815815I$	$-0.41848 + 5.45501I$	$-5.35190 - 6.48052I$
$u = -0.735390 + 0.424801I$ $a = -2.02595 - 2.04160I$ $b = -1.135150 + 0.447303I$	$-4.51433 + 4.40744I$	$-10.64051 - 5.57891I$
$u = -0.735390 - 0.424801I$ $a = -2.02595 + 2.04160I$ $b = -1.135150 - 0.447303I$	$-4.51433 - 4.40744I$	$-10.64051 + 5.57891I$
$u = 0.745322 + 0.383218I$ $a = -1.65094 + 0.77106I$ $b = -1.213930 + 0.324837I$	$-4.79298 - 1.73712I$	$-11.07336 + 4.61384I$
$u = 0.745322 - 0.383218I$ $a = -1.65094 - 0.77106I$ $b = -1.213930 - 0.324837I$	$-4.79298 + 1.73712I$	$-11.07336 - 4.61384I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.789174$ $a=\ \ 1.29622$ $b=\ \ 0.519026$	-1.45882	-5.44130
$u=-0.727976+0.286689I$ $a=\ \ 0.947922-0.230896I$ $b=-0.010899-0.557387I$	$-1.56660+0.49532I$	$-7.68115-1.36018I$
$u=-0.727976-0.286689I$ $a=\ \ 0.947922+0.230896I$ $b=-0.010899+0.557387I$	$-1.56660-0.49532I$	$-7.68115+1.36018I$
$u=\ \ 0.508676+0.507354I$ $a=\ \ 0.77267-1.48119I$ $b=\ \ 0.827592+0.600489I$	$2.79032-4.13635I$	$-1.98154+7.56914I$
$u=\ \ 0.508676-0.507354I$ $a=\ \ 0.77267+1.48119I$ $b=\ \ 0.827592-0.600489I$	$2.79032+4.13635I$	$-1.98154-7.56914I$
$u=\ \ 0.393201+0.514206I$ $a=-0.490341+0.227249I$ $b=\ \ 0.712026-0.604892I$	$3.12084+0.58749I$	$-0.262566+0.327262I$
$u=\ \ 0.393201-0.514206I$ $a=-0.490341-0.227249I$ $b=\ \ 0.712026+0.604892I$	$3.12084-0.58749I$	$-0.262566-0.327262I$
$u=\ \ 0.109343+0.629269I$ $a=\ \ 0.371133+0.758125I$ $b=\ \ 1.143360-0.519855I$	$-1.40155+6.64307I$	$-5.04471-5.15805I$
$u=\ \ 0.109343-0.629269I$ $a=\ \ 0.371133-0.758125I$ $b=\ \ 1.143360+0.519855I$	$-1.40155-6.64307I$	$-5.04471+5.15805I$
$u=\ \ 0.147821+0.548345I$ $a=\ \ 0.106291-0.656538I$ $b=\ \ 0.241472+0.712682I$	$1.22062+1.95597I$	$-0.98131-1.36818I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.147821 - 0.548345I$ $a = 0.106291 + 0.656538I$ $b = 0.241472 - 0.712682I$	$1.22062 - 1.95597I$	$-0.98131 + 1.36818I$
$u = -1.48057 + 0.06828I$ $a = 0.242649 + 0.138771I$ $b = 0.572969 + 0.701430I$	$-2.87293 + 1.27541I$	0
$u = -1.48057 - 0.06828I$ $a = 0.242649 - 0.138771I$ $b = 0.572969 - 0.701430I$	$-2.87293 - 1.27541I$	0
$u = -0.045501 + 0.511745I$ $a = -0.354500 + 1.284150I$ $b = -1.113980 - 0.361295I$	$-2.55505 - 1.20262I$	$-6.54006 + 0.40776I$
$u = -0.045501 - 0.511745I$ $a = -0.354500 - 1.284150I$ $b = -1.113980 + 0.361295I$	$-2.55505 + 1.20262I$	$-6.54006 - 0.40776I$
$u = -0.410393 + 0.283942I$ $a = 0.89569 - 1.72849I$ $b = -0.678138 + 0.225871I$	$-0.893062 + 1.082040I$	$-6.48995 - 6.28251I$
$u = -0.410393 - 0.283942I$ $a = 0.89569 + 1.72849I$ $b = -0.678138 - 0.225871I$	$-0.893062 - 1.082040I$	$-6.48995 + 6.28251I$
$u = -1.51614 + 0.11587I$ $a = 1.35148 + 0.70752I$ $b = 0.929112 - 0.623725I$	$-3.88727 + 6.30351I$	0
$u = -1.51614 - 0.11587I$ $a = 1.35148 - 0.70752I$ $b = 0.929112 + 0.623725I$	$-3.88727 - 6.30351I$	0
$u = 1.53678 + 0.03338I$ $a = -0.343145 + 1.028020I$ $b = -0.766719 - 0.461059I$	$-7.50480 - 1.94811I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.53678 - 0.03338I$ $a = -0.343145 - 1.028020I$ $b = -0.766719 + 0.461059I$	$-7.50480 + 1.94811I$	0
$u = -1.55032$ $a = -2.37917$ $b = -1.24159$	-8.97468	0
$u = 0.401298$ $a = -2.88943$ $b = -1.09496$	-2.16597	1.80760
$u = 1.61177 + 0.09154I$ $a = 0.560766 + 0.507385I$ $b = -0.121683 + 0.704360I$	$-9.57946 - 1.98178I$	0
$u = 1.61177 - 0.09154I$ $a = 0.560766 - 0.507385I$ $b = -0.121683 - 0.704360I$	$-9.57946 + 1.98178I$	0
$u = -1.61019 + 0.13498I$ $a = -0.394457 + 0.716202I$ $b = 0.178478 + 0.876402I$	$-8.32029 + 7.70926I$	0
$u = -1.61019 - 0.13498I$ $a = -0.394457 - 0.716202I$ $b = 0.178478 - 0.876402I$	$-8.32029 - 7.70926I$	0
$u = 1.61725 + 0.12164I$ $a = -2.39412 + 1.22565I$ $b = -1.163660 - 0.487582I$	$-12.55170 - 6.46011I$	0
$u = 1.61725 - 0.12164I$ $a = -2.39412 - 1.22565I$ $b = -1.163660 + 0.487582I$	$-12.55170 + 6.46011I$	0
$u = -1.61885 + 0.11009I$ $a = -2.28924 - 0.54856I$ $b = -1.267550 - 0.341014I$	$-12.88440 + 3.59966I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.61885-0.11009I$ $a=-2.28924+0.54856I$ $b=-1.267550+0.341014I$	$-12.88440-3.59966I$	0
$u=-1.62455+0.14574I$ $a=\ \ 2.45895+0.92240I$ $b=\ \ 1.209800-0.545440I$	$-11.4148+12.8867I$	0
$u=-1.62455-0.14574I$ $a=\ \ 2.45895-0.92240I$ $b=\ \ 1.209800+0.545440I$	$-11.4148-12.8867I$	0
$u=\ \ 1.64237$ $a=\ \ 1.72270$ $b=\ \ 0.784410$	-9.96538	0
$u=\ \ 1.64966+0.08726I$ $a=\ \ 2.12772-0.58397I$ $b=\ \ 1.160220-0.405425I$	$-13.13770+1.79965I$	0
$u=\ \ 1.64966-0.08726I$ $a=\ \ 2.12772+0.58397I$ $b=\ \ 1.160220+0.405425I$	$-13.13770-1.79965I$	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -17$

(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_7, c_8	u^2
c_5, c_6	u^2+u-1
c_9, c_{10}, c_{11}	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_7, c_8	y^2
c_5, c_6, c_9 c_{10}, c_{11}	$y^2 - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -2.00000$ $b = -1.00000$	-2.63189	-17.0000
$u = -1.61803$ $a = -2.00000$ $b = -1.00000$	-10.5276	-17.0000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{46}-3u^{45}+\cdots-4u+1)$
c_2	$((u+1)^2)(u^{46}+25u^{45}+\cdots+4u+1)$
c_3, c_7	$u^2(u^{46}+u^{45}+\cdots+8u+4)$
c_4	$((u+1)^2)(u^{46}-3u^{45}+\cdots-4u+1)$
c_5, c_6	$(u^2+u-1)(u^{46}+2u^{45}+\cdots-u+1)$
c_8	$u^2(u^{46}-15u^{45}+\cdots-232u+16)$
c_9, c_{10}	$(u^2-u-1)(u^{46}+2u^{45}+\cdots-u+1)$
c_{11}	$(u^2-u-1)(u^{46}-14u^{45}+\cdots-885u+207)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^2)(y^{46} - 25y^{45} + \cdots - 4y + 1)$
c_2	$((y-1)^2)(y^{46} - 5y^{45} + \cdots - 44y + 1)$
c_3, c_7	$y^2(y^{46} - 15y^{45} + \cdots - 232y + 16)$
c_5, c_6, c_9 c_{10}	$(y^2 - 3y + 1)(y^{46} - 54y^{45} + \cdots - 9y + 1)$
c_8	$y^2(y^{46} + 29y^{45} + \cdots - 9760y + 256)$
c_{11}	$(y^2 - 3y + 1)(y^{46} - 18y^{45} + \cdots - 704565y + 42849)$