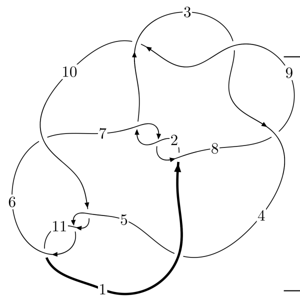
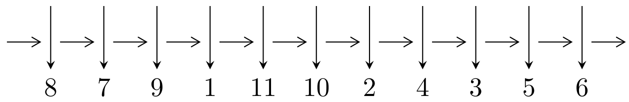
$11a_{361}$ ($K11a_{361}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{17} + 2u^{16} + \cdots + b - 1,\ -5u^{17} + 9u^{16} + \cdots + 2a - 7,\ u^{18} - 3u^{17} + \cdots - 7u - 2\rangle$$

$$I_2^u = \langle u^{10}a - u^{10} + \cdots + 2a - 1,\ 2u^{10}a - u^{10} + \cdots + a - 3,$$
$$u^{11} + u^{10} - 4u^9 - 3u^8 + 6u^7 + 2u^6 - 2u^5 + 3u^4 - 3u^3 - 3u^2 + 2u - 1\rangle$$

$$I_3^u = \langle u^5 - 2u^3 + b + u,\ -u^5 + 3u^3 - u^2 + a - 2u + 1,\ u^6 - 3u^4 + 2u^2 + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 46 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle -u^{17}+2u^{16}+\cdots+b-1,\ -5u^{17}+9u^{16}+\cdots+2a-7,\ u^{18}-3u^{17}+\cdots-7u-2\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^3-2u \\ -u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} \frac{5}{2}u^{17}-\frac{9}{2}u^{16}+\cdots+16u+\frac{7}{2} \\ u^{17}-2u^{16}+\cdots+6u+1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{3}{2}u^{17}-\frac{5}{2}u^{16}+\cdots+9u+\frac{3}{2} \\ u^{17}-2u^{16}+\cdots+5u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^5-2u^3+u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^{17}-\frac{1}{2}u^{16}+\cdots+3u+\frac{3}{2} \\ -u^{17}+u^{16}+\cdots-4u-1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{1}{2}u^{17}-\frac{1}{2}u^{16}+\cdots+4u+\frac{3}{2} \\ -2u^{17}+3u^{16}+\cdots-12u-3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{1}{2}u^{17}-\frac{1}{2}u^{16}+\cdots+4u+\frac{3}{2} \\ -2u^{17}+3u^{16}+\cdots-12u-3 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{17}+4u^{16}+26u^{15}-16u^{14}-76u^{13}+10u^{12}+112u^{11}+58u^{10}-50u^9-126u^8-88u^7+58u^6+122u^5+70u^4-12u^3-50u^2-46u-30$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$u^{18} + 12u^{16} + \cdots - 3u - 1$
c_4, c_6	$u^{18} + 9u^{17} + \cdots + 223u + 26$
c_5, c_{10}, c_{11}	$u^{18} - 3u^{17} + \cdots - 7u - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$y^{18} + 24y^{17} + \cdots - 5y + 1$
c_4, c_6	$y^{18} + 13y^{17} + \cdots - 7609y + 676$
c_5, c_{10}, c_{11}	$y^{18} - 15y^{17} + \cdots - 41y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.123856 + 0.896133I$ $a = -0.64726 - 2.44716I$ $b = -0.30161 + 1.61404I$	$16.3220 + 7.5688I$	$-2.56060 - 3.84684I$
$u = -0.123856 - 0.896133I$ $a = -0.64726 + 2.44716I$ $b = -0.30161 - 1.61404I$	$16.3220 - 7.5688I$	$-2.56060 + 3.84684I$
$u = -0.538460 + 0.620351I$ $a = 1.03715 + 1.21621I$ $b = 0.05142 - 1.55107I$	$10.10640 + 2.19718I$	$-4.14124 - 3.09555I$
$u = -0.538460 - 0.620351I$ $a = 1.03715 - 1.21621I$ $b = 0.05142 + 1.55107I$	$10.10640 - 2.19718I$	$-4.14124 + 3.09555I$
$u = -1.151600 + 0.470809I$ $a = -0.509790 - 1.091590I$ $b = 0.24523 + 1.63308I$	$13.17120 - 2.70335I$	$-5.20794 + 0.16548I$
$u = -1.151600 - 0.470809I$ $a = -0.509790 + 1.091590I$ $b = 0.24523 - 1.63308I$	$13.17120 + 2.70335I$	$-5.20794 - 0.16548I$
$u = -1.261310 + 0.252068I$ $a = 0.211990 + 0.318908I$ $b = -0.236066 - 0.509153I$	$-1.47242 + 2.06370I$	$-11.90510 + 0.97448I$
$u = -1.261310 - 0.252068I$ $a = 0.211990 - 0.318908I$ $b = -0.236066 + 0.509153I$	$-1.47242 - 2.06370I$	$-11.90510 - 0.97448I$
$u = -0.031986 + 0.701532I$ $a = -0.175359 + 1.101380I$ $b = 0.386143 - 0.454390I$	$2.29851 + 1.35610I$	$-7.33537 - 5.27531I$
$u = -0.031986 - 0.701532I$ $a = -0.175359 - 1.101380I$ $b = 0.386143 + 0.454390I$	$2.29851 - 1.35610I$	$-7.33537 + 5.27531I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.30632$ $a = 0.919432$ $b = 0.613328$	-5.28445	-18.9030
$u = 1.286650 + 0.297323I$ $a = -0.675519 + 0.845692I$ $b = -0.521429 - 0.448538I$	$-1.81273 - 4.98441I$	$-12.9081 + 7.6610I$
$u = 1.286650 - 0.297323I$ $a = -0.675519 - 0.845692I$ $b = -0.521429 + 0.448538I$	$-1.81273 + 4.98441I$	$-12.9081 - 7.6610I$
$u = 1.36136 + 0.40071I$ $a = 1.71836 - 1.08684I$ $b = 0.33798 + 1.58437I$	$11.6528 - 12.2200I$	$-6.45692 + 6.09309I$
$u = 1.36136 - 0.40071I$ $a = 1.71836 + 1.08684I$ $b = 0.33798 - 1.58437I$	$11.6528 + 12.2200I$	$-6.45692 - 6.09309I$
$u = 1.45252 + 0.15463I$ $a = -0.916883 - 0.366782I$ $b = -0.11443 - 1.46229I$	$3.61426 - 4.76803I$	$-7.92624 + 3.38619I$
$u = 1.45252 - 0.15463I$ $a = -0.916883 + 0.366782I$ $b = -0.11443 + 1.46229I$	$3.61426 + 4.76803I$	$-7.92624 - 3.38619I$
$u = -0.292956$ $a = -0.504799$ $b = -0.307793$	-0.489564	-20.2140

II.
$\boldsymbol{I_2^u = \langle u^{10}a - u^{10} + \cdots + 2a - 1,\ 2u^{10}a - u^{10} + \cdots + a - 3,\ u^{11} + u^{10} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^9 + 16u^7 - 4u^6 - 20u^5 + 12u^4 - 4u^3 - 8u^2 + 20u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$u^{22} - u^{21} + \cdots + 6u + 5$
c_4, c_6	$(u^{11} - 3u^{10} + \cdots - 2u + 1)^2$
c_5, c_{10}, c_{11}	$(u^{11} + u^{10} - 4u^9 - 3u^8 + 6u^7 + 2u^6 - 2u^5 + 3u^4 - 3u^3 - 3u^2 + 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$y^{22} + 19y^{21} + \cdots + 24y + 25$
c_4, c_6	$(y^{11} + 11y^{10} + \cdots + 6y - 1)^2$
c_5, c_{10}, c_{11}	$(y^{11} - 9y^{10} + \cdots - 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.14725$ $a = -1.48144 + 0.67002I$ $b = -0.301144 - 1.127860I$	1.09450	-7.62370
$u = 1.14725$ $a = -1.48144 - 0.67002I$ $b = -0.301144 + 1.127860I$	1.09450	-7.62370
$u = 0.044199 + 0.849205I$ $a = 0.388928 + 0.983366I$ $b = -0.915282 - 0.626510I$	$8.93247 - 3.04152I$	$-3.93879 + 2.82242I$
$u = 0.044199 + 0.849205I$ $a = 0.36363 - 2.98960I$ $b = 0.10178 + 1.52179I$	$8.93247 - 3.04152I$	$-3.93879 + 2.82242I$
$u = 0.044199 - 0.849205I$ $a = 0.388928 - 0.983366I$ $b = -0.915282 + 0.626510I$	$8.93247 + 3.04152I$	$-3.93879 - 2.82242I$
$u = 0.044199 - 0.849205I$ $a = 0.36363 + 2.98960I$ $b = 0.10178 - 1.52179I$	$8.93247 + 3.04152I$	$-3.93879 - 2.82242I$
$u = 1.232090 + 0.392876I$ $a = -0.092298 - 0.230493I$ $b = 0.866867 - 0.720237I$	$5.26692 - 1.41699I$	$-7.20869 + 0.63373I$
$u = 1.232090 + 0.392876I$ $a = 0.88708 - 1.64981I$ $b = -0.02867 + 1.51700I$	$5.26692 - 1.41699I$	$-7.20869 + 0.63373I$
$u = 1.232090 - 0.392876I$ $a = -0.092298 + 0.230493I$ $b = 0.866867 + 0.720237I$	$5.26692 + 1.41699I$	$-7.20869 - 0.63373I$
$u = 1.232090 - 0.392876I$ $a = 0.88708 + 1.64981I$ $b = -0.02867 - 1.51700I$	$5.26692 + 1.41699I$	$-7.20869 - 0.63373I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.317220 + 0.129556I$ $a = -0.848428 + 0.622696I$ $b = -0.450568 + 0.155139I$	$-1.89175 + 2.94672I$	$-13.7994 - 4.1179I$
$u = -1.317220 + 0.129556I$ $a = 1.083920 + 0.034152I$ $b = 0.176110 - 1.143700I$	$-1.89175 + 2.94672I$	$-13.7994 - 4.1179I$
$u = -1.317220 - 0.129556I$ $a = -0.848428 - 0.622696I$ $b = -0.450568 - 0.155139I$	$-1.89175 - 2.94672I$	$-13.7994 + 4.1179I$
$u = -1.317220 - 0.129556I$ $a = 1.083920 - 0.034152I$ $b = 0.176110 + 1.143700I$	$-1.89175 - 2.94672I$	$-13.7994 + 4.1179I$
$u = -1.304640 + 0.385413I$ $a = 0.834463 + 0.932370I$ $b = 0.947680 - 0.541858I$	$4.72165 + 7.47524I$	$-8.22908 - 5.55460I$
$u = -1.304640 + 0.385413I$ $a = -1.53022 - 1.52281I$ $b = -0.16441 + 1.51556I$	$4.72165 + 7.47524I$	$-8.22908 - 5.55460I$
$u = -1.304640 - 0.385413I$ $a = 0.834463 - 0.932370I$ $b = 0.947680 + 0.541858I$	$4.72165 - 7.47524I$	$-8.22908 + 5.55460I$
$u = -1.304640 - 0.385413I$ $a = -1.53022 + 1.52281I$ $b = -0.16441 - 1.51556I$	$4.72165 - 7.47524I$	$-8.22908 + 5.55460I$
$u = 0.271947 + 0.385187I$ $a = 1.176750 + 0.591060I$ $b = 0.288931 + 0.529428I$	$2.98514 - 1.13130I$	$-8.01220 + 6.05785I$
$u = 0.271947 + 0.385187I$ $a = -1.28240 + 1.91841I$ $b = -0.021293 - 1.196140I$	$2.98514 - 1.13130I$	$-8.01220 + 6.05785I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.271947 - 0.385187I$ $a = \ \ 1.176750 - 0.591060I$ $b = \ \ 0.288931 - 0.529428I$	$2.98514 + 1.13130I$	$-8.01220 - 6.05785I$
$u = \ \ 0.271947 - 0.385187I$ $a = -1.28240 - 1.91841I$ $b = -0.021293 + 1.196140I$	$2.98514 + 1.13130I$	$-8.01220 - 6.05785I$

III. $\boldsymbol{I_3^u = \langle u^5 - 2u^3 + b + u,\ -u^5 + 3u^3 - u^2 + a - 2u + 1,\ u^6 - 3u^4 + 2u^2 + 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^3 - 2u \\ -u^3 + u \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} u^5 - 3u^3 + u^2 + 2u - 1 \\ -u^5 + 2u^3 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^5 - 3u^3 + 2u \\ -u^5 - u^4 + 2u^3 + 2u^2 - u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^5 - 2u^3 + u \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^4 + u^3 + 2u^2 - 2u \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^4 + u^3 + 2u^2 - 2u - 1 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u^4 + u^3 + 2u^2 - 2u - 1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^4 - 8u^2 - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$(u^2+1)^3$
c_4, c_6	$u^6+u^4+2u^2+1$
c_5, c_{10}, c_{11}	$u^6-3u^4+2u^2+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$(y+1)^6$
c_4, c_6	$(y^3+y^2+2y+1)^2$
c_5, c_{10}, c_{11}	$(y^3-3y^2+2y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.307140 + 0.215080I$ $a = -0.082503 + 0.684841I$ $b = -1.000000I$	$0.26574 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 1.307140 - 0.215080I$ $a = -0.082503 - 0.684841I$ $b = 1.000000I$	$0.26574 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -1.307140 + 0.215080I$ $a = 1.40722 - 0.43972I$ $b = -1.000000I$	$0.26574 + 2.82812I$	$-7.50976 - 2.97945I$
$u = -1.307140 - 0.215080I$ $a = 1.40722 + 0.43972I$ $b = 1.000000I$	$0.26574 - 2.82812I$	$-7.50976 + 2.97945I$
$u = 0.569840I$ $a = -1.32472 + 1.75488I$ $b = -1.000000I$	4.40332	-0.980490
$u = -0.569840I$ $a = -1.32472 - 1.75488I$ $b = 1.000000I$	4.40332	-0.980490

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$((u^2+1)^3)(u^{18}+12u^{16}+\cdots-3u-1)(u^{22}-u^{21}+\cdots+6u+5)$
c_4, c_6	$(u^6+u^4+2u^2+1)(u^{11}-3u^{10}+\cdots-2u+1)^2$ $\cdot(u^{18}+9u^{17}+\cdots+223u+26)$
c_5, c_{10}, c_{11}	$(u^6-3u^4+2u^2+1)$ $\cdot(u^{11}+u^{10}-4u^9-3u^8+6u^7+2u^6-2u^5+3u^4-3u^3-3u^2+2u-1)^2$ $\cdot(u^{18}-3u^{17}+\cdots-7u-2)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_7, c_8, c_9	$((y+1)^6)(y^{18}+24y^{17}+\cdots-5y+1)(y^{22}+19y^{21}+\cdots+24y+25)$
c_4, c_6	$((y^3+y^2+2y+1)^2)(y^{11}+11y^{10}+\cdots+6y-1)^2$ $\cdot(y^{18}+13y^{17}+\cdots-7609y+676)$
c_5, c_{10}, c_{11}	$((y^3-3y^2+2y+1)^2)(y^{11}-9y^{10}+\cdots-2y-1)^2$ $\cdot(y^{18}-15y^{17}+\cdots-41y+4)$