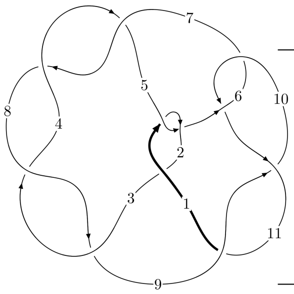
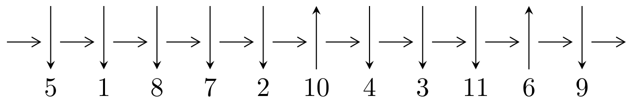
$11a_{133}$ ($K11a_{133}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.79178 \times 10^{22} u^{44} + 3.67398 \times 10^{22} u^{43} + \cdots + 7.16385 \times 10^{22} b - 6.36327 \times 10^{21},$$
$$- 9.16718 \times 10^{20} u^{44} + 1.82694 \times 10^{23} u^{43} + \cdots + 2.86554 \times 10^{23} a - 2.62927 \times 10^{24},\ u^{45} + u^{44} + \cdots - 28u^2$$
$$I_2^u = \langle b + 1,\ 2a^2 - au - 4a + u + 1,\ u^2 + 2\rangle$$

$$I_1^v = \langle a,\ b + 1,\ v^2 + v + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 51 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. $\boldsymbol{I_1^u = \langle 3.79 \times 10^{22}u^{44} + 3.67 \times 10^{22}u^{43} + \cdots + 7.16 \times 10^{22}b - 6.36 \times 10^{21},\ -9.17 \times 10^{20}u^{44} + 1.83 \times 10^{23}u^{43} + \cdots + 2.87 \times 10^{23}a - 2.63 \times 10^{24},\ u^{45} + u^{44} + \cdots - 28u^2 - 4\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00319911u^{44} - 0.637556u^{43} + \cdots - 7.59140u + 9.17549 \\ -0.529294u^{44} - 0.512850u^{43} + \cdots + 4.30006u + 0.0888247 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.424417u^{44} + 0.198789u^{43} + \cdots - 8.45475u + 5.64275 \\ -1.00162u^{44} - 1.22215u^{43} + \cdots + 7.67645u + 1.88551 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.432131u^{44} + 0.147580u^{43} + \cdots - 9.69578u + 6.67824 \\ -0.958226u^{44} - 1.29799u^{43} + \cdots + 6.40444u + 2.58607 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.729800u^{44} + 0.582734u^{43} + \cdots - 6.09901u - 6.26113 \\ -0.0344386u^{44} + 0.939991u^{43} + \cdots + 4.74682u - 5.61829 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.432131u^{44} + 0.147580u^{43} + \cdots - 9.69578u + 6.67824 \\ 0.415034u^{44} + 0.460313u^{43} + \cdots - 4.67591u - 3.72428 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.432131u^{44} + 0.147580u^{43} + \cdots - 9.69578u + 6.67824 \\ 0.415034u^{44} + 0.460313u^{43} + \cdots - 4.67591u - 3.72428 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3212045335225321889683 5}{71638476266902618700479}u^{44} + \frac{51439144552236413356159}{71638476266902618700479}u^{43} + \cdots + \frac{26705757261197342343185 2}{71638476266902618700479}u - \frac{63053679600584577598138 8}{71638476266902618700479}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{45} + 3u^{44} + \cdots - 10u + 3$
c_2	$u^{45} + 19u^{44} + \cdots + 58u + 9$
c_3, c_4, c_7 c_8	$u^{45} - u^{44} + \cdots + 28u^2 + 4$
c_6, c_{10}	$u^{45} - 2u^{44} + \cdots + 3u + 3$
c_9, c_{11}	$u^{45} + 14u^{44} + \cdots + 21u - 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{45} - 19y^{44} + \cdots + 58y - 9$
c_2	$y^{45} + 21y^{44} + \cdots - 1838y - 81$
c_3, c_4, c_7 c_8	$y^{45} + 55y^{44} + \cdots - 224y - 16$
c_6, c_{10}	$y^{45} + 14y^{44} + \cdots + 21y - 9$
c_9, c_{11}	$y^{45} + 38y^{44} + \cdots + 10737y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.595154 + 0.799976I$ $a = -0.809139 - 0.923508I$ $b = -0.66293 + 1.48925I$	$3.82469 + 9.97213I$	$-4.07711 - 8.66746I$
$u = -0.595154 - 0.799976I$ $a = -0.809139 + 0.923508I$ $b = -0.66293 - 1.48925I$	$3.82469 - 9.97213I$	$-4.07711 + 8.66746I$
$u = 0.542227 + 0.847104I$ $a = -0.624429 + 0.873722I$ $b = -0.49486 - 1.41856I$	$4.60680 - 4.00969I$	$-2.37481 + 3.81201I$
$u = 0.542227 - 0.847104I$ $a = -0.624429 - 0.873722I$ $b = -0.49486 + 1.41856I$	$4.60680 + 4.00969I$	$-2.37481 - 3.81201I$
$u = 0.449130 + 0.919217I$ $a = 0.997189 - 0.562134I$ $b = 0.360475 + 0.942383I$	$5.31668 - 4.26099I$	$-1.24439 + 3.98671I$
$u = 0.449130 - 0.919217I$ $a = 0.997189 + 0.562134I$ $b = 0.360475 - 0.942383I$	$5.31668 + 4.26099I$	$-1.24439 - 3.98671I$
$u = -0.372392 + 1.006660I$ $a = 0.981655 + 0.526640I$ $b = 0.139519 - 1.024240I$	$5.57757 - 1.59310I$	$-0.70414 + 1.88658I$
$u = -0.372392 - 1.006660I$ $a = 0.981655 - 0.526640I$ $b = 0.139519 + 1.024240I$	$5.57757 + 1.59310I$	$-0.70414 - 1.88658I$
$u = 0.203852 + 0.752739I$ $a = 0.411257 + 1.253590I$ $b = -0.370857 - 0.767483I$	$1.25627 - 2.00304I$	$-0.90089 + 4.84629I$
$u = 0.203852 - 0.752739I$ $a = 0.411257 - 1.253590I$ $b = -0.370857 + 0.767483I$	$1.25627 + 2.00304I$	$-0.90089 - 4.84629I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.756562 + 0.151657I$ $a = 0.353008 - 0.645751I$ $b = -0.400769 - 1.209730I$	$1.87890 - 5.45220I$	$-5.89309 + 4.91113I$
$u = -0.756562 - 0.151657I$ $a = 0.353008 + 0.645751I$ $b = -0.400769 + 1.209730I$	$1.87890 + 5.45220I$	$-5.89309 - 4.91113I$
$u = -0.411509 + 0.629213I$ $a = -0.48287 - 1.77369I$ $b = -0.759126 + 0.924061I$	$-2.33846 + 4.64978I$	$-9.14624 - 8.10002I$
$u = -0.411509 - 0.629213I$ $a = -0.48287 + 1.77369I$ $b = -0.759126 - 0.924061I$	$-2.33846 - 4.64978I$	$-9.14624 + 8.10002I$
$u = 0.739174 + 0.066659I$ $a = 0.432504 + 0.605344I$ $b = -0.183861 + 1.069320I$	$2.24775 - 0.28638I$	$-4.98856 + 0.17511I$
$u = 0.739174 - 0.066659I$ $a = 0.432504 - 0.605344I$ $b = -0.183861 - 1.069320I$	$2.24775 + 0.28638I$	$-4.98856 - 0.17511I$
$u = 0.038629 + 1.346620I$ $a = 0.753383 - 0.039929I$ $b = -0.056494 - 0.156524I$	$4.91236 - 2.29181I$	0
$u = 0.038629 - 1.346620I$ $a = 0.753383 + 0.039929I$ $b = -0.056494 + 0.156524I$	$4.91236 + 2.29181I$	0
$u = -0.101635 + 0.590584I$ $a = -0.429318 - 0.140632I$ $b = -1.47830 - 0.11239I$	$-0.78716 + 2.48122I$	$-3.04347 - 4.76589I$
$u = -0.101635 - 0.590584I$ $a = -0.429318 + 0.140632I$ $b = -1.47830 + 0.11239I$	$-0.78716 - 2.48122I$	$-3.04347 + 4.76589I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.479511+0.303305I$ $a=\ \ 0.065872-0.427985I$ $b=-0.987241-0.640209I$	$-3.30905-1.49655I$	$-13.54204-0.04800I$
$u=-0.479511-0.303305I$ $a=\ \ 0.065872+0.427985I$ $b=-0.987241+0.640209I$	$-3.30905+1.49655I$	$-13.54204+0.04800I$
$u=-0.08818+1.43765I$ $a=\ \ 1.047830+0.106631I$ $b=-1.143340-0.464536I$	$2.28059+0.33440I$	0
$u=-0.08818-1.43765I$ $a=\ \ 1.047830-0.106631I$ $b=-1.143340+0.464536I$	$2.28059-0.33440I$	0
$u=-0.117374+0.488254I$ $a=\ \ 1.95300-2.18078I$ $b=-0.572552+0.344300I$	$-1.01308-1.54097I$	$-3.12750-1.49729I$
$u=-0.117374-0.488254I$ $a=\ \ 1.95300+2.18078I$ $b=-0.572552-0.344300I$	$-1.01308+1.54097I$	$-3.12750+1.49729I$
$u=\ \ 0.320837+0.380710I$ $a=\ \ 1.001570-0.386206I$ $b=\ \ 0.159215+0.077837I$	$-0.430811-1.192020I$	$-5.27697+5.64355I$
$u=\ \ 0.320837-0.380710I$ $a=\ \ 1.001570+0.386206I$ $b=\ \ 0.159215-0.077837I$	$-0.430811+1.192020I$	$-5.27697-5.64355I$
$u=-0.00060+1.58402I$ $a=\ \ 0.58858-1.61169I$ $b=-0.042622+0.922347I$	$6.21731-1.33164I$	0
$u=-0.00060-1.58402I$ $a=\ \ 0.58858+1.61169I$ $b=-0.042622-0.922347I$	$6.21731+1.33164I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.10202 + 1.59722I$ $a = \quad 0.16838 - 2.06884I$ $b = -0.568246 + 1.291280I$	$5.28483 + 6.46491I$	0
$u = -0.10202 - 1.59722I$ $a = \quad 0.16838 + 2.06884I$ $b = -0.568246 - 1.291280I$	$5.28483 - 6.46491I$	0
$u = \quad 0.393229$ $a = \quad 0.318039$ $b = -0.551275$	-0.995192	-10.6150
$u = -0.02225 + 1.60699I$ $a = \quad 1.205480 + 0.019298I$ $b = -2.04934 - 0.12580I$	$6.93943 + 2.89736I$	0
$u = -0.02225 - 1.60699I$ $a = \quad 1.205480 - 0.019298I$ $b = -2.04934 + 0.12580I$	$6.93943 - 2.89736I$	0
$u = \quad 0.04744 + 1.63431I$ $a = \quad 0.24569 + 1.76495I$ $b = -0.161409 - 1.339170I$	$9.56075 - 2.89885I$	0
$u = \quad 0.04744 - 1.63431I$ $a = \quad 0.24569 - 1.76495I$ $b = -0.161409 + 1.339170I$	$9.56075 + 2.89885I$	0
$u = -0.17946 + 1.64793I$ $a = -0.15251 - 1.95899I$ $b = -0.85684 + 1.76671I$	$12.1487 + 12.9478I$	0
$u = -0.17946 - 1.64793I$ $a = -0.15251 + 1.95899I$ $b = -0.85684 - 1.76671I$	$12.1487 - 12.9478I$	0
$u = \quad 0.15594 + 1.66197I$ $a = -0.10012 + 1.91348I$ $b = -0.69213 - 1.78816I$	$13.2084 - 6.7061I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.15594 - 1.66197I$ $a = -0.10012 - 1.91348I$ $b = -0.69213 + 1.78816I$	$13.2084 + 6.7061I$	0
$u = 0.11988 + 1.67520I$ $a = 0.116060 - 1.188540I$ $b = 0.864414 + 1.057190I$	$14.2846 - 6.4583I$	0
$u = 0.11988 - 1.67520I$ $a = 0.116060 + 1.188540I$ $b = 0.864414 - 1.057190I$	$14.2846 + 6.4583I$	0
$u = -0.08709 + 1.68689I$ $a = 0.117912 + 1.285170I$ $b = 0.73293 - 1.22370I$	$14.9288 + 0.1276I$	0
$u = -0.08709 - 1.68689I$ $a = 0.117912 - 1.285170I$ $b = 0.73293 + 1.22370I$	$14.9288 - 0.1276I$	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4au + 4u - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.414210I$ $a = 0.387628 + 0.353553I$ $b = -1.00000$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.414210I$ $a = 1.61237 + 0.35355I$ $b = -1.00000$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.414210I$ $a = 0.387628 - 0.353553I$ $b = -1.00000$	$3.28987 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.414210I$ $a = 1.61237 - 0.35355I$ $b = -1.00000$	$3.28987 - 2.02988I$	$-6.00000 + 3.46410I$

III. $I_1^v = \langle a,\ b+1,\ v^2+v+1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} v+1 \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} v+1 \\ v \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^2$
c_2, c_5	$(u+1)^2$
c_3, c_4, c_7 c_8	u^2
c_6, 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_5	$(y-1)^2$
c_3, c_4, c_7 c_8	y^2
c_6, c_9, c_{10} c_{11}	y^2+y+1

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -1.00000$	$-1.64493 + 2.02988I$	$-12.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -1.00000$	$-1.64493 - 2.02988I$	$-12.00000 + 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u+1)^4(u^{45}+3u^{44}+\cdots-10u+3)$
c_2	$((u+1)^6)(u^{45}+19u^{44}+\cdots+58u+9)$
c_3, c_4, c_7 c_8	$u^2(u^2+2)^2(u^{45}-u^{44}+\cdots+28u^2+4)$
c_5	$((u-1)^4)(u+1)^2(u^{45}+3u^{44}+\cdots-10u+3)$
c_6	$((u^2-u+1)^2)(u^2+u+1)(u^{45}-2u^{44}+\cdots+3u+3)$
c_9	$((u^2-u+1)^3)(u^{45}+14u^{44}+\cdots+21u-9)$
c_{10}	$(u^2-u+1)(u^2+u+1)^2(u^{45}-2u^{44}+\cdots+3u+3)$
c_{11}	$((u^2+u+1)^3)(u^{45}+14u^{44}+\cdots+21u-9)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$((y-1)^6)(y^{45} - 19y^{44} + \cdots + 58y - 9)$
c_2	$((y-1)^6)(y^{45} + 21y^{44} + \cdots - 1838y - 81)$
c_3, c_4, c_7 c_8	$y^2(y+2)^4(y^{45} + 55y^{44} + \cdots - 224y - 16)$
c_6, c_{10}	$((y^2+y+1)^3)(y^{45} + 14y^{44} + \cdots + 21y - 9)$
c_9, c_{11}	$((y^2+y+1)^3)(y^{45} + 38y^{44} + \cdots + 10737y - 81)$