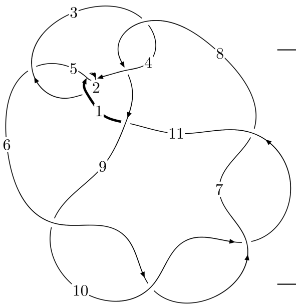
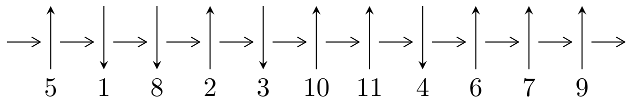
$11a_7$ ($K11a_7$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle -17u^{50} + 25u^{49} + \cdots + 2b - 13,\ 15u^{50} - 24u^{49} + \cdots + 2a + 6,\ u^{51} - 3u^{50} + \cdots - 3u^2 - 1 \rangle$
$I_2^u = \langle -au + b,\ a^2 - a + 1,\ u^2 + u - 1 \rangle$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 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. $I^u_1 = \langle -17u^{50} + 25u^{49} + \cdots + 2b - 13,\ 15u^{50} - 24u^{49} + \cdots + 2a + 6,\ u^{51} - 3u^{50} + \cdots - 3u^2 - 1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{15}{2}u^{50} + 12u^{49} + \cdots - \frac{5}{2}u - 3 \\ \frac{17}{2}u^{50} - \frac{25}{2}u^{49} + \cdots + 2u + \frac{13}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{17}{2}u^{50} + 13u^{49} + \cdots - \frac{5}{2}u - 3 \\ \frac{25}{2}u^{50} - \frac{33}{2}u^{49} + \cdots + 3u + \frac{17}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{50} + u^{49} + \cdots + \frac{3}{2}u - 1 \\ \frac{1}{2}u^{50} - \frac{1}{2}u^{49} + \cdots + 2u + \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^6 + 3u^4 - 2u^2 + 1 \\ u^6 - 2u^4 - u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -8u^{50} + \frac{25}{2}u^{49} + \cdots - \frac{7}{2}u - \frac{5}{2} \\ 11u^{50} - 15u^{49} + \cdots + 3u + 8 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -8u^{50} + \frac{25}{2}u^{49} + \cdots - \frac{7}{2}u - \frac{5}{2} \\ 11u^{50} - 15u^{49} + \cdots + 3u + 8 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5}{2}u^{50} + 3u^{49} + \cdots + \frac{1}{2}u^2 - \frac{11}{2}u$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{51} + 3u^{50} + \cdots + 4u + 1$
c_2	$u^{51} + 25u^{50} + \cdots - 2u - 1$
c_3, c_8	$u^{51} - u^{50} + \cdots + 100u^2 - 16$
c_5	$u^{51} - 3u^{50} + \cdots - 488u + 241$
c_6, c_7, c_9 c_{10}	$u^{51} - 3u^{50} + \cdots - 3u^2 - 1$
c_{11}	$u^{51} + 13u^{50} + \cdots + 102u - 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{51} + 25y^{50} + \cdots - 2y - 1$
c_2	$y^{51} + 5y^{50} + \cdots - 42y - 1$
c_3, c_8	$y^{51} - 25y^{50} + \cdots + 3200y - 256$
c_5	$y^{51} - 15y^{50} + \cdots + 378406y - 58081$
c_6, c_7, c_9 c_{10}	$y^{51} - 59y^{50} + \cdots - 6y - 1$
c_{11}	$y^{51} + y^{50} + \cdots + 27134y - 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.010040 + 0.185114I$ $a = 0.028727 + 0.217779I$ $b = 1.155140 + 0.071848I$	$-0.74107 - 3.69137I$	$3.00000 + 3.57636I$
$u = 1.010040 - 0.185114I$ $a = 0.028727 - 0.217779I$ $b = 1.155140 - 0.071848I$	$-0.74107 + 3.69137I$	$3.00000 - 3.57636I$
$u = -0.696278 + 0.562745I$ $a = -0.126496 - 0.100580I$ $b = -0.65483 - 1.57526I$	$-3.44622 - 10.79080I$	$1.49962 + 9.34961I$
$u = -0.696278 - 0.562745I$ $a = -0.126496 + 0.100580I$ $b = -0.65483 + 1.57526I$	$-3.44622 + 10.79080I$	$1.49962 - 9.34961I$
$u = -0.669411 + 0.527277I$ $a = -0.078362 + 0.148261I$ $b = 0.48562 + 1.39970I$	$-0.91928 - 5.72397I$	$4.37797 + 6.08222I$
$u = -0.669411 - 0.527277I$ $a = -0.078362 - 0.148261I$ $b = 0.48562 - 1.39970I$	$-0.91928 + 5.72397I$	$4.37797 - 6.08222I$
$u = -0.601097 + 0.571095I$ $a = 0.200819 + 0.207134I$ $b = -0.716384 - 1.036900I$	$-5.51696 - 2.60444I$	$-1.87192 + 3.52202I$
$u = -0.601097 - 0.571095I$ $a = 0.200819 - 0.207134I$ $b = -0.716384 + 1.036900I$	$-5.51696 + 2.60444I$	$-1.87192 - 3.52202I$
$u = 0.782212 + 0.168121I$ $a = 0.268689 - 0.110103I$ $b = -0.800842 - 0.378551I$	$1.51394 + 0.22954I$	$7.32004 + 0.16659I$
$u = 0.782212 - 0.168121I$ $a = 0.268689 + 0.110103I$ $b = -0.800842 + 0.378551I$	$1.51394 - 0.22954I$	$7.32004 - 0.16659I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.579058 + 0.450651I$ $a = -1.037300 + 0.151216I$ $b = 0.36687 + 1.44155I$	$-0.67124 + 4.97036I$	$2.71900 - 7.31464I$
$u = 0.579058 - 0.450651I$ $a = -1.037300 - 0.151216I$ $b = 0.36687 - 1.44155I$	$-0.67124 - 4.97036I$	$2.71900 + 7.31464I$
$u = -0.343524 + 0.624420I$ $a = -0.976295 - 0.922559I$ $b = 0.269931 - 0.191977I$	$-6.27450 - 1.45252I$	$-3.69386 + 3.06697I$
$u = -0.343524 - 0.624420I$ $a = -0.976295 + 0.922559I$ $b = 0.269931 + 0.191977I$	$-6.27450 + 1.45252I$	$-3.69386 - 3.06697I$
$u = -0.599839 + 0.369476I$ $a = -0.798578 + 0.484702I$ $b = -0.125617 + 1.082760I$	$1.18905 - 3.57721I$	$4.64362 + 8.91865I$
$u = -0.599839 - 0.369476I$ $a = -0.798578 - 0.484702I$ $b = -0.125617 - 1.082760I$	$1.18905 + 3.57721I$	$4.64362 - 8.91865I$
$u = -0.228379 + 0.658723I$ $a = -1.28242 - 1.11756I$ $b = -0.201046 - 0.506980I$	$-4.82761 + 6.67077I$	$-1.71165 - 4.27909I$
$u = -0.228379 - 0.658723I$ $a = -1.28242 + 1.11756I$ $b = -0.201046 + 0.506980I$	$-4.82761 - 6.67077I$	$-1.71165 + 4.27909I$
$u = 0.614370 + 0.324141I$ $a = 0.701582 - 0.039747I$ $b = -0.491878 - 0.972906I$	$1.41349 + 0.80124I$	$7.83477 - 2.87289I$
$u = 0.614370 - 0.324141I$ $a = 0.701582 + 0.039747I$ $b = -0.491878 + 0.972906I$	$1.41349 - 0.80124I$	$7.83477 + 2.87289I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.243226 + 0.591006I$ $a = 1.28551 + 0.93694I$ $b = 0.170934 + 0.215041I$	$-2.16539 + 1.90010I$	$1.028545 - 0.515555I$
$u = -0.243226 - 0.591006I$ $a = 1.28551 - 0.93694I$ $b = 0.170934 - 0.215041I$	$-2.16539 - 1.90010I$	$1.028545 + 0.515555I$
$u = 1.366540 + 0.105513I$ $a = 0.073383 - 0.327087I$ $b = 0.780564 + 0.143090I$	$-0.93634 + 4.10134I$	0
$u = 1.366540 - 0.105513I$ $a = 0.073383 + 0.327087I$ $b = 0.780564 - 0.143090I$	$-0.93634 - 4.10134I$	0
$u = 1.40634$ $a = 0.303169$ $b = -1.14879$	2.53581	0
$u = -0.511782 + 0.272136I$ $a = 1.43457 - 0.46586I$ $b = 0.446013 - 0.822688I$	$0.64233 + 1.35638I$	$0.89935 + 4.08945I$
$u = -0.511782 - 0.272136I$ $a = 1.43457 + 0.46586I$ $b = 0.446013 + 0.822688I$	$0.64233 - 1.35638I$	$0.89935 - 4.08945I$
$u = 0.359561 + 0.428490I$ $a = -1.281080 - 0.420225I$ $b = -0.329117 + 1.066960I$	$-1.31778 - 1.81267I$	$0.238643 - 0.120411I$
$u = 0.359561 - 0.428490I$ $a = -1.281080 + 0.420225I$ $b = -0.329117 - 1.066960I$	$-1.31778 + 1.81267I$	$0.238643 + 0.120411I$
$u = -1.51828 + 0.07351I$ $a = 0.37450 - 1.82930I$ $b = 0.11043 + 1.78445I$	$4.98533 + 0.33539I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.51828 - 0.07351I$ $a = 0.37450 + 1.82930I$ $b = 0.11043 - 1.78445I$	$4.98533 - 0.33539I$	0
$u = 1.56233 + 0.08226I$ $a = 1.12351 + 1.94512I$ $b = -1.69642 - 2.80365I$	$7.78597 - 0.04605I$	0
$u = 1.56233 - 0.08226I$ $a = 1.12351 - 1.94512I$ $b = -1.69642 + 2.80365I$	$7.78597 + 0.04605I$	0
$u = 1.56086 + 0.16665I$ $a = -0.23171 + 1.99295I$ $b = 0.61349 - 2.25582I$	$1.69351 + 5.28998I$	0
$u = 1.56086 - 0.16665I$ $a = -0.23171 - 1.99295I$ $b = 0.61349 + 2.25582I$	$1.69351 - 5.28998I$	0
$u = -1.56649 + 0.12512I$ $a = 0.81106 - 1.94624I$ $b = -0.02960 + 2.45788I$	$6.58151 - 7.03980I$	0
$u = -1.56649 - 0.12512I$ $a = 0.81106 + 1.94624I$ $b = -0.02960 - 2.45788I$	$6.58151 + 7.03980I$	0
$u = 1.57533 + 0.10647I$ $a = -0.67114 - 2.26632I$ $b = 0.83041 + 3.20187I$	$8.59223 + 5.32247I$	0
$u = 1.57533 - 0.10647I$ $a = -0.67114 + 2.26632I$ $b = 0.83041 - 3.20187I$	$8.59223 - 5.32247I$	0
$u = -1.57717 + 0.09542I$ $a = -0.78995 + 1.70101I$ $b = 0.32037 - 2.17607I$	$8.87289 - 2.35791I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.57717 - 0.09542I$ $a = -0.78995 - 1.70101I$ $b = 0.32037 + 2.17607I$	$8.87289 + 2.35791I$	0
$u = 1.59320 + 0.15654I$ $a = 0.17669 - 2.45152I$ $b = -0.80910 + 3.14034I$	$6.71685 + 8.26103I$	0
$u = 1.59320 - 0.15654I$ $a = 0.17669 + 2.45152I$ $b = -0.80910 - 3.14034I$	$6.71685 - 8.26103I$	0
$u = 1.60213 + 0.17042I$ $a = -0.39966 + 2.52070I$ $b = 1.29169 - 3.13581I$	$4.3011 + 13.5338I$	0
$u = 1.60213 - 0.17042I$ $a = -0.39966 - 2.52070I$ $b = 1.29169 + 3.13581I$	$4.3011 - 13.5338I$	0
$u = -1.62797 + 0.05185I$ $a = -1.03715 + 1.00610I$ $b = 1.17135 - 1.51034I$	$9.84168 - 1.12988I$	0
$u = -1.62797 - 0.05185I$ $a = -1.03715 - 1.00610I$ $b = 1.17135 + 1.51034I$	$9.84168 + 1.12988I$	0
$u = -1.66201 + 0.03190I$ $a = 1.44313 - 0.54681I$ $b = -2.00594 + 0.95171I$	$8.41785 + 2.99724I$	0
$u = -1.66201 - 0.03190I$ $a = 1.44313 + 0.54681I$ $b = -2.00594 - 0.95171I$	$8.41785 - 2.99724I$	0
$u = 0.036663 + 0.311170I$ $a = 1.63637 + 1.04446I$ $b = 0.422361 - 0.375155I$	$-0.118620 + 1.395530I$	$-0.02533 - 5.05336I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.036663-0.311170I$		
$a=$	$1.63637-1.04446I$	$-0.118620-1.395530I$	$-0.02533+5.05336I$
$b=$	$0.422361+0.375155I$		

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

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} a \\ au \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ au \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a - u - 1 \\ au \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ -u + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} au + a \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} au + a \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2au + 5a - u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$(u^2+u+1)^2$
c_3, c_8	u^4
c_4	$(u^2-u+1)^2$
c_6, c_7	$(u^2-u-1)^2$
c_9, 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_4 c_5	$(y^2 + y + 1)^2$
c_3, c_8	y^4
c_6, c_7, c_9 c_{10}, c_{11}	$(y^2 - 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0.500000 + 0.866025I$ $b = 0.309017 + 0.535233I$	$0.98696 - 2.02988I$	$6.50000 + 5.40059I$
$u = 0.618034$ $a = 0.500000 - 0.866025I$ $b = 0.309017 - 0.535233I$	$0.98696 + 2.02988I$	$6.50000 - 5.40059I$
$u = -1.61803$ $a = 0.500000 + 0.866025I$ $b = -0.80902 - 1.40126I$	$8.88264 - 2.02988I$	$6.50000 + 1.52761I$
$u = -1.61803$ $a = 0.500000 - 0.866025I$ $b = -0.80902 + 1.40126I$	$8.88264 + 2.02988I$	$6.50000 - 1.52761I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^2)(u^{51}+3u^{50}+\cdots+4u+1)$
c_2	$((u^2+u+1)^2)(u^{51}+25u^{50}+\cdots-2u-1)$
c_3, c_8	$u^4(u^{51}-u^{50}+\cdots+100u^2-16)$
c_4	$((u^2-u+1)^2)(u^{51}+3u^{50}+\cdots+4u+1)$
c_5	$((u^2+u+1)^2)(u^{51}-3u^{50}+\cdots-488u+241)$
c_6, c_7	$((u^2-u-1)^2)(u^{51}-3u^{50}+\cdots-3u^2-1)$
c_9, c_{10}	$((u^2+u-1)^2)(u^{51}-3u^{50}+\cdots-3u^2-1)$
c_{11}	$((u^2+u-1)^2)(u^{51}+13u^{50}+\cdots+102u-7)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^2)(y^{51}+25y^{50}+\cdots-2y-1)$
c_2	$((y^2+y+1)^2)(y^{51}+5y^{50}+\cdots-42y-1)$
c_3, c_8	$y^4(y^{51}-25y^{50}+\cdots+3200y-256)$
c_5	$((y^2+y+1)^2)(y^{51}-15y^{50}+\cdots+378406y-58081)$
c_6, c_7, c_9 c_{10}	$((y^2-3y+1)^2)(y^{51}-59y^{50}+\cdots-6y-1)$
c_{11}	$((y^2-3y+1)^2)(y^{51}+y^{50}+\cdots+27134y-49)$