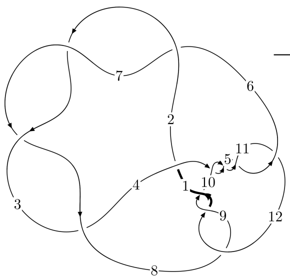
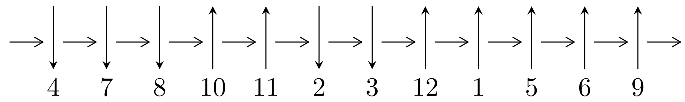
$12a_{1027}$ $(K12a_{1027})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$8,12 \underset{c_8}{\to} 9 \underset{c_{12}}{\to} 1,4 \underset{c_1}{\to} 2 \underset{c_9}{\to} 10 \underset{c_4}{\to} 5 \underset{c_3}{\to} 3 \underset{c_7}{\to} 7 \underset{c_6}{\to} 6 \underset{c_{11}}{\to} 11 \twoheadrightarrow c_2, c_5, c_{10}$$

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

$$I_1^u = \langle -5.36041\times 10^{31}u^{46} - 1.13554\times 10^{32}u^{45} + \cdots + 1.29302\times 10^{32}b - 1.94404\times 10^{32},$$
$$2.24156\times 10^{31}u^{46} + 7.53273\times 10^{31}u^{45} + \cdots + 3.23255\times 10^{31}a + 5.49837\times 10^{32},\ u^{47} + 3u^{46} + \cdots + 11u +$$
$$I_2^u = \langle b^2 - b - 1,\ a,\ u + 1\rangle$$
$$I_3^u = \langle b^2 + b - 1,\ a^2 - 2,\ u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 53 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. $\boldsymbol{I_1^u = \langle -5.36\times 10^{31}u^{46} - 1.14\times 10^{32}u^{45} + \cdots + 1.29\times 10^{32}b - 1.94\times 10^{32},\ 2.24\times 10^{31}u^{46} + 7.53\times 10^{31}u^{45} + \cdots + 3.23\times 10^{31}a + 5.50\times 10^{32},\ u^{47} + 3u^{46} + \cdots + 11u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} -0.693436u^{46} - 2.33028u^{45} + \cdots + 51.8733u - 17.0094 \\ 0.414565u^{46} + 0.878210u^{45} + \cdots - 2.42558u + 1.50349 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.27062u^{46} + 4.66656u^{45} + \cdots - 92.6821u + 25.3900 \\ -1.34352u^{46} - 2.38910u^{45} + \cdots - 1.23584u - 2.87972 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.269337u^{46} - 1.48602u^{45} + \cdots + 49.2076u - 15.7275 \\ 0.532338u^{46} + 1.05855u^{45} + \cdots - 1.02870u + 1.61606 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.278871u^{46} - 1.45207u^{45} + \cdots + 49.4477u - 15.5059 \\ 0.414565u^{46} + 0.878210u^{45} + \cdots - 2.42558u + 1.50349 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.09240u^{46} + 4.31714u^{45} + \cdots - 94.1022u + 24.9244 \\ -1.00057u^{46} - 1.67329u^{45} + \cdots - 1.56609u - 2.90262 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.741274u^{46} - 2.48932u^{45} + \cdots + 48.4395u - 16.5010 \\ 1.01218u^{46} + 1.69492u^{45} + \cdots + 0.702410u + 1.76957 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2.45199u^{46} + 6.38937u^{45} + \cdots - 77.9752u + 22.6332 \\ 0.951398u^{46} + 1.42569u^{45} + \cdots + 12.6443u - 1.14744 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0277644u^{46} - 0.160999u^{45} + \cdots - 5.16637u - 2.38003$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{47} - 10u^{46} + \cdots - 1252u - 41$
c_2, c_3, c_6 c_7	$u^{47} - 2u^{46} + \cdots - 10u + 1$
c_4, c_5, c_{10} c_{11}	$u^{47} - u^{46} + \cdots - 4u + 4$
c_8, c_9, c_{12}	$u^{47} - 3u^{46} + \cdots + 11u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{47} + 18y^{46} + \cdots + 1361766y - 1681$
c_2, c_3, c_6 c_7	$y^{47} - 54y^{46} + \cdots + 74y - 1$
c_4, c_5, c_{10} c_{11}	$y^{47} - 57y^{46} + \cdots + 304y - 16$
c_8, c_9, c_{12}	$y^{47} - 47y^{46} + \cdots + 211y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.384168 + 0.933735I$ $a = -1.12092 - 1.02399I$ $b = -1.55340 + 0.17162I$	$1.07008 + 7.34464I$	$2.44287 - 4.66692I$
$u = 0.384168 - 0.933735I$ $a = -1.12092 + 1.02399I$ $b = -1.55340 - 0.17162I$	$1.07008 - 7.34464I$	$2.44287 + 4.66692I$
$u = 0.655220 + 0.738260I$ $a = -0.024512 - 0.284636I$ $b = 0.394578 + 0.582858I$	$8.68282 + 0.69167I$	$7.69697 + 0.39730I$
$u = 0.655220 - 0.738260I$ $a = -0.024512 + 0.284636I$ $b = 0.394578 - 0.582858I$	$8.68282 - 0.69167I$	$7.69697 - 0.39730I$
$u = 0.500977 + 0.840491I$ $a = 0.619681 + 0.697367I$ $b = 0.573333 - 0.570047I$	$8.15872 + 4.64474I$	$5.91649 - 5.94308I$
$u = 0.500977 - 0.840491I$ $a = 0.619681 - 0.697367I$ $b = 0.573333 + 0.570047I$	$8.15872 - 4.64474I$	$5.91649 + 5.94308I$
$u = 1.05786$ $a = 1.39495$ $b = -0.132955$	6.53482	14.2750
$u = -0.808561 + 0.480294I$ $a = 0.244914 - 0.563300I$ $b = 1.53534 - 0.04664I$	$-5.40245 + 0.60387I$	$2.86876 - 0.80089I$
$u = -0.808561 - 0.480294I$ $a = 0.244914 + 0.563300I$ $b = 1.53534 + 0.04664I$	$-5.40245 - 0.60387I$	$2.86876 + 0.80089I$
$u = 0.897365 + 0.697135I$ $a = -0.520554 - 0.385254I$ $b = -1.47865 - 0.13246I$	$2.62151 - 1.72568I$	$4.31042 + 0.20195I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.897365 - 0.697135I$ $a = -0.520554 + 0.385254I$ $b = -1.47865 + 0.13246I$	$2.62151 + 1.72568I$	$4.31042 - 0.20195I$
$u = -0.860635$ $a = -0.263406$ $b = -0.380700$	1.06395	15.0300
$u = -0.347438 + 0.773858I$ $a = 1.05026 - 1.26332I$ $b = 1.55717 + 0.11542I$	$-6.84691 - 5.11929I$	$-0.37879 + 6.36237I$
$u = -0.347438 - 0.773858I$ $a = 1.05026 + 1.26332I$ $b = 1.55717 - 0.11542I$	$-6.84691 + 5.11929I$	$-0.37879 - 6.36237I$
$u = 1.17129$ $a = -0.134391$ $b = -1.65236$	-6.66969	8.57260
$u = -0.375308 + 0.614572I$ $a = -0.633040 + 0.852370I$ $b = -0.568261 - 0.421058I$	$0.32221 - 3.19990I$	$3.06029 + 9.19456I$
$u = -0.375308 - 0.614572I$ $a = -0.633040 - 0.852370I$ $b = -0.568261 + 0.421058I$	$0.32221 + 3.19990I$	$3.06029 - 9.19456I$
$u = 1.28718$ $a = -0.273773$ $b = 0.949055$	2.25442	5.01370
$u = 0.337492 + 0.539565I$ $a = -0.60781 - 1.74002I$ $b = -1.56840 + 0.05663I$	$-8.40867 + 1.57482I$	$-4.99229 - 1.00293I$
$u = 0.337492 - 0.539565I$ $a = -0.60781 + 1.74002I$ $b = -1.56840 - 0.05663I$	$-8.40867 - 1.57482I$	$-4.99229 + 1.00293I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.39429$ $a=\ 0.234243$ $b=\ 1.70918$	0.706458	0
$u=-0.480504+0.364841I$ $a=\ 0.028159-0.293507I$ $b=-0.310058+0.354613I$	$1.036960-0.314856I$	$8.23983+0.59404I$
$u=-0.480504-0.364841I$ $a=\ 0.028159+0.293507I$ $b=-0.310058-0.354613I$	$1.036960+0.314856I$	$8.23983-0.59404I$
$u=-1.398200+0.068490I$ $a=-0.31034-1.47254I$ $b=\ 0.490370+0.539803I$	$3.97392-1.86699I$	0
$u=-1.398200-0.068490I$ $a=-0.31034+1.47254I$ $b=\ 0.490370-0.539803I$	$3.97392+1.86699I$	0
$u=\ 1.42950+0.07034I$ $a=-1.27663+0.73949I$ $b=\ 1.44285-0.09561I$	$1.56798+0.38836I$	0
$u=\ 1.42950-0.07034I$ $a=-1.27663-0.73949I$ $b=\ 1.44285+0.09561I$	$1.56798-0.38836I$	0
$u=-1.42981+0.19455I$ $a=\ 0.91947+1.50523I$ $b=-1.52603-0.14762I$	$-2.72276-4.28492I$	0
$u=-1.42981-0.19455I$ $a=\ 0.91947-1.50523I$ $b=-1.52603+0.14762I$	$-2.72276+4.28492I$	0
$u=\ 1.44250+0.10539I$ $a=\ 0.421487+1.174390I$ $b=-0.340123-0.621543I$	$7.07024+2.02020I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.44250 - 0.10539I$ $a = 0.421487 - 1.174390I$ $b = -0.340123 + 0.621543I$	$7.07024 - 2.02020I$	0
$u = 1.45842 + 0.19966I$ $a = 0.02427 - 1.46022I$ $b = -0.613332 + 0.585418I$	$6.27479 + 6.12368I$	0
$u = 1.45842 - 0.19966I$ $a = 0.02427 + 1.46022I$ $b = -0.613332 - 0.585418I$	$6.27479 - 6.12368I$	0
$u = 1.46180 + 0.28357I$ $a = -0.45847 + 1.62265I$ $b = 1.56761 - 0.18045I$	$-1.00497 + 8.94411I$	0
$u = 1.46180 - 0.28357I$ $a = -0.45847 - 1.62265I$ $b = 1.56761 + 0.18045I$	$-1.00497 - 8.94411I$	0
$u = -1.50841 + 0.35834I$ $a = 0.14634 + 1.54270I$ $b = -1.60053 - 0.20896I$	$7.16899 - 12.03310I$	0
$u = -1.50841 - 0.35834I$ $a = 0.14634 - 1.54270I$ $b = -1.60053 + 0.20896I$	$7.16899 + 12.03310I$	0
$u = -1.55108 + 0.09583I$ $a = 0.399380 - 0.446871I$ $b = -1.235980 + 0.286169I$	$11.18770 - 0.40908I$	0
$u = -1.55108 - 0.09583I$ $a = 0.399380 + 0.446871I$ $b = -1.235980 - 0.286169I$	$11.18770 + 0.40908I$	0
$u = -1.54096 + 0.29431I$ $a = 0.118024 - 1.335240I$ $b = 0.690898 + 0.651096I$	$14.8277 - 8.8002I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.54096 - 0.29431I$ $a = 0.118024 + 1.335240I$ $b = 0.690898 - 0.651096I$	$14.8277 + 8.8002I$	0
$u = -1.56276 + 0.21755I$ $a = -0.336855 + 1.023130I$ $b = 0.291108 - 0.752857I$	$16.0174 - 4.1262I$	0
$u = -1.56276 - 0.21755I$ $a = -0.336855 - 1.023130I$ $b = 0.291108 + 0.752857I$	$16.0174 + 4.1262I$	0
$u = 0.168164 + 0.305680I$ $a = 0.47692 + 1.60928I$ $b = 0.579305 - 0.209601I$	$-1.053100 + 0.603352I$	$-5.28744 - 1.90691I$
$u = 0.168164 - 0.305680I$ $a = 0.47692 - 1.60928I$ $b = 0.579305 + 0.209601I$	$-1.053100 - 0.603352I$	$-5.28744 + 1.90691I$
$u = 0.343456$ $a = -3.57272$ $b = -0.759828$	4.20368	-1.73630
$u = -0.0700122$ $a = -20.7044$ $b = 1.61200$	-3.93845	-2.00240

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ b \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ -b - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ b \end{pmatrix}$$
$$a_3 = \begin{pmatrix} b \\ b \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -b \\ -b - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3	$u^2 + u - 1$
c_4, c_5, c_{10} c_{11}	u^2
c_6, c_7	$u^2 - u - 1$
c_8, c_9	$(u + 1)^2$
c_{12}	$(u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7	$y^2 - 3y + 1$
c_4, c_5, c_{10} c_{11}	y^2
c_8, c_9, c_{12}	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0$ $b = -0.618034$	0.657974	-6.00000
$u = -1.00000$ $a = \quad 0$ $b = \quad 1.61803$	-7.23771	-6.00000

III. $I_3^u = \langle b^2+b-1,\ a^2-2,\ u-1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ b \end{pmatrix}$$
$$a_2 = \begin{pmatrix} ba+1 \\ -b+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ b-a \end{pmatrix}$$
$$a_3 = \begin{pmatrix} b+a \\ b \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -ba+b \\ b-1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -a \\ -b \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2 \\ -ba+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6, c_7	$(u^2+u-1)^2$
c_2, c_3	$(u^2-u-1)^2$
c_4, c_5, c_{10} c_{11}	$(u^2-2)^2$
c_8, c_9	$(u-1)^4$
c_{12}	$(u+1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7	$(y^2 - 3y + 1)^2$
c_4, c_5, c_{10} c_{11}	$(y - 2)^4$
c_8, c_9, c_{12}	$(y - 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.41421$ $b = 0.618034$	5.59278	4.00000
$u = 1.00000$ $a = 1.41421$ $b = -1.61803$	−2.30291	4.00000
$u = 1.00000$ $a = -1.41421$ $b = 0.618034$	5.59278	4.00000
$u = 1.00000$ $a = -1.41421$ $b = -1.61803$	−2.30291	4.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u-1)^3)(u^{47}-10u^{46}+\cdots-1252u-41)$
c_2, c_3	$((u^2-u-1)^2)(u^2+u-1)(u^{47}-2u^{46}+\cdots-10u+1)$
c_4, c_5, c_{10} c_{11}	$u^2(u^2-2)^2(u^{47}-u^{46}+\cdots-4u+4)$
c_6, c_7	$(u^2-u-1)(u^2+u-1)^2(u^{47}-2u^{46}+\cdots-10u+1)$
c_8, c_9	$((u-1)^4)(u+1)^2(u^{47}-3u^{46}+\cdots+11u-1)$
c_{12}	$((u-1)^2)(u+1)^4(u^{47}-3u^{46}+\cdots+11u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2-3y+1)^3)(y^{47}+18y^{46}+\cdots+1361766y-1681)$
c_2, c_3, c_6 c_7	$((y^2-3y+1)^3)(y^{47}-54y^{46}+\cdots+74y-1)$
c_4, c_5, c_{10} c_{11}	$y^2(y-2)^4(y^{47}-57y^{46}+\cdots+304y-16)$
c_8, c_9, c_{12}	$((y-1)^6)(y^{47}-47y^{46}+\cdots+211y-1)$