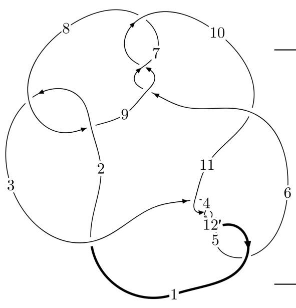
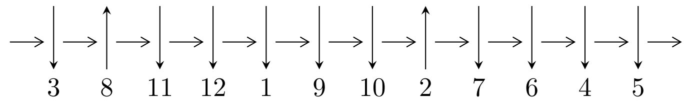
$12a_{0794}$ ($K12a_{0794}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{41} + 25u^{39} + \cdots + b - u,\ u^{45} + u^{44} + \cdots + a + 1,\ u^{47} + 2u^{46} + \cdots - 2u - 1\rangle$$
$$I_2^u = \langle b + u,\ a + 1,\ u^2 - u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 49 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.

$$I^u_1 = \langle -u^{41}+25u^{39}+\cdots+b-u,\ u^{45}+u^{44}+\cdots+a+1,\ u^{47}+2u^{46}+\cdots-2u-1\rangle$$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} -u^{45}-u^{44}+\cdots-9u-1 \\ u^{41}-25u^{39}+\cdots+8u^2+u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^7-4u^5+4u^3-2u \\ u^7-3u^5+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2u^{46}-u^{45}+\cdots-20u^2-7u \\ -2u^{46}+58u^{44}+\cdots+4u+2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^7+4u^5-4u^3+2u \\ -u^9+5u^7-7u^5+2u^3+u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^{46}-u^{45}+\cdots-19u^2-7u \\ -u^{46}+29u^{44}+\cdots+3u+1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u^{46}+11u^{45}+\cdots-u-13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^{47} + 15u^{46} + \cdots - 8u - 16$
c_2, c_8	$u^{47} - u^{46} + \cdots + 4u + 4$
c_3, c_4, c_5 c_{11}, c_{12}	$u^{47} + 2u^{46} + \cdots - 2u - 1$
c_6, c_7, c_9	$u^{47} - 3u^{46} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{47} + 31y^{46} + \cdots + 16672y - 256$
c_2, c_8	$y^{47} + 15y^{46} + \cdots - 8y - 16$
c_3, c_4, c_5 c_{11}, c_{12}	$y^{47} - 60y^{46} + \cdots + 18y - 1$
c_6, c_7, c_9	$y^{47} - 39y^{46} + \cdots + 37y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.922487 + 0.402677I$ $a = -0.207419 + 0.251166I$ $b = 1.74840 + 0.71063I$	$-3.29083 - 10.41820I$	$-13.6071 + 8.5049I$
$u = 0.922487 - 0.402677I$ $a = -0.207419 - 0.251166I$ $b = 1.74840 - 0.71063I$	$-3.29083 + 10.41820I$	$-13.6071 - 8.5049I$
$u = 0.879259 + 0.378637I$ $a = 0.457803 - 0.144632I$ $b = -1.55193 - 0.79861I$	$1.34378 - 6.10986I$	$-9.33039 + 6.97853I$
$u = 0.879259 - 0.378637I$ $a = 0.457803 + 0.144632I$ $b = -1.55193 + 0.79861I$	$1.34378 + 6.10986I$	$-9.33039 - 6.97853I$
$u = -0.938794$ $a = -0.801843$ $b = -1.64853$	-5.57924	-16.5310
$u = -0.868977 + 0.342519I$ $a = 0.139578 - 0.719067I$ $b = 0.79264 - 1.61212I$	$-2.03144 + 4.33676I$	$-12.48751 - 4.75672I$
$u = -0.868977 - 0.342519I$ $a = 0.139578 + 0.719067I$ $b = 0.79264 + 1.61212I$	$-2.03144 - 4.33676I$	$-12.48751 + 4.75672I$
$u = 1.058930 + 0.178373I$ $a = -0.112920 + 0.790693I$ $b = -0.911890 + 0.265216I$	$-9.70306 - 3.81664I$	$-19.0886 + 0.I$
$u = 1.058930 - 0.178373I$ $a = -0.112920 - 0.790693I$ $b = -0.911890 - 0.265216I$	$-9.70306 + 3.81664I$	$-19.0886 + 0.I$
$u = 0.921531 + 0.084288I$ $a = -0.162135 - 1.014360I$ $b = 0.416091 + 0.386772I$	$-3.72700 - 1.88166I$	$-16.5807 + 5.1639I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.921531 - 0.084288I$ $a = -0.162135 + 1.014360I$ $b = 0.416091 - 0.386772I$	$-3.72700 + 1.88166I$	$-16.5807 - 5.1639I$
$u = 0.823939 + 0.323444I$ $a = -0.758346 - 0.139257I$ $b = 1.28476 + 0.85339I$	$-1.70171 - 1.67890I$	$-12.57865 + 4.15714I$
$u = 0.823939 - 0.323444I$ $a = -0.758346 + 0.139257I$ $b = 1.28476 - 0.85339I$	$-1.70171 + 1.67890I$	$-12.57865 - 4.15714I$
$u = -0.788716 + 0.376916I$ $a = 0.038734 + 0.507346I$ $b = -0.37806 + 1.48663I$	$1.90040 + 0.48777I$	$-7.77695 - 1.43919I$
$u = -0.788716 - 0.376916I$ $a = 0.038734 - 0.507346I$ $b = -0.37806 - 1.48663I$	$1.90040 - 0.48777I$	$-7.77695 + 1.43919I$
$u = -0.722890 + 0.438021I$ $a = -0.212238 - 0.290704I$ $b = -0.01128 - 1.43133I$	$-2.10005 - 3.33842I$	$-12.59413 + 1.70307I$
$u = -0.722890 - 0.438021I$ $a = -0.212238 + 0.290704I$ $b = -0.01128 + 1.43133I$	$-2.10005 + 3.33842I$	$-12.59413 - 1.70307I$
$u = -0.707872$ $a = 0.283787$ $b = 0.561800$	-1.23668	-7.22640
$u = -0.091614 + 0.630031I$ $a = 1.98364 + 0.95299I$ $b = -0.058376 - 0.279803I$	$-0.19552 + 6.93392I$	$-8.85712 - 6.12963I$
$u = -0.091614 - 0.630031I$ $a = 1.98364 - 0.95299I$ $b = -0.058376 + 0.279803I$	$-0.19552 - 6.93392I$	$-8.85712 + 6.12963I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.359859+0.483165I$ $a=-0.656484-0.454728I$ $b=\ \ 0.334069+0.541724I$	$-5.17789+1.63722I$	$-14.9295-4.4051I$
$u=-0.359859-0.483165I$ $a=-0.656484+0.454728I$ $b=\ \ 0.334069-0.541724I$	$-5.17789-1.63722I$	$-14.9295+4.4051I$
$u=-0.042621+0.595199I$ $a=-2.13353-0.70781I$ $b=\ \ 0.033126+0.376700I$	$4.14501+2.81372I$	$-3.74235-3.47320I$
$u=-0.042621-0.595199I$ $a=-2.13353+0.70781I$ $b=\ \ 0.033126-0.376700I$	$4.14501-2.81372I$	$-3.74235+3.47320I$
$u=\ \ 0.026672+0.550563I$ $a=\ \ 2.30737+0.41380I$ $b=-0.041983-0.497420I$	$0.68616-1.29934I$	$-6.70637+0.78568I$
$u=\ \ 0.026672-0.550563I$ $a=\ \ 2.30737-0.41380I$ $b=-0.041983+0.497420I$	$0.68616+1.29934I$	$-6.70637-0.78568I$
$u=\ \ 1.60695+0.08305I$ $a=-0.81808-1.54422I$ $b=-1.04952-1.97872I$	$-9.99222+1.51631I$	0
$u=\ \ 1.60695-0.08305I$ $a=-0.81808+1.54422I$ $b=-1.04952+1.97872I$	$-9.99222-1.51631I$	0
$u=\ \ 1.64487$ $a=-1.09171$ $b=-1.39259$	-9.58532	0
$u=\ \ 1.65147+0.08372I$ $a=\ \ 1.39395+1.50228I$ $b=\ \ 1.79104+1.91409I$	$-6.56652-2.13795I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.65147 - 0.08372I$ $a = 1.39395 - 1.50228I$ $b = 1.79104 - 1.91409I$	$-6.56652 + 2.13795I$	0
$u = -1.67028 + 0.07675I$ $a = -2.75333 + 1.26536I$ $b = -4.10758 + 2.30271I$	$-10.45730 + 3.15004I$	0
$u = -1.67028 - 0.07675I$ $a = -2.75333 - 1.26536I$ $b = -4.10758 - 2.30271I$	$-10.45730 - 3.15004I$	0
$u = -0.206634 + 0.252843I$ $a = 1.085750 - 0.522131I$ $b = -0.141040 - 0.446675I$	$-0.336379 + 0.800443I$	$-8.09599 - 8.50563I$
$u = -0.206634 - 0.252843I$ $a = 1.085750 + 0.522131I$ $b = -0.141040 + 0.446675I$	$-0.336379 - 0.800443I$	$-8.09599 + 8.50563I$
$u = 1.67880 + 0.08607I$ $a = -1.81262 - 1.55075I$ $b = -2.32616 - 1.96566I$	$-10.96150 - 5.96484I$	0
$u = 1.67880 - 0.08607I$ $a = -1.81262 + 1.55075I$ $b = -2.32616 + 1.96566I$	$-10.96150 + 5.96484I$	0
$u = -1.67889 + 0.09711I$ $a = 2.97433 - 0.87020I$ $b = 4.36294 - 1.66384I$	$-7.59134 + 7.93077I$	0
$u = -1.67889 - 0.09711I$ $a = 2.97433 + 0.87020I$ $b = 4.36294 + 1.66384I$	$-7.59134 - 7.93077I$	0
$u = -1.69341 + 0.01645I$ $a = -0.66308 + 1.50099I$ $b = -0.98851 + 2.84605I$	$-13.01140 + 2.24134I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.69341-0.01645I$ $a=-0.66308-1.50099I$ $b=-0.98851-2.84605I$	$-13.01140-2.24134I$	0
$u=-1.69112+0.10759I$ $a=-3.04031+0.58781I$ $b=-4.39614+1.23773I$	$-12.4253+12.4182I$	0
$u=-1.69112-0.10759I$ $a=-3.04031-0.58781I$ $b=-4.39614-1.23773I$	$-12.4253-12.4182I$	0
$u=\ \ 1.69743$ $a=\ \ 2.16202$ $b=\ \ 2.74953$	-14.9500	0
$u=-1.72282+0.03849I$ $a=\ \ 1.207830-0.382415I$ $b=\ \ 1.73369-1.18160I$	$-19.6013+4.6509I$	0
$u=-1.72282-0.03849I$ $a=\ \ 1.207830+0.382415I$ $b=\ \ 1.73369+1.18160I$	$-19.6013-4.6509I$	0
$u=\ \ 0.239957$ $a=-3.06923$ $b=\ \ 0.661230$	-2.02254	-2.40680

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$u^2(u^{47} + 15u^{46} + \cdots - 8u - 16)$
c_2, c_8	$u^2(u^{47} - u^{46} + \cdots + 4u + 4)$
c_3, c_4, c_5	$(u^2 - u - 1)(u^{47} + 2u^{46} + \cdots - 2u - 1)$
c_6, c_7	$((u-1)^2)(u^{47} - 3u^{46} + \cdots - u + 1)$
c_9	$((u+1)^2)(u^{47} - 3u^{46} + \cdots - u + 1)$
c_{11}, c_{12}	$(u^2 + u - 1)(u^{47} + 2u^{46} + \cdots - 2u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^2(y^{47} + 31y^{46} + \cdots + 16672y - 256)$
c_2, c_8	$y^2(y^{47} + 15y^{46} + \cdots - 8y - 16)$
c_3, c_4, c_5 c_{11}, c_{12}	$(y^2 - 3y + 1)(y^{47} - 60y^{46} + \cdots + 18y - 1)$
c_6, c_7, c_9	$((y-1)^2)(y^{47} - 39y^{46} + \cdots + 37y - 1)$