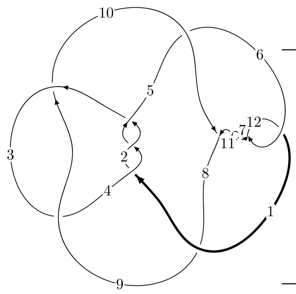
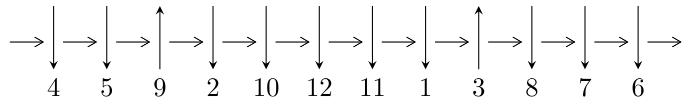
$12a_{0843}$ ($K12a_{0843}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{45} + 26u^{43} + \cdots + b - 1,\ -u^{46} - 3u^{45} + \cdots + a - 2,\ u^{47} + 2u^{46} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle u^2 + b - u + 1,\ u^4 - u^3 + 3u^2 + a - 2u + 1,\ u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 52 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.

$$\boldsymbol{I_1^u = \langle u^{45}+26u^{43}+\cdots+b-1,\ -u^{46}-3u^{45}+\cdots+a-2,\ u^{47}+2u^{46}+\cdots+2u+1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2+1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^3-2u \\ u^3+u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{46}+3u^{45}+\cdots-5u+2 \\ -u^{45}-26u^{43}+\cdots-u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^6-3u^4+1 \\ -u^8-4u^6-4u^4-2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{46}+2u^{45}+\cdots-7u+2 \\ u^{44}+2u^{43}+\cdots-u^2+1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^8-5u^6-7u^4-2u^2+1 \\ u^8+4u^6+4u^4+2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^{46}+u^{45}+\cdots-7u+1 \\ u^{45}+2u^{44}+\cdots+19u^3+1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= u^{46}+2u^{45}+\cdots-3u-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{47} - 6u^{46} + \cdots + 4u - 1$
c_3, c_9	$u^{47} - u^{46} + \cdots - 64u - 32$
c_5, c_8	$u^{47} - 2u^{46} + \cdots + 160u - 100$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{47} - 2u^{46} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{47} - 48y^{46} + \cdots + 28y - 1$
c_3, c_9	$y^{47} + 33y^{46} + \cdots + 3584y - 1024$
c_5, c_8	$y^{47} - 36y^{46} + \cdots + 55800y - 10000$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{47} + 60y^{46} + \cdots + 18y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.413508 + 0.910925I$ $a = -1.83324 - 1.08728I$ $b = -0.378490 - 0.145011I$	$-8.75070 + 10.08960I$	$-10.18236 - 7.10316I$
$u = -0.413508 - 0.910925I$ $a = -1.83324 + 1.08728I$ $b = -0.378490 + 0.145011I$	$-8.75070 - 10.08960I$	$-10.18236 + 7.10316I$
$u = -0.381689 + 0.871051I$ $a = 2.02691 + 1.16470I$ $b = 0.497884 - 0.080589I$	$-2.05630 + 5.96873I$	$-8.18293 - 7.13665I$
$u = -0.381689 - 0.871051I$ $a = 2.02691 - 1.16470I$ $b = 0.497884 + 0.080589I$	$-2.05630 - 5.96873I$	$-8.18293 + 7.13665I$
$u = 0.091071 + 0.931262I$ $a = 0.711455 - 0.425911I$ $b = -0.488416 - 0.498587I$	$3.10179 - 1.86671I$	$-0.52311 + 5.01743I$
$u = 0.091071 - 0.931262I$ $a = 0.711455 + 0.425911I$ $b = -0.488416 + 0.498587I$	$3.10179 + 1.86671I$	$-0.52311 - 5.01743I$
$u = 0.192703 + 1.050590I$ $a = -0.491605 + 0.630434I$ $b = 0.819514 + 0.152813I$	$-1.81566 - 3.80529I$	$-8.08850 + 4.35592I$
$u = 0.192703 - 1.050590I$ $a = -0.491605 - 0.630434I$ $b = 0.819514 - 0.152813I$	$-1.81566 + 3.80529I$	$-8.08850 - 4.35592I$
$u = 0.386775 + 0.839886I$ $a = 0.354292 + 0.843743I$ $b = 0.287734 - 0.602113I$	$-4.41584 - 3.34895I$	$-9.57199 + 4.15022I$
$u = 0.386775 - 0.839886I$ $a = 0.354292 - 0.843743I$ $b = 0.287734 + 0.602113I$	$-4.41584 + 3.34895I$	$-9.57199 - 4.15022I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.275185 + 0.865499I$ $a = -0.224202 - 0.422215I$ $b = -0.175658 + 0.313273I$	$1.41842 - 2.55289I$	$-1.19798 + 4.60383I$
$u = 0.275185 - 0.865499I$ $a = -0.224202 + 0.422215I$ $b = -0.175658 - 0.313273I$	$1.41842 + 2.55289I$	$-1.19798 - 4.60383I$
$u = -0.376433 + 0.803567I$ $a = -2.17677 - 0.95906I$ $b = -0.372360 + 0.375511I$	$-2.47676 + 0.64455I$	$-9.45745 - 1.20852I$
$u = -0.376433 - 0.803567I$ $a = -2.17677 + 0.95906I$ $b = -0.372360 - 0.375511I$	$-2.47676 - 0.64455I$	$-9.45745 + 1.20852I$
$u = -0.441065 + 0.749468I$ $a = 2.04675 + 0.85956I$ $b = 0.100717 - 0.418593I$	$-9.72112 - 2.90941I$	$-11.56361 - 0.62182I$
$u = -0.441065 - 0.749468I$ $a = 2.04675 - 0.85956I$ $b = 0.100717 + 0.418593I$	$-9.72112 + 2.90941I$	$-11.56361 + 0.62182I$
$u = -0.064336 + 0.822622I$ $a = -1.48802 + 0.46619I$ $b = 0.238982 + 0.908240I$	$0.328476 + 0.959018I$	$-5.90793 + 0.74635I$
$u = -0.064336 - 0.822622I$ $a = -1.48802 - 0.46619I$ $b = 0.238982 - 0.908240I$	$0.328476 - 0.959018I$	$-5.90793 - 0.74635I$
$u = -0.638824 + 0.074996I$ $a = -0.421838 - 0.513599I$ $b = -0.04958 + 1.70077I$	$-11.75550 + 6.54260I$	$-15.0022 - 4.1132I$
$u = -0.638824 - 0.074996I$ $a = -0.421838 + 0.513599I$ $b = -0.04958 - 1.70077I$	$-11.75550 - 6.54260I$	$-15.0022 + 4.1132I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.602974$ $a = 1.18447$ $b = -0.503637$	-6.95614	-14.4200
$u = -0.596607 + 0.032355I$ $a = 0.220109 + 0.214041I$ $b = 0.05568 - 1.78658I$	$-4.79872 + 2.65777I$	$-13.67344 - 3.52824I$
$u = -0.596607 - 0.032355I$ $a = 0.220109 - 0.214041I$ $b = 0.05568 + 1.78658I$	$-4.79872 - 2.65777I$	$-13.67344 + 3.52824I$
$u = 0.474154 + 0.347428I$ $a = 1.099760 + 0.840634I$ $b = -0.249987 - 0.545071I$	$-6.24028 - 1.59922I$	$-13.28615 + 4.03816I$
$u = 0.474154 - 0.347428I$ $a = 1.099760 - 0.840634I$ $b = -0.249987 + 0.545071I$	$-6.24028 + 1.59922I$	$-13.28615 - 4.03816I$
$u = 0.473616$ $a = -0.668057$ $b = 0.235856$	-1.20734	-8.21660
$u = -0.09345 + 1.61990I$ $a = -1.84799 - 0.75382I$ $b = 3.72034 + 1.96860I$	$-1.65071 - 1.00207I$	0
$u = -0.09345 - 1.61990I$ $a = -1.84799 + 0.75382I$ $b = 3.72034 - 1.96860I$	$-1.65071 + 1.00207I$	0
$u = -0.08668 + 1.65706I$ $a = 2.61073 + 1.11521I$ $b = -4.96661 - 2.65420I$	$6.07762 + 2.32488I$	0
$u = -0.08668 - 1.65706I$ $a = 2.61073 - 1.11521I$ $b = -4.96661 + 2.65420I$	$6.07762 - 2.32488I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.09573 + 1.66580I$ $a = -1.009190 - 0.039969I$ $b = 1.63623 + 0.52270I$	$4.30233 - 5.15506I$	0
$u = 0.09573 - 1.66580I$ $a = -1.009190 + 0.039969I$ $b = 1.63623 - 0.52270I$	$4.30233 + 5.15506I$	0
$u = 0.238719 + 0.226721I$ $a = -1.01393 - 1.12454I$ $b = 0.038509 + 0.406266I$	$-0.387281 - 0.808831I$	$-8.67312 + 8.42283I$
$u = 0.238719 - 0.226721I$ $a = -1.01393 + 1.12454I$ $b = 0.038509 - 0.406266I$	$-0.387281 + 0.808831I$	$-8.67312 - 8.42283I$
$u = -0.01112 + 1.67312I$ $a = 1.51780 - 1.37183I$ $b = -3.19718 + 2.02255I$	$9.18863 + 1.20864I$	0
$u = -0.01112 - 1.67312I$ $a = 1.51780 + 1.37183I$ $b = -3.19718 - 2.02255I$	$9.18863 - 1.20864I$	0
$u = -0.09778 + 1.67602I$ $a = -2.52969 - 1.85960I$ $b = 4.67873 + 3.90951I$	$6.83164 + 7.79802I$	0
$u = -0.09778 - 1.67602I$ $a = -2.52969 + 1.85960I$ $b = 4.67873 - 3.90951I$	$6.83164 - 7.79802I$	0
$u = 0.06732 + 1.68247I$ $a = 0.599873 - 0.006463I$ $b = -1.007440 - 0.229685I$	$10.40890 - 3.84665I$	0
$u = 0.06732 - 1.68247I$ $a = 0.599873 + 0.006463I$ $b = -1.007440 + 0.229685I$	$10.40890 + 3.84665I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.11098 + 1.68676I$ $a = 2.12470 + 2.11421I$ $b = -3.92124 - 4.22596I$	$0.30937 + 12.13810I$	0
$u = -0.11098 - 1.68676I$ $a = 2.12470 - 2.11421I$ $b = -3.92124 + 4.22596I$	$0.30937 - 12.13810I$	0
$u = 0.02004 + 1.69490I$ $a = -0.497803 + 1.204650I$ $b = 1.25861 - 1.93145I$	$12.42340 - 2.28034I$	0
$u = 0.02004 - 1.69490I$ $a = -0.497803 - 1.204650I$ $b = 1.25861 + 1.93145I$	$12.42340 + 2.28034I$	0
$u = 0.04372 + 1.72277I$ $a = -0.332562 - 1.108820I$ $b = 0.20612 + 1.95580I$	$8.05569 - 4.72882I$	0
$u = 0.04372 - 1.72277I$ $a = -0.332562 + 1.108820I$ $b = 0.20612 - 1.95580I$	$8.05569 + 4.72882I$	0
$u = -0.222465$ $a = 2.59250$ $b = 0.803601$	-2.01148	-1.29870

II.

$$\boldsymbol{I_2^u = \langle u^2 + b - u + 1,\ u^4 - u^3 + 3u^2 + a - 2u + 1,\ u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1\rangle}$$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^4 + u^3 - 3u^2 + 2u - 1 \\ -u^2 + u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u \\ -u^3 - u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^4 - 3u^2 - 1 \\ u^3 - u^2 + 2u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^4 + u^3 - 3u^2 + 2u - 1 \\ -u^2 + u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^4 + 5u^3 - 20u^2 + 14u - 21$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^5$
c_3, c_9	u^5
c_4	$(u+1)^5$
c_5, c_8	$u^5 - u^4 + u^2 + u - 1$
c_6, c_7	$u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1$
c_{10}, c_{11}, c_{12}	$u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_9	y^5
c_5, c_8	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.233677 + 0.885557I$ $a = 0.758138 + 0.584034I$ $b = -0.036717 + 0.471689I$	$0.17487 - 2.21397I$	$-7.62657 + 4.39306I$
$u = 0.233677 - 0.885557I$ $a = 0.758138 - 0.584034I$ $b = -0.036717 - 0.471689I$	$0.17487 + 2.21397I$	$-7.62657 - 4.39306I$
$u = 0.416284$ $a = -0.645200$ $b = -0.757008$	-2.52712	-18.4270
$u = 0.05818 + 1.69128I$ $a = -0.935538 - 0.903908I$ $b = 1.91522 + 1.49448I$	$9.31336 - 3.33174I$	$-6.15976 + 1.26157I$
$u = 0.05818 - 1.69128I$ $a = -0.935538 + 0.903908I$ $b = 1.91522 - 1.49448I$	$9.31336 + 3.33174I$	$-6.15976 - 1.26157I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^5)(u^{47} - 6u^{46} + \cdots + 4u - 1)$
c_3, c_9	$u^5(u^{47} - u^{46} + \cdots - 64u - 32)$
c_4	$((u+1)^5)(u^{47} - 6u^{46} + \cdots + 4u - 1)$
c_5, c_8	$(u^5 - u^4 + u^2 + u - 1)(u^{47} - 2u^{46} + \cdots + 160u - 100)$
c_6, c_7	$(u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1)(u^{47} - 2u^{46} + \cdots + 2u - 1)$
c_{10}, c_{11}, c_{12}	$(u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1)(u^{47} - 2u^{46} + \cdots + 2u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^5)(y^{47} - 48y^{46} + \cdots + 28y - 1)$
c_3, c_9	$y^5(y^{47} + 33y^{46} + \cdots + 3584y - 1024)$
c_5, c_8	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{47} - 36y^{46} + \cdots + 55800y - 10000)$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1)(y^{47} + 60y^{46} + \cdots + 18y - 1)$