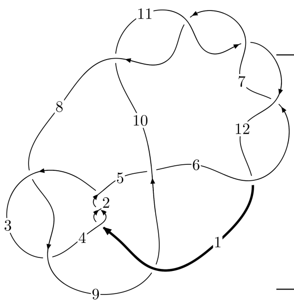
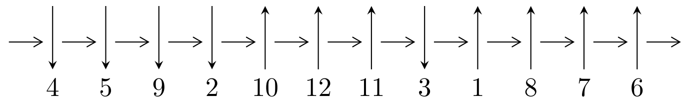
$12a_{0842}$ ($K12a_{0842}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2u^{48} - 3u^{47} + \cdots + b - 1,\ u^{49} + 32u^{47} + \cdots + a + 2,\ u^{50} - 2u^{49} + \cdots + 6u - 1 \rangle$$
$$I_2^u = \langle u^3 + u^2 + b + 2u + 1,\ -u^4 - 3u^2 + a - 1,\ u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1 \rangle$$

* 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.

$$I^u_1 = \langle 2u^{48}-3u^{47}+\cdots+b-1,\ u^{49}+32u^{47}+\cdots+a+2,\ u^{50}-2u^{49}+\cdots+6u-1\rangle$$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^{49}-32u^{47}+\cdots-3u-2\\-2u^{48}+3u^{47}+\cdots-4u+1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^9-6u^7-11u^5-6u^3-u\\-u^9-5u^7-7u^5-2u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^{49}+2u^{48}+\cdots+2u-3\\u^{47}-2u^{46}+\cdots-3u+1\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^3+2u\\u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u^6-3u^4+1\\u^8+4u^6+4u^4+2u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-u^{49}+u^{48}+\cdots+u-2\\-u^{48}+2u^{47}+\cdots-3u+1\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{49}+2u^{48}+\cdots-3u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{50} - 6u^{49} + \cdots + 4u - 1$
c_3, c_8	$u^{50} + u^{49} + \cdots + 64u + 32$
c_5	$u^{50} + 2u^{49} + \cdots - 3538u - 1049$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{50} + 2u^{49} + \cdots - 6u - 1$
c_9	$u^{50} - 6u^{49} + \cdots - 2094u + 279$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{50} - 50y^{49} + \cdots + 16y + 1$
c_3, c_8	$y^{50} - 33y^{49} + \cdots - 7680y + 1024$
c_5	$y^{50} + 18y^{49} + \cdots - 9892846y + 1100401$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{50} + 66y^{49} + \cdots - 22y + 1$
c_9	$y^{50} + 30y^{49} + \cdots - 3350862y + 77841$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.241502+0.933682I$ $a=0.521403+0.320826I$ $b=0.450327-0.085914I$	$-2.13050-2.69655I$	$0.94523+4.45521I$
$u=-0.241502-0.933682I$ $a=0.521403-0.320826I$ $b=0.450327+0.085914I$	$-2.13050+2.69655I$	$0.94523-4.45521I$
$u=0.224098+1.034240I$ $a=2.13283+0.91465I$ $b=1.44365-0.08763I$	$-5.96928+1.26789I$	0
$u=0.224098-1.034240I$ $a=2.13283-0.91465I$ $b=1.44365+0.08763I$	$-5.96928-1.26789I$	0
$u=0.286948+1.018960I$ $a=-2.14547-1.33637I$ $b=-1.63676-0.38283I$	$-5.25575+6.41850I$	0
$u=0.286948-1.018960I$ $a=-2.14547+1.33637I$ $b=-1.63676+0.38283I$	$-5.25575-6.41850I$	0
$u=-0.260970+1.033400I$ $a=-0.934867-0.520605I$ $b=-0.824900+0.201401I$	$-7.72397-3.91870I$	0
$u=-0.260970-1.033400I$ $a=-0.934867+0.520605I$ $b=-0.824900-0.201401I$	$-7.72397+3.91870I$	0
$u=0.331404+1.033160I$ $a=1.97777+1.46824I$ $b=1.50104+0.67230I$	$-11.6778+10.5158I$	0
$u=0.331404-1.033160I$ $a=1.97777-1.46824I$ $b=1.50104-0.67230I$	$-11.6778-10.5158I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.356837+0.800466I$ $a=\ \ 0.088289-1.106300I$ $b=-0.427389-0.642251I$	$-5.40920-3.17023I$	$-6.24629+4.79557I$
$u=-0.356837-0.800466I$ $a=\ \ 0.088289+1.106300I$ $b=-0.427389+0.642251I$	$-5.40920+3.17023I$	$-6.24629-4.79557I$
$u=\ \ 0.192571+1.121550I$ $a=-1.64217-0.83532I$ $b=-0.897289+0.086810I$	$-13.33180-1.81050I$	0
$u=\ \ 0.192571-1.121550I$ $a=-1.64217+0.83532I$ $b=-0.897289-0.086810I$	$-13.33180+1.81050I$	0
$u=\ \ 0.063290+0.852837I$ $a=\ \ 1.48467-0.76548I$ $b=\ \ 0.436324-1.223550I$	$-3.68295+0.97203I$	$-6.12133+0.71322I$
$u=\ \ 0.063290-0.852837I$ $a=\ \ 1.48467+0.76548I$ $b=\ \ 0.436324+1.223550I$	$-3.68295-0.97203I$	$-6.12133-0.71322I$
$u=-0.168142+0.755805I$ $a=-0.665021+0.730022I$ $b=\ \ 0.037081+0.681718I$	$-0.89055-1.70206I$	$0.92164+5.53470I$
$u=-0.168142-0.755805I$ $a=-0.665021-0.730022I$ $b=\ \ 0.037081-0.681718I$	$-0.89055+1.70206I$	$0.92164-5.53470I$
$u=\ \ 0.473458+0.447921I$ $a=-0.132112+0.553984I$ $b=-1.136560-0.435330I$	$-8.33174-4.01114I$	$-4.65273-0.13384I$
$u=\ \ 0.473458-0.447921I$ $a=-0.132112-0.553984I$ $b=-1.136560+0.435330I$	$-8.33174+4.01114I$	$-4.65273+0.13384I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.567490 + 0.251389I$ $a = -0.16497 - 1.91694I$ $b = 0.866292 - 0.017602I$	$-7.69762 + 7.46027I$	$-2.75082 - 6.53209I$
$u = 0.567490 - 0.251389I$ $a = -0.16497 + 1.91694I$ $b = 0.866292 + 0.017602I$	$-7.69762 - 7.46027I$	$-2.75082 + 6.53209I$
$u = -0.575142$ $a = 1.40804$ $b = 0.628444$	-2.98861	-1.42680
$u = 0.494918 + 0.244793I$ $a = 0.62020 + 1.67737I$ $b = -0.808413 - 0.141535I$	$-1.34530 + 3.74735I$	$-0.07289 - 7.40976I$
$u = 0.494918 - 0.244793I$ $a = 0.62020 - 1.67737I$ $b = -0.808413 + 0.141535I$	$-1.34530 - 3.74735I$	$-0.07289 + 7.40976I$
$u = -0.457183 + 0.286466I$ $a = 1.10902 - 1.15755I$ $b = 0.256004 - 0.666486I$	$-3.64157 - 1.46138I$	$-1.93416 + 4.24780I$
$u = -0.457183 - 0.286466I$ $a = 1.10902 + 1.15755I$ $b = 0.256004 + 0.666486I$	$-3.64157 + 1.46138I$	$-1.93416 - 4.24780I$
$u = 0.394100 + 0.341086I$ $a = -0.674932 - 0.693216I$ $b = 0.860383 + 0.378414I$	$-1.76393 - 0.83267I$	$-2.37494 - 0.63227I$
$u = 0.394100 - 0.341086I$ $a = -0.674932 + 0.693216I$ $b = 0.860383 - 0.378414I$	$-1.76393 + 0.83267I$	$-2.37494 + 0.63227I$
$u = -0.425320 + 0.091898I$ $a = -0.743778 + 0.682945I$ $b = -0.228701 + 0.291111I$	$1.018590 - 0.418472I$	$8.77405 + 2.00502I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.425320-0.091898I$ $a=-0.743778-0.682945I$ $b=-0.228701-0.291111I$	$1.018590+0.418472I$	$8.77405-2.00502I$
$u=-0.06654+1.65140I$ $a=-0.502139+0.521102I$ $b=-0.41662+1.56312I$	$-13.8965-4.6518I$	0
$u=-0.06654-1.65140I$ $a=-0.502139-0.521102I$ $b=-0.41662-1.56312I$	$-13.8965+4.6518I$	0
$u=-0.02318+1.67172I$ $a=0.751552-0.327513I$ $b=1.43271-1.45403I$	$-9.55272-2.27084I$	0
$u=-0.02318-1.67172I$ $a=0.751552+0.327513I$ $b=1.43271+1.45403I$	$-9.55272+2.27084I$	0
$u=0.01016+1.69219I$ $a=-1.348610+0.394636I$ $b=-3.15245+1.83141I$	$-12.79330+1.21246I$	0
$u=0.01016-1.69219I$ $a=-1.348610-0.394636I$ $b=-3.15245-1.83141I$	$-12.79330-1.21246I$	0
$u=-0.06031+1.70334I$ $a=-0.294056-0.407025I$ $b=-0.897079-0.594388I$	$-11.49630-3.87362I$	0
$u=-0.06031-1.70334I$ $a=-0.294056+0.407025I$ $b=-0.897079+0.594388I$	$-11.49630+3.87362I$	0
$u=0.07470+1.72501I$ $a=2.31285+0.82742I$ $b=5.82899+2.24727I$	$-15.0169+7.8885I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.07470 - 1.72501I$ $a = 2.31285 - 0.82742I$ $b = 5.82899 - 2.24727I$	$-15.0169 - 7.8885I$	0
$u = 0.05873 + 1.72830I$ $a = -2.35182 - 0.61319I$ $b = -5.90142 - 1.36111I$	$-15.8315 + 2.4299I$	0
$u = 0.05873 - 1.72830I$ $a = -2.35182 + 0.61319I$ $b = -5.90142 + 1.36111I$	$-15.8315 - 2.4299I$	0
$u = -0.06774 + 1.72877I$ $a = 0.495071 + 0.829683I$ $b = 1.48829 + 1.29304I$	$-17.5722 - 5.2629I$	0
$u = -0.06774 - 1.72877I$ $a = 0.495071 - 0.829683I$ $b = 1.48829 - 1.29304I$	$-17.5722 + 5.2629I$	0
$u = 0.08767 + 1.72869I$ $a = -2.17648 - 0.82127I$ $b = -5.31736 - 2.45060I$	$17.9962 + 12.2318I$	0
$u = 0.08767 - 1.72869I$ $a = -2.17648 + 0.82127I$ $b = -5.31736 + 2.45060I$	$17.9962 - 12.2318I$	0
$u = 0.04560 + 1.74772I$ $a = 2.09491 + 0.62616I$ $b = 4.94329 + 1.19565I$	$15.8438 - 0.8328I$	0
$u = 0.04560 - 1.74772I$ $a = 2.09491 - 0.62616I$ $b = 4.94329 - 1.19565I$	$15.8438 + 0.8328I$	0
$u = 0.220298$ $a = -3.03230$ $b = 0.572682$	-1.27955	-10.7800

II.

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ -u^3 - u^2 - 2u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ -u^3 - u^2 - 2u - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^3 - 2u \\ -u^3 - u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^4 + u^3 + 3u^2 + 2u + 1 \\ -u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^4 + 5u^3 + 20u^2 + 14u + 9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^5$
c_3, c_8	u^5
c_4	$(u+1)^5$
c_5, c_9	$u^5+u^4-u^2+u+1$
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_8	y^5
c_5, c_9	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$
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
$u=-0.233677+0.885557I$ $a=-0.827780-0.637683I$ $b=-0.340036-0.807849I$	$-3.46474-2.21397I$	$-4.37343+4.39306I$
$u=-0.233677-0.885557I$ $a=-0.827780+0.637683I$ $b=-0.340036+0.807849I$	$-3.46474+2.21397I$	$-4.37343-4.39306I$
$u=-0.416284$ $a=\ \ 1.54991$ $b=-0.268586$	-0.762751	6.42730
$u=-0.05818+1.69128I$ $a=\ \ 0.552827+0.534136I$ $b=\ \ 1.47433+1.63485I$	$-12.60320-3.33174I$	$-5.84024+1.26157I$
$u=-0.05818-1.69128I$ $a=\ \ 0.552827-0.534136I$ $b=\ \ 1.47433-1.63485I$	$-12.60320+3.33174I$	$-5.84024-1.26157I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^5)(u^{50} - 6u^{49} + \cdots + 4u - 1)$
c_3, c_8	$u^5(u^{50} + u^{49} + \cdots + 64u + 32)$
c_4	$((u+1)^5)(u^{50} - 6u^{49} + \cdots + 4u - 1)$
c_5	$(u^5 + u^4 - u^2 + u + 1)(u^{50} + 2u^{49} + \cdots - 3538u - 1049)$
c_6, c_7	$(u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1)(u^{50} + 2u^{49} + \cdots - 6u - 1)$
c_9	$(u^5 + u^4 - u^2 + u + 1)(u^{50} - 6u^{49} + \cdots - 2094u + 279)$
c_{10}, c_{11}, c_{12}	$(u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1)(u^{50} + 2u^{49} + \cdots - 6u - 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^5)(y^{50} - 50y^{49} + \cdots + 16y + 1)$
c_3, c_8	$y^5(y^{50} - 33y^{49} + \cdots - 7680y + 1024)$
c_5	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)$ $\cdot (y^{50} + 18y^{49} + \cdots - 9892846y + 1100401)$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1)(y^{50} + 66y^{49} + \cdots - 22y + 1)$
c_9	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{50} + 30y^{49} + \cdots - 3350862y + 77841)$