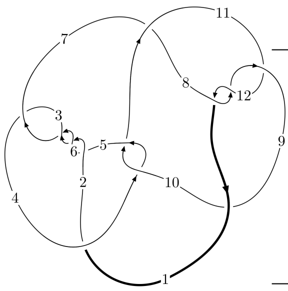
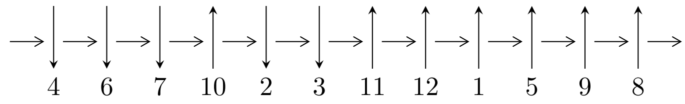
$12a_{0879}$ $(K12a_{0879})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -27u^{65} - 62u^{64} + \cdots + 2b - 19,\ 65u^{65} + 146u^{64} + \cdots + 4a + 79,\ u^{66} + 4u^{65} + \cdots - 7u + 1 \rangle$$
$$I_2^u = \langle b,\ a^3 - a^2u + a^2 + 2u - 3,\ u^2 - u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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. $\boldsymbol{I^u_1 = \langle -27u^{65} - 62u^{64} + \cdots + 2b - 19,\ 65u^{65} + 146u^{64} + \cdots + 4a + 79,\ u^{66} + 4u^{65} + \cdots - 7u + 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -16.2500u^{65} - 36.5000u^{64} + \cdots + 117.250u - 19.7500 \\ \frac{27}{2}u^{65} + 31u^{64} + \cdots - \frac{137}{2}u + \frac{19}{2} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2.75000u^{65} - 5.50000u^{64} + \cdots + 48.7500u - 10.2500 \\ \frac{27}{2}u^{65} + 31u^{64} + \cdots - \frac{137}{2}u + \frac{19}{2} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{4}u^{64} - \frac{3}{4}u^{63} + \cdots + \frac{3}{2}u + \frac{9}{4} \\ -u^9 + 5u^7 - 7u^5 + 2u^3 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^3 - 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^7 - 4u^5 + 4u^3 \\ u^9 - 5u^7 + 7u^5 - 2u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -12.5000u^{65} - 27.2500u^{64} + \cdots + 97.5000u - 17.2500 \\ \frac{21}{4}u^{65} + \frac{49}{4}u^{64} + \cdots - \frac{113}{4}u + 4 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -3u^{65} - \frac{19}{4}u^{64} + \cdots + 27u - \frac{19}{4} \\ \frac{1}{4}u^{65} + \frac{1}{2}u^{64} + \cdots - \frac{3}{4}u + \frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -23u^{65} - 59u^{64} + \cdots + \frac{175}{2}u + \frac{5}{2}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{66} - 16u^{65} + \cdots - 7063u - 529$
c_2, c_3, c_5 c_6	$u^{66} + 4u^{65} + \cdots - 7u + 1$
c_4, c_{10}	$u^{66} - u^{65} + \cdots - 32u - 64$
c_7, c_9	$u^{66} - 3u^{65} + \cdots + 394u - 241$
c_8, c_{11}, c_{12}	$u^{66} + 3u^{65} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{66} + 8y^{65} + \cdots - 58875795y + 279841$
c_2, c_3, c_5 c_6	$y^{66} - 76y^{65} + \cdots - 39y + 1$
c_4, c_{10}	$y^{66} - 35y^{65} + \cdots - 87040y + 4096$
c_7, c_9	$y^{66} - 45y^{65} + \cdots + 1824338y + 58081$
c_8, c_{11}, c_{12}	$y^{66} + 55y^{65} + \cdots + 26y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.072920 + 0.173234I$ $a = 0.033699 - 0.206753I$ $b = -1.156190 + 0.223934I$	$-1.68039 - 4.13387I$	0
$u = -1.072920 - 0.173234I$ $a = 0.033699 + 0.206753I$ $b = -1.156190 - 0.223934I$	$-1.68039 + 4.13387I$	0
$u = 0.690848 + 0.580355I$ $a = 1.60685 + 1.18393I$ $b = -1.265350 + 0.605450I$	$1.32088 - 11.43940I$	0
$u = 0.690848 - 0.580355I$ $a = 1.60685 - 1.18393I$ $b = -1.265350 - 0.605450I$	$1.32088 + 11.43940I$	0
$u = 0.664269 + 0.585797I$ $a = -1.63457 - 1.15491I$ $b = 1.281820 - 0.540344I$	$5.90981 - 7.14877I$	0
$u = 0.664269 - 0.585797I$ $a = -1.63457 + 1.15491I$ $b = 1.281820 + 0.540344I$	$5.90981 + 7.14877I$	0
$u = 0.625394 + 0.587261I$ $a = 1.67658 + 1.11501I$ $b = -1.286450 + 0.445199I$	$2.78876 - 2.77757I$	0
$u = 0.625394 - 0.587261I$ $a = 1.67658 - 1.11501I$ $b = -1.286450 - 0.445199I$	$2.78876 + 2.77757I$	0
$u = -0.749842 + 0.310450I$ $a = 0.324495 + 0.129177I$ $b = 0.649778 - 0.650531I$	$-5.73446 + 0.49899I$	$-5.69937 - 1.38908I$
$u = -0.749842 - 0.310450I$ $a = 0.324495 - 0.129177I$ $b = 0.649778 + 0.650531I$	$-5.73446 - 0.49899I$	$-5.69937 + 1.38908I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.189200 + 0.068111I$ $a = -0.238134 + 0.114543I$ $b = 1.228180 - 0.049346I$	$2.35220 - 0.00558I$	0
$u = -1.189200 - 0.068111I$ $a = -0.238134 - 0.114543I$ $b = 1.228180 + 0.049346I$	$2.35220 + 0.00558I$	0
$u = 0.646920 + 0.426476I$ $a = -1.85311 - 1.39072I$ $b = 0.922593 - 0.479193I$	$-4.87688 - 4.92488I$	$-2.91516 + 7.92049I$
$u = 0.646920 - 0.426476I$ $a = -1.85311 + 1.39072I$ $b = 0.922593 + 0.479193I$	$-4.87688 + 4.92488I$	$-2.91516 - 7.92049I$
$u = 0.325420 + 0.652249I$ $a = -1.70719 - 0.69127I$ $b = 1.302590 + 0.277842I$	$3.67408 - 1.40819I$	$4.92934 + 2.83994I$
$u = 0.325420 - 0.652249I$ $a = -1.70719 + 0.69127I$ $b = 1.302590 - 0.277842I$	$3.67408 + 1.40819I$	$4.92934 - 2.83994I$
$u = 0.547891 + 0.477188I$ $a = 1.92682 + 1.12711I$ $b = -1.034770 + 0.276618I$	$1.07485 - 3.31172I$	$3.02602 + 8.16126I$
$u = 0.547891 - 0.477188I$ $a = 1.92682 - 1.12711I$ $b = -1.034770 - 0.276618I$	$1.07485 + 3.31172I$	$3.02602 - 8.16126I$
$u = -0.550846 + 0.473180I$ $a = -0.638662 - 0.120591I$ $b = -0.283002 + 1.026680I$	$-1.79557 + 5.51844I$	$-0.23058 - 6.89017I$
$u = -0.550846 - 0.473180I$ $a = -0.638662 + 0.120591I$ $b = -0.283002 - 1.026680I$	$-1.79557 - 5.51844I$	$-0.23058 + 6.89017I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.281335 + 0.666408I$ $a = 1.67352 + 0.63814I$ $b = -1.291680 - 0.386170I$	$7.04097 + 2.92886I$	$8.20980 - 1.22760I$
$u = 0.281335 - 0.666408I$ $a = 1.67352 - 0.63814I$ $b = -1.291680 + 0.386170I$	$7.04097 - 2.92886I$	$8.20980 + 1.22760I$
$u = 0.246514 + 0.675439I$ $a = -1.64567 - 0.59911I$ $b = 1.274070 + 0.469465I$	$2.63500 + 7.21380I$	$3.80665 - 3.88169I$
$u = 0.246514 - 0.675439I$ $a = -1.64567 + 0.59911I$ $b = 1.274070 - 0.469465I$	$2.63500 - 7.21380I$	$3.80665 + 3.88169I$
$u = -1.318540 + 0.118766I$ $a = 0.453383 - 0.293355I$ $b = -1.314510 - 0.011883I$	$-1.46349 + 4.26617I$	0
$u = -1.318540 - 0.118766I$ $a = 0.453383 + 0.293355I$ $b = -1.314510 + 0.011883I$	$-1.46349 - 4.26617I$	0
$u = -0.488537 + 0.457113I$ $a = 0.700481 + 0.055283I$ $b = 0.160120 - 0.986891I$	$2.36817 + 1.61935I$	$5.06499 - 4.29154I$
$u = -0.488537 - 0.457113I$ $a = 0.700481 - 0.055283I$ $b = 0.160120 + 0.986891I$	$2.36817 - 1.61935I$	$5.06499 + 4.29154I$
$u = -0.604078 + 0.148414I$ $a = -0.253436 + 0.106782I$ $b = -0.286923 + 0.422139I$	$-1.106760 + 0.360302I$	$-7.12806 - 1.59413I$
$u = -0.604078 - 0.148414I$ $a = -0.253436 - 0.106782I$ $b = -0.286923 - 0.422139I$	$-1.106760 - 0.360302I$	$-7.12806 + 1.59413I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.403566+0.462584I$ $a=-0.820575-0.001706I$ $b=\ \ 0.001443+0.972652I$	$-1.36002-2.20380I$	$1.274205-0.508380I$
$u=-0.403566-0.462584I$ $a=-0.820575+0.001706I$ $b=\ \ 0.001443-0.972652I$	$-1.36002+2.20380I$	$1.274205+0.508380I$
$u=\ \ 0.407492+0.444561I$ $a=-2.10136-0.83022I$ $b=\ \ 0.941571-0.012463I$	$1.50011+0.02255I$	$5.79860+0.11054I$
$u=\ \ 0.407492-0.444561I$ $a=-2.10136+0.83022I$ $b=\ \ 0.941571+0.012463I$	$1.50011-0.02255I$	$5.79860-0.11054I$
$u=\ \ 0.446019+0.205803I$ $a=\ \ 3.01031+1.00239I$ $b=-0.585824+0.096244I$	$-3.60533+2.43505I$	$4.47869+3.50639I$
$u=\ \ 0.446019-0.205803I$ $a=\ \ 3.01031-1.00239I$ $b=-0.585824-0.096244I$	$-3.60533-2.43505I$	$4.47869-3.50639I$
$u=\ \ 1.51687+0.09420I$ $a=\ \ 0.265118+0.603915I$ $b=\ \ 0.284104+1.091710I$	$-7.76260+0.42615I$	0
$u=\ \ 1.51687-0.09420I$ $a=\ \ 0.265118-0.603915I$ $b=\ \ 0.284104-1.091710I$	$-7.76260-0.42615I$	0
$u=-1.52878+0.09849I$ $a=\ \ 1.127160-0.797641I$ $b=-1.075640-0.324127I$	$-5.04567+1.71176I$	0
$u=-1.52878-0.09849I$ $a=\ \ 1.127160+0.797641I$ $b=-1.075640+0.324127I$	$-5.04567-1.71176I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.53900 + 0.11695I$ $a = -0.336179 - 0.567584I$ $b = -0.393546 - 1.106990I$	$-4.45170 - 3.60064I$	0
$u = 1.53900 - 0.11695I$ $a = -0.336179 + 0.567584I$ $b = -0.393546 + 1.106990I$	$-4.45170 + 3.60064I$	0
$u = -1.54855 + 0.07058I$ $a = -1.41831 + 0.83959I$ $b = 0.944998 + 0.301189I$	$-10.50730 - 1.36159I$	0
$u = -1.54855 - 0.07058I$ $a = -1.41831 - 0.83959I$ $b = 0.944998 - 0.301189I$	$-10.50730 + 1.36159I$	0
$u = -1.55067 + 0.13221I$ $a = -0.959087 + 0.994864I$ $b = 1.134420 + 0.460428I$	$-5.97241 + 5.48876I$	0
$u = -1.55067 - 0.13221I$ $a = -0.959087 - 0.994864I$ $b = 1.134420 - 0.460428I$	$-5.97241 - 5.48876I$	0
$u = 1.55509 + 0.13012I$ $a = 0.379992 + 0.543053I$ $b = 0.471872 + 1.119230I$	$-8.88354 - 7.66796I$	0
$u = 1.55509 - 0.13012I$ $a = 0.379992 - 0.543053I$ $b = 0.471872 - 1.119230I$	$-8.88354 + 7.66796I$	0
$u = 0.061635 + 0.421413I$ $a = 1.80766 + 0.02094I$ $b = -0.645194 - 0.497522I$	$-3.43044 + 2.02248I$	$1.43635 - 3.15758I$
$u = 0.061635 - 0.421413I$ $a = 1.80766 - 0.02094I$ $b = -0.645194 + 0.497522I$	$-3.43044 - 2.02248I$	$1.43635 + 3.15758I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.57094+0.17640I$ $a=-0.738128+1.094960I$ $b=\ \ 1.267420+0.596203I$	$-4.54503+5.58353I$	0
$u=-1.57094-0.17640I$ $a=-0.738128-1.094960I$ $b=\ \ 1.267420-0.596203I$	$-4.54503-5.58353I$	0
$u=\ \ 1.58225+0.03832I$ $a=\ \ 0.163322+0.361601I$ $b=\ \ 0.266777+0.702013I$	$-8.64237-1.04768I$	0
$u=\ \ 1.58225-0.03832I$ $a=\ \ 0.163322-0.361601I$ $b=\ \ 0.266777-0.702013I$	$-8.64237+1.04768I$	0
$u=-1.58571+0.12589I$ $a=\ \ 0.99022-1.21656I$ $b=-1.044450-0.580460I$	$-12.4486+6.9737I$	0
$u=-1.58571-0.12589I$ $a=\ \ 0.99022+1.21656I$ $b=-1.044450+0.580460I$	$-12.4486-6.9737I$	0
$u=-1.58854+0.17927I$ $a=\ \ 0.712511-1.165440I$ $b=-1.26100-0.66919I$	$-1.64539+9.99256I$	0
$u=-1.58854-0.17927I$ $a=\ \ 0.712511+1.165440I$ $b=-1.26100+0.66919I$	$-1.64539-9.99256I$	0
$u=-1.59986+0.17767I$ $a=-0.704976+1.212660I$ $b=\ \ 1.24315+0.71519I$	$-6.3848+14.2753I$	0
$u=-1.59986-0.17767I$ $a=-0.704976-1.212660I$ $b=\ \ 1.24315-0.71519I$	$-6.3848-14.2753I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.61738 + 0.07768I$ $a = -0.344588 - 0.328731I$ $b = -0.607410 - 0.737385I$	$-13.86580 - 1.91791I$	0
$u = 1.61738 - 0.07768I$ $a = -0.344588 + 0.328731I$ $b = -0.607410 + 0.737385I$	$-13.86580 + 1.91791I$	0
$u = 1.66435$ $a = -0.362345$ $b = -0.777375$	-7.02502	0
$u = 1.66975 + 0.02246I$ $a = 0.391254 + 0.078239I$ $b = 0.840309 + 0.197273I$	$-11.05450 + 3.59857I$	0
$u = 1.66975 - 0.02246I$ $a = 0.391254 - 0.078239I$ $b = 0.840309 - 0.197273I$	$-11.05450 - 3.59857I$	0
$u = 0.188647$ $a = -3.33648$ $b = 0.410787$	0.829449	12.8870

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -a^2 - 2au + a - u - 3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3	$(u^2 + u - 1)^3$
c_4, c_{10}	u^6
c_5, c_6	$(u^2 - u - 1)^3$
c_7, c_9	$(u^3 - u^2 + 1)^2$
c_8	$(u^3 + u^2 + 2u + 1)^2$
c_{11}, c_{12}	$(u^3 - u^2 + 2u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_5, c_6	$(y^2 - 3y + 1)^3$
c_4, c_{10}	y^6
c_7, c_9	$(y^3 - y^2 + 2y - 1)^2$
c_8, c_{11}, c_{12}	$(y^3 + 3y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 1.22142$ $b = 0$	0.126494	-1.14270
$u = -0.618034$ $a = -1.41973 + 1.20521I$ $b = 0$	$-4.01109 - 2.82812I$	$-6.11966 + 6.11708I$
$u = -0.618034$ $a = -1.41973 - 1.20521I$ $b = 0$	$-4.01109 + 2.82812I$	$-6.11966 - 6.11708I$
$u = 1.61803$ $a = 0.542287 + 0.460350I$ $b = 0$	$-11.90680 + 2.82812I$	$-5.91278 - 1.52866I$
$u = 1.61803$ $a = 0.542287 - 0.460350I$ $b = 0$	$-11.90680 - 2.82812I$	$-5.91278 + 1.52866I$
$u = 1.61803$ $a = -0.466540$ $b = 0$	-7.76919	-3.79250

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u-1)^3)(u^{66}-16u^{65}+\cdots-7063u-529)$
c_2, c_3	$((u^2+u-1)^3)(u^{66}+4u^{65}+\cdots-7u+1)$
c_4, c_{10}	$u^6(u^{66}-u^{65}+\cdots-32u-64)$
c_5, c_6	$((u^2-u-1)^3)(u^{66}+4u^{65}+\cdots-7u+1)$
c_7, c_9	$((u^3-u^2+1)^2)(u^{66}-3u^{65}+\cdots+394u-241)$
c_8	$((u^3+u^2+2u+1)^2)(u^{66}+3u^{65}+\cdots-2u-1)$
c_{11}, c_{12}	$((u^3-u^2+2u-1)^2)(u^{66}+3u^{65}+\cdots-2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2-3y+1)^3)(y^{66}+8y^{65}+\cdots-5.88758\times10^7y+279841)$
c_2, c_3, c_5 c_6	$((y^2-3y+1)^3)(y^{66}-76y^{65}+\cdots-39y+1)$
c_4, c_{10}	$y^6(y^{66}-35y^{65}+\cdots-87040y+4096)$
c_7, c_9	$((y^3-y^2+2y-1)^2)(y^{66}-45y^{65}+\cdots+1824338y+58081)$
c_8, c_{11}, c_{12}	$((y^3+3y^2+2y-1)^2)(y^{66}+55y^{65}+\cdots+26y+1)$