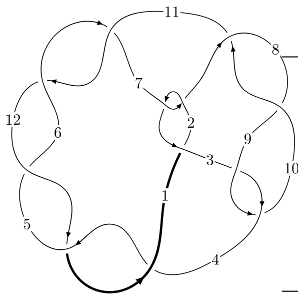
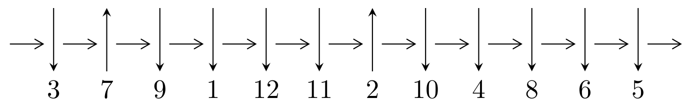
$12a_{0619}$ ($K12a_{0619}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.85075 \times 10^{26} u^{54} - 1.82177 \times 10^{26} u^{53} + \cdots + 5.53593 \times 10^{26} b + 1.34110 \times 10^{27},$$
$$2.89480 \times 10^{27} u^{54} + 2.68152 \times 10^{27} u^{53} + \cdots + 5.53593 \times 10^{26} a - 2.16054 \times 10^{28},\ u^{55} + u^{54} + \cdots - 12u - 1\rangle$$
$$I_2^u = \langle -u^3 a + u^2 a + 5u^3 - 4au + 5b - a + 10u,\ -u^3 a - u^2 a + 2u^3 + a^2 - 2au + u^2 - 2a + 6u + 2,\ u^4 + 3u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 representations.

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[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.

$I_1^u = \langle -1.85\times10^{26}u^{54} - 1.82\times10^{26}u^{53} + \cdots + 5.54\times10^{26}b + 1.34\times10^{27},\ 2.89\times10^{27}u^{54} + 2.68\times10^{27}u^{53} + \cdots + 5.54\times10^{26}a - 2.16\times10^{28},\ u^{55} + u^{54} + \cdots - 12u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -5.22911u^{54} - 4.84385u^{53} + \cdots + 184.977u + 39.0276 \\ 0.334317u^{54} + 0.329082u^{53} + \cdots - 18.1099u - 2.42254 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -5.56342u^{54} - 5.17293u^{53} + \cdots + 203.087u + 41.4501 \\ 0.334317u^{54} + 0.329082u^{53} + \cdots - 18.1099u - 2.42254 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2.01049u^{54} + 1.47507u^{53} + \cdots - 60.3680u - 18.1292 \\ -1.17670u^{54} - 0.737240u^{53} + \cdots + 28.3449u + 5.00114 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -3.21401u^{54} - 2.21018u^{53} + \cdots + 93.1627u + 24.4667 \\ 1.00340u^{54} + 0.579236u^{53} + \cdots - 25.9928u - 4.57326 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -6.41607u^{54} - 5.63866u^{53} + \cdots + 226.145u + 38.8714 \\ -0.416211u^{54} - 0.438802u^{53} + \cdots + 21.9914u + 4.79282 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^4 + 3u^2 + 1 \\ u^6 + 4u^4 + 3u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 + 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{10122322327119837677701675065}{276796444336859447752049744}u^{54} + \frac{676329581383746073717624245}{276796444336859447752049744}u^{53} + \cdots - \frac{6753618946943674742901539099}{69199111084214861938012436}u - \frac{9459757630078072988532524263}{276796444336859447752049744}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{55} + 23u^{54} + \cdots + 88u - 16$
c_2, c_7	$u^{55} + u^{54} + \cdots - 8u + 4$
c_3, c_9	$u^{55} + u^{54} + \cdots + 6u + 5$
c_4, c_5, c_6 c_{11}, c_{12}	$u^{55} - u^{54} + \cdots - 12u + 1$
c_8, c_{10}	$u^{55} + 17u^{54} + \cdots + 56u + 25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{55} + 27y^{54} + \cdots + 50976y - 256$
c_2, c_7	$y^{55} + 23y^{54} + \cdots + 88y - 16$
c_3, c_9	$y^{55} - 17y^{54} + \cdots + 56y - 25$
c_4, c_5, c_6 c_{11}, c_{12}	$y^{55} + 75y^{54} + \cdots + 84y - 1$
c_8, c_{10}	$y^{55} + 47y^{54} + \cdots + 41236y - 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.242174 + 0.965422I$ $a = 1.84242 + 0.74241I$ $b = 1.088040 - 0.231202I$	$-0.05193 + 5.45928I$	0
$u = -0.242174 - 0.965422I$ $a = 1.84242 - 0.74241I$ $b = 1.088040 + 0.231202I$	$-0.05193 - 5.45928I$	0
$u = -0.054318 + 0.978179I$ $a = 0.29476 - 1.79156I$ $b = -0.865648 + 0.695285I$	$1.45344 + 2.67085I$	0
$u = -0.054318 - 0.978179I$ $a = 0.29476 + 1.79156I$ $b = -0.865648 - 0.695285I$	$1.45344 - 2.67085I$	0
$u = 0.118045 + 1.055120I$ $a = -0.217543 + 0.039268I$ $b = -0.093474 - 0.707979I$	$3.78484 - 2.38987I$	0
$u = 0.118045 - 1.055120I$ $a = -0.217543 - 0.039268I$ $b = -0.093474 + 0.707979I$	$3.78484 + 2.38987I$	0
$u = -0.025625 + 0.906620I$ $a = -1.46648 + 0.30670I$ $b = -1.021430 - 0.412711I$	$0.99023 - 1.37586I$	$-3.05121 + 0.I$
$u = -0.025625 - 0.906620I$ $a = -1.46648 - 0.30670I$ $b = -1.021430 + 0.412711I$	$0.99023 + 1.37586I$	$-3.05121 + 0.I$
$u = -0.391057 + 1.070450I$ $a = -1.53923 - 1.26504I$ $b = -1.015910 + 0.768566I$	$6.48872 + 11.16090I$	0
$u = -0.391057 - 1.070450I$ $a = -1.53923 + 1.26504I$ $b = -1.015910 - 0.768566I$	$6.48872 - 11.16090I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.352898 + 1.104100I$ $a = 0.266006 + 0.266601I$ $b = -0.735018 + 0.866010I$	$7.35517 - 5.07871I$	0
$u = 0.352898 - 1.104100I$ $a = 0.266006 - 0.266601I$ $b = -0.735018 - 0.866010I$	$7.35517 + 5.07871I$	0
$u = 0.286912 + 1.149410I$ $a = 1.08185 - 1.14553I$ $b = 0.950341 + 0.788022I$	$8.18462 - 5.12776I$	0
$u = 0.286912 - 1.149410I$ $a = 1.08185 + 1.14553I$ $b = 0.950341 - 0.788022I$	$8.18462 + 5.12776I$	0
$u = -0.225018 + 1.198970I$ $a = -0.0360231 - 0.1138210I$ $b = 0.817032 + 0.826405I$	$8.59101 - 0.90551I$	0
$u = -0.225018 - 1.198970I$ $a = -0.0360231 + 0.1138210I$ $b = 0.817032 - 0.826405I$	$8.59101 + 0.90551I$	0
$u = -0.566330 + 0.506423I$ $a = -0.847540 - 0.749555I$ $b = -0.903233 - 0.759567I$	$3.06251 - 3.58876I$	$-4.22276 + 2.27079I$
$u = -0.566330 - 0.506423I$ $a = -0.847540 + 0.749555I$ $b = -0.903233 + 0.759567I$	$3.06251 + 3.58876I$	$-4.22276 - 2.27079I$
$u = -0.260846 + 0.684203I$ $a = 1.25638 + 1.88980I$ $b = 0.786041 + 0.088863I$	$-1.81365 - 0.48899I$	$-10.00862 - 1.42707I$
$u = -0.260846 - 0.684203I$ $a = 1.25638 - 1.88980I$ $b = 0.786041 - 0.088863I$	$-1.81365 + 0.48899I$	$-10.00862 + 1.42707I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.578616 + 0.424067I$ $a = -1.86336 + 0.36259I$ $b = -0.859374 - 0.768588I$	$3.19815 - 2.18751I$	$-4.02245 + 3.31324I$
$u = 0.578616 - 0.424067I$ $a = -1.86336 - 0.36259I$ $b = -0.859374 + 0.768588I$	$3.19815 + 2.18751I$	$-4.02245 - 3.31324I$
$u = -0.654791 + 0.269416I$ $a = 2.28996 + 0.24061I$ $b = 0.965160 - 0.755306I$	$2.33083 + 7.60802I$	$-6.45547 - 7.83198I$
$u = -0.654791 - 0.269416I$ $a = 2.28996 - 0.24061I$ $b = 0.965160 + 0.755306I$	$2.33083 - 7.60802I$	$-6.45547 + 7.83198I$
$u = 0.622881 + 0.326038I$ $a = 0.734126 - 0.979583I$ $b = 0.784366 - 0.800341I$	$2.88441 - 1.75138I$	$-4.95873 + 3.04143I$
$u = 0.622881 - 0.326038I$ $a = 0.734126 + 0.979583I$ $b = 0.784366 + 0.800341I$	$2.88441 + 1.75138I$	$-4.95873 - 3.04143I$
$u = 0.160604 + 0.679165I$ $a = -0.997813 + 0.742503I$ $b = -0.743529 - 0.424149I$	$1.13258 - 1.82586I$	$-0.68429 + 5.26457I$
$u = 0.160604 - 0.679165I$ $a = -0.997813 - 0.742503I$ $b = -0.743529 + 0.424149I$	$1.13258 + 1.82586I$	$-0.68429 - 5.26457I$
$u = -0.466981 + 0.130221I$ $a = -3.35094 + 0.41526I$ $b = -0.962907 + 0.180222I$	$-3.42043 + 3.05241I$	$-14.8881 - 6.0447I$
$u = -0.466981 - 0.130221I$ $a = -3.35094 - 0.41526I$ $b = -0.962907 - 0.180222I$	$-3.42043 - 3.05241I$	$-14.8881 + 6.0447I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.298953 + 0.304108I$ $a = 0.473629 + 0.940791I$ $b = 0.076869 + 0.393888I$	$-0.455535 - 1.051460I$	$-6.61895 + 6.28679I$
$u = 0.298953 - 0.304108I$ $a = 0.473629 - 0.940791I$ $b = 0.076869 - 0.393888I$	$-0.455535 + 1.051460I$	$-6.61895 - 6.28679I$
$u = 0.01077 + 1.58006I$ $a = 0.756237 - 0.449907I$ $b = 0.812235 + 0.598969I$	$8.74683 - 2.33878I$	0
$u = 0.01077 - 1.58006I$ $a = 0.756237 + 0.449907I$ $b = 0.812235 - 0.598969I$	$8.74683 + 2.33878I$	0
$u = -0.04280 + 1.62916I$ $a = -0.857697 - 1.116840I$ $b = -0.725530 + 0.107591I$	$6.26450 + 0.46865I$	0
$u = -0.04280 - 1.62916I$ $a = -0.857697 + 1.116840I$ $b = -0.725530 - 0.107591I$	$6.26450 - 0.46865I$	0
$u = 0.366996$ $a = 2.18866$ $b = 0.695683$	-0.945108	-11.2280
$u = 0.00008 + 1.71308I$ $a = 1.247670 - 0.423656I$ $b = 1.129780 + 0.387208I$	$10.44000 - 1.33130I$	0
$u = 0.00008 - 1.71308I$ $a = 1.247670 + 0.423656I$ $b = 1.129780 - 0.387208I$	$10.44000 + 1.33130I$	0
$u = -0.05786 + 1.71749I$ $a = -1.41471 - 0.54631I$ $b = -1.169820 + 0.244407I$	$9.52562 + 6.62877I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.05786 - 1.71749I$ $a = -1.41471 + 0.54631I$ $b = -1.169820 - 0.244407I$	$9.52562 - 6.62877I$	0
$u = -0.01271 + 1.72544I$ $a = -0.088994 + 1.301550I$ $b = 0.885426 - 0.778612I$	$11.19810 + 2.93315I$	0
$u = -0.01271 - 1.72544I$ $a = -0.088994 - 1.301550I$ $b = 0.885426 + 0.778612I$	$11.19810 - 2.93315I$	0
$u = 0.02762 + 1.74047I$ $a = 0.102112 - 0.218682I$ $b = 0.093171 + 0.855980I$	$13.8627 - 2.9756I$	0
$u = 0.02762 - 1.74047I$ $a = 0.102112 + 0.218682I$ $b = 0.093171 - 0.855980I$	$13.8627 + 2.9756I$	0
$u = -0.10658 + 1.74213I$ $a = 1.06647 + 1.20290I$ $b = 1.054570 - 0.779432I$	$16.4678 + 13.2408I$	0
$u = -0.10658 - 1.74213I$ $a = 1.06647 - 1.20290I$ $b = 1.054570 + 0.779432I$	$16.4678 - 13.2408I$	0
$u = 0.09329 + 1.75197I$ $a = -0.270695 + 0.136458I$ $b = 0.708239 - 0.923393I$	$17.5515 - 6.9610I$	0
$u = 0.09329 - 1.75197I$ $a = -0.270695 - 0.136458I$ $b = 0.708239 + 0.923393I$	$17.5515 + 6.9610I$	0
$u = 0.07231 + 1.76162I$ $a = -0.736108 + 1.089440I$ $b = -1.006010 - 0.819655I$	$18.6505 - 6.6546I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.07231 - 1.76162I$ $a = -0.736108 - 1.089440I$ $b = -1.006010 + 0.819655I$	$18.6505 + 6.6546I$	0
$u = -0.05292 + 1.76973I$ $a = 0.111166 + 0.401269I$ $b = -0.795250 - 0.910655I$	$19.3144 + 0.2705I$	0
$u = -0.05292 - 1.76973I$ $a = 0.111166 - 0.401269I$ $b = -0.795250 + 0.910655I$	$19.3144 - 0.2705I$	0
$u = -0.146463 + 0.018325I$ $a = 5.57002 + 5.35103I$ $b = 0.898022 - 0.525426I$	$-1.72390 + 2.04138I$	$-15.5710 - 3.1366I$
$u = -0.146463 - 0.018325I$ $a = 5.57002 - 5.35103I$ $b = 0.898022 + 0.525426I$	$-1.72390 - 2.04138I$	$-15.5710 + 3.1366I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle -u^3a+u^2a+5u^3-4au+5b-a+10u,\ -u^3a+2u^3+\cdots-2a+2,\ u^4+3u^2+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a \\ \frac{1}{5}u^3a - u^3 + \cdots + \frac{1}{5}a - 2u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{5}u^3a + u^3 + \cdots + \frac{4}{5}a + 2u \\ \frac{1}{5}u^3a - u^3 + \cdots + \frac{1}{5}a - 2u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^3 + 3u \\ \frac{2}{5}u^3a - \frac{2}{5}u^2a + \frac{3}{5}au - \frac{3}{5}a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^3 + 3u \\ \frac{2}{5}u^3a - \frac{2}{5}u^2a + \cdots - \frac{3}{5}a + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 2 \\ \frac{1}{5}u^3a - \frac{1}{5}u^2a + \frac{4}{5}au + \frac{1}{5}a \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -u^2 - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^2 + 1 \\ -u^2 - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^3 + 2u \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{8}{5}u^3a + \frac{8}{5}u^2a - \frac{12}{5}au + \frac{12}{5}a - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^8$
c_2, c_7	$(y+1)^8$
c_3, c_9	$(y^2-y+1)^4$
c_4, c_5, c_6 c_{11}, c_{12}	$(y^2+3y+1)^4$
c_8, c_{10}	$(y^2+y+1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034I$ $a = 1.67504 - 0.90126I$ $b = 0.866025 - 0.500000I$	$-0.65797 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.618034I$ $a = -0.05701 + 1.90126I$ $b = -0.866025 - 0.500000I$	$-0.65797 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -0.618034I$ $a = 1.67504 + 0.90126I$ $b = 0.866025 + 0.500000I$	$-0.65797 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -0.618034I$ $a = -0.05701 - 1.90126I$ $b = -0.866025 + 0.500000I$	$-0.65797 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 1.61803I$ $a = -1.175040 + 0.035233I$ $b = -0.866025 + 0.500000I$	$7.23771 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 1.61803I$ $a = 0.557008 - 1.035230I$ $b = 0.866025 + 0.500000I$	$7.23771 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.61803I$ $a = -1.175040 - 0.035233I$ $b = -0.866025 - 0.500000I$	$7.23771 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.61803I$ $a = 0.557008 + 1.035230I$ $b = 0.866025 - 0.500000I$	$7.23771 - 2.02988I$	$-6.00000 + 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^{55}+23u^{54}+\cdots+88u-16)$
c_2, c_7	$((u^2+1)^4)(u^{55}+u^{54}+\cdots-8u+4)$
c_3, c_9	$((u^4-u^2+1)^2)(u^{55}+u^{54}+\cdots+6u+5)$
c_4, c_5, c_6 c_{11}, c_{12}	$((u^4+3u^2+1)^2)(u^{55}-u^{54}+\cdots-12u+1)$
c_8	$((u^2-u+1)^4)(u^{55}+17u^{54}+\cdots+56u+25)$
c_{10}	$((u^2+u+1)^4)(u^{55}+17u^{54}+\cdots+56u+25)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^{55}+27y^{54}+\cdots+50976y-256)$
c_2, c_7	$((y+1)^8)(y^{55}+23y^{54}+\cdots+88y-16)$
c_3, c_9	$((y^2-y+1)^4)(y^{55}-17y^{54}+\cdots+56y-25)$
c_4, c_5, c_6 c_{11}, c_{12}	$((y^2+3y+1)^4)(y^{55}+75y^{54}+\cdots+84y-1)$
c_8, c_{10}	$((y^2+y+1)^4)(y^{55}+47y^{54}+\cdots+41236y-625)$