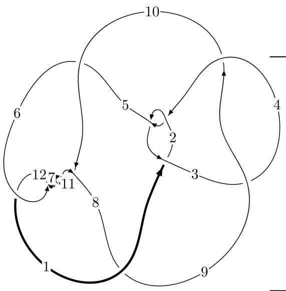
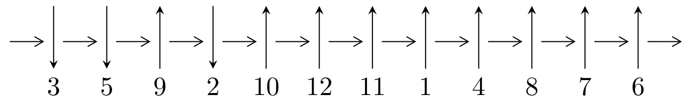
$12a_{0153}$ $(K12a_{0153})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5.60722 \times 10^{81} u^{57} + 1.67247 \times 10^{81} u^{56} + \cdots + 2.33772 \times 10^{82} b + 1.81103 \times 10^{83},$$
$$7.27818 \times 10^{82} u^{57} + 4.91560 \times 10^{82} u^{56} + \cdots + 1.87018 \times 10^{83} a + 1.91879 \times 10^{84},\ u^{58} + u^{57} + \cdots + 64u + 3$$

$$I_1^v = \langle a,\ b - 1,\ v^5 - v^4 + v^2 + v - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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_1^u =
$\langle 5.61\times10^{81}u^{57}+1.67\times10^{81}u^{56}+\cdots+2.34\times10^{82}b+1.81\times10^{83},\ 7.28\times10^{82}u^{57}+4.92\times10^{82}u^{56}+\cdots+1.87\times10^{83}a+1.92\times10^{84},\ u^{58}+u^{57}+\cdots+64u+32\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.389171u^{57}-0.262841u^{56}+\cdots+4.54781u-10.2600\\-0.239859u^{57}-0.0715429u^{56}+\cdots-7.02146u-7.74698\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.522817u^{57}-0.268126u^{56}+\cdots-1.68093u-13.8759\\-0.207902u^{57}-0.0373370u^{56}+\cdots-9.31175u-7.25535\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.389171u^{57}-0.262841u^{56}+\cdots+4.54781u-10.2600\\0.420518u^{57}+0.181191u^{56}+\cdots+2.65309u+11.7895\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0313472u^{57}-0.0816505u^{56}+\cdots+7.20090u+1.52957\\0.420518u^{57}+0.181191u^{56}+\cdots+2.65309u+11.7895\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.713059u^{57}+0.0359583u^{56}+\cdots-41.8715u-42.2736\\-0.0618638u^{57}+0.0517051u^{56}+\cdots-0.420514u+0.205394\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.427906u^{57}+0.0462409u^{56}+\cdots+18.0771u+11.5849\\-0.749808u^{57}+0.0101401u^{56}+\cdots-32.6805u-32.2330\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.393422u^{57}+0.397378u^{56}+\cdots-1.00737u+23.9064\\-0.558340u^{57}-0.192853u^{56}+\cdots-13.8407u-26.9810\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.460418u^{57}+0.147034u^{56}+\cdots+20.1920u+18.9774\\-0.416036u^{57}-0.145859u^{56}+\cdots-7.89835u-13.2725\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.02102u^{57}-0.114366u^{56}+\cdots-107.539u-65.1509$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{58} + 26u^{57} + \cdots + 36u + 1$
c_2, c_4	$u^{58} - 6u^{57} + \cdots + 12u - 1$
c_3, c_9	$u^{58} - u^{57} + \cdots - 64u + 32$
c_5, c_8	$u^{58} + 2u^{57} + \cdots - 1314u - 445$
c_6, c_7, c_{10} c_{11}, c_{12}	$u^{58} + 2u^{57} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{58} + 18y^{57} + \cdots - 1608y + 1$
c_2, c_4	$y^{58} - 26y^{57} + \cdots - 36y + 1$
c_3, c_9	$y^{58} - 33y^{57} + \cdots - 19968y + 1024$
c_5, c_8	$y^{58} - 38y^{57} + \cdots + 2799054y + 198025$
c_6, c_7, c_{10} c_{11}, c_{12}	$y^{58} + 74y^{57} + \cdots + 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.988918 + 0.213289I$ $a = 0.430565 + 0.018643I$ $b = 1.318190 - 0.100375I$	$-11.06150 - 4.52126I$	$2.64115 + 3.57478I$
$u = -0.988918 - 0.213289I$ $a = 0.430565 - 0.018643I$ $b = 1.318190 + 0.100375I$	$-11.06150 + 4.52126I$	$2.64115 - 3.57478I$
$u = -1.012520 + 0.149144I$ $a = 0.62352 + 1.58705I$ $b = -0.785549 - 0.545845I$	$1.31063 - 0.82722I$	$9.15613 - 0.70745I$
$u = -1.012520 - 0.149144I$ $a = 0.62352 - 1.58705I$ $b = -0.785549 + 0.545845I$	$1.31063 + 0.82722I$	$9.15613 + 0.70745I$
$u = 0.670998 + 0.708770I$ $a = 0.455472 - 0.072472I$ $b = 1.141310 + 0.340713I$	$-14.4352 - 1.2271I$	$-2.32982 + 0.23811I$
$u = 0.670998 - 0.708770I$ $a = 0.455472 + 0.072472I$ $b = 1.141310 - 0.340713I$	$-14.4352 + 1.2271I$	$-2.32982 - 0.23811I$
$u = 0.120330 + 1.017630I$ $a = 0.516133 - 0.162101I$ $b = 0.763532 + 0.553870I$	$-0.454989 + 0.856173I$	$4.39334 - 1.34405I$
$u = 0.120330 - 1.017630I$ $a = 0.516133 + 0.162101I$ $b = 0.763532 - 0.553870I$	$-0.454989 - 0.856173I$	$4.39334 + 1.34405I$
$u = -0.023513 + 1.056290I$ $a = 0.524037 + 0.186326I$ $b = 0.694092 - 0.602349I$	$-9.08024 - 2.35274I$	$2.89470 - 0.08369I$
$u = -0.023513 - 1.056290I$ $a = 0.524037 - 0.186326I$ $b = 0.694092 + 0.602349I$	$-9.08024 + 2.35274I$	$2.89470 + 0.08369I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.926509 + 0.140364I$ $a = 0.436398 - 0.012440I$ $b = 1.289630 + 0.065266I$	$-2.19660 + 2.97198I$	$4.77337 - 5.16018I$
$u = 0.926509 - 0.140364I$ $a = 0.436398 + 0.012440I$ $b = 1.289630 - 0.065266I$	$-2.19660 - 2.97198I$	$4.77337 + 5.16018I$
$u = -0.229073 + 1.043540I$ $a = 0.495133 + 0.149970I$ $b = 0.849943 - 0.560327I$	$1.83802 + 2.24390I$	$9.07567 - 3.44705I$
$u = -0.229073 - 1.043540I$ $a = 0.495133 - 0.149970I$ $b = 0.849943 + 0.560327I$	$1.83802 - 2.24390I$	$9.07567 + 3.44705I$
$u = -0.898579$ $a = 0.439075$ $b = 1.27751$	0.376807	11.1020
$u = 0.970754 + 0.521236I$ $a = -0.18922 - 2.00022I$ $b = -1.046870 + 0.495511I$	$-13.4454 + 5.9801I$	$0. - 6.24129I$
$u = 0.970754 - 0.521236I$ $a = -0.18922 + 2.00022I$ $b = -1.046870 - 0.495511I$	$-13.4454 - 5.9801I$	$0. + 6.24129I$
$u = 0.312376 + 1.070610I$ $a = 0.479995 - 0.143589I$ $b = 0.912231 + 0.572038I$	$-0.92817 - 5.38733I$	$3.26193 + 6.82724I$
$u = 0.312376 - 1.070610I$ $a = 0.479995 + 0.143589I$ $b = 0.912231 - 0.572038I$	$-0.92817 + 5.38733I$	$3.26193 - 6.82724I$
$u = 1.079810 + 0.293215I$ $a = 0.28949 - 1.67352I$ $b = -0.899638 + 0.580183I$	$0.92519 + 3.70734I$	$7.01990 - 7.67884I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.079810 - 0.293215I$ $a = 0.28949 + 1.67352I$ $b = -0.899638 - 0.580183I$	$0.92519 - 3.70734I$	$7.01990 + 7.67884I$
$u = -1.025060 + 0.450289I$ $a = -0.00985 + 1.87728I$ $b = -1.002790 - 0.532670I$	$-3.60799 - 5.37901I$	$0. + 6.85674I$
$u = -1.025060 - 0.450289I$ $a = -0.00985 - 1.87728I$ $b = -1.002790 + 0.532670I$	$-3.60799 + 5.37901I$	$0. - 6.85674I$
$u = -0.616932 + 0.596574I$ $a = 0.766075 - 0.434828I$ $b = -0.012721 + 0.560385I$	$-11.10310 - 2.21498I$	$3.03458 + 3.08140I$
$u = -0.616932 - 0.596574I$ $a = 0.766075 + 0.434828I$ $b = -0.012721 - 0.560385I$	$-11.10310 + 2.21498I$	$3.03458 - 3.08140I$
$u = -0.561331 + 0.640996I$ $a = 0.470504 + 0.066767I$ $b = 1.083430 - 0.295649I$	$-5.09839 + 1.07706I$	$-3.30982 - 0.29304I$
$u = -0.561331 - 0.640996I$ $a = 0.470504 - 0.066767I$ $b = 1.083430 + 0.295649I$	$-5.09839 - 1.07706I$	$-3.30982 + 0.29304I$
$u = -0.365820 + 1.106240I$ $a = 0.469197 + 0.142290I$ $b = 0.951796 - 0.591908I$	$-9.86525 + 7.09450I$	$0. - 5.09520I$
$u = -0.365820 - 1.106240I$ $a = 0.469197 - 0.142290I$ $b = 0.951796 + 0.591908I$	$-9.86525 - 7.09450I$	$0. + 5.09520I$
$u = 0.821553 + 0.120863I$ $a = 1.20206 - 1.80781I$ $b = -0.744954 + 0.383569I$	$-2.46309 - 1.43775I$	$4.26235 + 0.30434I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.821553 - 0.120863I$ $a = 1.20206 + 1.80781I$ $b = -0.744954 - 0.383569I$	$-2.46309 + 1.43775I$	$4.26235 - 0.30434I$
$u = -0.727877 + 0.161089I$ $a = 1.58949 + 2.25794I$ $b = -0.791536 - 0.296132I$	$-11.94240 + 2.62554I$	$4.16578 + 2.14464I$
$u = -0.727877 - 0.161089I$ $a = 1.58949 - 2.25794I$ $b = -0.791536 + 0.296132I$	$-11.94240 - 2.62554I$	$4.16578 - 2.14464I$
$u = 0.518918 + 0.402182I$ $a = 0.931285 + 0.375334I$ $b = -0.076260 - 0.372294I$	$-2.01038 + 1.63657I$	$4.07721 - 4.69025I$
$u = 0.518918 - 0.402182I$ $a = 0.931285 - 0.375334I$ $b = -0.076260 + 0.372294I$	$-2.01038 - 1.63657I$	$4.07721 + 4.69025I$
$u = -1.336420 + 0.272826I$ $a = 0.447495 - 0.910443I$ $b = -0.565183 + 0.884648I$	$4.83453 + 1.13962I$	0
$u = -1.336420 - 0.272826I$ $a = 0.447495 + 0.910443I$ $b = -0.565183 - 0.884648I$	$4.83453 - 1.13962I$	0
$u = 1.329630 + 0.349002I$ $a = 0.459401 + 0.858056I$ $b = -0.515046 - 0.905782I$	$7.02632 + 2.30073I$	0
$u = 1.329630 - 0.349002I$ $a = 0.459401 - 0.858056I$ $b = -0.515046 + 0.905782I$	$7.02632 - 2.30073I$	0
$u = -1.316660 + 0.413705I$ $a = 0.469503 - 0.816218I$ $b = -0.470472 + 0.920569I$	$4.18115 - 5.70575I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.316660-0.413705I$ $a=\ \ 0.469503+0.816218I$ $b=-0.470472-0.920569I$	$4.18115+5.70575I$	0
$u=\ \ 1.377690+0.196979I$ $a=\ \ 0.403381+0.956988I$ $b=-0.625994-0.887297I$	$-3.49813-2.89761I$	0
$u=\ \ 1.377690-0.196979I$ $a=\ \ 0.403381-0.956988I$ $b=-0.625994+0.887297I$	$-3.49813+2.89761I$	0
$u=\ \ 1.317010+0.468560I$ $a=\ \ 0.468183+0.782796I$ $b=-0.437256-0.940900I$	$-4.76531+7.61575I$	0
$u=\ \ 1.317010-0.468560I$ $a=\ \ 0.468183-0.782796I$ $b=-0.437256+0.940900I$	$-4.76531-7.61575I$	0
$u=\ \ 1.296970+0.533749I$ $a=-0.15451-1.41849I$ $b=-1.075890+0.696711I$	$3.27838+4.69767I$	0
$u=\ \ 1.296970-0.533749I$ $a=-0.15451+1.41849I$ $b=-1.075890-0.696711I$	$3.27838-4.69767I$	0
$u=-1.336730+0.459923I$ $a=-0.067104+1.368720I$ $b=-1.035730-0.728859I$	$-4.74657-3.04886I$	0
$u=-1.336730-0.459923I$ $a=-0.067104-1.368720I$ $b=-1.035730+0.728859I$	$-4.74657+3.04886I$	0
$u=-1.29402+0.59257I$ $a=-0.22697+1.41455I$ $b=-1.110590-0.689193I$	$5.21330-8.16966I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.29402-0.59257I$ $a=-0.22697-1.41455I$ $b=-1.110590+0.689193I$	$5.21330+8.16966I$	0
$u=\ \ 1.28224+0.63700I$ $a=-0.28338-1.41775I$ $b=-1.135570+0.678245I$	$2.15742+11.57290I$	0
$u=\ \ 1.28224-0.63700I$ $a=-0.28338+1.41775I$ $b=-1.135570-0.678245I$	$2.15742-11.57290I$	0
$u=-1.27688+0.67254I$ $a=-0.32722+1.41208I$ $b=-1.155740-0.672085I$	$-6.9557-13.5111I$	0
$u=-1.27688-0.67254I$ $a=-0.32722-1.41208I$ $b=-1.155740+0.672085I$	$-6.9557+13.5111I$	0
$u=\ \ 0.233547+0.502739I$ $a=\ \ 0.516311-0.040838I$ $b=\ \ 0.924775+0.152243I$	$-1.61764-0.55942I$	$-2.71688+2.11275I$
$u=\ \ 0.233547-0.502739I$ $a=\ \ 0.516311+0.040838I$ $b=\ \ 0.924775-0.152243I$	$-1.61764+0.55942I$	$-2.71688-2.11275I$
$u=-0.394574$ $a=\ \ 1.19015$ $b=-0.159767$	0.637461	15.7740

II. $I_1^v = \langle a,\ b-1,\ v^5 - v^4 + v^2 + v - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3v^4 - 4v^2 + 3v + 4$

(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_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.758138 + 0.584034I$ $a = 0$ $b = 1.00000$	$-3.46474 - 2.21397I$	$-1.39794 + 4.05273I$
$v = -0.758138 - 0.584034I$ $a = 0$ $b = 1.00000$	$-3.46474 + 2.21397I$	$-1.39794 - 4.05273I$
$v = 0.935538 + 0.903908I$ $a = 0$ $b = 1.00000$	$-12.60320 + 3.33174I$	$-1.99723 - 3.46299I$
$v = 0.935538 - 0.903908I$ $a = 0$ $b = 1.00000$	$-12.60320 - 3.33174I$	$-1.99723 + 3.46299I$
$v = 0.645200$ $a = 0$ $b = 1.00000$	-0.762751	4.79030

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{58}+26u^{57}+\cdots+36u+1)$
c_2	$((u-1)^5)(u^{58}-6u^{57}+\cdots+12u-1)$
c_3, c_9	$u^5(u^{58}-u^{57}+\cdots-64u+32)$
c_4	$((u+1)^5)(u^{58}-6u^{57}+\cdots+12u-1)$
c_5, c_8	$(u^5+u^4-u^2+u+1)(u^{58}+2u^{57}+\cdots-1314u-445)$
c_6, c_7	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{58}+2u^{57}+\cdots-2u-1)$
c_{10}, c_{11}, c_{12}	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{58}+2u^{57}+\cdots-2u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{58}+18y^{57}+\cdots-1608y+1)$
c_2, c_4	$((y-1)^5)(y^{58}-26y^{57}+\cdots-36y+1)$
c_3, c_9	$y^5(y^{58}-33y^{57}+\cdots-19968y+1024)$
c_5, c_8	$(y^5-y^4+4y^3-3y^2+3y-1)$ $\cdot(y^{58}-38y^{57}+\cdots+2799054y+198025)$
c_6, c_7, c_{10} c_{11}, c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{58}+74y^{57}+\cdots+6y+1)$