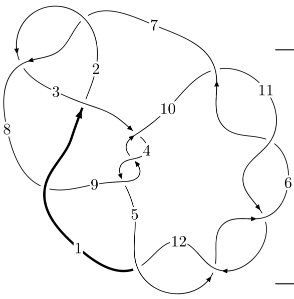
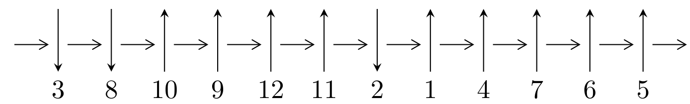
$12a_{0753}$ $(K12a_{0753})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.47678 \times 10^{21} u^{49} - 1.33799 \times 10^{21} u^{48} + \cdots + 1.34820 \times 10^{22} b - 3.88891 \times 10^{22},$$
$$2.21158 \times 10^{21} u^{49} - 1.62283 \times 10^{21} u^{48} + \cdots + 1.34820 \times 10^{22} a - 4.79098 \times 10^{22},\ u^{50} - u^{49} + \cdots - 4u + 4 \rangle$$
$$I_2^u = \langle b^2 - bu + 1,\ a^2 + a + 1,\ u^2 + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 58 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.

$\boldsymbol{I_1^u = \langle 3.48\times10^{21}u^{49} - 1.34\times10^{21}u^{48} + \cdots + 1.35\times10^{22}b - 3.89\times10^{22},\ 2.21\times10^{21}u^{49} - 1.62\times10^{21}u^{48} + \cdots + 1.35\times10^{22}a - 4.79\times10^{22},\ u^{50} - u^{49} + \cdots - 4u + 4\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.164040u^{49} + 0.120370u^{48} + \cdots + 8.84293u + 3.55361 \\ -0.257882u^{49} + 0.0992428u^{48} + \cdots + 2.87776u + 2.88452 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.570562u^{49} - 0.676764u^{48} + \cdots - 8.50993u - 2.63929 \\ 0.00372260u^{49} + 0.222580u^{48} + \cdots - 6.74010u - 1.68097 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.137529u^{49} - 0.0400013u^{48} + \cdots + 4.53679u + 1.15498 \\ -0.233430u^{49} + 0.0703666u^{48} + \cdots + 1.46685u + 2.29315 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.836099u^{49} - 0.448168u^{48} + \cdots - 24.1572u - 6.13765 \\ -0.144284u^{49} + 0.0267194u^{48} + \cdots - 0.748206u - 1.92710 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0938429u^{49} + 0.0211270u^{48} + \cdots + 5.96518u + 0.669092 \\ -0.257882u^{49} + 0.0992428u^{48} + \cdots + 2.87776u + 2.88452 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.122630u^{49} - 0.215276u^{48} + \cdots - 0.518300u - 8.94249 \\ 0.297613u^{49} - 0.201245u^{48} + \cdots - 3.06461u + 0.521412 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0377076u^{49} - 0.204943u^{48} + \cdots - 5.37290u - 2.05267 \\ -0.215869u^{49} + 0.420688u^{48} + \cdots + 7.63220u + 1.46112 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{6041655765283033164853}{3370503149641393660032}u^{49} - \frac{2696370501616779290413}{1685251574820696830016}u^{48} + \cdots - \frac{15380340131345433270079}{421312893705174207504}u - \frac{15926907601216017826235}{842625787410348415008}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{50} + 27u^{49} + \cdots + 131u + 25$
c_2, c_7	$u^{50} + u^{49} + \cdots + u + 5$
c_3, c_4, c_9	$u^{50} + u^{49} + \cdots + 4u + 4$
c_5, c_6, c_{10} c_{11}, c_{12}	$u^{50} - u^{49} + \cdots + 9u + 1$
c_8	$u^{50} + 3u^{49} + \cdots + 519u + 345$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{50} - 3y^{49} + \cdots + 89y + 625$
c_2, c_7	$y^{50} - 27y^{49} + \cdots - 131y + 25$
c_3, c_4, c_9	$y^{50} + 53y^{49} + \cdots - 8y + 16$
c_5, c_6, c_{10} c_{11}, c_{12}	$y^{50} + 69y^{49} + \cdots - 39y + 1$
c_8	$y^{50} + 33y^{49} + \cdots - 1916391y + 119025$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.825284 + 0.564850I$ $a = \ \ 1.018290 - 0.857226I$ $b = \ \ 0.03252 - 1.72373I$	$-12.07120 - 2.72832I$	$1.32353 + 2.43193I$
$u = -0.825284 - 0.564850I$ $a = \ \ 1.018290 + 0.857226I$ $b = \ \ 0.03252 + 1.72373I$	$-12.07120 + 2.72832I$	$1.32353 - 2.43193I$
$u = -0.084210 + 1.043320I$ $a = -0.384445 - 0.811272I$ $b = -0.178045 + 0.054788I$	$-1.54403 - 2.06175I$	$7.89718 + 4.27454I$
$u = -0.084210 - 1.043320I$ $a = -0.384445 + 0.811272I$ $b = -0.178045 - 0.054788I$	$-1.54403 + 2.06175I$	$7.89718 - 4.27454I$
$u = -0.650825 + 0.686901I$ $a = -0.574983 + 0.899543I$ $b = -0.001959 + 1.082170I$	$-5.77062 + 1.33212I$	$-3.10818 - 0.66099I$
$u = -0.650825 - 0.686901I$ $a = -0.574983 - 0.899543I$ $b = -0.001959 - 1.082170I$	$-5.77062 - 1.33212I$	$-3.10818 + 0.66099I$
$u = -0.798083 + 0.491554I$ $a = -1.12468 + 0.88964I$ $b = -0.227660 + 1.067050I$	$-5.13290 - 6.35349I$	$-1.14202 + 7.17760I$
$u = -0.798083 - 0.491554I$ $a = -1.12468 - 0.88964I$ $b = -0.227660 - 1.067050I$	$-5.13290 + 6.35349I$	$-1.14202 - 7.17760I$
$u = \ \ 0.267440 + 1.044800I$ $a = -0.170870 + 0.254106I$ $b = -0.227134 + 0.746761I$	$-3.70325 + 0.50512I$	$-4.05141 + 0.I$
$u = \ \ 0.267440 - 1.044800I$ $a = -0.170870 - 0.254106I$ $b = -0.227134 - 0.746761I$	$-3.70325 - 0.50512I$	$-4.05141 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.981288 + 0.514013I$ $a = -0.96413 - 1.07465I$ $b = -0.05777 - 1.74519I$	$-15.2476 + 7.5356I$	0
$u = \ \ 0.981288 - 0.514013I$ $a = -0.96413 + 1.07465I$ $b = -0.05777 + 1.74519I$	$-15.2476 - 7.5356I$	0
$u = \ \ 0.872961 + 0.773969I$ $a = -0.729263 - 0.828003I$ $b = \ \ 0.00151 - 1.74975I$	$-16.0293 - 1.3459I$	0
$u = \ \ 0.872961 - 0.773969I$ $a = -0.729263 + 0.828003I$ $b = \ \ 0.00151 + 1.74975I$	$-16.0293 + 1.3459I$	0
$u = -0.233208 + 1.157960I$ $a = \ \ 0.103022 - 0.205335I$ $b = -0.06216 - 1.60924I$	$-11.81320 + 0.61087I$	0
$u = -0.233208 - 1.157960I$ $a = \ \ 0.103022 + 0.205335I$ $b = -0.06216 + 1.60924I$	$-11.81320 - 0.61087I$	0
$u = \ \ 0.626871 + 0.455302I$ $a = \ \ 1.027610 + 0.620239I$ $b = \ \ 0.151543 + 0.964779I$	$-2.39825 + 2.03419I$	$2.27060 - 4.05066I$
$u = \ \ 0.626871 - 0.455302I$ $a = \ \ 1.027610 - 0.620239I$ $b = \ \ 0.151543 - 0.964779I$	$-2.39825 - 2.03419I$	$2.27060 + 4.05066I$
$u = \ \ 0.500054 + 0.432744I$ $a = -1.58264 - 0.45958I$ $b = -0.429197 - 0.273799I$	$-0.92587 + 4.11077I$	$5.01065 - 8.99779I$
$u = \ \ 0.500054 - 0.432744I$ $a = -1.58264 + 0.45958I$ $b = -0.429197 + 0.273799I$	$-0.92587 - 4.11077I$	$5.01065 + 8.99779I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.037819 + 1.343840I$ $a = -0.297542 + 1.152810I$ $b = -0.056382 - 1.024380I$	$-5.06538 + 2.73318I$	0
$u = 0.037819 - 1.343840I$ $a = -0.297542 - 1.152810I$ $b = -0.056382 + 1.024380I$	$-5.06538 - 2.73318I$	0
$u = -0.07762 + 1.41592I$ $a = -0.839838 - 0.126193I$ $b = -0.589212 + 0.356243I$	$-4.18150 - 1.91267I$	0
$u = -0.07762 - 1.41592I$ $a = -0.839838 + 0.126193I$ $b = -0.589212 - 0.356243I$	$-4.18150 + 1.91267I$	0
$u = -0.04588 + 1.49852I$ $a = -0.286588 - 1.290620I$ $b = -0.01350 + 1.73889I$	$-15.0633 - 3.0141I$	0
$u = -0.04588 - 1.49852I$ $a = -0.286588 + 1.290620I$ $b = -0.01350 - 1.73889I$	$-15.0633 + 3.0141I$	0
$u = -0.04118 + 1.50695I$ $a = 0.857242 + 0.055781I$ $b = 0.641940 + 0.482037I$	$-7.87180 - 2.16186I$	0
$u = -0.04118 - 1.50695I$ $a = 0.857242 - 0.055781I$ $b = 0.641940 - 0.482037I$	$-7.87180 + 2.16186I$	0
$u = 0.20411 + 1.49822I$ $a = -0.995020 + 0.295616I$ $b = -0.332774 - 1.115340I$	$-8.78560 + 5.06490I$	0
$u = 0.20411 - 1.49822I$ $a = -0.995020 - 0.295616I$ $b = -0.332774 + 1.115340I$	$-8.78560 - 5.06490I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.15926 + 1.50725I$ $a = 0.985140 - 0.130046I$ $b = 0.692157 + 0.316900I$	$-7.37205 + 6.50901I$	0
$u = 0.15926 - 1.50725I$ $a = 0.985140 + 0.130046I$ $b = 0.692157 - 0.316900I$	$-7.37205 - 6.50901I$	0
$u = -0.453530 + 0.155768I$ $a = 1.294160 - 0.225533I$ $b = 0.381984 - 0.104645I$	$0.863945 - 0.260084I$	$11.81001 + 2.51028I$
$u = -0.453530 - 0.155768I$ $a = 1.294160 + 0.225533I$ $b = 0.381984 + 0.104645I$	$0.863945 + 0.260084I$	$11.81001 - 2.51028I$
$u = 0.002331 + 0.475435I$ $a = -1.31229 - 1.31457I$ $b = -0.222613 - 0.360188I$	$-1.29560 - 1.71128I$	$3.62337 - 0.57980I$
$u = 0.002331 - 0.475435I$ $a = -1.31229 + 1.31457I$ $b = -0.222613 + 0.360188I$	$-1.29560 + 1.71128I$	$3.62337 + 0.57980I$
$u = -0.10985 + 1.56287I$ $a = 0.745097 + 0.121175I$ $b = 0.305737 - 1.232150I$	$-13.35830 - 1.13064I$	0
$u = -0.10985 - 1.56287I$ $a = 0.745097 - 0.121175I$ $b = 0.305737 + 1.232150I$	$-13.35830 + 1.13064I$	0
$u = -0.26983 + 1.54338I$ $a = 1.117940 + 0.149645I$ $b = 0.408507 - 1.113900I$	$-11.8242 - 10.2576I$	0
$u = -0.26983 - 1.54338I$ $a = 1.117940 - 0.149645I$ $b = 0.408507 + 1.113900I$	$-11.8242 + 10.2576I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.28876+1.56911I$ $a=-1.116410-0.382260I$ $b=-0.08858+1.75569I$	$-19.0611-6.8576I$	0
$u=-0.28876-1.56911I$ $a=-1.116410+0.382260I$ $b=-0.08858-1.75569I$	$-19.0611+6.8576I$	0
$u=\ 0.36007+1.57989I$ $a=\ 1.221070-0.154749I$ $b=\ 0.11163+1.75687I$	$17.4391+12.4733I$	0
$u=\ 0.36007-1.57989I$ $a=\ 1.221070+0.154749I$ $b=\ 0.11163-1.75687I$	$17.4391-12.4733I$	0
$u=\ 0.329455+0.007485I$ $a=\ 2.30065-0.55846I$ $b=\ 0.177809-0.666151I$	$-0.77656-1.82163I$	$4.80979+5.42360I$
$u=\ 0.329455-0.007485I$ $a=\ 2.30065+0.55846I$ $b=\ 0.177809+0.666151I$	$-0.77656+1.82163I$	$4.80979-5.42360I$
$u=\ 0.22272+1.66105I$ $a=\ 0.730785-0.308803I$ $b=\ 0.06984+1.78630I$	$15.1658+2.7485I$	0
$u=\ 0.22272-1.66105I$ $a=\ 0.730785+0.308803I$ $b=\ 0.06984-1.78630I$	$15.1658-2.7485I$	0
$u=-0.186126+0.264782I$ $a=\ 2.72769+2.04868I$ $b=\ 0.01181-1.64054I$	$-8.93133-2.25545I$	$4.66563+3.82510I$
$u=-0.186126-0.264782I$ $a=\ 2.72769-2.04868I$ $b=\ 0.01181+1.64054I$	$-8.93133+2.25545I$	$4.66563-3.82510I$

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

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ 0 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} a \\ b \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} au + u \\ -bau + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ b + a \end{pmatrix}$$

$$a_7 = \begin{pmatrix} au \\ bu \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -b + a \\ b \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -ba + bu \\ -bu + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} bau + u \\ -b - u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.500000 + 0.866025I$ $b = -0.618034I$	$-2.63189 + 2.02988I$	$-2.00000 - 3.46410I$
$u = 1.000000I$ $a = -0.500000 + 0.866025I$ $b = 1.61803I$	$-10.52760 + 2.02988I$	$-2.00000 - 3.46410I$
$u = 1.000000I$ $a = -0.500000 - 0.866025I$ $b = -0.618034I$	$-2.63189 - 2.02988I$	$-2.00000 + 3.46410I$
$u = 1.000000I$ $a = -0.500000 - 0.866025I$ $b = 1.61803I$	$-10.52760 - 2.02988I$	$-2.00000 + 3.46410I$
$u = -1.000000I$ $a = -0.500000 + 0.866025I$ $b = 0.618034I$	$-2.63189 + 2.02988I$	$-2.00000 - 3.46410I$
$u = -1.000000I$ $a = -0.500000 + 0.866025I$ $b = -1.61803I$	$-10.52760 + 2.02988I$	$-2.00000 - 3.46410I$
$u = -1.000000I$ $a = -0.500000 - 0.866025I$ $b = 0.618034I$	$-2.63189 - 2.02988I$	$-2.00000 + 3.46410I$
$u = -1.000000I$ $a = -0.500000 - 0.866025I$ $b = -1.61803I$	$-10.52760 - 2.02988I$	$-2.00000 + 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{50}+27u^{49}+\cdots+131u+25)$
c_2, c_7	$((u^4-u^2+1)^2)(u^{50}+u^{49}+\cdots+u+5)$
c_3, c_4, c_9	$((u^2+1)^4)(u^{50}+u^{49}+\cdots+4u+4)$
c_5, c_6, c_{10} c_{11}, c_{12}	$((u^4+3u^2+1)^2)(u^{50}-u^{49}+\cdots+9u+1)$
c_8	$((u^4-u^2+1)^2)(u^{50}+3u^{49}+\cdots+519u+345)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{50}-3y^{49}+\cdots+89y+625)$
c_2, c_7	$((y^2-y+1)^4)(y^{50}-27y^{49}+\cdots-131y+25)$
c_3, c_4, c_9	$((y+1)^8)(y^{50}+53y^{49}+\cdots-8y+16)$
c_5, c_6, c_{10} c_{11}, c_{12}	$((y^2+3y+1)^4)(y^{50}+69y^{49}+\cdots-39y+1)$
c_8	$((y^2-y+1)^4)(y^{50}+33y^{49}+\cdots-1916391y+119025)$