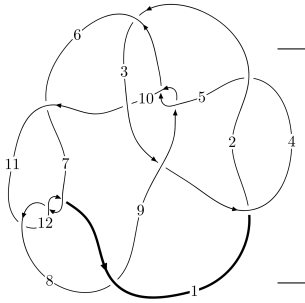
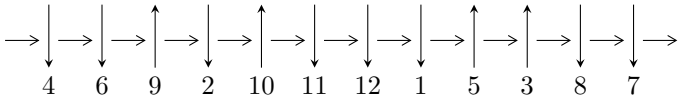
$12a_{0910}$ $(K12a_{0910})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$\underset{c_{11}}{8,11} \to \underset{c_7}{12} \to \underset{c_{12}}{7} \longrightarrow \underset{c_8}{1} \to \underset{c_3}{3,9} \to \underset{c_6}{4} \longrightarrow \underset{c_2}{6} \longrightarrow \underset{c_{10}}{2} \to \underset{c_5}{10} \to 5 \longrightarrow\!\!\!\!\rightarrow c_1, c_4, c_9$$

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

$$I_1^u = \langle -2.33082 \times 10^{48} u^{88} - 4.60281 \times 10^{48} u^{87} + \cdots + 1.09565 \times 10^{50} b + 6.65254 \times 10^{48},$$
$$2.18339 \times 10^{49} u^{88} + 6.30025 \times 10^{49} u^{87} + \cdots + 1.09565 \times 10^{50} a - 1.77716 \times 10^{49},\ u^{89} + 3u^{88} + \cdots - u - 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 89 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.

$\boldsymbol{I_1^u = \langle -2.33\times 10^{48}u^{88} - 4.60\times 10^{48}u^{87} + \cdots + 1.10\times 10^{50}b + 6.65\times 10^{48},\ 2.18\times 10^{49}u^{88} + 6.30\times 10^{49}u^{87} + \cdots + 1.10\times 10^{50}a - 1.78\times 10^{49},\ u^{89} + 3u^{88} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.199277u^{88} - 0.575022u^{87} + \cdots - 12.1043u + 0.162201 \\ 0.0212733u^{88} + 0.0420097u^{87} + \cdots + 0.232993u - 0.0607175 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.807980u^{88} + 1.04546u^{87} + \cdots - 11.7186u - 0.746785 \\ 0.968268u^{88} + 2.19949u^{87} + \cdots - 0.339906u - 0.423067 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.806563u^{88} + 1.17176u^{87} + \cdots - 12.2955u + 0.295786 \\ 0.769539u^{88} + 1.76124u^{87} + \cdots - 0.106387u - 0.366511 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0180093u^{88} + 0.190948u^{87} + \cdots + 1.30165u - 1.44754 \\ -0.0900530u^{88} - 0.276394u^{87} + \cdots + 0.505624u + 0.0372321 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.173831u^{88} - 0.158532u^{87} + \cdots - 1.02299u + 1.23980 \\ -0.433177u^{88} - 1.02726u^{87} + \cdots + 0.467787u + 0.155217 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.69446u^{88} + 7.46992u^{87} + \cdots - 18.0671u - 6.35366$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{89} - u^{88} + \cdots - u + 1$
c_2	$u^{89} - 41u^{88} + \cdots + 975u - 239$
c_3	$u^{89} - u^{88} + \cdots + 316117u - 39167$
c_5, c_9	$u^{89} + u^{88} + \cdots + 3u + 1$
c_6, c_8	$u^{89} - 3u^{88} + \cdots + 2879u - 1697$
c_7, c_{11}, c_{12}	$u^{89} + 3u^{88} + \cdots - u - 1$
c_{10}	$u^{89} + 3u^{88} + \cdots - u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{89} - 61y^{88} + \cdots - 79y - 1$
c_2	$y^{89} - 577y^{88} + \cdots + 4454365y - 57121$
c_3	$y^{89} - 585y^{88} + \cdots + 115938293929y - 1534053889$
c_5, c_9	$y^{89} - 53y^{88} + \cdots + 9y - 1$
c_6, c_8	$y^{89} - 77y^{88} + \cdots - 33443983y - 2879809$
c_7, c_{11}, c_{12}	$y^{89} + 71y^{88} + \cdots + 9y - 1$
c_{10}	$y^{89} + 3y^{88} + \cdots + 65y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.929512+0.135659I$ $a=\ \ 0.079974-0.661441I$ $b=-0.100252-0.483220I$	$-4.84729+0.69787I$	0
$u=-0.929512-0.135659I$ $a=\ \ 0.079974+0.661441I$ $b=-0.100252+0.483220I$	$-4.84729-0.69787I$	0
$u=\ \ 0.878375+0.106288I$ $a=-0.28997+1.92665I$ $b=-0.722394+1.077070I$	$-10.07520-6.99444I$	$-11.18457+5.06210I$
$u=\ \ 0.878375-0.106288I$ $a=-0.28997-1.92665I$ $b=-0.722394-1.077070I$	$-10.07520+6.99444I$	$-11.18457-5.06210I$
$u=-0.869045+0.102958I$ $a=-0.73422-2.38788I$ $b=-1.15331-1.15056I$	$-6.2758+13.0150I$	$-7.65294-7.42348I$
$u=-0.869045-0.102958I$ $a=-0.73422+2.38788I$ $b=-1.15331+1.15056I$	$-6.2758-13.0150I$	$-7.65294+7.42348I$
$u=\ \ 0.832380+0.027089I$ $a=-1.45814-2.69646I$ $b=-1.05310-1.65543I$	$-6.78345-3.76749I$	$-10.75071+5.69816I$
$u=\ \ 0.832380-0.027089I$ $a=-1.45814+2.69646I$ $b=-1.05310+1.65543I$	$-6.78345+3.76749I$	$-10.75071-5.69816I$
$u=-0.829253+0.008587I$ $a=-1.57002+0.97061I$ $b=-1.52106+0.53655I$	$-7.77581+0.24206I$	$-12.35426+1.40830I$
$u=-0.829253-0.008587I$ $a=-1.57002-0.97061I$ $b=-1.52106-0.53655I$	$-7.77581-0.24206I$	$-12.35426-1.40830I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.825075+0.071584I$ $a=\ \ 1.21911+2.71232I$ $b=\ \ 1.31398+1.33937I$	$-1.75765+6.58893I$	$-5.63761-6.42559I$
$u=-0.825075-0.071584I$ $a=\ \ 1.21911-2.71232I$ $b=\ \ 1.31398-1.33937I$	$-1.75765-6.58893I$	$-5.63761+6.42559I$
$u=\ \ 0.038456+1.177140I$ $a=\ \ 1.58248-0.08343I$ $b=-1.184070-0.474407I$	$0.95759-1.47026I$	0
$u=\ \ 0.038456-1.177140I$ $a=\ \ 1.58248+0.08343I$ $b=-1.184070+0.474407I$	$0.95759+1.47026I$	0
$u=-0.648073+0.504252I$ $a=-0.241500+0.564840I$ $b=\ \ 0.232963+0.584124I$	$-3.63297+2.25684I$	$-15.1399-9.7331I$
$u=-0.648073-0.504252I$ $a=-0.241500-0.564840I$ $b=\ \ 0.232963-0.584124I$	$-3.63297-2.25684I$	$-15.1399+9.7331I$
$u=\ \ 0.810522+0.054674I$ $a=\ \ 0.13588-2.35750I$ $b=\ \ 0.489223-1.122630I$	$-4.87320-2.85130I$	$-9.98435+3.35496I$
$u=\ \ 0.810522-0.054674I$ $a=\ \ 0.13588+2.35750I$ $b=\ \ 0.489223+1.122630I$	$-4.87320+2.85130I$	$-9.98435-3.35496I$
$u=\ \ 0.790982$ $a=\ \ 15.7287$ $b=-0.113048$	-3.96136	312.470
$u=-0.485409+1.110780I$ $a=\ \ 0.090292-0.418240I$ $b=-0.202535-0.595275I$	$-1.86266+4.32433I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.485409-1.110780I$ $a=\ 0.090292+0.418240I$ $b=-0.202535+0.595275I$	$-1.86266-4.32433I$	0
$u=\ 0.064276+1.228880I$ $a=\ 0.842637-0.567641I$ $b=-0.552842-0.775586I$	$1.44047-1.28035I$	0
$u=\ 0.064276-1.228880I$ $a=\ 0.842637+0.567641I$ $b=-0.552842+0.775586I$	$1.44047+1.28035I$	0
$u=-0.762529+0.025248I$ $a=-0.356181+0.488600I$ $b=\ 0.280214+0.183737I$	$-2.21673+0.04211I$	$-4.29235+0.75473I$
$u=-0.762529-0.025248I$ $a=-0.356181-0.488600I$ $b=\ 0.280214-0.183737I$	$-2.21673-0.04211I$	$-4.29235-0.75473I$
$u=\ 0.509587+0.566712I$ $a=-0.821222+0.142653I$ $b=-0.758953-0.699859I$	$0.25361+4.88837I$	$-4.69859-4.12612I$
$u=\ 0.509587-0.566712I$ $a=-0.821222-0.142653I$ $b=-0.758953+0.699859I$	$0.25361-4.88837I$	$-4.69859+4.12612I$
$u=-0.431194+1.166650I$ $a=\ 0.847369-0.532968I$ $b=\ 1.07417-1.14245I$	$-3.01254-8.36103I$	0
$u=-0.431194-1.166650I$ $a=\ 0.847369+0.532968I$ $b=\ 1.07417+1.14245I$	$-3.01254+8.36103I$	0
$u=\ 0.444965+1.164420I$ $a=\ 0.625878+0.529751I$ $b=\ 0.604506+1.066130I$	$-6.82871+2.26796I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.444965 - 1.164420I$ $a = 0.625878 - 0.529751I$ $b = 0.604506 - 1.066130I$	$-6.82871 - 2.26796I$	0
$u = -0.366416 + 1.198290I$ $a = -1.304180 + 0.453304I$ $b = -1.15743 + 1.37009I$	$1.69823 - 2.29157I$	0
$u = -0.366416 - 1.198290I$ $a = -1.304180 - 0.453304I$ $b = -1.15743 - 1.37009I$	$1.69823 + 2.29157I$	0
$u = -0.113493 + 1.256270I$ $a = 0.060927 - 0.354565I$ $b = -0.207083 + 1.386810I$	$3.23337 + 4.32643I$	0
$u = -0.113493 - 1.256270I$ $a = 0.060927 + 0.354565I$ $b = -0.207083 - 1.386810I$	$3.23337 - 4.32643I$	0
$u = 0.352881 + 1.221590I$ $a = -0.714291 - 1.032090I$ $b = -0.330218 - 1.147620I$	$-1.28746 - 1.34293I$	0
$u = 0.352881 - 1.221590I$ $a = -0.714291 + 1.032090I$ $b = -0.330218 + 1.147620I$	$-1.28746 + 1.34293I$	0
$u = 0.569954 + 0.447706I$ $a = -0.133101 - 1.373890I$ $b = 0.935421 - 0.839804I$	$-0.10157 - 8.81133I$	$-5.01759 + 9.13962I$
$u = 0.569954 - 0.447706I$ $a = -0.133101 + 1.373890I$ $b = 0.935421 + 0.839804I$	$-0.10157 + 8.81133I$	$-5.01759 - 9.13962I$
$u = -0.038350 + 1.284690I$ $a = -2.58350 + 2.03136I$ $b = 0.066569 + 0.533918I$	$4.40237 - 0.14969I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.038350-1.284690I$ $a=-2.58350-2.03136I$ $b=\ \ 0.066569-0.533918I$	$4.40237+0.14969I$	0
$u=-0.330827+1.248950I$ $a=\ \ 0.624278+0.393456I$ $b=-0.113843+0.359168I$	$1.57136+3.92056I$	0
$u=-0.330827-1.248950I$ $a=\ \ 0.624278-0.393456I$ $b=-0.113843-0.359168I$	$1.57136-3.92056I$	0
$u=\ \ 0.376232+1.245480I$ $a=-0.86868-2.03778I$ $b=\ \ 1.15415-1.54424I$	$-3.01698-0.57611I$	0
$u=\ \ 0.376232-1.245480I$ $a=-0.86868+2.03778I$ $b=\ \ 1.15415+1.54424I$	$-3.01698+0.57611I$	0
$u=-0.374157+1.262040I$ $a=-0.25885+1.60552I$ $b=\ \ 1.58660+0.40293I$	$-3.88985+4.08284I$	0
$u=-0.374157-1.262040I$ $a=-0.25885-1.60552I$ $b=\ \ 1.58660-0.40293I$	$-3.88985-4.08284I$	0
$u=\ \ 0.345343+1.273650I$ $a=-6.63181+7.50024I$ $b=\ \ 0.128180+0.116605I$	$-0.00273-4.09240I$	0
$u=\ \ 0.345343-1.273650I$ $a=-6.63181-7.50024I$ $b=\ \ 0.128180-0.116605I$	$-0.00273+4.09240I$	0
$u=-0.373225+1.275880I$ $a=\ \ 0.538810+0.584956I$ $b=\ \ 1.45008-0.66232I$	$-3.78387+4.56362I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.373225-1.275880I$ $a=\ 0.538810-0.584956I$ $b=\ 1.45008+0.66232I$	$-3.78387-4.56362I$	0
$u=-0.067667+1.333310I$ $a=-0.999597+0.146870I$ $b=\ 0.676523+0.481566I$	$4.84923+1.91577I$	0
$u=-0.067667-1.333310I$ $a=-0.999597-0.146870I$ $b=\ 0.676523-0.481566I$	$4.84923-1.91577I$	0
$u=\ 0.158456+1.333150I$ $a=\ 0.151130+1.259860I$ $b=-1.053290-0.219247I$	$8.12428-1.05571I$	0
$u=\ 0.158456-1.333150I$ $a=\ 0.151130-1.259860I$ $b=-1.053290+0.219247I$	$8.12428+1.05571I$	0
$u=\ 0.375328+1.289580I$ $a=\ 1.65558+0.33666I$ $b=\ 0.95439+1.74592I$	$-2.68200-8.10808I$	0
$u=\ 0.375328-1.289580I$ $a=\ 1.65558-0.33666I$ $b=\ 0.95439-1.74592I$	$-2.68200+8.10808I$	0
$u=-0.321384+1.304160I$ $a=\ 0.577946-0.670078I$ $b=-0.482841-0.162336I$	$1.94695+3.93362I$	0
$u=-0.321384-1.304160I$ $a=\ 0.577946+0.670078I$ $b=-0.482841+0.162336I$	$1.94695-3.93362I$	0
$u=\ 0.106320+1.348410I$ $a=-1.41961-0.19552I$ $b=\ 1.34328-0.74955I$	$8.74442-5.45639I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.106320 - 1.348410I$ $a = -1.41961 + 0.19552I$ $b = 1.34328 + 0.74955I$	$8.74442 + 5.45639I$	0
$u = 0.359190 + 1.307950I$ $a = 1.12123 + 1.49982I$ $b = -0.613285 + 1.100380I$	$-0.61251 - 7.06495I$	0
$u = 0.359190 - 1.307950I$ $a = 1.12123 - 1.49982I$ $b = -0.613285 - 1.100380I$	$-0.61251 + 7.06495I$	0
$u = -0.367331 + 1.318480I$ $a = 0.99334 - 2.15790I$ $b = -1.42285 - 1.30244I$	$2.59376 + 10.88130I$	0
$u = -0.367331 - 1.318480I$ $a = 0.99334 + 2.15790I$ $b = -1.42285 + 1.30244I$	$2.59376 - 10.88130I$	0
$u = -0.388131 + 1.343150I$ $a = -1.03645 + 1.92373I$ $b = 1.21155 + 1.13898I$	$-1.7370 + 17.5280I$	0
$u = -0.388131 - 1.343150I$ $a = -1.03645 - 1.92373I$ $b = 1.21155 - 1.13898I$	$-1.7370 - 17.5280I$	0
$u = 0.393176 + 1.346290I$ $a = -0.96371 - 1.34947I$ $b = 0.808778 - 1.059800I$	$-5.51590 - 11.55620I$	0
$u = 0.393176 - 1.346290I$ $a = -0.96371 + 1.34947I$ $b = 0.808778 + 1.059800I$	$-5.51590 + 11.55620I$	0
$u = 0.157473 + 1.395500I$ $a = 1.280350 + 0.453034I$ $b = -1.120200 + 0.797498I$	$5.76386 - 11.23110I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.157473 - 1.395500I$ $a = 1.280350 - 0.453034I$ $b = -1.120200 - 0.797498I$	$5.76386 + 11.23110I$	0
$u = 0.08771 + 1.41474I$ $a = -0.454993 - 0.658545I$ $b = 0.839562 + 0.415887I$	$6.64779 + 3.12890I$	0
$u = 0.08771 - 1.41474I$ $a = -0.454993 + 0.658545I$ $b = 0.839562 - 0.415887I$	$6.64779 - 3.12890I$	0
$u = -0.42499 + 1.35409I$ $a = -0.247356 + 0.551362I$ $b = 0.355288 + 0.447703I$	$-0.19456 + 5.55020I$	0
$u = -0.42499 - 1.35409I$ $a = -0.247356 - 0.551362I$ $b = 0.355288 - 0.447703I$	$-0.19456 - 5.55020I$	0
$u = -0.18995 + 1.41013I$ $a = 0.602950 - 0.290908I$ $b = -0.635367 - 0.454422I$	$2.47196 + 5.09965I$	0
$u = -0.18995 - 1.41013I$ $a = 0.602950 + 0.290908I$ $b = -0.635367 + 0.454422I$	$2.47196 - 5.09965I$	0
$u = 0.376291 + 0.398020I$ $a = 0.095549 + 1.219570I$ $b = -1.033110 + 0.804997I$	$3.36701 - 3.85907I$	$-0.17251 + 7.32996I$
$u = 0.376291 - 0.398020I$ $a = 0.095549 - 1.219570I$ $b = -1.033110 - 0.804997I$	$3.36701 + 3.85907I$	$-0.17251 - 7.32996I$
$u = 0.431076 + 0.308197I$ $a = 1.59530 - 0.82053I$ $b = 0.826028 + 0.465822I$	$3.09622 + 1.05401I$	$-0.35608 + 2.55647I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.431076 - 0.308197I$ $a = 1.59530 + 0.82053I$ $b = 0.826028 - 0.465822I$	$3.09622 - 1.05401I$	$-0.35608 - 2.55647I$
$u = -0.385829 + 0.181138I$ $a = 0.169374 - 1.094970I$ $b = 0.564988 - 1.049960I$	$-1.03006 + 2.56435I$	$-8.07596 - 8.34971I$
$u = -0.385829 - 0.181138I$ $a = 0.169374 + 1.094970I$ $b = 0.564988 + 1.049960I$	$-1.03006 - 2.56435I$	$-8.07596 + 8.34971I$
$u = -0.247836 + 0.309686I$ $a = 0.746852 - 0.804515I$ $b = -0.268178 - 0.518765I$	$-0.190615 + 0.890253I$	$-4.19654 - 7.59118I$
$u = -0.247836 - 0.309686I$ $a = 0.746852 + 0.804515I$ $b = -0.268178 + 0.518765I$	$-0.190615 - 0.890253I$	$-4.19654 + 7.59118I$
$u = 0.363950$ $a = -1.16034$ $b = 0.870754$	-2.12362	-9.50830
$u = -0.133365 + 0.302895I$ $a = 4.60227 - 1.64086I$ $b = -0.405138 - 0.527039I$	$-0.202607 - 0.760168I$	$1.34645 - 9.24017I$
$u = -0.133365 - 0.302895I$ $a = 4.60227 + 1.64086I$ $b = -0.405138 + 0.527039I$	$-0.202607 + 0.760168I$	$1.34645 + 9.24017I$
$u = 0.315166$ $a = -1.87262$ $b = 0.632078$	-2.14324	-6.24080

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{89} - u^{88} + \cdots - u + 1$
c_2	$u^{89} - 41u^{88} + \cdots + 975u - 239$
c_3	$u^{89} - u^{88} + \cdots + 316117u - 39167$
c_5, c_9	$u^{89} + u^{88} + \cdots + 3u + 1$
c_6, c_8	$u^{89} - 3u^{88} + \cdots + 2879u - 1697$
c_7, c_{11}, c_{12}	$u^{89} + 3u^{88} + \cdots - u - 1$
c_{10}	$u^{89} + 3u^{88} + \cdots - u - 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{89} - 61y^{88} + \cdots - 79y - 1$
c_2	$y^{89} - 577y^{88} + \cdots + 4454365y - 57121$
c_3	$y^{89} - 585y^{88} + \cdots + 115938293929y - 1534053889$
c_5, c_9	$y^{89} - 53y^{88} + \cdots + 9y - 1$
c_6, c_8	$y^{89} - 77y^{88} + \cdots - 33443983y - 2879809$
c_7, c_{11}, c_{12}	$y^{89} + 71y^{88} + \cdots + 9y - 1$
c_{10}	$y^{89} + 3y^{88} + \cdots + 65y - 1$