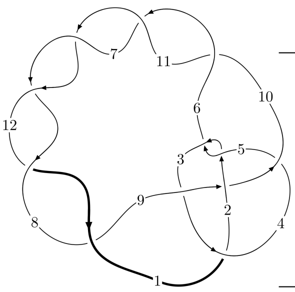
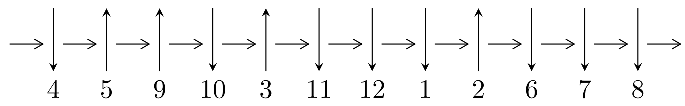
$12a_{0850}$ ($K12a_{0850}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & -412178201122641u^{45} - 775553559035752u^{44} + \cdots + 3537336047520049b + 6144359988138 61, \\
& 402182189901230u^{45} + 1007252468993735u^{44} + \cdots + 353733604752049a - 1539279368053536, \\
& u^{46} + 2u^{45} + \cdots + u + 1\rangle \\
I^u_2 = \langle & b + 1,\ a - u - 1,\ u^2 + u - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 48 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.

$\boldsymbol{I_1^u = \langle -4.12\times10^{14}u^{45} - 7.76\times10^{14}u^{44} + \cdots + 3.54\times10^{14}b + 6.14\times10^{14},\ 4.02\times10^{14}u^{45} + 1.01\times10^{15}u^{44} + \cdots + 3.54\times10^{14}a - 1.54\times10^{15},\ u^{46} + 2u^{45} + \cdots + u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-1.13696u^{45} - 2.84749u^{44} + \cdots + 10.2682u + 4.35152\\1.16522u^{45} + 2.19248u^{44} + \cdots - 8.68849u - 1.73700\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.82251u^{45} + 1.39735u^{44} + \cdots - 4.08553u + 0.311253\\2.24768u^{45} - 0.402662u^{44} + \cdots + 1.51126u + 1.82251\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-2.46826u^{45} - 5.24035u^{44} + \cdots + 19.2748u + 6.20584\\-0.0909725u^{45} + 1.39965u^{44} + \cdots - 6.03410u - 1.46820\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^2+1\\-u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-1.96200u^{45} - 4.63888u^{44} + \cdots + 17.5120u + 6.75902\\0.311421u^{45} + 1.20112u^{44} + \cdots - 5.48102u - 0.962037\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^3+2u\\-u^3+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{473682658173898}{353733604752049}u^{45} - \frac{99045102071581}{353733604752049}u^{44} + \cdots + \frac{10709047957584936}{353733604752049}u + \frac{2653235649051613}{353733604752049}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{46} - 7u^{45} + \cdots - 28u + 4$
c_2, c_5	$u^{46} + 3u^{45} + \cdots + 32u + 1$
c_3	$u^{46} + 23u^{44} + \cdots - 59u - 1$
c_4	$u^{46} + 2u^{45} + \cdots - 21u - 1$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{46} - 2u^{45} + \cdots - u + 1$
c_9	$u^{46} + 2u^{45} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{46} - 15y^{45} + \cdots - 328y + 16$
c_2, c_5	$y^{46} - 25y^{45} + \cdots - 588y + 1$
c_3	$y^{46} + 46y^{45} + \cdots - 3437y + 1$
c_4	$y^{46} + 30y^{45} + \cdots - 445y + 1$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{46} - 66y^{45} + \cdots - 9y + 1$
c_9	$y^{46} - 10y^{45} + \cdots - 9y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.767158 + 0.433545I$ $a = -0.152356 + 0.237919I$ $b = -0.608935 + 0.607878I$	$-0.20687 + 1.83894I$	$-8.26616 - 3.43927I$
$u = 0.767158 - 0.433545I$ $a = -0.152356 - 0.237919I$ $b = -0.608935 - 0.607878I$	$-0.20687 - 1.83894I$	$-8.26616 + 3.43927I$
$u = 1.14595$ $a = 1.66543$ $b = -0.824680$	-1.55865	0
$u = 1.191040 + 0.091569I$ $a = 0.269705 - 0.115985I$ $b = -0.231211 + 1.314110I$	$-3.16460 - 3.49316I$	0
$u = 1.191040 - 0.091569I$ $a = 0.269705 + 0.115985I$ $b = -0.231211 - 1.314110I$	$-3.16460 + 3.49316I$	0
$u = -1.224310 + 0.038292I$ $a = 0.57689 - 2.38554I$ $b = -0.16096 - 1.67792I$	$-4.65165 + 0.65229I$	0
$u = -1.224310 - 0.038292I$ $a = 0.57689 + 2.38554I$ $b = -0.16096 + 1.67792I$	$-4.65165 - 0.65229I$	0
$u = -0.594658 + 0.493055I$ $a = 0.569482 + 0.019769I$ $b = 1.216190 - 0.260596I$	$0.76638 + 8.84991I$	$-5.93176 - 9.09785I$
$u = -0.594658 - 0.493055I$ $a = 0.569482 - 0.019769I$ $b = 1.216190 + 0.260596I$	$0.76638 - 8.84991I$	$-5.93176 + 9.09785I$
$u = -1.223150 + 0.246640I$ $a = 0.481344 + 0.605666I$ $b = -0.206918 + 0.060427I$	$-6.68187 + 3.83644I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.223150 - 0.246640I$ $a = 0.481344 - 0.605666I$ $b = -0.206918 - 0.060427I$	$-6.68187 - 3.83644I$	0
$u = 1.280350 + 0.145473I$ $a = -1.341390 + 0.223322I$ $b = 0.232936 + 0.197353I$	$-8.55312 - 5.24786I$	0
$u = 1.280350 - 0.145473I$ $a = -1.341390 - 0.223322I$ $b = 0.232936 - 0.197353I$	$-8.55312 + 5.24786I$	0
$u = 1.280250 + 0.244696I$ $a = 1.346480 - 0.364424I$ $b = -0.045681 + 0.143330I$	$-5.29495 - 11.44320I$	0
$u = 1.280250 - 0.244696I$ $a = 1.346480 + 0.364424I$ $b = -0.045681 - 0.143330I$	$-5.29495 + 11.44320I$	0
$u = -0.605806 + 0.310686I$ $a = -0.880404 + 0.351414I$ $b = -1.112130 + 0.350962I$	$-2.39123 + 3.64692I$	$-10.43839 - 7.63926I$
$u = -0.605806 - 0.310686I$ $a = -0.880404 - 0.351414I$ $b = -1.112130 - 0.350962I$	$-2.39123 - 3.64692I$	$-10.43839 + 7.63926I$
$u = 0.454796 + 0.454478I$ $a = 0.539747 - 0.277523I$ $b = 0.450806 - 0.330065I$	$-1.27121 - 1.36834I$	$-10.65988 + 5.78093I$
$u = 0.454796 - 0.454478I$ $a = 0.539747 + 0.277523I$ $b = 0.450806 + 0.330065I$	$-1.27121 + 1.36834I$	$-10.65988 - 5.78093I$
$u = -1.377040 + 0.092167I$ $a = -0.832099 - 0.286390I$ $b = -0.267749 - 0.034492I$	$-7.56750 + 0.10369I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.377040-0.092167I$ $a=-0.832099+0.286390I$ $b=-0.267749+0.034492I$	$-7.56750-0.10369I$	0
$u=-0.073726+0.603893I$ $a=-0.64203+1.26805I$ $b=\ \ 0.0927429-0.0646432I$	$2.34175-5.27392I$	$-2.70147+5.21952I$
$u=-0.073726-0.603893I$ $a=-0.64203-1.26805I$ $b=\ \ 0.0927429+0.0646432I$	$2.34175+5.27392I$	$-2.70147-5.21952I$
$u=\ \ 0.550313$ $a=\ \ 0.180040$ $b=-0.495725$	-0.914439	-10.8210
$u=-0.408387+0.270742I$ $a=-0.10890+2.30267I$ $b=\ \ 0.546367+0.446835I$	$2.00550+2.33057I$	$-1.71776-9.37052I$
$u=-0.408387-0.270742I$ $a=-0.10890-2.30267I$ $b=\ \ 0.546367-0.446835I$	$2.00550-2.33057I$	$-1.71776+9.37052I$
$u=-1.54354$ $a=-0.486260$ $b=-0.308213$	-7.66046	0
$u=\ \ 0.446300+0.095003I$ $a=\ \ 0.75867-2.98128I$ $b=-0.36758+1.78388I$	$0.836196-0.200718I$	$20.7380-14.2709I$
$u=\ \ 0.446300-0.095003I$ $a=\ \ 0.75867+2.98128I$ $b=-0.36758-1.78388I$	$0.836196+0.200718I$	$20.7380+14.2709I$
$u=\ \ 0.077400+0.391993I$ $a=\ \ 1.30428-0.97124I$ $b=\ \ 0.045336-0.233987I$	$-0.394888-1.327150I$	$-5.21037+3.91369I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.077400 - 0.391993I$ $a = 1.30428 + 0.97124I$ $b = 0.045336 + 0.233987I$	$-0.394888 + 1.327150I$	$-5.21037 - 3.91369I$
$u = -0.186943 + 0.264216I$ $a = 1.76910 + 1.31460I$ $b = 1.040340 - 0.428302I$	$2.61344 - 0.38254I$	$2.30820 - 3.85448I$
$u = -0.186943 - 0.264216I$ $a = 1.76910 - 1.31460I$ $b = 1.040340 + 0.428302I$	$2.61344 + 0.38254I$	$2.30820 + 3.85448I$
$u = -1.77945$ $a = -3.67500$ $b = -6.90609$	-12.3107	0
$u = -1.78677 + 0.02018I$ $a = -0.70395 - 1.63402I$ $b = -1.35526 - 2.52294I$	$-14.1039 + 3.9673I$	0
$u = -1.78677 - 0.02018I$ $a = -0.70395 + 1.63402I$ $b = -1.35526 + 2.52294I$	$-14.1039 - 3.9673I$	0
$u = 1.79497 + 0.00903I$ $a = -1.32414 - 1.96060I$ $b = -2.65985 - 4.75153I$	$-15.7848 - 0.8615I$	0
$u = 1.79497 - 0.00903I$ $a = -1.32414 + 1.96060I$ $b = -2.65985 + 4.75153I$	$-15.7848 + 0.8615I$	0
$u = 1.79436 + 0.06450I$ $a = -1.58447 + 0.56774I$ $b = -3.05444 + 1.14510I$	$-17.7122 - 5.2449I$	0
$u = 1.79436 - 0.06450I$ $a = -1.58447 - 0.56774I$ $b = -3.05444 - 1.14510I$	$-17.7122 + 5.2449I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.80654+0.03660I$ $a=2.93105-0.19688I$ $b=5.72048-0.32024I$	$19.5334+6.0912I$	0
$u=-1.80654-0.03660I$ $a=2.93105+0.19688I$ $b=5.72048+0.32024I$	$19.5334-6.0912I$	0
$u=-1.80661+0.06306I$ $a=-2.75336-0.16817I$ $b=-5.50064-0.25278I$	$-16.6222+12.8685I$	0
$u=-1.80661-0.06306I$ $a=-2.75336+0.16817I$ $b=-5.50064+0.25278I$	$-16.6222-12.8685I$	0
$u=1.82069+0.02719I$ $a=1.93426-0.40849I$ $b=3.99351-0.87975I$	$-19.3942-0.7197I$	0
$u=1.82069-0.02719I$ $a=1.93426+0.40849I$ $b=3.99351+0.87975I$	$-19.3942+0.7197I$	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 1.61803$ $b = -1.00000$	0.657974	1.00000
$u = -1.61803$ $a = -0.618034$ $b = -1.00000$	-7.23771	1.00000

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u^{46} - 7u^{45} + \cdots - 28u + 4)$
c_2	$((u+1)^2)(u^{46} + 3u^{45} + \cdots + 32u + 1)$
c_3	$(u^2 - u - 1)(u^{46} + 23u^{44} + \cdots - 59u - 1)$
c_4	$(u^2 - u - 1)(u^{46} + 2u^{45} + \cdots - 21u - 1)$
c_5	$((u-1)^2)(u^{46} + 3u^{45} + \cdots + 32u + 1)$
c_6, c_7, c_8	$(u^2 + u - 1)(u^{46} - 2u^{45} + \cdots - u + 1)$
c_9	$(u^2 + u - 1)(u^{46} + 2u^{45} + \cdots + u + 1)$
c_{10}, c_{11}, c_{12}	$(u^2 - u - 1)(u^{46} - 2u^{45} + \cdots - u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y^{46} - 15y^{45} + \cdots - 328y + 16)$
c_2, c_5	$((y-1)^2)(y^{46} - 25y^{45} + \cdots - 588y + 1)$
c_3	$(y^2 - 3y + 1)(y^{46} + 46y^{45} + \cdots - 3437y + 1)$
c_4	$(y^2 - 3y + 1)(y^{46} + 30y^{45} + \cdots - 445y + 1)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y^2 - 3y + 1)(y^{46} - 66y^{45} + \cdots - 9y + 1)$
c_9	$(y^2 - 3y + 1)(y^{46} - 10y^{45} + \cdots - 9y + 1)$