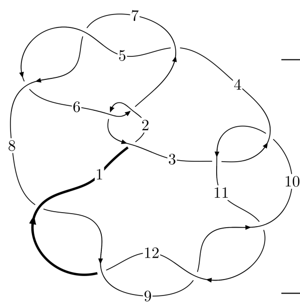
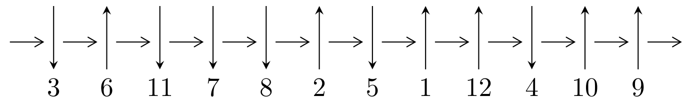
$12a_{0463}$ ($K12a_{0463}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^{58} + 2u^{57} + \cdots + b - 1,\ -u^{57} - u^{56} + \cdots + a + 1,\ u^{59} + 2u^{58} + \cdots - 2u - 1\rangle$$
$$I_2^u = \langle b,\ -u^2 + a + u - 1,\ u^4 - u^3 + u^2 + 1\rangle$$

* 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.

$$\boldsymbol{I_1^u = \langle u^{58}+2u^{57}+\cdots+b-1,\ -u^{57}-u^{56}+\cdots+a+1,\ u^{59}+2u^{58}+\cdots-2u-1\rangle}$$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{57} + u^{56} + \cdots + u - 1 \\ -u^{58} - 2u^{57} + \cdots + u + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^9 - 3u^5 - u \\ u^9 + u^7 + 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^{57} - u^{56} + \cdots + 3u^2 + 2u \\ u^{58} + 2u^{57} + \cdots - 2u - 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{55} - u^{54} + \cdots - u + 1 \\ u^{29} + 3u^{27} + \cdots + 4u^2 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^7 + 2u^3 \\ u^9 + u^7 + 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^5 + u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^9 + 3u^5 + u \\ u^{11} + u^9 + 4u^7 + 3u^5 + 3u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{58} + 8u^{57} + \cdots - 13u - 5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{59}+27u^{58}+\cdots-1984u-256$
c_2, c_6	$u^{59}-u^{58}+\cdots-56u+16$
c_3, c_{10}	$u^{59}+2u^{58}+\cdots-2u-1$
c_4, c_5, c_7	$u^{59}-5u^{58}+\cdots+24u^2+1$
c_8, c_9, c_{11} c_{12}	$u^{59}-12u^{58}+\cdots+2u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{59} + 3y^{58} + \cdots - 2207744y - 65536$
c_2, c_6	$y^{59} + 27y^{58} + \cdots - 1984y - 256$
c_3, c_{10}	$y^{59} + 12y^{58} + \cdots + 2y - 1$
c_4, c_5, c_7	$y^{59} - 53y^{58} + \cdots - 48y - 1$
c_8, c_9, c_{11} c_{12}	$y^{59} + 72y^{58} + \cdots + 50y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.343246 + 0.929430I$ $a = 0.23393 + 2.03837I$ $b = 0.385366 - 0.992201I$	$-2.90400 - 0.48534I$	$-3.04622 - 0.93099I$
$u = -0.343246 - 0.929430I$ $a = 0.23393 - 2.03837I$ $b = 0.385366 + 0.992201I$	$-2.90400 + 0.48534I$	$-3.04622 + 0.93099I$
$u = -0.530651 + 0.868709I$ $a = -1.04989 + 1.47863I$ $b = 0.958742 - 0.452365I$	$-3.01197 + 4.86238I$	$-3.57054 - 6.43781I$
$u = -0.530651 - 0.868709I$ $a = -1.04989 - 1.47863I$ $b = 0.958742 + 0.452365I$	$-3.01197 - 4.86238I$	$-3.57054 + 6.43781I$
$u = 0.512834 + 0.819534I$ $a = -2.07477 - 1.14802I$ $b = 0.344806 - 0.832765I$	$-2.20006 - 2.45590I$	$-5.34282 + 5.82388I$
$u = 0.512834 - 0.819534I$ $a = -2.07477 + 1.14802I$ $b = 0.344806 + 0.832765I$	$-2.20006 + 2.45590I$	$-5.34282 - 5.82388I$
$u = 0.517835 + 0.901720I$ $a = 2.57194 + 0.49149I$ $b = -0.571645 + 0.989887I$	$-0.05687 - 6.75762I$	$0. + 9.22820I$
$u = 0.517835 - 0.901720I$ $a = 2.57194 - 0.49149I$ $b = -0.571645 - 0.989887I$	$-0.05687 + 6.75762I$	$0. - 9.22820I$
$u = -0.431886 + 0.855275I$ $a = 0.42205 - 1.46717I$ $b = -0.622029 + 0.574005I$	$1.17445 + 2.04675I$	$3.24024 - 3.82120I$
$u = -0.431886 - 0.855275I$ $a = 0.42205 + 1.46717I$ $b = -0.622029 - 0.574005I$	$1.17445 - 2.04675I$	$3.24024 + 3.82120I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.104023 + 0.946889I$ $a = -2.13002 - 1.92768I$ $b = 0.550439 + 1.057570I$	$-1.60171 + 5.75877I$	$0.24744 - 6.03089I$
$u = -0.104023 - 0.946889I$ $a = -2.13002 + 1.92768I$ $b = 0.550439 - 1.057570I$	$-1.60171 - 5.75877I$	$0.24744 + 6.03089I$
$u = 0.731988 + 0.763169I$ $a = 0.800342 + 0.062233I$ $b = -0.112548 + 1.197950I$	$-9.65537 - 2.66883I$	$-9.83468 + 3.25272I$
$u = 0.731988 - 0.763169I$ $a = 0.800342 - 0.062233I$ $b = -0.112548 - 1.197950I$	$-9.65537 + 2.66883I$	$-9.83468 - 3.25272I$
$u = 0.537997 + 0.944744I$ $a = -2.66911 - 0.07381I$ $b = 0.647369 - 1.158890I$	$-5.25013 - 10.71760I$	$-4.54465 + 9.45987I$
$u = 0.537997 - 0.944744I$ $a = -2.66911 + 0.07381I$ $b = 0.647369 + 1.158890I$	$-5.25013 + 10.71760I$	$-4.54465 - 9.45987I$
$u = -0.057586 + 0.882777I$ $a = 2.31101 + 1.39500I$ $b = -0.592455 - 0.810374I$	$3.06980 + 2.34027I$	$6.64897 - 4.48405I$
$u = -0.057586 - 0.882777I$ $a = 2.31101 - 1.39500I$ $b = -0.592455 + 0.810374I$	$3.06980 - 2.34027I$	$6.64897 + 4.48405I$
$u = 0.714820 + 0.495375I$ $a = 0.447234 - 0.136210I$ $b = -0.585668 - 1.188170I$	$-6.70702 + 6.08853I$	$-8.24622 - 3.55476I$
$u = 0.714820 - 0.495375I$ $a = 0.447234 + 0.136210I$ $b = -0.585668 + 1.188170I$	$-6.70702 - 6.08853I$	$-8.24622 + 3.55476I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.566605 + 0.649388I$ $a = -0.266615 - 1.188520I$ $b = -0.124692 - 0.867050I$	$-2.75909 - 1.65966I$	$-8.41788 + 3.66504I$
$u = 0.566605 - 0.649388I$ $a = -0.266615 + 1.188520I$ $b = -0.124692 + 0.867050I$	$-2.75909 + 1.65966I$	$-8.41788 - 3.66504I$
$u = -0.611622 + 0.577390I$ $a = 1.131410 - 0.440626I$ $b = -0.956464 - 0.308436I$	$-3.94508 - 0.54490I$	$-6.77151 - 0.50771I$
$u = -0.611622 - 0.577390I$ $a = 1.131410 + 0.440626I$ $b = -0.956464 + 0.308436I$	$-3.94508 + 0.54490I$	$-6.77151 + 0.50771I$
$u = 0.629823 + 0.513947I$ $a = -0.474587 + 0.552020I$ $b = 0.472585 + 0.971110I$	$-1.28323 + 2.43963I$	$-4.50558 - 3.22204I$
$u = 0.629823 - 0.513947I$ $a = -0.474587 - 0.552020I$ $b = 0.472585 - 0.971110I$	$-1.28323 - 2.43963I$	$-4.50558 + 3.22204I$
$u = 0.050655 + 0.809073I$ $a = -2.80210 - 0.73123I$ $b = 0.654760 + 0.520162I$	$0.057074 - 1.043030I$	$3.86720 + 0.46567I$
$u = 0.050655 - 0.809073I$ $a = -2.80210 + 0.73123I$ $b = 0.654760 - 0.520162I$	$0.057074 + 1.043030I$	$3.86720 - 0.46567I$
$u = 0.802556 + 0.909873I$ $a = 0.645306 - 0.524552I$ $b = 0.073782 + 0.922649I$	$-9.57681 - 3.00894I$	0
$u = 0.802556 - 0.909873I$ $a = 0.645306 + 0.524552I$ $b = 0.073782 - 0.922649I$	$-9.57681 + 3.00894I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.878048 + 0.900066I$ $a = -0.608654 - 0.248494I$ $b = 0.743403 - 0.349469I$	$-6.92983 - 1.93819I$	0
$u = 0.878048 - 0.900066I$ $a = -0.608654 + 0.248494I$ $b = 0.743403 + 0.349469I$	$-6.92983 + 1.93819I$	0
$u = -0.908427 + 0.893152I$ $a = -0.394230 - 0.515132I$ $b = 0.548605 - 1.127370I$	$-9.26800 - 2.97267I$	0
$u = -0.908427 - 0.893152I$ $a = -0.394230 + 0.515132I$ $b = 0.548605 + 1.127370I$	$-9.26800 + 2.97267I$	0
$u = 0.862553 + 0.938272I$ $a = 0.210045 + 0.711663I$ $b = -0.759924 - 0.382114I$	$-6.80919 - 4.50807I$	0
$u = 0.862553 - 0.938272I$ $a = 0.210045 - 0.711663I$ $b = -0.759924 + 0.382114I$	$-6.80919 + 4.50807I$	0
$u = -0.350516 + 0.631281I$ $a = -0.830854 + 0.196340I$ $b = 0.379823 + 0.257914I$	$0.162716 + 1.132970I$	$2.90169 - 5.38040I$
$u = -0.350516 - 0.631281I$ $a = -0.830854 - 0.196340I$ $b = 0.379823 - 0.257914I$	$0.162716 - 1.132970I$	$2.90169 + 5.38040I$
$u = -0.922367 + 0.885921I$ $a = 0.414846 + 0.164365I$ $b = -0.69639 + 1.25575I$	$-14.8968 - 7.2841I$	0
$u = -0.922367 - 0.885921I$ $a = 0.414846 - 0.164365I$ $b = -0.69639 - 1.25575I$	$-14.8968 + 7.2841I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.906516 + 0.902473I$ $a = 0.880104 + 0.387890I$ $b = -1.146010 + 0.424597I$	$-12.19390 + 0.69942I$	0
$u = 0.906516 - 0.902473I$ $a = 0.880104 - 0.387890I$ $b = -1.146010 - 0.424597I$	$-12.19390 - 0.69942I$	0
$u = -0.899151 + 0.910017I$ $a = 0.012912 + 0.933912I$ $b = -0.290358 + 1.086540I$	$-11.05620 + 2.06484I$	0
$u = -0.899151 - 0.910017I$ $a = 0.012912 - 0.933912I$ $b = -0.290358 - 1.086540I$	$-11.05620 - 2.06484I$	0
$u = -0.881614 + 0.946166I$ $a = -1.35992 + 1.22851I$ $b = 0.320527 + 1.080930I$	$-10.93940 + 4.50938I$	0
$u = -0.881614 - 0.946166I$ $a = -1.35992 - 1.22851I$ $b = 0.320527 - 1.080930I$	$-10.93940 - 4.50938I$	0
$u = 0.880655 + 0.955668I$ $a = -0.445587 - 0.984412I$ $b = 1.141580 + 0.449582I$	$-12.02220 - 7.29324I$	0
$u = 0.880655 - 0.955668I$ $a = -0.445587 + 0.984412I$ $b = 1.141580 - 0.449582I$	$-12.02220 + 7.29324I$	0
$u = -0.875312 + 0.962071I$ $a = 1.78278 - 1.05080I$ $b = -0.569196 - 1.124490I$	$-9.04599 + 9.55430I$	0
$u = -0.875312 - 0.962071I$ $a = 1.78278 + 1.05080I$ $b = -0.569196 + 1.124490I$	$-9.04599 - 9.55430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.913352+0.939543I$ $a=\ \ 0.829208-0.487224I$ $b=-0.01243-1.44915I$	$-19.6434+3.3613I$	0
$u=-0.913352-0.939543I$ $a=\ \ 0.829208+0.487224I$ $b=-0.01243+1.44915I$	$-19.6434-3.3613I$	0
$u=-0.877468+0.975151I$ $a=-1.93743+0.83023I$ $b=\ \ 0.71000+1.24590I$	$-14.6076+13.9156I$	0
$u=-0.877468-0.975151I$ $a=-1.93743-0.83023I$ $b=\ \ 0.71000-1.24590I$	$-14.6076-13.9156I$	0
$u=-0.626785+0.171888I$ $a=\ \ 0.501490-0.081895I$ $b=-0.432777-1.116070I$	$-5.26927+3.82540I$	$-8.88049-3.82555I$
$u=-0.626785-0.171888I$ $a=\ \ 0.501490+0.081895I$ $b=-0.432777+1.116070I$	$-5.26927-3.82540I$	$-8.88049+3.82555I$
$u=-0.424302+0.237848I$ $a=-0.692243+0.560199I$ $b=\ \ 0.363149+0.700644I$	$-0.194105+1.203550I$	$-3.60543-5.01021I$
$u=-0.424302-0.237848I$ $a=-0.692243-0.560199I$ $b=\ \ 0.363149-0.700644I$	$-0.194105-1.203550I$	$-3.60543+5.01021I$
$u=\ \ 0.330842$ $a=\ \ 2.08280$ $b=-0.644701$	-2.22425	-4.28740

II. $I_2^u = \langle b,\ -u^2 + a + u - 1,\ u^4 - u^3 + u^2 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^2 - 2u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	y^4
c_3, c_{10}	$y^4 + y^3 + 3y^2 + 2y + 1$
c_4, c_5, c_7	$(y-1)^4$
c_8, c_9, c_{11} c_{12}	$y^4 + 5y^3 + 7y^2 + 2y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.351808 + 0.720342I$ $a = 0.95668 - 1.22719I$ $b = 0$	$-1.43393 + 1.41510I$	$-1.48175 - 2.96122I$
$u = -0.351808 - 0.720342I$ $a = 0.95668 + 1.22719I$ $b = 0$	$-1.43393 - 1.41510I$	$-1.48175 + 2.96122I$
$u = 0.851808 + 0.911292I$ $a = 0.043315 + 0.641200I$ $b = 0$	$-8.43568 - 3.16396I$	$-3.01825 + 2.83489I$
$u = 0.851808 - 0.911292I$ $a = 0.043315 - 0.641200I$ $b = 0$	$-8.43568 + 3.16396I$	$-3.01825 - 2.83489I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^4(u^{59} + 27u^{58} + \cdots - 1984u - 256)$
c_2, c_6	$u^4(u^{59} - u^{58} + \cdots - 56u + 16)$
c_3	$(u^4 - u^3 + u^2 + 1)(u^{59} + 2u^{58} + \cdots - 2u - 1)$
c_4, c_5	$((u-1)^4)(u^{59} - 5u^{58} + \cdots + 24u^2 + 1)$
c_7	$((u+1)^4)(u^{59} - 5u^{58} + \cdots + 24u^2 + 1)$
c_8, c_9	$(u^4 + u^3 + 3u^2 + 2u + 1)(u^{59} - 12u^{58} + \cdots + 2u + 1)$
c_{10}	$(u^4 + u^3 + u^2 + 1)(u^{59} + 2u^{58} + \cdots - 2u - 1)$
c_{11}, c_{12}	$(u^4 - u^3 + 3u^2 - 2u + 1)(u^{59} - 12u^{58} + \cdots + 2u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^4(y^{59}+3y^{58}+\cdots-2207744y-65536)$
c_2, c_6	$y^4(y^{59}+27y^{58}+\cdots-1984y-256)$
c_3, c_{10}	$(y^4+y^3+3y^2+2y+1)(y^{59}+12y^{58}+\cdots+2y-1)$
c_4, c_5, c_7	$((y-1)^4)(y^{59}-53y^{58}+\cdots-48y-1)$
c_8, c_9, c_{11} c_{12}	$(y^4+5y^3+7y^2+2y+1)(y^{59}+72y^{58}+\cdots+50y-1)$