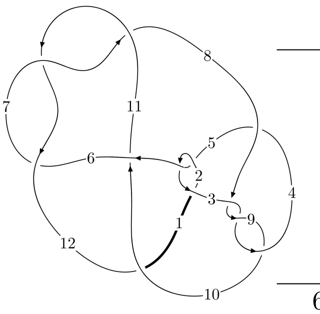
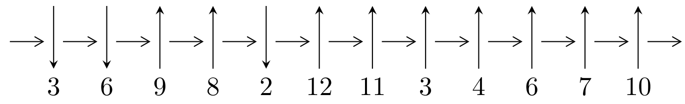
$12n_{0469}$ ($K12n_{0469}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 271358647u^{35} - 529043524u^{34} + \cdots + 4889208196 - 215606766,$$
$$334439774u^{35} - 1269481739u^{34} + \cdots + 977841638a - 5972341699,\ u^{36} - 2u^{35} + \cdots - 4u - 1\rangle$$
$$I_2^u = \langle b + 1,\ -u^2 + a - u - 2,\ u^3 + u^2 + 2u + 1\rangle$$
$$I_3^u = \langle b - 1,\ 2u^2a + a^2 - 2au + 4a + u - 1,\ u^3 - u^2 + 2u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 45 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. $\boldsymbol{I_1^u = \langle 2.71\times 10^8 u^{35} - 5.29\times 10^8 u^{34} + \cdots + 4.89\times 10^8 b - 2.16\times 10^8,\ 3.34\times 10^8 u^{35} - 1.27\times 10^9 u^{34} + \cdots + 9.78\times 10^8 a - 5.97\times 10^9,\ u^{36} - 2u^{35} + \cdots - 4u - 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.342018u^{35} + 1.29825u^{34} + \cdots - 14.1375u + 6.10768 \\ -0.555016u^{35} + 1.08206u^{34} + \cdots - 2.96956u + 0.440985 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.897034u^{35} + 2.38031u^{34} + \cdots - 17.1071u + 6.54866 \\ -0.555016u^{35} + 1.08206u^{34} + \cdots - 2.96956u + 0.440985 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^7 + 4u^5 + 4u^3 \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.04147u^{35} - 2.64685u^{34} + \cdots + 19.6688u - 5.62579 \\ 0.678551u^{35} - 1.22102u^{34} + \cdots + 3.80116u - 0.427325 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.07868u^{35} - 2.14851u^{34} + \cdots + 24.9712u - 6.81062 \\ -0.00885463u^{35} - 0.0464490u^{34} + \cdots + 2.49588u - 1.07868 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.440985u^{35} - 1.43699u^{34} + \cdots + 15.6653u - 4.73350 \\ 0.614212u^{35} - 1.25941u^{34} + \cdots + 4.73960u - 0.342018 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^3 - 2u \\ u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{259508424}{488920819}u^{35} - \frac{190324579}{488920819}u^{34} + \cdots + \frac{7239334870}{488920819}u + \frac{1820082994}{488920819}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{36} + 46u^{35} + \cdots + 1827u + 49$
c_2, c_5	$u^{36} + 4u^{35} + \cdots + 91u - 7$
c_3, c_8, c_9	$u^{36} + u^{35} + \cdots - 8u - 8$
c_4	$u^{36} - 3u^{35} + \cdots + 8u - 8$
c_6, c_7, c_{11}	$u^{36} - 2u^{35} + \cdots - 4u - 1$
c_{10}	$u^{36} + 2u^{35} + \cdots - 2232u - 481$
c_{12}	$u^{36} + 4u^{35} + \cdots - 16u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{36} - 102y^{35} + \cdots - 1510327y + 2401$
c_2, c_5	$y^{36} - 46y^{35} + \cdots - 1827y + 49$
c_3, c_8, c_9	$y^{36} - 29y^{35} + \cdots - 832y + 64$
c_4	$y^{36} + 55y^{35} + \cdots - 1728y + 64$
c_6, c_7, c_{11}	$y^{36} + 36y^{35} + \cdots - 52y + 1$
c_{10}	$y^{36} + 20y^{35} + \cdots - 9532084y + 231361$
c_{12}	$y^{36} + 44y^{35} + \cdots - 532y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.746590+0.534072I$ $a=-1.14025-1.14185I$ $b=\ \ 1.71941+0.06440I$	$-10.55280-2.49065I$	$2.28481+2.78156I$
$u=-0.746590-0.534072I$ $a=-1.14025+1.14185I$ $b=\ \ 1.71941-0.06440I$	$-10.55280+2.49065I$	$2.28481-2.78156I$
$u=\ \ 0.664083+0.631741I$ $a=\ \ 1.014470-0.540455I$ $b=-1.67188-0.14945I$	$-6.71821-3.14670I$	$4.48459+0.40539I$
$u=\ \ 0.664083-0.631741I$ $a=\ \ 1.014470+0.540455I$ $b=-1.67188+0.14945I$	$-6.71821+3.14670I$	$4.48459-0.40539I$
$u=\ \ 0.784223+0.433590I$ $a=\ \ 1.14935-1.67783I$ $b=-1.65415+0.25580I$	$-6.05301+8.02106I$	$5.69652-5.48227I$
$u=\ \ 0.784223-0.433590I$ $a=\ \ 1.14935+1.67783I$ $b=-1.65415-0.25580I$	$-6.05301-8.02106I$	$5.69652+5.48227I$
$u=-0.754684$ $a=\ \ 2.04702$ $b=-1.31973$	0.746951	8.79890
$u=-0.202995+1.255340I$ $a=-0.951854-0.726217I$ $b=\ \ 0.175613+0.296050I$	$2.08619-3.03413I$	$10.51311+3.79199I$
$u=-0.202995-1.255340I$ $a=-0.951854+0.726217I$ $b=\ \ 0.175613-0.296050I$	$2.08619+3.03413I$	$10.51311-3.79199I$
$u=\ \ 0.597158+0.410952I$ $a=-0.03383+1.92390I$ $b=\ \ 0.617286-0.749282I$	$1.66187+4.15562I$	$8.00287-6.91393I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.597158 - 0.410952I$ $a = -0.03383 - 1.92390I$ $b = 0.617286 + 0.749282I$	$1.66187 - 4.15562I$	$8.00287 + 6.91393I$
$u = -0.326127 + 1.248070I$ $a = 0.633554 + 0.938984I$ $b = -1.359350 + 0.009058I$	$-3.12452 - 3.89594I$	$3.97835 + 4.14640I$
$u = -0.326127 - 1.248070I$ $a = 0.633554 - 0.938984I$ $b = -1.359350 - 0.009058I$	$-3.12452 + 3.89594I$	$3.97835 - 4.14640I$
$u = 0.504679 + 0.396227I$ $a = -1.116890 - 0.669513I$ $b = 0.659666 + 0.583318I$	$1.51779 - 0.52826I$	$7.65473 - 0.24051I$
$u = 0.504679 - 0.396227I$ $a = -1.116890 + 0.669513I$ $b = 0.659666 - 0.583318I$	$1.51779 + 0.52826I$	$7.65473 + 0.24051I$
$u = -0.631586$ $a = -1.76477$ $b = 0.225322$	5.91452	16.7470
$u = 0.096853 + 1.373970I$ $a = 0.057014 - 0.382407I$ $b = 0.233991 + 0.646152I$	$-3.76081 + 1.82148I$	$4.18456 - 2.97690I$
$u = 0.096853 - 1.373970I$ $a = 0.057014 + 0.382407I$ $b = 0.233991 - 0.646152I$	$-3.76081 - 1.82148I$	$4.18456 + 2.97690I$
$u = -0.032206 + 1.383860I$ $a = 0.93309 + 1.09446I$ $b = 1.227970 - 0.334502I$	$-1.31636 - 0.59124I$	$2.44003 + 0.I$
$u = -0.032206 - 1.383860I$ $a = 0.93309 - 1.09446I$ $b = 1.227970 + 0.334502I$	$-1.31636 + 0.59124I$	$2.44003 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.209916 + 1.383740I$ $a = -0.161570 + 0.134658I$ $b = 0.763567 + 0.425752I$	$-4.01585 + 2.05418I$	$4.74740 + 1.07135I$
$u = 0.209916 - 1.383740I$ $a = -0.161570 - 0.134658I$ $b = 0.763567 - 0.425752I$	$-4.01585 - 2.05418I$	$4.74740 - 1.07135I$
$u = -0.10642 + 1.44688I$ $a = -0.474212 + 0.967148I$ $b = -1.044990 - 0.635725I$	$-7.20243 - 2.62870I$	$0. + 1.56071I$
$u = -0.10642 - 1.44688I$ $a = -0.474212 - 0.967148I$ $b = -1.044990 + 0.635725I$	$-7.20243 + 2.62870I$	$0. - 1.56071I$
$u = 0.21082 + 1.46540I$ $a = 0.586263 + 1.079000I$ $b = 0.693691 - 0.900679I$	$-4.41494 + 7.10948I$	$6.00000 - 5.97206I$
$u = 0.21082 - 1.46540I$ $a = 0.586263 - 1.079000I$ $b = 0.693691 + 0.900679I$	$-4.41494 - 7.10948I$	$6.00000 + 5.97206I$
$u = 0.29360 + 1.49537I$ $a = -0.31496 - 1.59906I$ $b = -1.68265 + 0.33795I$	$-12.2864 + 11.9589I$	0
$u = 0.29360 - 1.49537I$ $a = -0.31496 + 1.59906I$ $b = -1.68265 - 0.33795I$	$-12.2864 - 11.9589I$	0
$u = -0.334693 + 0.338551I$ $a = 0.58755 + 1.75938I$ $b = -0.790374 - 0.317839I$	$-1.37785 - 1.03574I$	$-0.30331 + 3.73142I$
$u = -0.334693 - 0.338551I$ $a = 0.58755 - 1.75938I$ $b = -0.790374 + 0.317839I$	$-1.37785 + 1.03574I$	$-0.30331 - 3.73142I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.25500 + 1.53176I$ $a = 0.269560 - 1.152100I$ $b = 1.79484 + 0.16936I$	$-17.3048 - 6.1571I$	0
$u = -0.25500 - 1.53176I$ $a = 0.269560 + 1.152100I$ $b = 1.79484 - 0.16936I$	$-17.3048 + 6.1571I$	0
$u = 0.19273 + 1.54392I$ $a = -0.368636 - 0.625846I$ $b = -1.78522 - 0.06510I$	$-13.90280 - 0.08031I$	0
$u = 0.19273 - 1.54392I$ $a = -0.368636 + 0.625846I$ $b = -1.78522 + 0.06510I$	$-13.90280 + 0.08031I$	0
$u = 0.431723$ $a = 0.157248$ $b = 0.236175$	0.680363	15.1480
$u = -0.145505$ $a = 8.22319$ $b = 1.06341$	3.33955	1.75020

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2+4u+4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = \quad 0.122561 + 0.744862I$ $b = -1.00000$	$-4.66906 - 2.82812I$	$-0.18504 + 4.10401I$
$u = -0.215080 - 1.307140I$ $a = \quad 0.122561 - 0.744862I$ $b = -1.00000$	$-4.66906 + 2.82812I$	$-0.18504 - 4.10401I$
$u = -0.569840$ $a = \quad 1.75488$ $b = -1.00000$	-0.531480	2.37010

III. $I_3^u = \langle b-1,\ 2u^2a + a^2 - 2au + 4a + u - 1,\ u^3 - u^2 + 2u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 4u + 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$(u-1)^6$
c_2	$(u+1)^6$
c_3, c_4, c_8 c_9	$(u^2-2)^3$
c_6, c_7	$(u^3-u^2+2u-1)^2$
c_{10}	$(u^3-u^2+1)^2$
c_{11}	$(u^3+u^2+2u+1)^2$
c_{12}	$(u^3+u^2-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-1)^6$
c_3, c_4, c_8 c_9	$(y-2)^6$
c_6, c_7, c_{11}	$(y^3+3y^2+2y-1)^2$
c_{10}, c_{12}	$(y^3-y^2+2y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.215080 + 1.307140I$ $a = 0.814156 - 0.050322I$ $b = 1.00000$	$0.26574 + 2.82812I$	$4.49024 - 2.97945I$
$u = 0.215080 + 1.307140I$ $a = -1.05928 + 1.54005I$ $b = 1.00000$	$0.26574 + 2.82812I$	$4.49024 - 2.97945I$
$u = 0.215080 - 1.307140I$ $a = 0.814156 + 0.050322I$ $b = 1.00000$	$0.26574 - 2.82812I$	$4.49024 + 2.97945I$
$u = 0.215080 - 1.307140I$ $a = -1.05928 - 1.54005I$ $b = 1.00000$	$0.26574 - 2.82812I$	$4.49024 + 2.97945I$
$u = 0.569840$ $a = 0.118556$ $b = 1.00000$	4.40332	11.0200
$u = 0.569840$ $a = -3.62831$ $b = 1.00000$	4.40332	11.0200

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^{36}+46u^{35}+\cdots+1827u+49)$
c_2	$((u-1)^3)(u+1)^6(u^{36}+4u^{35}+\cdots+91u-7)$
c_3, c_8, c_9	$u^3(u^2-2)^3(u^{36}+u^{35}+\cdots-8u-8)$
c_4	$u^3(u^2-2)^3(u^{36}-3u^{35}+\cdots+8u-8)$
c_5	$((u-1)^6)(u+1)^3(u^{36}+4u^{35}+\cdots+91u-7)$
c_6, c_7	$((u^3-u^2+2u-1)^2)(u^3+u^2+2u+1)(u^{36}-2u^{35}+\cdots-4u-1)$
c_{10}	$((u^3-u^2+1)^2)(u^3+u^2-1)(u^{36}+2u^{35}+\cdots-2232u-481)$
c_{11}	$(u^3-u^2+2u-1)(u^3+u^2+2u+1)^2(u^{36}-2u^{35}+\cdots-4u-1)$
c_{12}	$((u^3+u^2-1)^3)(u^{36}+4u^{35}+\cdots-16u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^{36}-102y^{35}+\cdots-1510327y+2401)$
c_2, c_5	$((y-1)^9)(y^{36}-46y^{35}+\cdots-1827y+49)$
c_3, c_8, c_9	$y^3(y-2)^6(y^{36}-29y^{35}+\cdots-832y+64)$
c_4	$y^3(y-2)^6(y^{36}+55y^{35}+\cdots-1728y+64)$
c_6, c_7, c_{11}	$((y^3+3y^2+2y-1)^3)(y^{36}+36y^{35}+\cdots-52y+1)$
c_{10}	$((y^3-y^2+2y-1)^3)(y^{36}+20y^{35}+\cdots-9532084y+231361)$
c_{12}	$((y^3-y^2+2y-1)^3)(y^{36}+44y^{35}+\cdots-532y+1)$