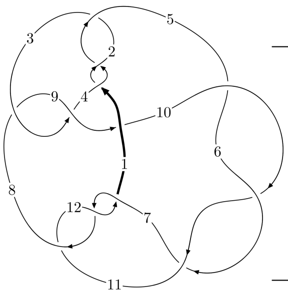
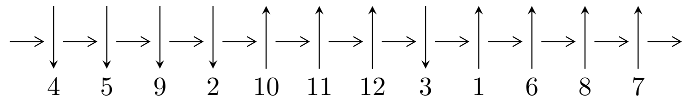
$12a_{0836}$ ($K12a_{0836}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^{65} + u^{64} + \cdots + b + 2u,\ u^{65} - u^{64} + \cdots + a - 2,\ u^{68} - 2u^{67} + \cdots + 2u + 1\rangle$$
$$I_2^u = \langle b - 1,\ -u^4 - u^3 - 2u^2 + a - u,\ u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 74 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.

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$$\boldsymbol{I_1^u = \langle -u^{65}+u^{64}+\cdots+b+2u,\ u^{65}-u^{64}+\cdots+a-2,\ u^{68}-2u^{67}+\cdots+2u+1\rangle}$$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^{65}+u^{64}+\cdots-3u+2\\u^{65}-u^{64}+\cdots+7u^2-2u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^{10}+3u^8+2u^6-3u^4-3u^2+1\\-u^{10}-4u^8-5u^6+3u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^{65}-u^{64}+\cdots-4u+1\\u^{65}-u^{64}+\cdots+4u^2-3u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^8-3u^6-3u^4+1\\-u^{10}-4u^8-5u^6+3u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-u^5-2u^3-u\\-u^7-3u^5-2u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^{11}+4u^9+6u^7+2u^5-3u^3-2u\\u^{13}+5u^{11}+9u^9+4u^7-6u^5-5u^3+u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}u^{63}-u^{62}+\cdots-4u+2\\u^{65}-u^{64}+\cdots+5u^2-2u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{67}+8u^{66}+\cdots+36u-3$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{68} - 7u^{67} + \cdots + 3u - 1$
c_3, c_8	$u^{68} + u^{67} + \cdots - 128u - 64$
c_5, c_6, c_{10}	$u^{68} + 2u^{67} + \cdots + 172u + 17$
c_7, c_{11}, c_{12}	$u^{68} - 2u^{67} + \cdots + 2u + 1$
c_9	$u^{68} - 6u^{67} + \cdots + 19512u - 3344$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{68} - 65y^{67} + \cdots + 29y + 1$
c_3, c_8	$y^{68} - 39y^{67} + \cdots - 53248y + 4096$
c_5, c_6, c_{10}	$y^{68} - 66y^{67} + \cdots - 5682y + 289$
c_7, c_{11}, c_{12}	$y^{68} + 54y^{67} + \cdots - 26y + 1$
c_9	$y^{68} + 18y^{67} + \cdots - 465943328y + 11182336$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.274868 + 1.060340I$ $a = -0.526754 - 0.257503I$ $b = 0.172316 + 0.844015I$	$-7.01631 + 3.93719I$	0
$u = 0.274868 - 1.060340I$ $a = -0.526754 + 0.257503I$ $b = 0.172316 - 0.844015I$	$-7.01631 - 3.93719I$	0
$u = -0.895864$ $a = -0.191061$ $b = 0.633345$	4.93401	-0.595830
$u = 0.096240 + 1.118240I$ $a = 0.850399 - 0.314781I$ $b = -0.471781 - 0.369891I$	$-1.83195 + 1.81972I$	0
$u = 0.096240 - 1.118240I$ $a = 0.850399 + 0.314781I$ $b = -0.471781 + 0.369891I$	$-1.83195 - 1.81972I$	0
$u = 0.869205 + 0.074527I$ $a = 1.315300 + 0.517853I$ $b = 0.83012 + 1.96876I$	$-0.59482 + 10.16420I$	$1.87647 - 5.92631I$
$u = 0.869205 - 0.074527I$ $a = 1.315300 - 0.517853I$ $b = 0.83012 - 1.96876I$	$-0.59482 - 10.16420I$	$1.87647 + 5.92631I$
$u = -0.861015 + 0.021460I$ $a = 0.068130 - 0.155149I$ $b = -0.310712 + 0.559057I$	$7.57123 - 1.21218I$	$9.68961 + 0.94684I$
$u = -0.861015 - 0.021460I$ $a = 0.068130 + 0.155149I$ $b = -0.310712 - 0.559057I$	$7.57123 + 1.21218I$	$9.68961 - 0.94684I$
$u = 0.856269 + 0.057784I$ $a = -1.47487 - 0.56535I$ $b = -1.22357 - 1.80577I$	$5.18799 + 5.94447I$	$5.15329 - 5.45502I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.856269 - 0.057784I$ $a = -1.47487 + 0.56535I$ $b = -1.22357 + 1.80577I$	$5.18799 - 5.94447I$	$5.15329 + 5.45502I$
$u = -0.842334 + 0.053972I$ $a = -0.054941 + 0.246831I$ $b = 0.457743 - 0.884595I$	$2.36110 - 3.67346I$	$3.13855 + 2.67186I$
$u = -0.842334 - 0.053972I$ $a = -0.054941 - 0.246831I$ $b = 0.457743 + 0.884595I$	$2.36110 + 3.67346I$	$3.13855 - 2.67186I$
$u = 0.832992 + 0.037249I$ $a = 1.70552 + 0.38792I$ $b = 1.61773 + 1.11342I$	$3.56303 + 1.00362I$	$2.39038 - 0.55408I$
$u = 0.832992 - 0.037249I$ $a = 1.70552 - 0.38792I$ $b = 1.61773 - 1.11342I$	$3.56303 - 1.00362I$	$2.39038 + 0.55408I$
$u = -0.039755 + 1.193740I$ $a = -1.47104 + 1.52287I$ $b = 1.210760 - 0.091966I$	$-4.53839 - 0.93955I$	0
$u = -0.039755 - 1.193740I$ $a = -1.47104 - 1.52287I$ $b = 1.210760 + 0.091966I$	$-4.53839 + 0.93955I$	0
$u = 0.726273 + 0.104581I$ $a = -1.340580 - 0.221368I$ $b = -0.223564 - 0.553926I$	$-4.17485 - 0.25355I$	$0.106562 - 0.720449I$
$u = 0.726273 - 0.104581I$ $a = -1.340580 + 0.221368I$ $b = -0.223564 + 0.553926I$	$-4.17485 + 0.25355I$	$0.106562 + 0.720449I$
$u = 0.139307 + 1.264580I$ $a = 0.387719 + 0.377472I$ $b = 0.052113 - 0.152925I$	$-3.21418 + 2.27728I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.139307 - 1.264580I$ $a = 0.387719 - 0.377472I$ $b = 0.052113 + 0.152925I$	$-3.21418 - 2.27728I$	0
$u = 0.420834 + 1.201420I$ $a = -1.004800 + 0.249172I$ $b = 0.82821 - 1.85021I$	$-4.06146 - 5.54434I$	0
$u = 0.420834 - 1.201420I$ $a = -1.004800 - 0.249172I$ $b = 0.82821 + 1.85021I$	$-4.06146 + 5.54434I$	0
$u = -0.385541 + 1.220900I$ $a = -1.264540 - 0.576743I$ $b = 0.601184 + 0.839021I$	$-1.23320 - 0.73928I$	0
$u = -0.385541 - 1.220900I$ $a = -1.264540 + 0.576743I$ $b = 0.601184 - 0.839021I$	$-1.23320 + 0.73928I$	0
$u = 0.402134 + 1.217770I$ $a = 1.050320 + 0.234054I$ $b = -1.21789 + 1.63529I$	$1.61428 - 1.42992I$	0
$u = 0.402134 - 1.217770I$ $a = 1.050320 - 0.234054I$ $b = -1.21789 - 1.63529I$	$1.61428 + 1.42992I$	0
$u = 0.376637 + 1.240150I$ $a = -0.656599 - 1.012060I$ $b = 1.64633 - 0.88359I$	$-0.15109 + 3.34387I$	0
$u = 0.376637 - 1.240150I$ $a = -0.656599 + 1.012060I$ $b = 1.64633 + 0.88359I$	$-0.15109 - 3.34387I$	0
$u = -0.402053 + 1.254660I$ $a = 0.816153 + 0.355455I$ $b = -0.409003 - 0.522193I$	$3.75268 - 3.31527I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.402053 - 1.254660I$ $a = 0.816153 - 0.355455I$ $b = -0.409003 + 0.522193I$	$3.75268 + 3.31527I$	0
$u = -0.104897 + 1.326030I$ $a = 0.59543 + 3.16636I$ $b = 0.56443 - 1.71708I$	$-6.63847 - 0.67362I$	0
$u = -0.104897 - 1.326030I$ $a = 0.59543 - 3.16636I$ $b = 0.56443 + 1.71708I$	$-6.63847 + 0.67362I$	0
$u = 0.126734 + 1.333640I$ $a = -0.924830 - 0.807120I$ $b = 0.106274 + 0.311282I$	$-8.45190 + 3.15667I$	0
$u = 0.126734 - 1.333640I$ $a = -0.924830 + 0.807120I$ $b = 0.106274 - 0.311282I$	$-8.45190 - 3.15667I$	0
$u = -0.146516 + 1.332920I$ $a = -0.99913 - 3.23738I$ $b = -0.36801 + 1.96714I$	$-6.11073 - 5.54221I$	0
$u = -0.146516 - 1.332920I$ $a = -0.99913 + 3.23738I$ $b = -0.36801 - 1.96714I$	$-6.11073 + 5.54221I$	0
$u = -0.427740 + 1.279080I$ $a = -0.709037 + 0.446061I$ $b = 0.629160 - 0.054561I$	$0.96243 - 4.73147I$	0
$u = -0.427740 - 1.279080I$ $a = -0.709037 - 0.446061I$ $b = 0.629160 + 0.054561I$	$0.96243 + 4.73147I$	0
$u = -0.396517 + 1.289790I$ $a = -0.091140 - 0.825123I$ $b = -0.217786 + 0.572163I$	$3.48887 - 5.72199I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.396517 - 1.289790I$ $a = -0.091140 + 0.825123I$ $b = -0.217786 - 0.572163I$	$3.48887 + 5.72199I$	0
$u = 0.375212 + 1.299320I$ $a = 0.99882 - 2.11483I$ $b = 1.59088 + 1.31222I$	$-0.60813 + 5.34727I$	0
$u = 0.375212 - 1.299320I$ $a = 0.99882 + 2.11483I$ $b = 1.59088 - 1.31222I$	$-0.60813 - 5.34727I$	0
$u = 0.325026 + 1.312790I$ $a = -1.12164 + 1.07523I$ $b = -0.598332 - 0.646888I$	$-8.57365 + 3.57514I$	0
$u = 0.325026 - 1.312790I$ $a = -1.12164 - 1.07523I$ $b = -0.598332 + 0.646888I$	$-8.57365 - 3.57514I$	0
$u = -0.355477 + 0.540754I$ $a = -1.56452 - 0.66386I$ $b = 0.109402 + 1.371900I$	$-7.83604 + 3.56277I$	$-3.48429 - 0.26987I$
$u = -0.355477 - 0.540754I$ $a = -1.56452 + 0.66386I$ $b = 0.109402 - 1.371900I$	$-7.83604 - 3.56277I$	$-3.48429 + 0.26987I$
$u = -0.536593 + 0.355337I$ $a = 1.184830 + 0.517192I$ $b = 0.32245 - 1.66008I$	$-7.14400 - 6.91551I$	$-1.34390 + 7.27933I$
$u = -0.536593 - 0.355337I$ $a = 1.184830 - 0.517192I$ $b = 0.32245 + 1.66008I$	$-7.14400 + 6.91551I$	$-1.34390 - 7.27933I$
$u = -0.380136 + 1.310130I$ $a = 0.137470 + 1.319400I$ $b = 0.338862 - 0.902883I$	$-1.90173 - 8.06695I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.380136 - 1.310130I$ $a = 0.137470 - 1.319400I$ $b = 0.338862 + 0.902883I$	$-1.90173 + 8.06695I$	0
$u = -0.076307 + 1.363730I$ $a = -0.76099 - 2.76851I$ $b = -0.28084 + 1.50736I$	$-13.64730 + 2.32372I$	0
$u = -0.076307 - 1.363730I$ $a = -0.76099 + 2.76851I$ $b = -0.28084 - 1.50736I$	$-13.64730 - 2.32372I$	0
$u = -0.165622 + 1.358730I$ $a = 1.04285 + 3.06303I$ $b = 0.23955 - 1.93117I$	$-12.5196 - 9.3121I$	0
$u = -0.165622 - 1.358730I$ $a = 1.04285 - 3.06303I$ $b = 0.23955 + 1.93117I$	$-12.5196 + 9.3121I$	0
$u = 0.388285 + 1.314120I$ $a = -1.57085 + 2.17185I$ $b = -1.20114 - 1.94252I$	$0.89978 + 10.41270I$	0
$u = 0.388285 - 1.314120I$ $a = -1.57085 - 2.17185I$ $b = -1.20114 + 1.94252I$	$0.89978 - 10.41270I$	0
$u = 0.393601 + 1.326560I$ $a = 1.80874 - 2.01322I$ $b = 0.80659 + 2.06065I$	$-4.9810 + 14.6950I$	0
$u = 0.393601 - 1.326560I$ $a = 1.80874 + 2.01322I$ $b = 0.80659 - 2.06065I$	$-4.9810 - 14.6950I$	0
$u = -0.461201 + 0.310199I$ $a = -1.342820 - 0.347618I$ $b = -0.39492 + 1.52052I$	$-1.02729 - 3.44858I$	$1.47745 + 8.39807I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.461201-0.310199I$ $a=-1.342820+0.347618I$ $b=-0.39492-1.52052I$	$-1.02729+3.44858I$	$1.47745-8.39807I$
$u=0.397825+0.339088I$ $a=-1.159450-0.792131I$ $b=0.421810+0.207688I$	$-3.31331+1.34942I$	$-0.69445-4.81797I$
$u=0.397825-0.339088I$ $a=-1.159450+0.792131I$ $b=0.421810-0.207688I$	$-3.31331-1.34942I$	$-0.69445+4.81797I$
$u=-0.295735+0.374812I$ $a=1.64151+0.53692I$ $b=0.199141-1.171910I$	$-1.52842+0.74751I$	$-1.82763+0.40847I$
$u=-0.295735-0.374812I$ $a=1.64151-0.53692I$ $b=0.199141+1.171910I$	$-1.52842-0.74751I$	$-1.82763-0.40847I$
$u=0.437462+0.102734I$ $a=0.720475+0.489361I$ $b=-0.1275350-0.0350142I$	$0.917664+0.265375I$	$10.32983-1.81252I$
$u=0.437462-0.102734I$ $a=0.720475-0.489361I$ $b=-0.1275350+0.0350142I$	$0.917664-0.265375I$	$10.32983+1.81252I$
$u=-0.227060$ $a=2.62077$ $b=0.966677$	-1.29008	-12.1470

II. $\boldsymbol{I_2^u = \langle b-1,\ -u^4-u^3-2u^2+a-u,\ u^6+u^5+3u^4+2u^3+2u^2+u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^4+u^3+2u^2+u \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4+u^3+2u^2+u \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^5-2u^3-u \\ -u^5-u^4-2u^3-u^2-u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^4+u^3+2u^2+u+1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^4+6u^3+11u^2+6u+5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^6$
c_3, c_8	u^6
c_4	$(u+1)^6$
c_5, c_6, c_9	$u^6+u^5-3u^4-2u^3+2u^2-u-1$
c_7	$u^6-u^5+3u^4-2u^3+2u^2-u-1$
c_{10}	$u^6-u^5-3u^4+2u^3+2u^2+u-1$
c_{11}, c_{12}	$u^6+u^5+3u^4+2u^3+2u^2+u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_8	y^6
c_5, c_6, c_9 c_{10}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$
c_7, c_{11}, c_{12}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.873214$ $a=\ \ 0.567375$ $b=\ \ 1.00000$	6.01515	7.06030
$u=\ \ 0.138835+1.234450I$ $a=-1.35607-0.92119I$ $b=\ \ 1.00000$	$-4.60518+1.97241I$	$-3.77811-4.83849I$
$u=\ \ 0.138835-1.234450I$ $a=-1.35607+0.92119I$ $b=\ \ 1.00000$	$-4.60518-1.97241I$	$-3.77811+4.83849I$
$u=-0.408802+1.276380I$ $a=-0.354716+0.801205I$ $b=\ \ 1.00000$	$2.05064-4.59213I$	$3.28527+2.79936I$
$u=-0.408802-1.276380I$ $a=-0.354716-0.801205I$ $b=\ \ 1.00000$	$2.05064+4.59213I$	$3.28527-2.79936I$
$u=\ \ 0.413150$ $a=\ \ 0.854195$ $b=\ \ 1.00000$	-0.906083	9.92530

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^6)(u^{68} - 7u^{67} + \cdots + 3u - 1)$
c_3, c_8	$u^6(u^{68} + u^{67} + \cdots - 128u - 64)$
c_4	$((u+1)^6)(u^{68} - 7u^{67} + \cdots + 3u - 1)$
c_5, c_6	$(u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1)(u^{68} + 2u^{67} + \cdots + 172u + 17)$
c_7	$(u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1)(u^{68} - 2u^{67} + \cdots + 2u + 1)$
c_9	$(u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1)(u^{68} - 6u^{67} + \cdots + 19512u - 3344)$
c_{10}	$(u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1)(u^{68} + 2u^{67} + \cdots + 172u + 17)$
c_{11}, c_{12}	$(u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1)(u^{68} - 2u^{67} + \cdots + 2u + 1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^6)(y^{68} - 65y^{67} + \cdots + 29y + 1)$
c_3, c_8	$y^6(y^{68} - 39y^{67} + \cdots - 53248y + 4096)$
c_5, c_6, c_{10}	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)$ $\cdot (y^{68} - 66y^{67} + \cdots - 5682y + 289)$
c_7, c_{11}, c_{12}	$(y^6 + 5y^5 + \cdots - 5y + 1)(y^{68} + 54y^{67} + \cdots - 26y + 1)$
c_9	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)$ $\cdot (y^{68} + 18y^{67} + \cdots - 465943328y + 11182336)$