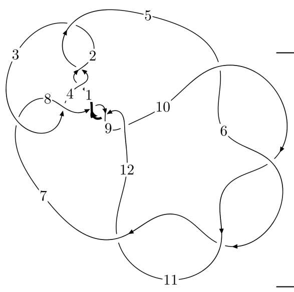
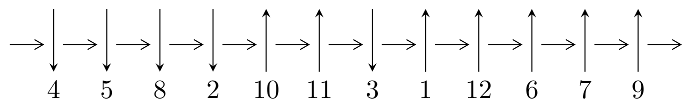
$12a_{0826}$ ($K12a_{0826}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle u^{46} - 24u^{44} + \cdots + b - 2u,\ u^{49} - u^{48} + \cdots + a - 3,\ u^{50} - 2u^{49} + \cdots - 3u + 1\rangle$$
$$I^u_2 = \langle u^4 - 2u^2 + b,\ -u^5 + 3u^3 + a - 2u - 1,\ u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 56 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.

$$I_1^u = \langle u^{46} - 24u^{44} + \cdots + b - 2u,\ u^{49} - u^{48} + \cdots + a - 3,\ u^{50} - 2u^{49} + \cdots - 3u + 1 \rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^{49} + u^{48} + \cdots + u + 3 \\ -u^{46} + 24u^{44} + \cdots - u^2 + 2u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{48} - 25u^{46} + \cdots + 3u + 2 \\ -u^{49} + 26u^{47} + \cdots - 8u^2 + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{14} - 7u^{12} + 18u^{10} - 21u^8 + 14u^6 - 10u^4 + 4u^2 - 1 \\ -u^{16} + 8u^{14} - 24u^{12} + 32u^{10} - 18u^8 + 8u^6 - 8u^4 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -2u^{49} + u^{48} + \cdots - u + 3 \\ u^{49} - 26u^{47} + \cdots + 5u - 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^{10} + 5u^8 - 8u^6 + 5u^4 - 3u^2 + 1 \\ u^{12} - 6u^{10} + 12u^8 - 8u^6 + u^4 - 2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^6 + 3u^4 - 2u^2 + 1 \\ u^8 - 4u^6 + 4u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^{49} - 7u^{48} + \cdots - 34u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{50} - 7u^{49} + \cdots + 2u - 1$
c_3, c_7	$u^{50} - u^{49} + \cdots + 224u^2 - 64$
c_5, c_6, c_{10} c_{11}	$u^{50} + 2u^{49} + \cdots + 3u + 1$
c_8, c_9, c_{12}	$u^{50} + 6u^{49} + \cdots + 45u - 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{50} - 53y^{49} + \cdots + 24y + 1$
c_3, c_7	$y^{50} - 39y^{49} + \cdots - 28672y + 4096$
c_5, c_6, c_{10} c_{11}	$y^{50} - 54y^{49} + \cdots - 23y + 1$
c_8, c_9, c_{12}	$y^{50} + 54y^{49} + \cdots - 2871y + 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.553117+0.664163I$ $a=\ \ 1.18281-1.02165I$ $b=-0.27217+2.65461I$	$-15.1392-9.4868I$	$-4.47770+6.36607I$
$u=-0.553117-0.664163I$ $a=\ \ 1.18281+1.02165I$ $b=-0.27217-2.65461I$	$-15.1392+9.4868I$	$-4.47770-6.36607I$
$u=-0.521122+0.653186I$ $a=-0.360363-0.132250I$ $b=\ \ 0.744618-1.077000I$	$-7.98509-5.12361I$	$-2.94810+5.86362I$
$u=-0.521122-0.653186I$ $a=-0.360363+0.132250I$ $b=\ \ 0.744618+1.077000I$	$-7.98509+5.12361I$	$-2.94810-5.86362I$
$u=-0.832663$ $a=\ \ 1.37585$ $b=\ \ 0.379950$	-4.23580	0.843030
$u=\ \ 0.505395+0.660908I$ $a=\ \ 1.86551+1.12155I$ $b=-0.76904-2.58054I$	$-10.25710+2.22642I$	$-3.92809-3.01901I$
$u=\ \ 0.505395-0.660908I$ $a=\ \ 1.86551-1.12155I$ $b=-0.76904+2.58054I$	$-10.25710-2.22642I$	$-3.92809+3.01901I$
$u=-0.460008+0.686028I$ $a=\ \ 2.07694-0.50744I$ $b=-0.71544+1.92454I$	$-15.4170+4.9513I$	$-5.18278-0.57560I$
$u=-0.460008-0.686028I$ $a=\ \ 2.07694+0.50744I$ $b=-0.71544-1.92454I$	$-15.4170-4.9513I$	$-5.18278+0.57560I$
$u=-0.487371+0.659703I$ $a=-0.906971+0.645379I$ $b=-0.393135-0.627704I$	$-8.08531+0.69745I$	$-3.35798+0.23540I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.487371 - 0.659703I$ $a = -0.906971 - 0.645379I$ $b = -0.393135 + 0.627704I$	$-8.08531 - 0.69745I$	$-3.35798 - 0.23540I$
$u = 0.660442 + 0.437938I$ $a = -1.175670 - 0.632150I$ $b = -0.27825 + 1.82886I$	$-6.65255 + 5.49617I$	$-1.92374 - 6.88073I$
$u = 0.660442 - 0.437938I$ $a = -1.175670 + 0.632150I$ $b = -0.27825 - 1.82886I$	$-6.65255 - 5.49617I$	$-1.92374 + 6.88073I$
$u = 0.494871 + 0.598464I$ $a = -0.642916 - 0.366018I$ $b = 0.316810 + 0.829305I$	$-3.61220 + 2.04087I$	$3.66627 - 3.62580I$
$u = 0.494871 - 0.598464I$ $a = -0.642916 + 0.366018I$ $b = 0.316810 - 0.829305I$	$-3.61220 - 2.04087I$	$3.66627 + 3.62580I$
$u = -1.34345$ $a = 2.34922$ $b = -1.18992$	-3.73496	0
$u = 0.539188 + 0.357182I$ $a = -0.060078 - 0.229300I$ $b = 0.065780 - 0.818765I$	$-0.53394 + 3.00224I$	$1.62141 - 9.45825I$
$u = 0.539188 - 0.357182I$ $a = -0.060078 + 0.229300I$ $b = 0.065780 + 0.818765I$	$-0.53394 - 3.00224I$	$1.62141 + 9.45825I$
$u = 0.197556 + 0.567801I$ $a = -1.33311 + 0.94398I$ $b = 0.34749 + 1.38106I$	$-8.06992 - 2.05324I$	$-6.14708 + 0.44806I$
$u = 0.197556 - 0.567801I$ $a = -1.33311 - 0.94398I$ $b = 0.34749 - 1.38106I$	$-8.06992 + 2.05324I$	$-6.14708 - 0.44806I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.432575+0.376085I$ $a=-1.94487+0.34224I$ $b=\ \ 0.40285-1.84963I$	$-2.72128-1.34903I$	$-0.70979+4.63030I$
$u=-0.432575-0.376085I$ $a=-1.94487-0.34224I$ $b=\ \ 0.40285+1.84963I$	$-2.72128+1.34903I$	$-0.70979-4.63030I$
$u=-0.523312+0.099839I$ $a=\ \ 0.392896+0.049847I$ $b=-0.497458+0.355216I$	$0.918277-0.180115I$	$10.59554+1.05153I$
$u=-0.523312-0.099839I$ $a=\ \ 0.392896-0.049847I$ $b=-0.497458-0.355216I$	$0.918277+0.180115I$	$10.59554-1.05153I$
$u=-1.48986+0.04819I$ $a=-0.213305-0.758850I$ $b=-0.383824+1.018250I$	$4.60096-0.59150I$	0
$u=-1.48986-0.04819I$ $a=-0.213305+0.758850I$ $b=-0.383824-1.018250I$	$4.60096+0.59150I$	0
$u=\ \ 1.47972+0.21886I$ $a=-2.61247-0.77557I$ $b=\ \ 1.52280+0.76083I$	$-9.13237-1.69237I$	0
$u=\ \ 1.47972-0.21886I$ $a=-2.61247+0.77557I$ $b=\ \ 1.52280-0.76083I$	$-9.13237+1.69237I$	0
$u=\ \ 1.50421+0.08278I$ $a=\ \ 2.26526+2.33731I$ $b=-1.43825-2.50580I$	$3.72115+2.85609I$	0
$u=\ \ 1.50421-0.08278I$ $a=\ \ 2.26526-2.33731I$ $b=-1.43825+2.50580I$	$3.72115-2.85609I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.50288 + 0.20473I$ $a = 0.247045 + 0.583522I$ $b = 0.259330 - 0.087519I$	$-1.58696 + 2.41508I$	0
$u = 1.50288 - 0.20473I$ $a = 0.247045 - 0.583522I$ $b = 0.259330 + 0.087519I$	$-1.58696 - 2.41508I$	0
$u = -1.51678 + 0.17371I$ $a = 1.27783 - 0.63401I$ $b = -0.991957 + 0.734002I$	$3.01331 - 4.79464I$	0
$u = -1.51678 - 0.17371I$ $a = 1.27783 + 0.63401I$ $b = -0.991957 - 0.734002I$	$3.01331 + 4.79464I$	0
$u = -1.51343 + 0.20796I$ $a = -3.33763 + 1.93254I$ $b = 2.35728 - 2.09370I$	$-3.64700 - 5.36770I$	0
$u = -1.51343 - 0.20796I$ $a = -3.33763 - 1.93254I$ $b = 2.35728 + 2.09370I$	$-3.64700 + 5.36770I$	0
$u = 1.53588 + 0.02926I$ $a = -1.104940 - 0.849103I$ $b = 1.04875 + 1.10169I$	$7.88396 + 0.66037I$	0
$u = 1.53588 - 0.02926I$ $a = -1.104940 + 0.849103I$ $b = 1.04875 - 1.10169I$	$7.88396 - 0.66037I$	0
$u = -1.53405 + 0.08867I$ $a = -0.256516 + 1.388440I$ $b = 0.10053 - 1.82714I$	$6.40849 - 4.54154I$	0
$u = -1.53405 - 0.08867I$ $a = -0.256516 - 1.388440I$ $b = 0.10053 + 1.82714I$	$6.40849 + 4.54154I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.52299 + 0.20532I$ $a = 1.60846 + 0.80229I$ $b = -1.32719 - 1.42793I$	$-1.27126 + 8.23471I$	0
$u = 1.52299 - 0.20532I$ $a = 1.60846 - 0.80229I$ $b = -1.32719 + 1.42793I$	$-1.27126 - 8.23471I$	0
$u = 0.270980 + 0.357042I$ $a = 1.336840 - 0.453135I$ $b = 0.0735636 - 0.0211419I$	$-1.313390 - 0.394009I$	$-4.59693 - 0.11426I$
$u = 0.270980 - 0.357042I$ $a = 1.336840 + 0.453135I$ $b = 0.0735636 + 0.0211419I$	$-1.313390 + 0.394009I$	$-4.59693 + 0.11426I$
$u = 1.53896 + 0.21280I$ $a = -2.44076 - 2.71196I$ $b = 1.46316 + 3.05025I$	$-8.2472 + 12.6896I$	0
$u = 1.53896 - 0.21280I$ $a = -2.44076 + 2.71196I$ $b = 1.46316 - 3.05025I$	$-8.2472 - 12.6896I$	0
$u = -1.57081 + 0.11496I$ $a = 0.54586 - 2.32961I$ $b = 0.35877 + 2.51364I$	$0.85171 - 7.47143I$	0
$u = -1.57081 - 0.11496I$ $a = 0.54586 + 2.32961I$ $b = 0.35877 - 2.51364I$	$0.85171 + 7.47143I$	0
$u = 1.59062$ $a = 0.786115$ $b = -1.65951$	3.85485	0
$u = 0.284196$ $a = 2.66910$ $b = 0.479450$	-1.25005	-12.8860

II.

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^5 - 3u^3 + 2u + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^5 - 3u^3 + u + 1 \\ -u^4 + 2u^2 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^5 - 3u^3 + u + 1 \\ -u^4 + 2u^2 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^5 - u^4 - 14u^3 + u^2 + 14u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^6$
c_3, c_7	u^6
c_4	$(u+1)^6$
c_5, c_6	$u^6+u^5-3u^4-2u^3+2u^2-u-1$
c_8, c_9	$u^6-u^5+3u^4-2u^3+2u^2-u-1$
c_{10}, c_{11}	$u^6-u^5-3u^4+2u^3+2u^2+u-1$
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_7	y^6
c_5, c_6, c_{10} c_{11}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$
c_8, c_9, 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
$u = -0.493180 + 0.575288I$ $a = -0.997760 + 0.232521I$ $b = 0.138835 - 1.234450I$	$-4.60518 - 1.97241I$	$-5.56070 + 3.48596I$
$u = -0.493180 - 0.575288I$ $a = -0.997760 - 0.232521I$ $b = 0.138835 + 1.234450I$	$-4.60518 + 1.97241I$	$-5.56070 - 3.48596I$
$u = 0.483672$ $a = 1.65437$ $b = 0.413150$	-0.906083	11.4460
$u = 1.52087 + 0.16310I$ $a = 1.05885 + 1.20667I$ $b = -0.408802 - 1.276380I$	$2.05064 + 4.59213I$	$-1.33400 - 2.48468I$
$u = 1.52087 - 0.16310I$ $a = 1.05885 - 1.20667I$ $b = -0.408802 + 1.276380I$	$2.05064 - 4.59213I$	$-1.33400 + 2.48468I$
$u = -1.53904$ $a = 0.223460$ $b = -0.873214$	6.01515	6.34350

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^6)(u^{50} - 7u^{49} + \cdots + 2u - 1)$
c_3, c_7	$u^6(u^{50} - u^{49} + \cdots + 224u^2 - 64)$
c_4	$((u+1)^6)(u^{50} - 7u^{49} + \cdots + 2u - 1)$
c_5, c_6	$(u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1)(u^{50} + 2u^{49} + \cdots + 3u + 1)$
c_8, c_9	$(u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1)(u^{50} + 6u^{49} + \cdots + 45u - 9)$
c_{10}, c_{11}	$(u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1)(u^{50} + 2u^{49} + \cdots + 3u + 1)$
c_{12}	$(u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1)(u^{50} + 6u^{49} + \cdots + 45u - 9)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^6)(y^{50} - 53y^{49} + \cdots + 24y + 1)$
c_3, c_7	$y^6(y^{50} - 39y^{49} + \cdots - 28672y + 4096)$
c_5, c_6, c_{10} c_{11}	$(y^6 - 7y^5 + \cdots - 5y + 1)(y^{50} - 54y^{49} + \cdots - 23y + 1)$
c_8, c_9, c_{12}	$(y^6 + 5y^5 + \cdots - 5y + 1)(y^{50} + 54y^{49} + \cdots - 2871y + 81)$