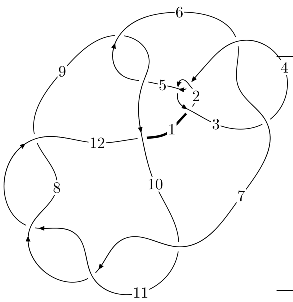
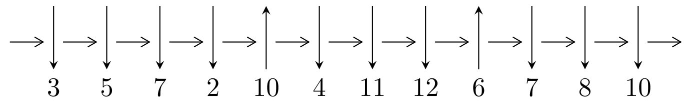
$12n_{0107}$ ($K12n_{0107}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 47441368u^{25} + 57693789u^{24} + \cdots + 104373924b + 18568285,$$
$$120201295u^{25} + 398061213u^{24} + \cdots + 104373924a + 783424087,\ u^{26} + 5u^{25} + \cdots + 14u - 1\rangle$$
$$I_2^u = \langle 2a^2u + a^2 - au + b - a + 2u,\ a^3 - a^2u + a^2 - 2au + 4a - 2u + 3,\ u^2 - u - 1\rangle$$
$$I_3^u = \langle b + 1,\ a,\ u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 33 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. $I_1^u = \langle 4.74\times10^{7}u^{25} + 5.77\times10^{7}u^{24} + \cdots + 1.04\times10^{8}b + 1.86\times10^{7},\ 1.20\times10^{8}u^{25} + 3.98\times10^{8}u^{24} + \cdots + 1.04\times10^{8}a + 7.83\times10^{8},\ u^{26} + 5u^{25} + \cdots + 14u - 1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

$$a_1 = \begin{pmatrix} u^4 - 3u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1.15164u^{25} - 3.81380u^{24} + \cdots - 24.4464u - 7.50594 \\ -0.454533u^{25} - 0.552761u^{24} + \cdots + 13.0629u - 0.177902 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.15164u^{25} - 3.81380u^{24} + \cdots - 24.4464u - 7.50594 \\ 3.33329u^{25} + 11.3654u^{24} + \cdots + 41.4363u - 2.12231 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.633480u^{25} - 1.36564u^{24} + \cdots + 2.69053u + 4.69952 \\ -1.23184u^{25} - 3.55184u^{24} + \cdots - 6.61306u + 0.205455 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.598359u^{25} + 2.18620u^{24} + \cdots + 9.30359u + 4.49406 \\ -1.23184u^{25} - 3.55184u^{24} + \cdots - 6.61306u + 0.205455 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.598359u^{25} - 2.18620u^{24} + \cdots - 9.30359u - 4.49406 \\ -0.203032u^{25} + 0.469119u^{24} + \cdots + 15.6624u - 0.533217 \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{92088909}{17395654}u^{25} - \frac{188693588}{8697827}u^{24} + \cdots - \frac{885802456}{8697827}u - \frac{15795407}{8697827}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 20u^{25} + \cdots + 79u + 1$
c_2, c_4	$u^{26} - 4u^{25} + \cdots - 11u - 1$
c_3, c_6	$u^{26} - 3u^{25} + \cdots - 6u + 2$
c_5, c_9	$u^{26} - 2u^{25} + \cdots - 96u + 64$
c_7, c_8, c_{10} c_{11}	$u^{26} + 5u^{25} + \cdots + 14u - 1$
c_{12}	$u^{26} - 21u^{25} + \cdots + 52120u + 337$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} - 24y^{25} + \cdots - 6127y + 1$
c_2, c_4	$y^{26} - 20y^{25} + \cdots - 79y + 1$
c_3, c_6	$y^{26} - 3y^{25} + \cdots - 40y + 4$
c_5, c_9	$y^{26} + 34y^{25} + \cdots - 95232y + 4096$
c_7, c_8, c_{10} c_{11}	$y^{26} - 39y^{25} + \cdots - 304y + 1$
c_{12}	$y^{26} - 123y^{25} + \cdots - 2285596764y + 113569$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.476607 + 0.919429I$ $a = -0.688440 - 0.733293I$ $b = 0.227587 + 1.287750I$	$-5.18299 + 2.95142I$	$-14.7696 - 4.0162I$
$u = -0.476607 - 0.919429I$ $a = -0.688440 + 0.733293I$ $b = 0.227587 - 1.287750I$	$-5.18299 - 2.95142I$	$-14.7696 + 4.0162I$
$u = -0.757036$ $a = -0.441343$ $b = 0.637723$	-1.34161	-6.51520
$u = 1.223650 + 0.232594I$ $a = -0.924838 - 0.484695I$ $b = 0.280314 - 1.358420I$	$-5.77000 - 3.25214I$	$-11.73752 + 3.41900I$
$u = 1.223650 - 0.232594I$ $a = -0.924838 + 0.484695I$ $b = 0.280314 + 1.358420I$	$-5.77000 + 3.25214I$	$-11.73752 - 3.41900I$
$u = -1.329480 + 0.241157I$ $a = 0.277950 + 0.611388I$ $b = 0.308061 + 0.000558I$	$-3.29395 - 1.34186I$	$-11.30499 + 4.69401I$
$u = -1.329480 - 0.241157I$ $a = 0.277950 - 0.611388I$ $b = 0.308061 - 0.000558I$	$-3.29395 + 1.34186I$	$-11.30499 - 4.69401I$
$u = 1.369250 + 0.095489I$ $a = 0.500507 - 0.680570I$ $b = 0.10931 - 1.70719I$	$-9.37037 - 1.40410I$	$-14.8448 + 0.4920I$
$u = 1.369250 - 0.095489I$ $a = 0.500507 + 0.680570I$ $b = 0.10931 + 1.70719I$	$-9.37037 + 1.40410I$	$-14.8448 - 0.4920I$
$u = 1.273730 + 0.536724I$ $a = 0.988931 + 0.204426I$ $b = -0.48656 + 1.60886I$	$-10.60190 - 7.95034I$	$-14.2939 + 5.5201I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.273730 - 0.536724I$ $a = 0.988931 - 0.204426I$ $b = -0.48656 - 1.60886I$	$-10.60190 + 7.95034I$	$-14.2939 - 5.5201I$
$u = -0.586682 + 0.167108I$ $a = -0.045237 - 0.711969I$ $b = -0.71246 - 2.34576I$	$-2.72200 + 0.36882I$	$-3.94523 + 10.24837I$
$u = -0.586682 - 0.167108I$ $a = -0.045237 + 0.711969I$ $b = -0.71246 + 2.34576I$	$-2.72200 - 0.36882I$	$-3.94523 - 10.24837I$
$u = -0.348677 + 0.367916I$ $a = 1.247060 + 0.371784I$ $b = -0.209352 - 0.864493I$	$-0.636376 + 1.127340I$	$-7.20662 - 6.11077I$
$u = -0.348677 - 0.367916I$ $a = 1.247060 - 0.371784I$ $b = -0.209352 + 0.864493I$	$-0.636376 - 1.127340I$	$-7.20662 + 6.11077I$
$u = 0.424219 + 0.095685I$ $a = 0.07818 + 2.89428I$ $b = -0.1185550 - 0.0289313I$	$2.35620 + 2.67700I$	$3.89989 + 1.35809I$
$u = 0.424219 - 0.095685I$ $a = 0.07818 - 2.89428I$ $b = -0.1185550 + 0.0289313I$	$2.35620 - 2.67700I$	$3.89989 - 1.35809I$
$u = 1.63681$ $a = 0.377195$ $b = -1.87474$	-9.79249	1.55260
$u = -1.80599 + 0.06787I$ $a = 0.735548 - 0.651435I$ $b = -0.23521 - 1.59914I$	$-16.9214 + 4.6752I$	0
$u = -1.80599 - 0.06787I$ $a = 0.735548 + 0.651435I$ $b = -0.23521 + 1.59914I$	$-16.9214 - 4.6752I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.81333+0.15530I$ $a=-0.732203+0.586510I$ $b=\ \ 0.50599+1.87679I$	$17.8851+11.1272I$	0
$u=-1.81333-0.15530I$ $a=-0.732203-0.586510I$ $b=\ \ 0.50599-1.87679I$	$17.8851-11.1272I$	0
$u=-1.83864+0.02244I$ $a=-0.672414-0.695929I$ $b=-0.16075-1.49337I$	$18.0411+1.9797I$	0
$u=-1.83864-0.02244I$ $a=-0.672414+0.695929I$ $b=-0.16075+1.49337I$	$18.0411-1.9797I$	0
$u=\ \ 1.87792$ $a=-0.655106$ $b=-0.356336$	-16.1049	-16.4270
$u=\ \ 0.0594263$ $a=-8.81083$ $b=\ \ 0.576606$	-1.19028	-8.21100

II.

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -u-1 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ -2a^2u-a^2+au+a-2u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ -2a^2u-a^2-2u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} a^2u \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a^2u \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a^2u \\ -2a^2u-a^2-2u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -19a^2u-13a^2+9au+a-8u-29$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.618034$ $a=-0.922021$ $b=\ \ 1.08457$	-2.10041	-20.9180
$u=-0.618034$ $a=-0.34801+2.11500I$ $b=\ \ 0.075747+0.460350I$	$2.03717+2.82812I$	$-16.9959-7.7984I$
$u=-0.618034$ $a=-0.34801-2.11500I$ $b=\ \ 0.075747-0.460350I$	$2.03717-2.82812I$	$-16.9959+7.7984I$
$u=\ \ 1.61803$ $a=\ \ 0.132927+0.807858I$ $b=-0.198308+1.205210I$	$-5.85852-2.82812I$	$-12.10059+3.17745I$
$u=\ \ 1.61803$ $a=\ \ 0.132927-0.807858I$ $b=-0.198308-1.205210I$	$-5.85852+2.82812I$	$-12.10059-3.17745I$
$u=\ \ 1.61803$ $a=\ \ 0.352181$ $b=-2.83945$	-9.99610	-41.8890

III. $I_3^u = \langle b+1,\ a,\ u+1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0$ $b = -1.00000$	-3.28987	-12.0000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)(u^3-u^2+2u-1)^2(u^{26}+20u^{25}+\cdots+79u+1)$
c_2	$(u-1)(u^3+u^2-1)^2(u^{26}-4u^{25}+\cdots-11u-1)$
c_3	$u(u^3-u^2+2u-1)^2(u^{26}-3u^{25}+\cdots-6u+2)$
c_4	$(u+1)(u^3-u^2+1)^2(u^{26}-4u^{25}+\cdots-11u-1)$
c_5	$u^6(u-1)(u^{26}-2u^{25}+\cdots-96u+64)$
c_6	$u(u^3+u^2+2u+1)^2(u^{26}-3u^{25}+\cdots-6u+2)$
c_7, c_8	$(u-1)(u^2+u-1)^3(u^{26}+5u^{25}+\cdots+14u-1)$
c_9	$u^6(u+1)(u^{26}-2u^{25}+\cdots-96u+64)$
c_{10}, c_{11}	$(u+1)(u^2-u-1)^3(u^{26}+5u^{25}+\cdots+14u-1)$
c_{12}	$(u+1)(u^2-u-1)^3(u^{26}-21u^{25}+\cdots+52120u+337)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^3+3y^2+2y-1)^2(y^{26}-24y^{25}+\cdots-6127y+1)$
c_2, c_4	$(y-1)(y^3-y^2+2y-1)^2(y^{26}-20y^{25}+\cdots-79y+1)$
c_3, c_6	$y(y^3+3y^2+2y-1)^2(y^{26}-3y^{25}+\cdots-40y+4)$
c_5, c_9	$y^6(y-1)(y^{26}+34y^{25}+\cdots-95232y+4096)$
c_7, c_8, c_{10} c_{11}	$(y-1)(y^2-3y+1)^3(y^{26}-39y^{25}+\cdots-304y+1)$
c_{12}	$(y-1)(y^2-3y+1)^3(y^{26}-123y^{25}+\cdots-2.28560\times 10^9y+113569)$