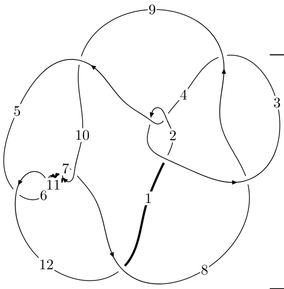
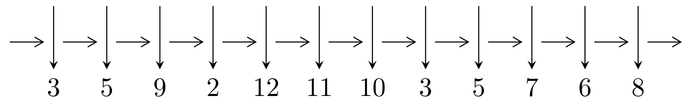
$12n_{0251}$ ($K12n_{0251}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & u^{11} + 2u^{10} + 8u^9 + 13u^8 + 22u^7 + 27u^6 + 24u^5 + 19u^4 + 9u^3 + 4u^2 + b - 1, \\
& u^{13} + 2u^{12} + 10u^{11} + 16u^{10} + 37u^9 + 46u^8 + 62u^7 + 57u^6 + 46u^5 + 30u^4 + 12u^3 + 7u^2 + a - u, \\
& u^{14} + 2u^{13} + 11u^{12} + 18u^{11} + 46u^{10} + 60u^9 + 91u^8 + 90u^7 + 86u^6 + 60u^5 + 34u^4 + 17u^3 + 2u^2 - 1\rangle \\
I_2^u = \langle & b - u + 1,\ u^4 - u^3 + 4u^2 + a - 2u + 2,\ u^5 - u^4 + 4u^3 - 3u^2 + 3u - 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 19 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.

$$\boldsymbol{I_1^u = \langle u^{11}+2u^{10}+\cdots+b-1,\ u^{13}+2u^{12}+\cdots+a-u,\ u^{14}+2u^{13}+\cdots+2u^2-1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^{13}-2u^{12}+\cdots-7u^2+u\\-u^{11}-2u^{10}+\cdots-4u^2+1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^2+1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-u^{13}-3u^{12}+\cdots-9u^2+1\\u^{12}+5u^{10}-2u^9+3u^8-11u^7-14u^6-18u^5-16u^4-8u^3-5u^2+1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^7-4u^5-4u^3-2u\\-u^9-5u^7-7u^5-2u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^{13}+2u^{12}+\cdots+u-1\\-u^{11}-4u^9+2u^8+9u^6+12u^5+11u^4+6u^3+4u^2+u-1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}u^7+4u^5+4u^3+2u\\-u^7-3u^5+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= u^{13}+2u^{12}+11u^{11}+18u^{10}+45u^9+56u^8+80u^7+65u^6+50u^5+12u^4-7u^3-11u^2-9u-14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} + 26u^{13} + \cdots + 14u + 1$
c_2, c_4	$u^{14} - 6u^{13} + \cdots - 2u - 1$
c_3, c_8	$u^{14} + u^{13} + \cdots + 64u + 32$
c_5, c_6, c_7 c_{10}, c_{11}	$u^{14} - 2u^{13} + \cdots + 2u^2 - 1$
c_9, c_{12}	$u^{14} - 2u^{13} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 86y^{13} + \cdots - 730y + 1$
c_2, c_4	$y^{14} - 26y^{13} + \cdots - 14y + 1$
c_3, c_8	$y^{14} - 33y^{13} + \cdots - 1536y + 1024$
c_5, c_6, c_7 c_{10}, c_{11}	$y^{14} + 18y^{13} + \cdots - 4y + 1$
c_9, c_{12}	$y^{14} - 30y^{13} + \cdots - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.550724 + 0.891947I$ $a = -0.096240 + 0.175738I$ $b = -1.07587 - 1.79627I$	$-15.0245 + 4.4031I$	$-12.54526 - 3.39165I$
$u = -0.550724 - 0.891947I$ $a = -0.096240 - 0.175738I$ $b = -1.07587 + 1.79627I$	$-15.0245 - 4.4031I$	$-12.54526 + 3.39165I$
$u = 0.190452 + 0.810025I$ $a = 0.013565 - 0.546935I$ $b = -0.396657 + 0.339392I$	$1.71814 - 1.64819I$	$-5.73834 + 4.69390I$
$u = 0.190452 - 0.810025I$ $a = 0.013565 + 0.546935I$ $b = -0.396657 - 0.339392I$	$1.71814 + 1.64819I$	$-5.73834 - 4.69390I$
$u = -0.772289$ $a = -2.27398$ $b = -0.485231$	-17.7180	-15.7100
$u = -0.241199 + 0.492313I$ $a = 0.340540 + 1.345040I$ $b = 1.022190 + 0.391429I$	$-1.48613 + 0.97077I$	$-11.76317 - 1.95166I$
$u = -0.241199 - 0.492313I$ $a = 0.340540 - 1.345040I$ $b = 1.022190 - 0.391429I$	$-1.48613 - 0.97077I$	$-11.76317 + 1.95166I$
$u = -0.04571 + 1.57188I$ $a = -1.87359 - 0.58564I$ $b = 2.33538 + 1.40783I$	$5.67567 + 1.86276I$	$-10.57290 - 1.15181I$
$u = -0.04571 - 1.57188I$ $a = -1.87359 + 0.58564I$ $b = 2.33538 - 1.40783I$	$5.67567 - 1.86276I$	$-10.57290 + 1.15181I$
$u = 0.05378 + 1.66919I$ $a = 0.834731 - 0.136645I$ $b = -1.099410 - 0.067263I$	$10.47610 - 2.59125I$	$-5.03885 + 1.58782I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.05378 - 1.66919I$ $a = 0.834731 + 0.136645I$ $b = -1.099410 + 0.067263I$	$10.47610 + 2.59125I$	$-5.03885 - 1.58782I$
$u = -0.16470 + 1.67887I$ $a = 1.88194 + 1.97217I$ $b = -2.16875 - 3.14542I$	$-6.19448 + 7.22352I$	$-10.76531 - 2.66085I$
$u = -0.16470 - 1.67887I$ $a = 1.88194 - 1.97217I$ $b = -2.16875 + 3.14542I$	$-6.19448 - 7.22352I$	$-10.76531 + 2.66085I$
$u = 0.288492$ $a = -0.927924$ $b = 0.251456$	-0.575448	-17.4430

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^4 + 3u^3 - 12u^2 + 10u - 19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^5$
c_3, c_8	y^5
c_5, c_6, c_7 c_{10}, c_{11}	$y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1$
c_9, c_{12}	$y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.233677 + 0.885557I$ $a = 0.487744 + 0.170166I$ $b = -0.766323 + 0.885557I$	$0.17487 - 2.21397I$	$-10.60206 + 4.05273I$
$u = 0.233677 - 0.885557I$ $a = 0.487744 - 0.170166I$ $b = -0.766323 - 0.885557I$	$0.17487 + 2.21397I$	$-10.60206 - 4.05273I$
$u = 0.416284$ $a = -1.81849$ $b = -0.583716$	-2.52712	-16.7900
$u = 0.05818 + 1.69128I$ $a = 0.92150 - 1.10071I$ $b = -0.94182 + 1.69128I$	$9.31336 - 3.33174I$	$-10.00277 + 3.46299I$
$u = 0.05818 - 1.69128I$ $a = 0.92150 + 1.10071I$ $b = -0.94182 - 1.69128I$	$9.31336 + 3.33174I$	$-10.00277 - 3.46299I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{14}+26u^{13}+\cdots+14u+1)$
c_2	$((u-1)^5)(u^{14}-6u^{13}+\cdots-2u-1)$
c_3, c_8	$u^5(u^{14}+u^{13}+\cdots+64u+32)$
c_4	$((u+1)^5)(u^{14}-6u^{13}+\cdots-2u-1)$
c_5, c_6, c_7	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{14}-2u^{13}+\cdots+2u^2-1)$
c_9, c_{12}	$(u^5+u^4-u^2+u+1)(u^{14}-2u^{13}+\cdots-2u-1)$
c_{10}, c_{11}	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{14}-2u^{13}+\cdots+2u^2-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{14} - 86y^{13} + \cdots - 730y + 1)$
c_2, c_4	$((y-1)^5)(y^{14} - 26y^{13} + \cdots - 14y + 1)$
c_3, c_8	$y^5(y^{14} - 33y^{13} + \cdots - 1536y + 1024)$
c_5, c_6, c_7 c_{10}, c_{11}	$(y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1)(y^{14} + 18y^{13} + \cdots - 4y + 1)$
c_9, c_{12}	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{14} - 30y^{13} + \cdots - 4y + 1)$