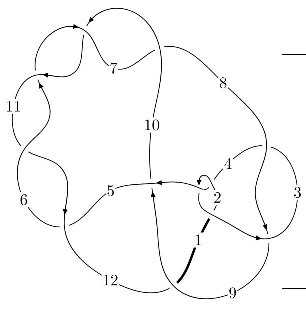
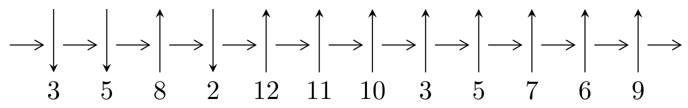
$12n_{0248}$ ($K12n_{0248}$)



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 $X_{\mathbf{par}}$

$$\begin{aligned} I_1^u &= \langle -u^{12} + 2u^{11} - 9u^{10} + 15u^9 - 29u^8 + 38u^7 - 40u^6 + 37u^5 - 22u^4 + 12u^3 - 3u^2 + b - u + 1, \\ &\quad u^{16} - 2u^{15} + \cdots + a - 2,\ u^{17} - 2u^{16} + \cdots - 3u + 1 \rangle \\ I_2^u &= \langle b + u + 1,\ -u^4 - u^3 - 4u^2 + a - 2u - 2,\ u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 22 representations.

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[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.

$$I^u_1 = \langle -u^{12}+2u^{11}+\cdots+b+1,\ u^{16}-2u^{15}+\cdots+a-2,\ u^{17}-2u^{16}+\cdots-3u+1\rangle$$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^{16}+2u^{15}+\cdots-8u+2\\u^{12}-2u^{11}+\cdots+u-1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}u^2+1\\u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-u^{16}+2u^{15}+\cdots-8u+1\\-u^{13}+2u^{12}+\cdots+u-1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^{13}-8u^{11}-23u^9-30u^7-20u^5-6u^3-u\\-u^{13}-7u^{11}-15u^9-8u^7+4u^5+3u^3-u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^{16}+2u^{15}+\cdots-6u+1\\u^{14}-2u^{13}+\cdots+2u-1\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u^2+1\\-u^4-2u^2\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^7-4u^5-4u^3-2u\\-u^7-3u^5+u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{16}+2u^{15}-14u^{14}+24u^{13}-78u^{12}+110u^{11}-216u^{10}+235u^9-298u^8+219u^7-164u^6+39u^5+14u^4-52u^3+34u^2-21u+2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17}+28u^{16}+\cdots+47u+1$
c_2, c_4	$u^{17}-6u^{16}+\cdots+11u-1$
c_3, c_8	$u^{17}+u^{16}+\cdots+32u-32$
c_5, c_6, c_7 c_{10}, c_{11}	$u^{17}+2u^{16}+\cdots-3u-1$
c_9	$u^{17}+2u^{16}+\cdots-20u-100$
c_{12}	$u^{17}+18u^{15}+\cdots-u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} - 72y^{16} + \cdots + 2319y - 1$
c_2, c_4	$y^{17} - 28y^{16} + \cdots + 47y - 1$
c_3, c_8	$y^{17} + 33y^{16} + \cdots + 8704y - 1024$
c_5, c_6, c_7 c_{10}, c_{11}	$y^{17} + 24y^{16} + \cdots - 3y - 1$
c_9	$y^{17} + 24y^{16} + \cdots - 163800y - 10000$
c_{12}	$y^{17} + 36y^{16} + \cdots - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.172919 + 0.910697I$ $a = 0.318120 - 0.364787I$ $b = -0.026588 - 0.519308I$	$-2.10523 - 1.77554I$	$4.36935 + 3.95696I$
$u = -0.172919 - 0.910697I$ $a = 0.318120 + 0.364787I$ $b = -0.026588 + 0.519308I$	$-2.10523 + 1.77554I$	$4.36935 - 3.95696I$
$u = 0.076795 + 1.100920I$ $a = -0.899122 + 0.716334I$ $b = -0.46350 + 1.81350I$	$-6.05879 + 1.56653I$	$-2.65237 - 1.48388I$
$u = 0.076795 - 1.100920I$ $a = -0.899122 - 0.716334I$ $b = -0.46350 - 1.81350I$	$-6.05879 - 1.56653I$	$-2.65237 + 1.48388I$
$u = 0.363317 + 1.143140I$ $a = 0.676702 - 0.745881I$ $b = 1.01514 - 2.32860I$	$-17.4586 + 5.5119I$	$-1.67992 - 3.43806I$
$u = 0.363317 - 1.143140I$ $a = 0.676702 + 0.745881I$ $b = 1.01514 + 2.32860I$	$-17.4586 - 5.5119I$	$-1.67992 + 3.43806I$
$u = 0.640058 + 0.377809I$ $a = -1.49477 + 0.62802I$ $b = 0.659184 - 0.737438I$	$-12.69310 + 2.07755I$	$1.82746 - 2.83280I$
$u = 0.640058 - 0.377809I$ $a = -1.49477 - 0.62802I$ $b = 0.659184 + 0.737438I$	$-12.69310 - 2.07755I$	$1.82746 + 2.83280I$
$u = -0.352123$ $a = 0.596606$ $b = 0.192432$	0.659166	15.3270
$u = 0.197187 + 0.287158I$ $a = 0.27267 - 2.06821I$ $b = -0.661431 + 0.441892I$	$-1.63254 + 0.69110I$	$-1.76799 - 2.88115I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.197187 - 0.287158I$ $a = 0.27267 + 2.06821I$ $b = -0.661431 - 0.441892I$	$-1.63254 - 0.69110I$	$-1.76799 + 2.88115I$
$u = -0.04510 + 1.70602I$ $a = -0.122781 - 0.847756I$ $b = -0.383269 - 1.042710I$	$-11.46630 - 2.62660I$	$3.17531 + 1.46591I$
$u = -0.04510 - 1.70602I$ $a = -0.122781 + 0.847756I$ $b = -0.383269 + 1.042710I$	$-11.46630 + 2.62660I$	$3.17531 - 1.46591I$
$u = 0.01853 + 1.75791I$ $a = -0.40235 + 2.31946I$ $b = 0.01866 + 3.08154I$	$-16.4472 + 1.9633I$	$-2.49608 - 1.09020I$
$u = 0.01853 - 1.75791I$ $a = -0.40235 - 2.31946I$ $b = 0.01866 - 3.08154I$	$-16.4472 - 1.9633I$	$-2.49608 + 1.09020I$
$u = 0.09819 + 1.76530I$ $a = 1.35323 - 2.62476I$ $b = 1.24559 - 3.74596I$	$11.60450 + 7.50472I$	$-2.43940 - 2.60727I$
$u = 0.09819 - 1.76530I$ $a = 1.35323 + 2.62476I$ $b = 1.24559 + 3.74596I$	$11.60450 - 7.50472I$	$-2.43940 + 2.60727I$

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

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

$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_5 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

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

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

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

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

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

$$a_9 = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^4 + 3u^3 + 12u^2 + 10u + 7$

(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
$u = -0.233677 + 0.885557I$ $a = -0.487744 + 0.170166I$ $b = -0.766323 - 0.885557I$	$-3.46474 - 2.21397I$	$-1.39794 + 4.05273I$
$u = -0.233677 - 0.885557I$ $a = -0.487744 - 0.170166I$ $b = -0.766323 + 0.885557I$	$-3.46474 + 2.21397I$	$-1.39794 - 4.05273I$
$u = -0.416284$ $a = 1.81849$ $b = -0.583716$	-0.762751	4.79030
$u = -0.05818 + 1.69128I$ $a = -0.92150 - 1.10071I$ $b = -0.94182 - 1.69128I$	$-12.60320 - 3.33174I$	$-1.99723 + 3.46299I$
$u = -0.05818 - 1.69128I$ $a = -0.92150 + 1.10071I$ $b = -0.94182 + 1.69128I$	$-12.60320 + 3.33174I$	$-1.99723 - 3.46299I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{17}+28u^{16}+\cdots+47u+1)$
c_2	$((u-1)^5)(u^{17}-6u^{16}+\cdots+11u-1)$
c_3, c_8	$u^5(u^{17}+u^{16}+\cdots+32u-32)$
c_4	$((u+1)^5)(u^{17}-6u^{16}+\cdots+11u-1)$
c_5, c_6, c_7	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{17}+2u^{16}+\cdots-3u-1)$
c_9	$(u^5-u^4+u^2+u-1)(u^{17}+2u^{16}+\cdots-20u-100)$
c_{10}, c_{11}	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{17}+2u^{16}+\cdots-3u-1)$
c_{12}	$(u^5-u^4+u^2+u-1)(u^{17}+18u^{15}+\cdots-u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{17} - 72y^{16} + \cdots + 2319y - 1)$
c_2, c_4	$((y-1)^5)(y^{17} - 28y^{16} + \cdots + 47y - 1)$
c_3, c_8	$y^5(y^{17} + 33y^{16} + \cdots + 8704y - 1024)$
c_5, c_6, c_7 c_{10}, c_{11}	$(y^5 + 7y^4 + 16y^3 + 13y^2 + 3y - 1)(y^{17} + 24y^{16} + \cdots - 3y - 1)$
c_9	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{17} + 24y^{16} + \cdots - 163800y - 10000)$
c_{12}	$(y^5 - y^4 + 4y^3 - 3y^2 + 3y - 1)(y^{17} + 36y^{16} + \cdots - 3y - 1)$