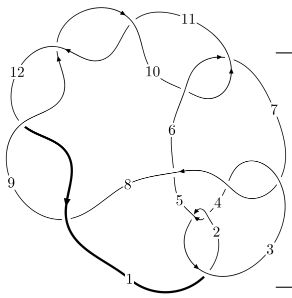
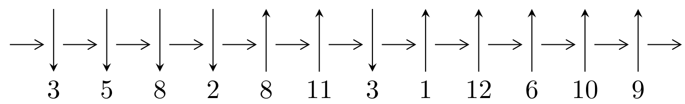
$12n_{0078}$ ($K12n_{0078}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 37387481608u^{36} - 262071379227u^{35} + \cdots + 623124693363b + 37745018210, \\
&\quad 39879980401u^{36} - 353616847554u^{35} + \cdots + 623124693363a + 919059301277, \\
&\quad u^{37} - 8u^{36} + \cdots + 19u - 1\rangle \\
I_2^u &= \langle b,\ -u^4 - u^3 - 4u^2 + a - 3u - 3,\ u^5 + u^4 + 4u^3 + 3u^2 + 3u + 1\rangle
\end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 42 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. $I_1^u =$
$\langle \mathbf{3.74\times10^{10}u^{36}-2.62\times10^{11}u^{35}+\cdots+6.23\times10^{10}b+3.77\times10^{10},\ 3.99\times10^{10}u^{36}-3.54\times10^{11}u^{35}+\cdots+6.23\times10^{10}a+9.19\times10^{11},\ u^{37}-8u^{36}+\cdots+19u-1}\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.640000u^{36} + 5.67490u^{35} + \cdots + 118.964u - 14.7492 \\ -0.600000u^{36} + 4.20576u^{35} + \cdots + 2.58902u - 0.605738 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1.24000u^{36} + 9.88066u^{35} + \cdots + 121.553u - 15.3549 \\ -0.600000u^{36} + 4.20576u^{35} + \cdots + 2.58902u - 0.605738 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.440000u^{36} + 4.28395u^{35} + \cdots + 104.318u - 12.1296 \\ -0.400000u^{36} + 2.79424u^{35} + \cdots + 2.41098u - 0.394262 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.600000u^{36} + 4.20165u^{35} + \cdots + 21.8826u - 3.88735 \\ -0.400000u^{36} + 2.79424u^{35} + \cdots + 2.41098u - 0.394262 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.394262u^{36} + 2.75410u^{35} + \cdots + 35.8645u - 5.08000 \\ -0.598354u^{36} + 4.78683u^{35} + \cdots + 7.51265u - 0.600000 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^2 + 1 \\ -u^4 - 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^3 - 2u \\ u^5 + 3u^3 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1.00000u^{36} + 6.99588u^{35} + \cdots + 24.2936u - 4.28162 \\ -0.400000u^{36} + 2.79424u^{35} + \cdots + 2.41098u - 0.394262 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{126456874109}{20770823121}u^{36} + \frac{3258636143 27}{6923607707}u^{35} + \cdots + \frac{58353235266 23}{20770823121}u - \frac{5510083957 54}{20770823121}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{37}+12u^{36}+\cdots+5u+1$
c_2, c_4	$u^{37}-6u^{36}+\cdots-3u+1$
c_3, c_7	$u^{37}-u^{36}+\cdots+120u^2+32$
c_5	$u^{37}+2u^{36}+\cdots+3u+1$
c_6, c_{10}	$u^{37}+2u^{36}+\cdots+3u+1$
c_8, c_9, c_{11} c_{12}	$u^{37}-8u^{36}+\cdots+19u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{37}+32y^{36}+\cdots+5y-1$
c_2, c_4	$y^{37}-12y^{36}+\cdots+5y-1$
c_3, c_7	$y^{37}+33y^{36}+\cdots-7680y-1024$
c_5	$y^{37}-40y^{36}+\cdots+19y-1$
c_6, c_{10}	$y^{37}-8y^{36}+\cdots+19y-1$
c_8, c_9, c_{11} c_{12}	$y^{37}+44y^{36}+\cdots+99y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.192278 + 0.981446I$ $a = 0.020576 - 0.394070I$ $b = 0.028151 + 0.615473I$	$-2.37817 + 2.37893I$	$2.00000 - 4.24354I$
$u = 0.192278 - 0.981446I$ $a = 0.020576 + 0.394070I$ $b = 0.028151 - 0.615473I$	$-2.37817 - 2.37893I$	$2.00000 + 4.24354I$
$u = 0.954498 + 0.071334I$ $a = -0.13625 + 3.34385I$ $b = 0.22449 - 1.57573I$	$7.67323 + 3.34146I$	$7.54708 - 2.94673I$
$u = 0.954498 - 0.071334I$ $a = -0.13625 - 3.34385I$ $b = 0.22449 + 1.57573I$	$7.67323 - 3.34146I$	$7.54708 + 2.94673I$
$u = 0.739019 + 0.820681I$ $a = -0.80030 - 2.64862I$ $b = -0.02142 + 1.55446I$	$5.46691 + 2.17037I$	0
$u = 0.739019 - 0.820681I$ $a = -0.80030 + 2.64862I$ $b = -0.02142 - 1.55446I$	$5.46691 - 2.17037I$	0
$u = 0.488581 + 0.716463I$ $a = -0.400880 + 0.540394I$ $b = 0.929621 - 0.055392I$	$-0.60086 + 3.42978I$	$1.46957 - 8.06302I$
$u = 0.488581 - 0.716463I$ $a = -0.400880 - 0.540394I$ $b = 0.929621 + 0.055392I$	$-0.60086 - 3.42978I$	$1.46957 + 8.06302I$
$u = 0.694171 + 0.952511I$ $a = 0.57988 + 2.67460I$ $b = 0.43869 - 1.52488I$	$4.63566 + 8.76465I$	0
$u = 0.694171 - 0.952511I$ $a = 0.57988 - 2.67460I$ $b = 0.43869 + 1.52488I$	$4.63566 - 8.76465I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.301349 + 0.644967I$ $a = -0.44045 + 2.61190I$ $b = -0.171200 - 0.710425I$	$-2.48892 + 1.77260I$	$1.52089 - 2.95783I$
$u = 0.301349 - 0.644967I$ $a = -0.44045 - 2.61190I$ $b = -0.171200 + 0.710425I$	$-2.48892 - 1.77260I$	$1.52089 + 2.95783I$
$u = -0.337610 + 0.584660I$ $a = -1.40228 + 3.03617I$ $b = -0.36360 - 1.42665I$	$2.83785 - 4.34213I$	$-1.01036 + 2.76263I$
$u = -0.337610 - 0.584660I$ $a = -1.40228 - 3.03617I$ $b = -0.36360 + 1.42665I$	$2.83785 + 4.34213I$	$-1.01036 - 2.76263I$
$u = 0.530968 + 0.127903I$ $a = -0.409091 - 0.456941I$ $b = 0.495562 + 0.299085I$	$1.138660 + 0.126784I$	$8.90691 - 0.21757I$
$u = 0.530968 - 0.127903I$ $a = -0.409091 + 0.456941I$ $b = 0.495562 - 0.299085I$	$1.138660 - 0.126784I$	$8.90691 + 0.21757I$
$u = -0.361376 + 0.397065I$ $a = 1.91674 - 3.19790I$ $b = -0.08394 + 1.41819I$	$3.38035 + 1.79092I$	$-0.30116 - 2.50097I$
$u = -0.361376 - 0.397065I$ $a = 1.91674 + 3.19790I$ $b = -0.08394 - 1.41819I$	$3.38035 - 1.79092I$	$-0.30116 + 2.50097I$
$u = -0.05375 + 1.50789I$ $a = 0.41135 - 1.87901I$ $b = 0.31409 + 1.45132I$	$-2.96990 + 0.48951I$	0
$u = -0.05375 - 1.50789I$ $a = 0.41135 + 1.87901I$ $b = 0.31409 - 1.45132I$	$-2.96990 - 0.48951I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.121575 + 0.445561I$ $a = -0.633975 + 0.683934I$ $b = -0.744443 + 0.181579I$	$-1.49379 + 0.01486I$	$-3.88474 - 1.23232I$
$u = 0.121575 - 0.445561I$ $a = -0.633975 - 0.683934I$ $b = -0.744443 - 0.181579I$	$-1.49379 - 0.01486I$	$-3.88474 + 1.23232I$
$u = 0.04039 + 1.56760I$ $a = 0.458186 - 0.041159I$ $b = -1.179650 + 0.205890I$	$-8.59444 + 0.63473I$	0
$u = 0.04039 - 1.56760I$ $a = 0.458186 + 0.041159I$ $b = -1.179650 - 0.205890I$	$-8.59444 - 0.63473I$	0
$u = -0.08929 + 1.58859I$ $a = -0.45250 + 1.92403I$ $b = -0.60720 - 1.42349I$	$-4.65231 - 5.85535I$	0
$u = -0.08929 - 1.58859I$ $a = -0.45250 - 1.92403I$ $b = -0.60720 + 1.42349I$	$-4.65231 + 5.85535I$	0
$u = 0.08760 + 1.59752I$ $a = -0.01097 + 2.27117I$ $b = -0.029458 - 1.097490I$	$-10.20710 + 3.22026I$	0
$u = 0.08760 - 1.59752I$ $a = -0.01097 - 2.27117I$ $b = -0.029458 + 1.097490I$	$-10.20710 - 3.22026I$	0
$u = 0.14093 + 1.60627I$ $a = -0.520990 + 0.031249I$ $b = 1.201680 + 0.152602I$	$-8.46942 + 5.78175I$	0
$u = 0.14093 - 1.60627I$ $a = -0.520990 - 0.031249I$ $b = 1.201680 - 0.152602I$	$-8.46942 - 5.78175I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.23304 + 1.62264I$ $a = -0.36642 - 2.02217I$ $b = -0.30906 + 1.52120I$	$-2.61045 + 5.89112I$	0
$u = 0.23304 - 1.62264I$ $a = -0.36642 + 2.02217I$ $b = -0.30906 - 1.52120I$	$-2.61045 - 5.89112I$	0
$u = 0.21905 + 1.68997I$ $a = 0.36567 + 1.99824I$ $b = 0.62038 - 1.45655I$	$-4.28516 + 12.41430I$	0
$u = 0.21905 - 1.68997I$ $a = 0.36567 - 1.99824I$ $b = 0.62038 + 1.45655I$	$-4.28516 - 12.41430I$	0
$u = 0.05172 + 1.71102I$ $a = 0.004613 - 0.307882I$ $b = -0.004397 + 0.596568I$	$-11.96180 + 3.35478I$	0
$u = 0.05172 - 1.71102I$ $a = 0.004613 + 0.307882I$ $b = -0.004397 - 0.596568I$	$-11.96180 - 3.35478I$	0
$u = 0.0937286$ $a = -7.36583$ $b = -0.476600$	-1.21783	-10.0460

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 7u^4 + 6u^3 + 28u^2 + 17u + 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.233677 + 0.885557I$ $a = 0.278580 + 1.055720I$ $b = 0$	$-3.46474 - 2.21397I$	$-6.65223 + 4.39723I$
$u = -0.233677 - 0.885557I$ $a = 0.278580 - 1.055720I$ $b = 0$	$-3.46474 + 2.21397I$	$-6.65223 - 4.39723I$
$u = -0.416284$ $a = 2.40221$ $b = 0$	-0.762751	9.55270
$u = -0.05818 + 1.69128I$ $a = 0.020316 + 0.590570I$ $b = 0$	$-12.60320 - 3.33174I$	$-9.12414 + 2.18947I$
$u = -0.05818 - 1.69128I$ $a = 0.020316 - 0.590570I$ $b = 0$	$-12.60320 + 3.33174I$	$-9.12414 - 2.18947I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^{37}+12u^{36}+\cdots+5u+1)$
c_2	$((u-1)^5)(u^{37}-6u^{36}+\cdots-3u+1)$
c_3, c_7	$u^5(u^{37}-u^{36}+\cdots+120u^2+32)$
c_4	$((u+1)^5)(u^{37}-6u^{36}+\cdots-3u+1)$
c_5	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{37}+2u^{36}+\cdots+3u+1)$
c_6	$(u^5+u^4-u^2+u+1)(u^{37}+2u^{36}+\cdots+3u+1)$
c_8, c_9	$(u^5+u^4+4u^3+3u^2+3u+1)(u^{37}-8u^{36}+\cdots+19u-1)$
c_{10}	$(u^5-u^4+u^2+u-1)(u^{37}+2u^{36}+\cdots+3u+1)$
c_{11}, c_{12}	$(u^5-u^4+4u^3-3u^2+3u-1)(u^{37}-8u^{36}+\cdots+19u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^{37}+32y^{36}+\cdots+5y-1)$
c_2, c_4	$((y-1)^5)(y^{37}-12y^{36}+\cdots+5y-1)$
c_3, c_7	$y^5(y^{37}+33y^{36}+\cdots-7680y-1024)$
c_5	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{37}-40y^{36}+\cdots+19y-1)$
c_6, c_{10}	$(y^5-y^4+4y^3-3y^2+3y-1)(y^{37}-8y^{36}+\cdots+19y-1)$
c_8, c_9, c_{11} c_{12}	$(y^5+7y^4+16y^3+13y^2+3y-1)(y^{37}+44y^{36}+\cdots+99y-1)$