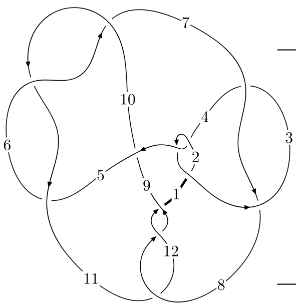
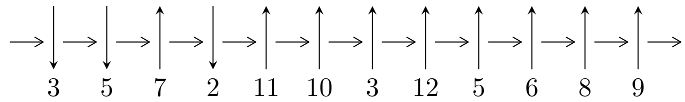
$12n_{0193}$ ($K12n_{0193}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3.03075\times 10^{15}u^{34} + 5.04695\times 10^{15}u^{33} + \cdots + 8.13080\times 10^{15}b + 2.21604\times 10^{15},$$
$$2.79762\times 10^{15}u^{34} - 1.92144\times 10^{15}u^{33} + \cdots + 2.43924\times 10^{16}a - 5.33582\times 10^{16},\ u^{35} - 2u^{34} + \cdots + 2u - 1$$
$$I_2^u = \langle b+1,\ 2u^5 - 4u^4 + 7u^3 - 8u^2 + 3a + 6u - 5,\ u^6 - u^5 + 3u^4 - 2u^3 + 2u^2 - u - 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 41 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.

$\boldsymbol{I_1^u = \langle -3.03\times10^{15}u^{34}+5.05\times10^{15}u^{33}+\cdots+8.13\times10^{15}b+2.22\times10^{15},\ 2.80\times10^{15}u^{34}-1.92\times10^{15}u^{33}+\cdots+2.44\times10^{16}a-5.34\times10^{16},\ u^{35}-2u^{34}+\cdots+2u-1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.114692u^{34}+0.0787722u^{33}+\cdots-1.96825u+2.18749\\0.372749u^{34}-0.620720u^{33}+\cdots-0.234090u-0.272549\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.258057u^{34}-0.541948u^{33}+\cdots-2.20234u+1.91494\\0.372749u^{34}-0.620720u^{33}+\cdots-0.234090u-0.272549\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.690547u^{34}-1.46587u^{33}+\cdots+0.955473u+1.23197\\0.155004u^{34}-0.146233u^{33}+\cdots-0.509081u+0.0465323\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.163208u^{34}+0.206889u^{33}+\cdots-2.24117u+1.89622\\0.309999u^{34}-0.565156u^{33}+\cdots-0.0329643u-0.311311\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u\\u^3+u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}u^2+1\\-u^4-2u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.975045u^{34}-1.56629u^{33}+\cdots+0.624872u+1.40403\\-0.178130u^{34}+0.294487u^{33}+\cdots-0.385935u-0.509322\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^3-2u\\u^3+u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.731265u^{34}-1.31399u^{33}+\cdots+0.00587251u+0.707409\\0.0656504u^{34}+0.0421843u^{33}+\cdots+0.233065u+0.187300\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{103503859831926074}{73177204311856557}u^{34}-\frac{16140270790780718}{8130800479095173}u^{33}+\cdots-\frac{152451832308656366}{24392401437285519}u+\frac{913459447845182116}{73177204311856557}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{35} + 43u^{34} + \cdots + 12249u + 81$
c_2, c_4	$u^{35} - 7u^{34} + \cdots - 129u + 9$
c_3, c_7	$u^{35} - 3u^{34} + \cdots + 192u - 576$
c_5, c_6, c_{10}	$u^{35} - 2u^{34} + \cdots + 2u - 1$
c_8, c_{11}, c_{12}	$u^{35} - 2u^{34} + \cdots - 2u + 1$
c_9	$u^{35} + 2u^{34} + \cdots + 150u - 1697$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{35} - 95y^{34} + \cdots + 108831357y - 6561$
c_2, c_4	$y^{35} - 43y^{34} + \cdots + 12249y - 81$
c_3, c_7	$y^{35} + 39y^{34} + \cdots + 4349952y - 331776$
c_5, c_6, c_{10}	$y^{35} + 36y^{34} + \cdots + 4y - 1$
c_8, c_{11}, c_{12}	$y^{35} - 24y^{34} + \cdots + 4y - 1$
c_9	$y^{35} + 36y^{34} + \cdots - 44085924y - 2879809$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.808354 + 0.590795I$ $a = -0.96671 + 1.32263I$ $b = 1.60615 - 0.32627I$	$-6.00623 + 8.79867I$	$4.77908 - 5.93735I$
$u = 0.808354 - 0.590795I$ $a = -0.96671 - 1.32263I$ $b = 1.60615 + 0.32627I$	$-6.00623 - 8.79867I$	$4.77908 + 5.93735I$
$u = 0.842677 + 0.549259I$ $a = -1.27004 + 0.62262I$ $b = 1.58817 + 0.14912I$	$-5.85440 - 3.32055I$	$4.34747 + 0.93966I$
$u = 0.842677 - 0.549259I$ $a = -1.27004 - 0.62262I$ $b = 1.58817 - 0.14912I$	$-5.85440 + 3.32055I$	$4.34747 - 0.93966I$
$u = -0.827360 + 0.573264I$ $a = -1.20940 - 1.01711I$ $b = 1.66577 + 0.09214I$	$-10.19960 - 2.74879I$	$1.97037 + 2.55405I$
$u = -0.827360 - 0.573264I$ $a = -1.20940 + 1.01711I$ $b = 1.66577 - 0.09214I$	$-10.19960 + 2.74879I$	$1.97037 - 2.55405I$
$u = -0.811473$ $a = -0.265837$ $b = 0.650017$	6.62664	17.6690
$u = 0.107218 + 1.291980I$ $a = 0.434714 - 0.101824I$ $b = 0.264007 + 0.190902I$	$-3.34436 + 1.70345I$	$6.00000 - 3.39166I$
$u = 0.107218 - 1.291980I$ $a = 0.434714 + 0.101824I$ $b = 0.264007 - 0.190902I$	$-3.34436 - 1.70345I$	$6.00000 + 3.39166I$
$u = -0.351791 + 1.294310I$ $a = 0.169982 - 0.171072I$ $b = 0.703358 - 0.244061I$	$2.59761 - 4.19287I$	$11.68502 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.351791 - 1.294310I$ $a = 0.169982 + 0.171072I$ $b = 0.703358 + 0.244061I$	$2.59761 + 4.19287I$	$11.68502 + 0.I$
$u = 0.442125 + 0.465797I$ $a = 0.29153 - 1.72600I$ $b = -0.450029 + 0.982563I$	$0.85715 + 4.05468I$	$7.07282 - 8.26213I$
$u = 0.442125 - 0.465797I$ $a = 0.29153 + 1.72600I$ $b = -0.450029 - 0.982563I$	$0.85715 - 4.05468I$	$7.07282 + 8.26213I$
$u = 0.06324 + 1.42930I$ $a = 0.79947 - 1.80755I$ $b = -0.669626 + 0.122395I$	$-4.33630 + 0.24126I$	$0. + 2.29622I$
$u = 0.06324 - 1.42930I$ $a = 0.79947 + 1.80755I$ $b = -0.669626 - 0.122395I$	$-4.33630 - 0.24126I$	$0. - 2.29622I$
$u = -0.119731 + 0.541272I$ $a = 0.540705 + 0.927189I$ $b = -1.384480 - 0.284252I$	$-2.19113 - 1.44339I$	$0.79876 + 4.24276I$
$u = -0.119731 - 0.541272I$ $a = 0.540705 - 0.927189I$ $b = -1.384480 + 0.284252I$	$-2.19113 + 1.44339I$	$0.79876 - 4.24276I$
$u = 0.390353 + 0.322694I$ $a = 2.47912 - 0.17252I$ $b = -0.426347 - 0.408392I$	$1.15302 - 1.16635I$	$8.59535 - 1.69076I$
$u = 0.390353 - 0.322694I$ $a = 2.47912 + 0.17252I$ $b = -0.426347 + 0.408392I$	$1.15302 + 1.16635I$	$8.59535 + 1.69076I$
$u = -0.07785 + 1.49505I$ $a = -0.283980 + 0.919506I$ $b = -1.056680 - 0.871979I$	$-7.88732 - 2.21831I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.07785-1.49505I$ $a=-0.283980-0.919506I$ $b=-1.056680+0.871979I$	$-7.88732+2.21831I$	0
$u=0.12308+1.50667I$ $a=-0.255885-0.817683I$ $b=-0.62821+1.42265I$	$-5.67256+6.05068I$	0
$u=0.12308-1.50667I$ $a=-0.255885+0.817683I$ $b=-0.62821-1.42265I$	$-5.67256-6.05068I$	0
$u=-0.285882+0.388697I$ $a=0.71032+1.88285I$ $b=-0.794496-0.374564I$	$-1.59088-0.96138I$	$-0.24473+3.68390I$
$u=-0.285882-0.388697I$ $a=0.71032-1.88285I$ $b=-0.794496+0.374564I$	$-1.59088+0.96138I$	$-0.24473-3.68390I$
$u=-0.02272+1.52580I$ $a=-0.366013+0.335128I$ $b=-1.84971-0.36801I$	$-9.09046-1.89171I$	0
$u=-0.02272-1.52580I$ $a=-0.366013-0.335128I$ $b=-1.84971+0.36801I$	$-9.09046+1.89171I$	0
$u=0.27448+1.56892I$ $a=0.243584+1.215400I$ $b=1.69785-0.47016I$	$-13.0918+12.7942I$	0
$u=0.27448-1.56892I$ $a=0.243584-1.215400I$ $b=1.69785+0.47016I$	$-13.0918-12.7942I$	0
$u=-0.28497+1.57001I$ $a=0.066691-1.110120I$ $b=1.75299+0.26356I$	$-17.2266-6.8599I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.28497 - 1.57001I$ $a = 0.066691 + 1.110120I$ $b = 1.75299 - 0.26356I$	$-17.2266 + 6.8599I$	0
$u = 0.29799 + 1.57077I$ $a = -0.034659 + 0.906346I$ $b = 1.66579 - 0.03532I$	$-12.79260 + 0.91123I$	0
$u = 0.29799 - 1.57077I$ $a = -0.034659 - 0.906346I$ $b = 1.66579 + 0.03532I$	$-12.79260 - 0.91123I$	0
$u = 0.388054$ $a = 0.599688$ $b = 0.0879256$	0.630605	15.9000
$u = -0.335008$ $a = 7.30064$ $b = -1.10696$	-0.492065	30.0890

II.

$$\boldsymbol{I_2^u = \langle b+1,\ 2u^5-4u^4+7u^3-8u^2+3a+6u-5,\ u^6-u^5+3u^4-2u^3+2u^2-u-1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

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

$$a_1 = \begin{pmatrix}-1\\0\end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix}u^2+1\\-u^4-2u^2\end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix}u^5+2u^3+u\\-u^5+u^4-2u^3+u^2-u-1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{7}{9}u^5 + \frac{31}{9}u^4 - \frac{10}{9}u^3 + \frac{41}{9}u^2 - 2u + \frac{2}{9}$

(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	$u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1$
c_9, c_{11}, c_{12}	$u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1$
c_{10}	$u^6 + u^5 + 3u^4 + 2u^3 + 2u^2 + u - 1$

(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}	$y^6+5y^5+9y^4+4y^3-6y^2-5y+1$
c_8, c_9, c_{11} c_{12}	$y^6-7y^5+17y^4-16y^3+6y^2-5y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.873214$ $a = 0.836730$ $b = -1.00000$	6.01515	3.60710
$u = -0.138835 + 1.234450I$ $a = 0.366605 + 0.544193I$ $b = -1.00000$	$-4.60518 - 1.97241I$	$-0.88590 + 3.48248I$
$u = -0.138835 - 1.234450I$ $a = 0.366605 - 0.544193I$ $b = -1.00000$	$-4.60518 + 1.97241I$	$-0.88590 - 3.48248I$
$u = 0.408802 + 1.276380I$ $a = -0.031424 - 0.540243I$ $b = -1.00000$	$2.05064 + 4.59213I$	$1.86238 - 6.63921I$
$u = 0.408802 - 1.276380I$ $a = -0.031424 + 0.540243I$ $b = -1.00000$	$2.05064 - 4.59213I$	$1.86238 + 6.63921I$
$u = -0.413150$ $a = 3.15957$ $b = -1.00000$	-0.906083	1.99550

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{35}+43u^{34}+\cdots+12249u+81)$
c_2	$((u-1)^6)(u^{35}-7u^{34}+\cdots-129u+9)$
c_3, c_7	$u^6(u^{35}-3u^{34}+\cdots+192u-576)$
c_4	$((u+1)^6)(u^{35}-7u^{34}+\cdots-129u+9)$
c_5, c_6	$(u^6-u^5+3u^4-2u^3+2u^2-u-1)(u^{35}-2u^{34}+\cdots+2u-1)$
c_8	$(u^6+u^5-3u^4-2u^3+2u^2-u-1)(u^{35}-2u^{34}+\cdots-2u+1)$
c_9	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{35}+2u^{34}+\cdots+150u-1697)$
c_{10}	$(u^6+u^5+3u^4+2u^3+2u^2+u-1)(u^{35}-2u^{34}+\cdots+2u-1)$
c_{11}, c_{12}	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{35}-2u^{34}+\cdots-2u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{35} - 95y^{34} + \cdots + 1.08831 \times 10^8 y - 6561)$
c_2, c_4	$((y-1)^6)(y^{35} - 43y^{34} + \cdots + 12249y - 81)$
c_3, c_7	$y^6(y^{35} + 39y^{34} + \cdots + 4349952y - 331776)$
c_5, c_6, c_{10}	$(y^6 + 5y^5 + \cdots - 5y + 1)(y^{35} + 36y^{34} + \cdots + 4y - 1)$
c_8, c_{11}, c_{12}	$(y^6 - 7y^5 + \cdots - 5y + 1)(y^{35} - 24y^{34} + \cdots + 4y - 1)$
c_9	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)$ $\cdot (y^{35} + 36y^{34} + \cdots - 44085924y - 2879809)$