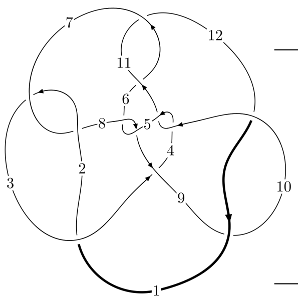
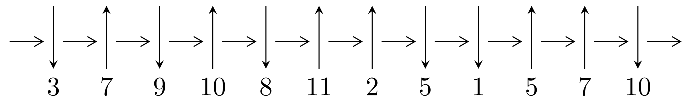
$12n_{0579}$ ($K12n_{0579}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -11u^{19} + 125u^{18} + \cdots + 8b + 264,\ -11u^{19} + 91u^{18} + \cdots + 16a - 128,\ u^{20} - 11u^{19} + \cdots - 80u + 16\rangle$$

$$I_2^u = \langle u^{15} + 2u^{14} + \cdots + b + 1,\ -2u^{15} - 2u^{14} + \cdots + a + 4,$$
$$u^{16} + u^{15} + 4u^{14} + 3u^{13} + 10u^{12} + 5u^{11} + 15u^{10} + 4u^9 + 17u^8 + u^7 + 14u^6 - 2u^5 + 10u^4 - 2u^3 + 4u^2 - u +$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 36 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. $I_1^u = \langle -11u^{19} + 125u^{18} + \cdots + 8b + 264,\ -11u^{19} + 91u^{18} + \cdots + 16a - 128,\ u^{20} - 11u^{19} + \cdots - 80u + 16\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{11}{16}u^{19} - \frac{91}{16}u^{18} + \cdots - 23u + 8 \\ \frac{11}{8}u^{19} - \frac{125}{8}u^{18} + \cdots + 140u - 33 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{4}u^{19} + \frac{5}{2}u^{18} + \cdots - 10u + \frac{5}{2} \\ \frac{1}{4}u^{19} - \frac{9}{4}u^{18} + \cdots - \frac{15}{2}u^2 + \frac{3}{2}u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{4}u^{18} - \frac{9}{4}u^{17} + \cdots - \frac{17}{2}u + \frac{5}{2} \\ \frac{1}{4}u^{19} - \frac{9}{4}u^{18} + \cdots - \frac{15}{2}u^2 + \frac{3}{2}u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2u^{19} - \frac{83}{4}u^{18} + \cdots + \frac{419}{4}u - 21 \\ \frac{5}{4}u^{19} - \frac{29}{2}u^{18} + \cdots + 122u - 28 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -\frac{59}{16}u^{19} + \frac{475}{16}u^{18} + \cdots + 147u - 48 \\ -\frac{79}{8}u^{19} + \frac{769}{8}u^{18} + \cdots - 274u + 45 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 7u^{19} - \frac{291}{4}u^{18} + \cdots + \frac{1491}{4}u - 77 \\ 4u^{19} - \frac{193}{4}u^{18} + \cdots + 478u - 112 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{16}u^{19} + \frac{3}{16}u^{18} + \cdots - 22u + 5 \\ \frac{7}{8}u^{19} - \frac{73}{8}u^{18} + \cdots + 70u - 17 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{19}{2}u^{19} - \frac{231}{2}u^{18} + 698u^{17} - \frac{5601}{2}u^{16} + 8288u^{15} - \frac{38259}{2}u^{14} + \frac{71281}{2}u^{13} - 54910u^{12} + \frac{142795}{2}u^{11} - \frac{159597}{2}u^{10} + 77978u^9 - 67433u^8 + 51758u^7 - 35082u^6 + 20913u^5 - \frac{22571}{2}u^4 + \frac{11687}{2}u^3 - 2983u^2 + 1252u - 290$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 7u^{19} + \cdots + 640u + 256$
c_2, c_7	$u^{20} + 11u^{19} + \cdots + 80u + 16$
c_3	$u^{20} + 2u^{19} + \cdots + 55u + 1477$
c_4, c_{10}	$u^{20} + 21u^{18} + \cdots + 59u + 42$
c_5, c_8	$u^{20} - 3u^{19} + \cdots - 2u + 1$
c_6, c_{11}	$u^{20} + u^{19} + \cdots + u + 1$
c_9, c_{12}	$u^{20} - 3u^{19} + \cdots - 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} + 11y^{19} + \cdots + 1155072y + 65536$
c_2, c_7	$y^{20} + 7y^{19} + \cdots + 640y + 256$
c_3	$y^{20} - 22y^{19} + \cdots - 6941971y + 2181529$
c_4, c_{10}	$y^{20} + 42y^{19} + \cdots + 22475y + 1764$
c_5, c_8	$y^{20} - 43y^{19} + \cdots + 54y + 1$
c_6, c_{11}	$y^{20} + 35y^{19} + \cdots - 7y + 1$
c_9, c_{12}	$y^{20} + 3y^{19} + \cdots + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.374976 + 0.845868I$ $a = 0.304346 - 0.429032I$ $b = -0.004516 + 0.301455I$	$-0.45102 - 2.09204I$	$1.92279 + 3.74231I$
$u = -0.374976 - 0.845868I$ $a = 0.304346 + 0.429032I$ $b = -0.004516 - 0.301455I$	$-0.45102 + 2.09204I$	$1.92279 - 3.74231I$
$u = 0.282023 + 1.083820I$ $a = 0.39008 - 1.59752I$ $b = 0.80004 + 1.16903I$	$-3.81050 + 0.28255I$	$-5.79309 - 4.21842I$
$u = 0.282023 - 1.083820I$ $a = 0.39008 + 1.59752I$ $b = 0.80004 - 1.16903I$	$-3.81050 - 0.28255I$	$-5.79309 + 4.21842I$
$u = 0.684540 + 0.363080I$ $a = 0.592020 + 0.442074I$ $b = -0.478548 + 1.089890I$	$0.21798 - 2.21625I$	$4.78739 + 3.65383I$
$u = 0.684540 - 0.363080I$ $a = 0.592020 - 0.442074I$ $b = -0.478548 - 1.089890I$	$0.21798 + 2.21625I$	$4.78739 - 3.65383I$
$u = 0.854003 + 0.892169I$ $a = 0.506066 + 0.028446I$ $b = -0.446717 + 0.529073I$	$7.04464 + 1.66022I$	$3.68035 + 3.33714I$
$u = 0.854003 - 0.892169I$ $a = 0.506066 - 0.028446I$ $b = -0.446717 - 0.529073I$	$7.04464 - 1.66022I$	$3.68035 - 3.33714I$
$u = 0.557284 + 1.103710I$ $a = -0.91469 + 1.63155I$ $b = -0.64503 - 1.83466I$	$-1.93145 + 7.03308I$	$4.92278 - 7.07574I$
$u = 0.557284 - 1.103710I$ $a = -0.91469 - 1.63155I$ $b = -0.64503 + 1.83466I$	$-1.93145 - 7.03308I$	$4.92278 + 7.07574I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.843906 + 0.926863I$ $a = -0.147807 + 0.491044I$ $b = -0.393488 - 0.559354I$	$6.93872 + 4.64909I$	$6.55707 - 9.56183I$
$u = 0.843906 - 0.926863I$ $a = -0.147807 - 0.491044I$ $b = -0.393488 + 0.559354I$	$6.93872 - 4.64909I$	$6.55707 + 9.56183I$
$u = -0.408387 + 0.451294I$ $a = 0.739810 + 0.208470I$ $b = -0.306448 + 0.078414I$	$0.672383 - 0.998162I$	$5.05990 + 5.48797I$
$u = -0.408387 - 0.451294I$ $a = 0.739810 - 0.208470I$ $b = -0.306448 - 0.078414I$	$0.672383 + 0.998162I$	$5.05990 - 5.48797I$
$u = 1.50042 + 0.03858I$ $a = 0.039797 - 0.614362I$ $b = -0.02477 + 1.84088I$	$-10.85850 - 3.49800I$	$1.91176 + 2.12217I$
$u = 1.50042 - 0.03858I$ $a = 0.039797 + 0.614362I$ $b = -0.02477 - 1.84088I$	$-10.85850 + 3.49800I$	$1.91176 - 2.12217I$
$u = 0.75634 + 1.50493I$ $a = 0.88084 - 1.46544I$ $b = 0.16039 + 1.88216I$	$-15.5277 + 4.3237I$	$-60.10 - 0.824539I$
$u = 0.75634 - 1.50493I$ $a = 0.88084 + 1.46544I$ $b = 0.16039 - 1.88216I$	$-15.5277 - 4.3237I$	$-60.10 + 0.824539I$
$u = 0.80485 + 1.48779I$ $a = -0.89046 + 1.47434I$ $b = -0.16092 - 1.93495I$	$-15.1932 + 11.4769I$	$0. - 4.87637I$
$u = 0.80485 - 1.48779I$ $a = -0.89046 - 1.47434I$ $b = -0.16092 + 1.93495I$	$-15.1932 - 11.4769I$	$0. + 4.87637I$

II.

$\boldsymbol{I_2^u = \langle u^{15}+2u^{14}+\cdots+b+1,\ -2u^{15}-2u^{14}+\cdots+a+4,\ u^{16}+u^{15}+\cdots-u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2u^{15} + 2u^{14} + \cdots + 5u - 4 \\ -u^{15} - 2u^{14} + \cdots - 4u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^{14} + u^{13} + \cdots - 2u + 4 \\ u^{15} + u^{14} + \cdots + 3u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^{15} + 2u^{14} + \cdots + u + 3 \\ u^{15} + u^{14} + \cdots + 3u - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2u^{15} + u^{14} + \cdots + u - 2 \\ -u^{15} - 2u^{14} + \cdots - 2u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{15} + u^{14} + \cdots - 7u + 5 \\ u^{12} + u^{11} + \cdots + 2u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2u^{15} + u^{14} + \cdots + 2u - 2 \\ -2u^{15} - 3u^{14} + \cdots - 2u^2 - 3u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{15} + u^{14} + \cdots + 3u - 5 \\ -u^{15} - 3u^{14} + \cdots - 3u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3u^{14} - 7u^{13} - 13u^{12} - 19u^{11} - 31u^{10} - 41u^9 - 44u^8 - 45u^7 - 43u^6 - 39u^5 - 25u^4 - 13u^3 - 10u^2 - 9u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 7u^{15} + \cdots - 7u + 1$
c_2	$u^{16} - u^{15} + \cdots + u + 1$
c_3	$u^{16} - u^{15} + \cdots - 15u + 5$
c_4	$u^{16} - u^{15} + \cdots + 9u^2 + 5$
c_5	$u^{16} - 2u^{15} + \cdots - 2u^2 + 1$
c_6	$u^{16} - 3u^{14} + \cdots + u + 1$
c_7	$u^{16} + u^{15} + \cdots - u + 1$
c_8	$u^{16} + 2u^{15} + \cdots - 2u^2 + 1$
c_9	$u^{16} - 6u^{15} + \cdots - 4u + 1$
c_{10}	$u^{16} + u^{15} + \cdots + 9u^2 + 5$
c_{11}	$u^{16} - 3u^{14} + \cdots - u + 1$
c_{12}	$u^{16} + 6u^{15} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16}+11y^{15}+\cdots+15y+1$
c_2, c_7	$y^{16}+7y^{15}+\cdots+7y+1$
c_3	$y^{16}+13y^{15}+\cdots+415y+25$
c_4, c_{10}	$y^{16}-3y^{15}+\cdots+90y+25$
c_5, c_8	$y^{16}+4y^{15}+\cdots-4y+1$
c_6, c_{11}	$y^{16}-6y^{15}+\cdots+7y+1$
c_9, c_{12}	$y^{16}+2y^{15}+\cdots+8y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.410507 + 1.049820I$ $a = 0.365556 - 1.223390I$ $b = 0.216644 + 0.789371I$	$3.41967 - 3.66276I$	$-0.18386 + 3.97608I$
$u = -0.410507 - 1.049820I$ $a = 0.365556 + 1.223390I$ $b = 0.216644 - 0.789371I$	$3.41967 + 3.66276I$	$-0.18386 - 3.97608I$
$u = 0.373058 + 1.082120I$ $a = 0.93325 - 1.77713I$ $b = 0.67039 + 1.71046I$	$-3.80708 - 0.42521I$	$-5.76487 + 5.34400I$
$u = 0.373058 - 1.082120I$ $a = 0.93325 + 1.77713I$ $b = 0.67039 - 1.71046I$	$-3.80708 + 0.42521I$	$-5.76487 - 5.34400I$
$u = 0.592477 + 0.599555I$ $a = 1.53653 + 0.05346I$ $b = -0.40603 + 1.74092I$	$-1.07065 - 2.50055I$	$-0.64235 + 5.46517I$
$u = 0.592477 - 0.599555I$ $a = 1.53653 - 0.05346I$ $b = -0.40603 - 1.74092I$	$-1.07065 + 2.50055I$	$-0.64235 - 5.46517I$
$u = -0.847455 + 0.790735I$ $a = 0.510736 + 0.409085I$ $b = -0.357187 - 0.121933I$	$7.39011 - 2.39888I$	$8.56082 + 4.71015I$
$u = -0.847455 - 0.790735I$ $a = 0.510736 - 0.409085I$ $b = -0.357187 + 0.121933I$	$7.39011 + 2.39888I$	$8.56082 - 4.71015I$
$u = 0.558989 + 1.054820I$ $a = -1.41911 + 1.69221I$ $b = -0.42524 - 2.26646I$	$-2.54997 + 7.14014I$	$-8.11047 - 10.17470I$
$u = 0.558989 - 1.054820I$ $a = -1.41911 - 1.69221I$ $b = -0.42524 + 2.26646I$	$-2.54997 - 7.14014I$	$-8.11047 + 10.17470I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.293434+0.723430I$ $a=-0.07923+1.82784I$ $b=-0.569488-0.777509I$	$4.75010+0.63044I$	$3.31942-3.05192I$
$u=-0.293434-0.723430I$ $a=-0.07923-1.82784I$ $b=-0.569488+0.777509I$	$4.75010-0.63044I$	$3.31942+3.05192I$
$u=-0.858001+0.997836I$ $a=0.357745-0.374169I$ $b=-0.124363+0.298124I$	$6.77645-3.96119I$	$3.55545-1.03144I$
$u=-0.858001-0.997836I$ $a=0.357745+0.374169I$ $b=-0.124363-0.298124I$	$6.77645+3.96119I$	$3.55545+1.03144I$
$u=0.384873+0.519863I$ $a=-1.70547+0.11584I$ $b=-0.004726-1.372860I$	$-1.74916+3.71981I$	$-1.23414-3.33267I$
$u=0.384873-0.519863I$ $a=-1.70547-0.11584I$ $b=-0.004726+1.372860I$	$-1.74916-3.71981I$	$-1.23414+3.33267I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{16}-7u^{15}+\cdots-7u+1)(u^{20}+7u^{19}+\cdots+640u+256)$
c_2	$(u^{16}-u^{15}+\cdots+u+1)(u^{20}+11u^{19}+\cdots+80u+16)$
c_3	$(u^{16}-u^{15}+\cdots-15u+5)(u^{20}+2u^{19}+\cdots+55u+1477)$
c_4	$(u^{16}-u^{15}+\cdots+9u^2+5)(u^{20}+21u^{18}+\cdots+59u+42)$
c_5	$(u^{16}-2u^{15}+\cdots-2u^2+1)(u^{20}-3u^{19}+\cdots-2u+1)$
c_6	$(u^{16}-3u^{14}+\cdots+u+1)(u^{20}+u^{19}+\cdots+u+1)$
c_7	$(u^{16}+u^{15}+\cdots-u+1)(u^{20}+11u^{19}+\cdots+80u+16)$
c_8	$(u^{16}+2u^{15}+\cdots-2u^2+1)(u^{20}-3u^{19}+\cdots-2u+1)$
c_9	$(u^{16}-6u^{15}+\cdots-4u+1)(u^{20}-3u^{19}+\cdots-4u+1)$
c_{10}	$(u^{16}+u^{15}+\cdots+9u^2+5)(u^{20}+21u^{18}+\cdots+59u+42)$
c_{11}	$(u^{16}-3u^{14}+\cdots-u+1)(u^{20}+u^{19}+\cdots+u+1)$
c_{12}	$(u^{16}+6u^{15}+\cdots+4u+1)(u^{20}-3u^{19}+\cdots-4u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{16} + 11y^{15} + \cdots + 15y + 1)(y^{20} + 11y^{19} + \cdots + 1155072y + 65536)$
c_2, c_7	$(y^{16} + 7y^{15} + \cdots + 7y + 1)(y^{20} + 7y^{19} + \cdots + 640y + 256)$
c_3	$(y^{16} + 13y^{15} + \cdots + 415y + 25)$ $\cdot\,(y^{20} - 22y^{19} + \cdots - 6941971y + 2181529)$
c_4, c_{10}	$(y^{16} - 3y^{15} + \cdots + 90y + 25)(y^{20} + 42y^{19} + \cdots + 22475y + 1764)$
c_5, c_8	$(y^{16} + 4y^{15} + \cdots - 4y + 1)(y^{20} - 43y^{19} + \cdots + 54y + 1)$
c_6, c_{11}	$(y^{16} - 6y^{15} + \cdots + 7y + 1)(y^{20} + 35y^{19} + \cdots - 7y + 1)$
c_9, c_{12}	$(y^{16} + 2y^{15} + \cdots + 8y + 1)(y^{20} + 3y^{19} + \cdots + 10y + 1)$