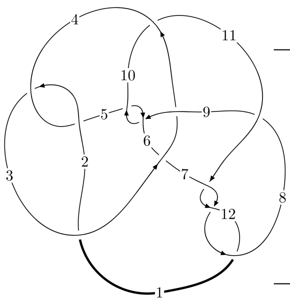
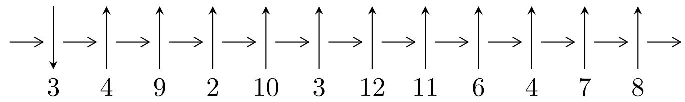
$12n_{0148}$ ($K12n_{0148}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 5402057u^{19} - 3583441u^{18} + \cdots + 1977478b + 13308358,$$
$$-639093u^{19} + 2151139u^{18} + \cdots + 1977478a - 11355740,\ u^{20} - u^{19} + \cdots + 8u - 1\rangle$$
$$I_2^u = \langle u^5a + 2u^4a - 4u^3a - 5u^4 - 3u^2a + au + 10u^2 + 5b - 3a,$$
$$u^5a - 2u^5 - 3u^3a + u^2a + 6u^3 + a^2 + 2au + u^2 - a - 6u - 1,\ u^6 - 3u^4 + 2u^2 + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 32 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.

$\boldsymbol{I_1^u = \langle 5.40 \times 10^6 u^{19} - 3.58 \times 10^6 u^{18} + \cdots + 1.98 \times 10^6 b + 1.33 \times 10^7,\ -6.39 \times 10^5 u^{19} + 2.15 \times 10^6 u^{18} + \cdots + 1.98 \times 10^6 a - 1.14 \times 10^7,\ u^{20} - u^{19} + \cdots + 8u - 1 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.323186u^{19} - 1.08782u^{18} + \cdots - 21.2507u + 5.74254 \\ -2.73179u^{19} + 1.81213u^{18} + \cdots + 39.4687u - 6.72997 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.119500u^{19} - 0.378541u^{18} + \cdots - 7.19615u + 2.43256 \\ -3.10782u^{19} + 2.21574u^{18} + \cdots + 47.4853u - 8.50446 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2.81060u^{19} - 2.56427u^{18} + \cdots - 52.8262u + 10.8039 \\ -3.18615u^{19} + 1.40304u^{18} + \cdots + 33.4356u - 4.59062 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 4.68409u^{19} - 2.27049u^{18} + \cdots - 53.3439u + 8.58394 \\ 1.97808u^{19} - 0.907299u^{18} + \cdots - 22.6536u + 3.12055 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -3.69057u^{19} + 2.49256u^{18} + \cdots + 52.9545u - 9.28098 \\ 1.03914u^{19} - 0.150948u^{18} + \cdots - 5.14484u + 0.559226 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.78422u^{19} + 0.960462u^{18} + \cdots + 26.8596u - 3.11259 \\ -2.92442u^{19} + 1.93725u^{18} + \cdots + 42.5149u - 7.01762 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{8158475}{988739}u^{19} - \frac{7089886}{988739}u^{18} + \cdots - \frac{162706955}{988739}u + \frac{47565543}{988739}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 43u^{19} + \cdots - 20046u + 625$
c_2, c_4	$u^{20} - u^{19} + \cdots - 214u + 25$
c_3	$u^{20} - u^{19} + \cdots + 18u - 5$
c_5, c_9	$u^{20} - u^{19} + \cdots + 4u - 1$
c_6	$u^{20} + 3u^{19} + \cdots - 70u + 1$
c_7, c_{11}, c_{12}	$u^{20} - u^{19} + \cdots + 8u - 1$
c_8	$u^{20} + 3u^{19} + \cdots - 162u + 17$
c_{10}	$u^{20} - u^{19} + \cdots - 564u - 2209$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} - 253y^{19} + \cdots - 251953366y + 390625$
c_2, c_4	$y^{20} + 43y^{19} + \cdots - 20046y + 625$
c_3	$y^{20} - y^{19} + \cdots - 214y + 25$
c_5, c_9	$y^{20} + 41y^{19} + \cdots + 84y + 1$
c_6	$y^{20} + 49y^{19} + \cdots - 2266y + 1$
c_7, c_{11}, c_{12}	$y^{20} - 15y^{19} + \cdots - 16y + 1$
c_8	$y^{20} + 45y^{19} + \cdots - 6660y + 289$
c_{10}	$y^{20} + 89y^{19} + \cdots - 52304702y + 4879681$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.823692 + 0.671587I$ $a = 0.380830 - 0.847218I$ $b = 0.227244 + 0.074641I$	$-3.84702 - 2.60363I$	$6.95480 + 2.97260I$
$u = -0.823692 - 0.671587I$ $a = 0.380830 + 0.847218I$ $b = 0.227244 - 0.074641I$	$-3.84702 + 2.60363I$	$6.95480 - 2.97260I$
$u = -0.101123 + 1.192090I$ $a = -2.77141 + 0.53695I$ $b = -2.30625 + 0.07618I$	$17.7040 - 4.4434I$	$6.63619 + 1.99809I$
$u = -0.101123 - 1.192090I$ $a = -2.77141 - 0.53695I$ $b = -2.30625 - 0.07618I$	$17.7040 + 4.4434I$	$6.63619 - 1.99809I$
$u = 1.153440 + 0.367601I$ $a = -0.297249 - 0.756563I$ $b = -0.989133 + 0.311759I$	$0.86870 + 1.47310I$	$9.24158 - 0.66486I$
$u = 1.153440 - 0.367601I$ $a = -0.297249 + 0.756563I$ $b = -0.989133 - 0.311759I$	$0.86870 - 1.47310I$	$9.24158 + 0.66486I$
$u = -1.24490$ $a = -1.13302$ $b = -0.227826$	5.11345	18.8050
$u = 1.281610 + 0.133928I$ $a = -1.172220 - 0.435450I$ $b = -0.804234 + 0.979321I$	$2.04381 + 2.88061I$	$12.72572 - 3.09919I$
$u = 1.281610 - 0.133928I$ $a = -1.172220 + 0.435450I$ $b = -0.804234 - 0.979321I$	$2.04381 - 2.88061I$	$12.72572 + 3.09919I$
$u = -1.296610 + 0.228232I$ $a = 0.146274 + 0.961667I$ $b = -0.862052 - 0.640482I$	$3.01054 - 4.88727I$	$15.6926 + 6.5772I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.296610 - 0.228232I$ $a = 0.146274 - 0.961667I$ $b = -0.862052 + 0.640482I$	$3.01054 + 4.88727I$	$15.6926 - 6.5772I$
$u = 0.238874 + 0.462215I$ $a = 0.0284078 - 0.0494443I$ $b = 0.868979 - 0.326831I$	$-1.40207 + 2.19140I$	$8.77126 - 4.72251I$
$u = 0.238874 - 0.462215I$ $a = 0.0284078 + 0.0494443I$ $b = 0.868979 + 0.326831I$	$-1.40207 - 2.19140I$	$8.77126 + 4.72251I$
$u = 0.452767 + 0.174316I$ $a = -0.37480 - 1.75664I$ $b = 0.957475 - 0.420375I$	$-1.43242 + 2.12619I$	$10.10877 - 2.97976I$
$u = 0.452767 - 0.174316I$ $a = -0.37480 + 1.75664I$ $b = 0.957475 + 0.420375I$	$-1.43242 - 2.12619I$	$10.10877 + 2.97976I$
$u = -1.40293 + 0.65488I$ $a = 1.40779 - 0.91448I$ $b = 2.25453 - 0.06910I$	$-17.7758 - 2.1213I$	$8.50196 + 0.80172I$
$u = -1.40293 - 0.65488I$ $a = 1.40779 + 0.91448I$ $b = 2.25453 + 0.06910I$	$-17.7758 + 2.1213I$	$8.50196 - 0.80172I$
$u = 1.46039 + 0.53064I$ $a = 1.21678 + 1.71521I$ $b = 2.39771 + 0.19059I$	$-16.8226 + 10.5550I$	$9.32128 - 4.53620I$
$u = 1.46039 - 0.53064I$ $a = 1.21678 - 1.71521I$ $b = 2.39771 - 0.19059I$	$-16.8226 - 10.5550I$	$9.32128 + 4.53620I$
$u = 0.319454$ $a = 1.00420$ $b = -0.260725$	0.583408	17.2870

II.

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

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

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

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

$$a_4 = \begin{pmatrix} -\frac{1}{5}u^5a - \frac{2}{5}u^4a + \cdots + \frac{8}{5}a - 1 \\ -u^4a + u^2a + a \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} u^2 - 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3a + u^3 - au - 2u^2 - a - u + 2 \\ -u^5a + u^4a - u^5 + 2u^3a + u^4 - u^2a + 2u^3 - 2u^2 - a \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5a + u^4a + 2u^3a + u^4 - 2u^2a - 3u^3 - au - 2u^2 + 6u \\ u^4a + u^4 - u^2a - 2u^3 - au - u^2 + 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{8}{5}u^5a - \frac{16}{5}u^4a + \frac{12}{5}u^3a - 4u^4 + \frac{24}{5}u^2a - \frac{8}{5}au + 8u^2 + \frac{4}{5}a + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^2 - u + 1)^6$
c_2	$(u^2 + u + 1)^6$
c_3	$(u^4 - u^2 + 1)^3$
c_5, c_9	$(u^2 + 1)^6$
c_6	$u^{12} + 6u^{11} + \cdots + 70u + 25$
c_7, c_{11}, c_{12}	$(u^6 - 3u^4 + 2u^2 + 1)^2$
c_8	$(u^6 + u^4 + 2u^2 + 1)^2$
c_{10}	$u^{12} + 2u^{11} + \cdots + 40u + 25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^2 + y + 1)^6$
c_3	$(y^2 - y + 1)^6$
c_5, c_9	$(y + 1)^{12}$
c_6	$y^{12} + 4y^{11} + \cdots - 850y + 625$
c_7, c_{11}, c_{12}	$(y^3 - 3y^2 + 2y + 1)^4$
c_8	$(y^3 + y^2 + 2y + 1)^4$
c_{10}	$y^{12} - 4y^{11} + \cdots + 850y + 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.307140 + 0.215080I$ $a = 0.634341 - 0.270971I$ $b = -0.011413 + 0.244862I$	$1.37919 + 4.85801I$	$9.50976 - 6.44355I$
$u = 1.307140 + 0.215080I$ $a = -0.551838 - 0.413870I$ $b = -1.74346 + 0.24486I$	$1.37919 + 0.79824I$	$9.50976 + 0.48465I$
$u = 1.307140 - 0.215080I$ $a = 0.634341 + 0.270971I$ $b = -0.011413 - 0.244862I$	$1.37919 - 4.85801I$	$9.50976 + 6.44355I$
$u = 1.307140 - 0.215080I$ $a = -0.551838 + 0.413870I$ $b = -1.74346 - 0.24486I$	$1.37919 - 0.79824I$	$9.50976 - 0.48465I$
$u = -1.307140 + 0.215080I$ $a = -0.32280 + 1.43855I$ $b = -1.74346 - 1.24486I$	$1.37919 - 0.79824I$	$9.50976 - 0.48465I$
$u = -1.307140 + 0.215080I$ $a = -1.08442 - 0.99883I$ $b = -0.011413 - 1.244860I$	$1.37919 - 4.85801I$	$9.50976 + 6.44355I$
$u = -1.307140 - 0.215080I$ $a = -0.32280 - 1.43855I$ $b = -1.74346 + 1.24486I$	$1.37919 + 0.79824I$	$9.50976 + 0.48465I$
$u = -1.307140 - 0.215080I$ $a = -1.08442 + 0.99883I$ $b = -0.011413 + 1.244860I$	$1.37919 + 4.85801I$	$9.50976 - 6.44355I$
$u = 0.569840I$ $a = -0.85741 - 2.02468I$ $b = -0.111148 - 0.500000I$	$-2.75839 - 2.02988I$	$2.98049 + 3.46410I$
$u = 0.569840I$ $a = 2.18213 + 0.26980I$ $b = 1.62090 - 0.50000I$	$-2.75839 + 2.02988I$	$2.98049 - 3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.569840I$ $a = -0.85741 + 2.02468I$ $b = -0.111148 + 0.500000I$	$-2.75839 + 2.02988I$	$2.98049 - 3.46410I$
$u = -0.569840I$ $a = 2.18213 - 0.26980I$ $b = 1.62090 + 0.50000I$	$-2.75839 - 2.02988I$	$2.98049 + 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^6)(u^{20}+43u^{19}+\cdots-20046u+625)$
c_2	$((u^2+u+1)^6)(u^{20}-u^{19}+\cdots-214u+25)$
c_3	$((u^4-u^2+1)^3)(u^{20}-u^{19}+\cdots+18u-5)$
c_4	$((u^2-u+1)^6)(u^{20}-u^{19}+\cdots-214u+25)$
c_5, c_9	$((u^2+1)^6)(u^{20}-u^{19}+\cdots+4u-1)$
c_6	$(u^{12}+6u^{11}+\cdots+70u+25)(u^{20}+3u^{19}+\cdots-70u+1)$
c_7, c_{11}, c_{12}	$((u^6-3u^4+2u^2+1)^2)(u^{20}-u^{19}+\cdots+8u-1)$
c_8	$((u^6+u^4+2u^2+1)^2)(u^{20}+3u^{19}+\cdots-162u+17)$
c_{10}	$(u^{12}+2u^{11}+\cdots+40u+25)(u^{20}-u^{19}+\cdots-564u-2209)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^{20}-253y^{19}+\cdots-2.51953\times10^8y+390625)$
c_2, c_4	$((y^2+y+1)^6)(y^{20}+43y^{19}+\cdots-20046y+625)$
c_3	$((y^2-y+1)^6)(y^{20}-y^{19}+\cdots-214y+25)$
c_5, c_9	$((y+1)^{12})(y^{20}+41y^{19}+\cdots+84y+1)$
c_6	$(y^{12}+4y^{11}+\cdots-850y+625)(y^{20}+49y^{19}+\cdots-2266y+1)$
c_7, c_{11}, c_{12}	$((y^3-3y^2+2y+1)^4)(y^{20}-15y^{19}+\cdots-16y+1)$
c_8	$((y^3+y^2+2y+1)^4)(y^{20}+45y^{19}+\cdots-6660y+289)$
c_{10}	$(y^{12}-4y^{11}+\cdots+850y+625)$ $\cdot(y^{20}+89y^{19}+\cdots-52304702y+4879681)$