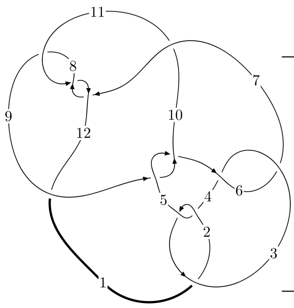
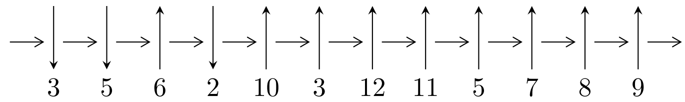
$12n_{0116}$ ($K12n_{0116}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.49041 \times 10^{48} u^{40} - 1.63923 \times 10^{48} u^{39} + \cdots + 4.94994 \times 10^{48} b + 1.35928 \times 10^{48},$$
$$- 1.49041 \times 10^{48} u^{40} - 1.63923 \times 10^{48} u^{39} + \cdots + 4.94994 \times 10^{48} a + 1.35928 \times 10^{48},\ u^{41} + 2u^{40} + \cdots - u -$$
$$I_2^u = \langle -u^5 + u^4 + 3u^3 - 2u^2 + b - u - 1,\ -u^5 + u^4 + 3u^3 - 2u^2 + a - 2u - 1,\ u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 47 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.

$\boldsymbol{I_1^u = \langle -1.49\times 10^{48}u^{40} - 1.64\times 10^{48}u^{39} + \cdots + 4.95\times 10^{48}b + 1.36\times 10^{48},\ -1.49\times 10^{48}u^{40} - 1.64\times 10^{48}u^{39} + \cdots + 4.95\times 10^{48}a + 1.36\times 10^{48},\ u^{41} + 2u^{40} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.301096u^{40} + 0.331162u^{39} + \cdots + 2.34511u - 0.274605 \\ 0.301096u^{40} + 0.331162u^{39} + \cdots + 3.34511u - 0.274605 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.501619u^{40} - 0.639447u^{39} + \cdots + 0.896473u + 0.455440 \\ -0.458393u^{40} - 0.639616u^{39} + \cdots + 0.799469u + 0.637044 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.205384u^{40} - 0.351951u^{39} + \cdots + 0.606975u + 1.47006 \\ -0.559530u^{40} - 0.970963u^{39} + \cdots + 1.39792u + 1.11199 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.301096u^{40} + 0.331162u^{39} + \cdots + 2.34511u - 0.274605 \\ 0.0224886u^{40} - 0.0444496u^{39} + \cdots + 3.31504u - 0.00357471 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.110835u^{40} - 0.0229094u^{39} + \cdots - 0.234831u + 0.545396 \\ -0.390784u^{40} - 0.662356u^{39} + \cdots + 0.661642u + 1.00084 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.257870u^{40} + 0.331331u^{39} + \cdots + 2.44211u - 0.456209 \\ 0.313467u^{40} + 0.443108u^{39} + \cdots + 3.39872u - 0.542830 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.659770u^{40} - 1.09530u^{39} + \cdots + 1.32120u + 1.69134 \\ -0.119568u^{40} + 0.0303721u^{39} + \cdots - 0.186514u - 1.02623 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.501619u^{40} + 0.639447u^{39} + \cdots - 0.896473u - 0.455440 \\ -0.390784u^{40} - 0.662356u^{39} + \cdots + 0.661642u + 1.00084 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4.91398u^{40} - 6.25021u^{39} + \cdots - 14.4903u + 31.2535$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{41} + 47u^{40} + \cdots + 296u + 1$
c_2, c_4	$u^{41} - 7u^{40} + \cdots - 12u + 1$
c_3, c_6	$u^{41} + 7u^{40} + \cdots + 640u - 64$
c_5, c_9	$u^{41} + 2u^{40} + \cdots - u - 1$
c_7, c_8, c_{11}	$u^{41} + 2u^{40} + \cdots + u + 1$
c_{10}, c_{12}	$u^{41} - 2u^{40} + \cdots - 47u + 17$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{41} - 99y^{40} + \cdots + 111528y - 1$
c_2, c_4	$y^{41} - 47y^{40} + \cdots + 296y - 1$
c_3, c_6	$y^{41} + 39y^{40} + \cdots + 90112y - 4096$
c_5, c_9	$y^{41} + 42y^{39} + \cdots + 7y - 1$
c_7, c_8, c_{11}	$y^{41} + 36y^{40} + \cdots + 7y - 1$
c_{10}, c_{12}	$y^{41} - 12y^{40} + \cdots - 2041y - 289$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.546127 + 0.811291I$ $a = 0.743645 - 1.202480I$ $b = 0.197518 - 0.391191I$	$-4.83591 - 7.62929I$	$1.63110 + 8.21040I$
$u = -0.546127 - 0.811291I$ $a = 0.743645 + 1.202480I$ $b = 0.197518 + 0.391191I$	$-4.83591 + 7.62929I$	$1.63110 - 8.21040I$
$u = 0.559771 + 0.753240I$ $a = -0.624352 - 1.085930I$ $b = -0.064581 - 0.332685I$	$0.18158 + 4.25829I$	$7.22708 - 8.04646I$
$u = 0.559771 - 0.753240I$ $a = -0.624352 + 1.085930I$ $b = -0.064581 + 0.332685I$	$0.18158 - 4.25829I$	$7.22708 + 8.04646I$
$u = -0.664122 + 0.603424I$ $a = 0.468587 - 0.663053I$ $b = -0.195535 - 0.059628I$	$-2.14123 - 1.43316I$	$6.02200 + 3.64151I$
$u = -0.664122 - 0.603424I$ $a = 0.468587 + 0.663053I$ $b = -0.195535 + 0.059628I$	$-2.14123 + 1.43316I$	$6.02200 - 3.64151I$
$u = 0.350975 + 0.790999I$ $a = -0.39756 - 1.62860I$ $b = -0.046582 - 0.837603I$	$-6.73300 + 0.22938I$	$-2.25086 - 2.33731I$
$u = 0.350975 - 0.790999I$ $a = -0.39756 + 1.62860I$ $b = -0.046582 + 0.837603I$	$-6.73300 - 0.22938I$	$-2.25086 + 2.33731I$
$u = 0.087719 + 0.850756I$ $a = -0.12108 - 2.10269I$ $b = -0.033358 - 1.251940I$	$-8.03114 + 3.86698I$	$-3.56668 - 3.96784I$
$u = 0.087719 - 0.850756I$ $a = -0.12108 + 2.10269I$ $b = -0.033358 + 1.251940I$	$-8.03114 - 3.86698I$	$-3.56668 + 3.96784I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.445566+0.616611I$ $a=\quad 0.112439-1.137990I$ $b=-0.333128-0.521377I$	$-1.53709-1.40851I$	$1.34634+3.01002I$
$u=-0.445566-0.616611I$ $a=\quad 0.112439+1.137990I$ $b=-0.333128+0.521377I$	$-1.53709+1.40851I$	$1.34634-3.01002I$
$u=-0.090722+0.752674I$ $a=\quad 0.05605-1.99845I$ $b=-0.034673-1.245770I$	$-2.86548-1.28813I$	$1.16839+4.84793I$
$u=-0.090722-0.752674I$ $a=\quad 0.05605+1.99845I$ $b=-0.034673+1.245770I$	$-2.86548+1.28813I$	$1.16839-4.84793I$
$u=-0.527293+0.436682I$ $a=-0.973519-0.176954I$ $b=-1.50081+0.25973I$	$-4.01492+3.79256I$	$2.77393-0.06472I$
$u=-0.527293-0.436682I$ $a=-0.973519+0.176954I$ $b=-1.50081-0.25973I$	$-4.01492-3.79256I$	$2.77393+0.06472I$
$u=\quad 0.468495+0.464998I$ $a=\quad 0.622134-0.271062I$ $b=\quad 1.090630+0.193936I$	$0.599224-0.610593I$	$8.50615-0.01136I$
$u=\quad 0.468495-0.464998I$ $a=\quad 0.622134+0.271062I$ $b=\quad 1.090630-0.193936I$	$0.599224+0.610593I$	$8.50615+0.01136I$
$u=-0.325958+0.548034I$ $a=-0.267538+0.084708I$ $b=-0.593496+0.632743I$	$-2.79420-2.18222I$	$4.51636+3.99594I$
$u=-0.325958-0.548034I$ $a=-0.267538-0.084708I$ $b=-0.593496-0.632743I$	$-2.79420+2.18222I$	$4.51636-3.99594I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.397250 + 0.182037I$ $a = -0.506275 - 0.004273I$ $b = 0.890974 + 0.177764I$	$2.57061 + 4.43167I$	$14.03660 + 0.I$
$u = 1.397250 - 0.182037I$ $a = -0.506275 + 0.004273I$ $b = 0.890974 - 0.177764I$	$2.57061 - 4.43167I$	$14.03660 + 0.I$
$u = -1.41231$ $a = 0.496036$ $b = -0.916272$	6.54065	18.5250
$u = 0.487776 + 0.155470I$ $a = 2.02925 - 0.39422I$ $b = 2.51703 - 0.23875I$	$-4.99926 + 2.47497I$	$10.9995 - 16.9397I$
$u = 0.487776 - 0.155470I$ $a = 2.02925 + 0.39422I$ $b = 2.51703 + 0.23875I$	$-4.99926 - 2.47497I$	$10.9995 + 16.9397I$
$u = 0.497461$ $a = -0.110298$ $b = 0.387162$	0.683544	14.8150
$u = -1.05090 + 1.14678I$ $a = 0.504687 + 0.968425I$ $b = -0.54621 + 2.11520I$	$-11.9065 - 13.7324I$	0
$u = -1.05090 - 1.14678I$ $a = 0.504687 - 0.968425I$ $b = -0.54621 - 2.11520I$	$-11.9065 + 13.7324I$	0
$u = 1.05595 + 1.16152I$ $a = -0.501764 + 0.917028I$ $b = 0.55418 + 2.07855I$	$-6.55369 + 9.57234I$	0
$u = 1.05595 - 1.16152I$ $a = -0.501764 - 0.917028I$ $b = 0.55418 - 2.07855I$	$-6.55369 - 9.57234I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.10127 + 1.14227I$ $a = -0.673483 + 0.861835I$ $b = 0.42779 + 2.00411I$	$-16.5464 + 4.1585I$	0
$u = 1.10127 - 1.14227I$ $a = -0.673483 - 0.861835I$ $b = 0.42779 - 2.00411I$	$-16.5464 - 4.1585I$	0
$u = -1.07763 + 1.17451I$ $a = 0.535143 + 0.849624I$ $b = -0.54248 + 2.02413I$	$-8.52808 - 4.96231I$	0
$u = -1.07763 - 1.17451I$ $a = 0.535143 - 0.849624I$ $b = -0.54248 - 2.02413I$	$-8.52808 + 4.96231I$	0
$u = -1.16301 + 1.12527I$ $a = 0.754065 + 0.641582I$ $b = -0.40895 + 1.76685I$	$-11.60780 + 5.44383I$	0
$u = -1.16301 - 1.12527I$ $a = 0.754065 - 0.641582I$ $b = -0.40895 - 1.76685I$	$-11.60780 - 5.44383I$	0
$u = -0.373875$ $a = -2.77728$ $b = -3.15116$	-0.771990	64.9410
$u = -1.13639 + 1.17348I$ $a = 0.623222 + 0.717077I$ $b = -0.51317 + 1.89056I$	$-8.37413 - 3.52292I$	0
$u = -1.13639 - 1.17348I$ $a = 0.623222 - 0.717077I$ $b = -0.51317 - 1.89056I$	$-8.37413 + 3.52292I$	0
$u = 1.16288 + 1.15013I$ $a = -0.687885 + 0.655673I$ $b = 0.47499 + 1.80580I$	$-6.27214 - 1.18033I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.16288 - 1.15013I$ $a = -0.687885 - 0.655673I$ $b = 0.47499 - 1.80580I$	$-6.27214 + 1.18033I$	0

II. $\boldsymbol{I^u_2 = \langle -u^5 + u^4 + 3u^3 - 2u^2 + b - u - 1,\ -u^5 + u^4 + 3u^3 - 2u^2 + a - 2u - 1,\ u^6 - u^5 - 3u^4 + 2u^3 + 2u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^5 - u^4 - 3u^3 + 2u^2 + 2u + 1 \\ u^5 - u^4 - 3u^3 + 2u^2 + u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^5 - u^4 - 3u^3 + 2u^2 + 2u + 1 \\ u^5 - u^4 - 3u^3 + 2u^2 + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^5 - u^4 - 3u^3 + 2u^2 + 2u + 1 \\ u^5 - u^4 - 3u^3 + 2u^2 + u + 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^5 + 2u^3 + u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -7u^5 + 3u^4 + 19u^3 - 5u^2 - 8u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_6	y^6
c_5, c_9, c_{10} c_{12}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$
c_7, c_8, c_{11}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.493180+0.575288I$ $a=-0.858925-1.001920I$ $b=-0.36575-1.57721I$	$-4.60518-1.97241I$	$3.78159+4.50121I$
$u=-0.493180-0.575288I$ $a=-0.858925+1.001920I$ $b=-0.36575+1.57721I$	$-4.60518+1.97241I$	$3.78159-4.50121I$
$u=\ 0.483672$ $a=\ 2.06752$ $b=\ 1.58384$	-0.906083	-8.91030
$u=\ 1.52087+0.16310I$ $a=\ 0.650045-0.069710I$ $b=-0.870821-0.232805I$	$2.05064+4.59213I$	$-0.56679-5.39767I$
$u=\ 1.52087-0.16310I$ $a=\ 0.650045+0.069710I$ $b=-0.870821+0.232805I$	$2.05064-4.59213I$	$-0.56679+5.39767I$
$u=-1.53904$ $a=-0.649754$ $b=\ 0.889289$	6.01515	2.48070

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{41}+47u^{40}+\cdots+296u+1)$
c_2	$((u-1)^6)(u^{41}-7u^{40}+\cdots-12u+1)$
c_3, c_6	$u^6(u^{41}+7u^{40}+\cdots+640u-64)$
c_4	$((u+1)^6)(u^{41}-7u^{40}+\cdots-12u+1)$
c_5	$(u^6+u^5-3u^4-2u^3+2u^2-u-1)(u^{41}+2u^{40}+\cdots-u-1)$
c_7, c_8	$(u^6-u^5+3u^4-2u^3+2u^2-u-1)(u^{41}+2u^{40}+\cdots+u+1)$
c_9	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{41}+2u^{40}+\cdots-u-1)$
c_{10}, c_{12}	$(u^6-u^5-3u^4+2u^3+2u^2+u-1)(u^{41}-2u^{40}+\cdots-47u+17)$
c_{11}	$(u^6+u^5+3u^4+2u^3+2u^2+u-1)(u^{41}+2u^{40}+\cdots+u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{41} - 99y^{40} + \cdots + 111528y - 1)$
c_2, c_4	$((y-1)^6)(y^{41} - 47y^{40} + \cdots + 296y - 1)$
c_3, c_6	$y^6(y^{41} + 39y^{40} + \cdots + 90112y - 4096)$
c_5, c_9	$(y^6 - 7y^5 + \cdots - 5y + 1)(y^{41} + 42y^{39} + \cdots + 7y - 1)$
c_7, c_8, c_{11}	$(y^6 + 5y^5 + \cdots - 5y + 1)(y^{41} + 36y^{40} + \cdots + 7y - 1)$
c_{10}, c_{12}	$(y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1)$ $\cdot (y^{41} - 12y^{40} + \cdots - 2041y - 289)$