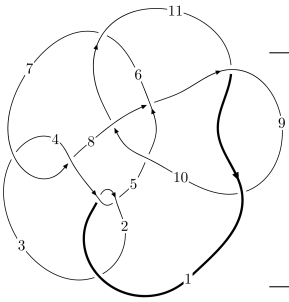
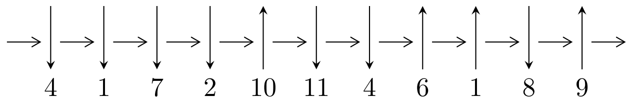
$11n_{44}$ ($K11n_{44}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$1,4 \underset{c_1}{\longrightarrow} 2 \underset{c_4}{\rightarrow} 5,10 \underset{c_5}{\rightarrow} 6 \underset{c_9}{\longrightarrow} 9 \underset{c_8}{\longrightarrow} 8 \underset{c_{11}}{\rightarrow} 11 \underset{c_6}{\rightarrow} 7 \underset{c_3}{\longrightarrow} 3 \longrightarrow\!\!\!\!\to c_2, c_7, c_{10}$$

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

$$I_1^u = \langle -4.55071\times 10^{32}u^{40} - 3.04971\times 10^{33}u^{39} + \cdots + 3.54634\times 10^{33}b + 1.97956\times 10^{32},$$
$$-1.27956\times 10^{33}u^{40} - 7.27594\times 10^{33}u^{39} + \cdots + 3.54634\times 10^{33}a - 1.00211\times 10^{34},\ u^{41} + 7u^{40} + \cdots + 2u -$$
$$I_2^u = \langle b - a + 1,\ a^5 - 4a^4 + 4a^3 + a^2 - 2a - 1,\ u - 1\rangle$$
$$I_3^u = \langle b - 1,\ -2u^2 + a - 4u - 3,\ u^3 + u^2 - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 49 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.
$\boldsymbol{I_1^u = \langle -4.55\times 10^{32}u^{40} - 3.05\times 10^{33}u^{39} + \cdots + 3.55\times 10^{33}b + 1.98\times 10^{32},\ -1.28\times 10^{33}u^{40} - 7.28\times 10^{33}u^{39} + \cdots + 3.55\times 10^{33}a - 1.00\times 10^{34},\ u^{41} + 7u^{40} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.360812u^{40} + 2.05167u^{39} + \cdots - 8.17453u + 2.82576 \\ 0.128321u^{40} + 0.859959u^{39} + \cdots - 3.73417u - 0.0558198 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2.57419u^{40} + 13.6219u^{39} + \cdots - 13.2764u + 5.50487 \\ -0.824828u^{40} - 4.46073u^{39} + \cdots - 3.42158u - 0.703781 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.232491u^{40} + 1.19171u^{39} + \cdots - 4.44036u + 2.88158 \\ 0.128321u^{40} + 0.859959u^{39} + \cdots - 3.73417u - 0.0558198 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1.89468u^{40} + 10.8589u^{39} + \cdots - 3.67648u + 4.04534 \\ -0.427689u^{40} - 2.12225u^{39} + \cdots - 3.33185u + 0.204351 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.101116u^{40} - 0.258346u^{39} + \cdots + 7.23983u - 3.55682 \\ 0.153838u^{40} + 0.879491u^{39} + \cdots + 4.81960u + 0.645350 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1.89468u^{40} + 10.8589u^{39} + \cdots - 3.67648u + 4.04534 \\ -4.09416u^{40} - 22.1611u^{39} + \cdots - 6.24482u - 2.19947 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 9.46225u^{40} + 53.2125u^{39} + \cdots + 10.2497u + 12.8539$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{41} - 7u^{40} + \cdots + 2u - 1$
c_2	$u^{41} + 43u^{40} + \cdots + 12u + 1$
c_3, c_7	$u^{41} + 2u^{40} + \cdots + 96u + 32$
c_5	$u^{41} + 16u^{39} + \cdots - 1085u - 79$
c_6	$u^{41} + 4u^{40} + \cdots - 237u + 191$
c_8	$u^{41} + 3u^{40} + \cdots - 2u - 1$
c_9, c_{11}	$u^{41} + 5u^{40} + \cdots + 119u + 1$
c_{10}	$u^{41} - 6u^{40} + \cdots + 156u - 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{41} - 43y^{40} + \cdots + 12y - 1$
c_2	$y^{41} - 83y^{40} + \cdots + 1144y - 1$
c_3, c_7	$y^{41} - 30y^{40} + \cdots + 3584y - 1024$
c_5	$y^{41} + 32y^{40} + \cdots + 183721y - 6241$
c_6	$y^{41} + 8y^{40} + \cdots + 999709y - 36481$
c_8	$y^{41} - 11y^{40} + \cdots + 26y - 1$
c_9, c_{11}	$y^{41} - 21y^{40} + \cdots + 13495y - 1$
c_{10}	$y^{41} - 18y^{40} + \cdots + 7824y - 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.387590 + 0.911908I$ $a = -0.971331 - 0.325235I$ $b = 0.764541 - 0.597354I$	$-2.61027 - 2.03740I$	$-5.72892 + 3.65159I$
$u = 0.387590 - 0.911908I$ $a = -0.971331 + 0.325235I$ $b = 0.764541 + 0.597354I$	$-2.61027 + 2.03740I$	$-5.72892 - 3.65159I$
$u = 0.695393 + 0.752192I$ $a = -0.0733729 + 0.1016160I$ $b = 0.382217 + 0.951284I$	$-3.58550 - 3.36599I$	$-6.85826 + 4.39505I$
$u = 0.695393 - 0.752192I$ $a = -0.0733729 - 0.1016160I$ $b = 0.382217 - 0.951284I$	$-3.58550 + 3.36599I$	$-6.85826 - 4.39505I$
$u = 0.883212$ $a = -5.41324$ $b = -1.04711$	0.458131	-57.1150
$u = 1.149310 + 0.071261I$ $a = -2.67006 + 0.97064I$ $b = -0.783716 + 0.351647I$	$-0.578838 - 1.255810I$	$2.38019 + 0.I$
$u = 1.149310 - 0.071261I$ $a = -2.67006 - 0.97064I$ $b = -0.783716 - 0.351647I$	$-0.578838 + 1.255810I$	$2.38019 + 0.I$
$u = 0.508644 + 1.042800I$ $a = -0.681098 - 0.649137I$ $b = 1.178240 - 0.659530I$	$-1.17487 - 9.23550I$	$0. + 7.03311I$
$u = 0.508644 - 1.042800I$ $a = -0.681098 + 0.649137I$ $b = 1.178240 + 0.659530I$	$-1.17487 + 9.23550I$	$0. - 7.03311I$
$u = -0.817513 + 0.853964I$ $a = -0.255534 + 0.434819I$ $b = 0.895543 + 0.128230I$	$4.46595 + 3.11596I$	$-9.1421 - 11.7493I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.817513 - 0.853964I$ $a = -0.255534 - 0.434819I$ $b = 0.895543 - 0.128230I$	$4.46595 - 3.11596I$	$-9.1421 + 11.7493I$
$u = -0.762796 + 0.059538I$ $a = 0.685914 + 0.388453I$ $b = 1.354300 + 0.223700I$	$4.65237 + 4.48889I$	$10.07507 - 5.98728I$
$u = -0.762796 - 0.059538I$ $a = 0.685914 - 0.388453I$ $b = 1.354300 - 0.223700I$	$4.65237 - 4.48889I$	$10.07507 + 5.98728I$
$u = 0.858145 + 0.924978I$ $a = -0.0136488 - 0.1120600I$ $b = 0.908643 + 0.588751I$	$-2.16828 + 2.66511I$	0
$u = 0.858145 - 0.924978I$ $a = -0.0136488 + 0.1120600I$ $b = 0.908643 - 0.588751I$	$-2.16828 - 2.66511I$	0
$u = 0.737003$ $a = -0.918962$ $b = 0.00861004$	-1.10369	-8.82470
$u = 0.612280 + 0.220916I$ $a = -0.42857 + 4.33330I$ $b = -0.908176 - 0.005657I$	$0.484163 - 0.158339I$	$13.38590 + 1.00156I$
$u = 0.612280 - 0.220916I$ $a = -0.42857 - 4.33330I$ $b = -0.908176 + 0.005657I$	$0.484163 + 0.158339I$	$13.38590 - 1.00156I$
$u = 0.380775 + 0.454242I$ $a = 0.670485 - 0.032746I$ $b = -1.007360 + 0.614689I$	$1.43126 - 2.56358I$	$1.01752 + 7.87421I$
$u = 0.380775 - 0.454242I$ $a = 0.670485 + 0.032746I$ $b = -1.007360 - 0.614689I$	$1.43126 + 2.56358I$	$1.01752 - 7.87421I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.46523 + 0.11671I$ $a = -0.138455 - 1.392320I$ $b = 0.596164 - 0.809978I$	$-5.33009 + 0.54259I$	0
$u = 1.46523 - 0.11671I$ $a = -0.138455 + 1.392320I$ $b = 0.596164 + 0.809978I$	$-5.33009 - 0.54259I$	0
$u = -1.48400$ $a = -0.697477$ $b = -1.91952$	-2.98279	0
$u = -1.51445 + 0.11394I$ $a = -0.47763 - 1.44493I$ $b = -1.22246 - 1.14875I$	$-4.95010 + 4.48342I$	0
$u = -1.51445 - 0.11394I$ $a = -0.47763 + 1.44493I$ $b = -1.22246 + 1.14875I$	$-4.95010 - 4.48342I$	0
$u = -1.56483 + 0.05519I$ $a = 0.05994 - 1.52905I$ $b = -1.049240 - 0.368090I$	$-6.84034 + 1.09870I$	0
$u = -1.56483 - 0.05519I$ $a = 0.05994 + 1.52905I$ $b = -1.049240 + 0.368090I$	$-6.84034 - 1.09870I$	0
$u = -1.53570 + 0.38602I$ $a = -0.149350 + 1.179900I$ $b = 1.157160 + 0.624027I$	$-8.77885 + 6.88775I$	0
$u = -1.53570 - 0.38602I$ $a = -0.149350 - 1.179900I$ $b = 1.157160 - 0.624027I$	$-8.77885 - 6.88775I$	0
$u = 1.60618 + 0.13682I$ $a = 0.489280 - 1.112380I$ $b = 1.046200 - 0.671367I$	$-3.96071 - 6.10430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.60618 - 0.13682I$ $a = 0.489280 + 1.112380I$ $b = 1.046200 + 0.671367I$	$-3.96071 + 6.10430I$	0
$u = -1.61056 + 0.23381I$ $a = 0.423955 - 1.249650I$ $b = 0.32746 - 1.40800I$	$-11.27280 + 7.05517I$	0
$u = -1.61056 - 0.23381I$ $a = 0.423955 + 1.249650I$ $b = 0.32746 + 1.40800I$	$-11.27280 - 7.05517I$	0
$u = -1.58766 + 0.38818I$ $a = 0.05254 + 1.45672I$ $b = 1.36138 + 0.75276I$	$-7.9395 + 14.4828I$	0
$u = -1.58766 - 0.38818I$ $a = 0.05254 - 1.45672I$ $b = 1.36138 - 0.75276I$	$-7.9395 - 14.4828I$	0
$u = -1.68426 + 0.19522I$ $a = 0.197462 - 0.763635I$ $b = 0.402639 - 0.808887I$	$-11.04370 + 1.47634I$	0
$u = -1.68426 - 0.19522I$ $a = 0.197462 + 0.763635I$ $b = 0.402639 + 0.808887I$	$-11.04370 - 1.47634I$	0
$u = -0.213366 + 0.037411I$ $a = -1.99525 + 2.11282I$ $b = -0.146268 + 0.552391I$	$0.05575 - 1.50352I$	$0.38191 + 4.17550I$
$u = -0.213366 - 0.037411I$ $a = -1.99525 - 2.11282I$ $b = -0.146268 - 0.552391I$	$0.05575 + 1.50352I$	$0.38191 - 4.17550I$
$u = 0.059485 + 0.186213I$ $a = 2.78956 - 5.11758I$ $b = -1.278260 - 0.126441I$	$2.56340 + 0.10081I$	$4.27921 + 2.25595I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.059485 - 0.186213I$ $a = \quad 2.78956 + 5.11758I$ $b = -1.278260 + 0.126441I$	$2.56340 - 0.10081I$	$4.27921 - 2.25595I$

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

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\1\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}a\\a-1\end{pmatrix}$$
$$a_6 = \begin{pmatrix}a^2-a-1\\a^2-2a+1\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\a-1\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0\\a^4-5a^3+8a^2-3a-2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}a\\a^2-2a+1\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\a^4-5a^3+8a^2-3a-2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0\\1\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0\\1\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3a^4 - 5a^3 - 5a^2 + 7a - 5$

(iv) u-Polynomials at the component

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

(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_9, c_{11}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_6, c_{10}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_8	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.30992 + 0.54991I$ $b = 0.309916 + 0.549911I$	$-1.31583 + 1.53058I$	$-8.42731 - 4.45807I$
$u = 1.00000$ $a = 1.30992 - 0.54991I$ $b = 0.309916 - 0.549911I$	$-1.31583 - 1.53058I$	$-8.42731 + 4.45807I$
$u = 1.00000$ $a = -0.418784 + 0.219165I$ $b = -1.41878 + 0.21917I$	$4.22763 - 4.40083I$	$-8.55516 + 1.78781I$
$u = 1.00000$ $a = -0.418784 - 0.219165I$ $b = -1.41878 - 0.21917I$	$4.22763 + 4.40083I$	$-8.55516 - 1.78781I$
$u = 1.00000$ $a = 2.21774$ $b = 1.21774$	0.756147	3.96490

III. $I_3^u = \langle b-1,\ -2u^2+a-4u-3,\ u^3+u^2-1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^2+u-1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2u^2+4u+3 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 7u^2+11u+9 \\ 2u^2+3u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^2+4u+2 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2+u-2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2u^2+4u+3 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u^2+u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 21u^2+45u+39$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = -0.079596 + 0.365165I$ $b = 1.00000$	$4.66906 + 2.82812I$	$4.03193 + 6.06881I$
$u = -0.877439 - 0.744862I$ $a = -0.079596 - 0.365165I$ $b = 1.00000$	$4.66906 - 2.82812I$	$4.03193 - 6.06881I$
$u = 0.754878$ $a = 7.15919$ $b = 1.00000$	0.531480	84.9360

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^3+u^2-1)(u^{41}-7u^{40}+\cdots+2u-1)$
c_2	$((u+1)^5)(u^3+u^2+2u+1)(u^{41}+43u^{40}+\cdots+12u+1)$
c_3	$u^5(u^3-u^2+2u-1)(u^{41}+2u^{40}+\cdots+96u+32)$
c_4	$((u+1)^5)(u^3-u^2+1)(u^{41}-7u^{40}+\cdots+2u-1)$
c_5	$(u^3+2u^2-3u+1)(u^5-u^4-2u^3+u^2+u+1)$ $\cdot(u^{41}+16u^{39}+\cdots-1085u-79)$
c_6	$(u^3+2u^2-3u+1)(u^5+u^4+2u^3+u^2+u+1)$ $\cdot(u^{41}+4u^{40}+\cdots-237u+191)$
c_7	$u^5(u^3+u^2+2u+1)(u^{41}+2u^{40}+\cdots+96u+32)$
c_8	$(u^3-3u^2+2u+1)(u^5-3u^4+4u^3-u^2-u+1)$ $\cdot(u^{41}+3u^{40}+\cdots-2u-1)$
c_9	$((u+1)^3)(u^5-u^4+\cdots+u+1)(u^{41}+5u^{40}+\cdots+119u+1)$
c_{10}	$u^3(u^5-u^4+\cdots+u-1)(u^{41}-6u^{40}+\cdots+156u-8)$
c_{11}	$((u-1)^3)(u^5+u^4+\cdots+u-1)(u^{41}+5u^{40}+\cdots+119u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y-1)^5)(y^3-y^2+2y-1)(y^{41}-43y^{40}+\cdots+12y-1)$
c_2	$((y-1)^5)(y^3+3y^2+2y-1)(y^{41}-83y^{40}+\cdots+1144y-1)$
c_3, c_7	$y^5(y^3+3y^2+2y-1)(y^{41}-30y^{40}+\cdots+3584y-1024)$
c_5	$(y^3-10y^2+5y-1)(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{41}+32y^{40}+\cdots+183721y-6241)$
c_6	$(y^3-10y^2+5y-1)(y^5+3y^4+4y^3+y^2-y-1)$ $\cdot(y^{41}+8y^{40}+\cdots+999709y-36481)$
c_8	$(y^3-5y^2+10y-1)(y^5-y^4+8y^3-3y^2+3y-1)$ $\cdot(y^{41}-11y^{40}+\cdots+26y-1)$
c_9, c_{11}	$((y-1)^3)(y^5-5y^4+\cdots-y-1)(y^{41}-21y^{40}+\cdots+13495y-1)$
c_{10}	$y^3(y^5+3y^4+\cdots-y-1)(y^{41}-18y^{40}+\cdots+7824y-64)$