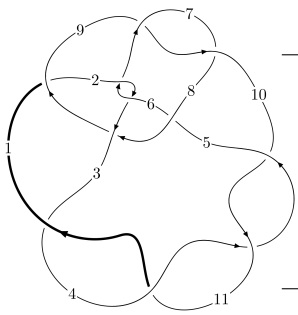
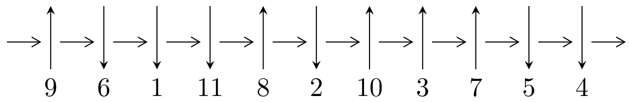
$11a_{323}$ ($K11a_{323}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.31401 \times 10^{21} u^{43} - 3.54437 \times 10^{21} u^{42} + \cdots + 8.57234 \times 10^{19} b + 4.94843 \times 10^{21},$$
$$- 5.89751 \times 10^{21} u^{43} + 9.06194 \times 10^{21} u^{42} + \cdots + 8.57234 \times 10^{19} a - 1.26997 \times 10^{22},\ u^{44} - 2u^{43} + \cdots + 5u -$$
$$I_2^u = \langle u^2 + 5b + 7u + 4,\ -4u^2 + 5a + 2u - 6,\ u^3 + u^2 + 2u + 1 \rangle$$

* 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.

$\boldsymbol{I^u_1 = \langle 2.31\times 10^{21}u^{43} - 3.54\times 10^{21}u^{42} + \cdots + 8.57\times 10^{19}b + 4.95\times 10^{21},\ -5.90\times 10^{21}u^{43} + 9.06\times 10^{21}u^{42} + \cdots + 8.57\times 10^{19}a - 1.27\times 10^{22},\ u^{44} - 2u^{43} + \cdots + 5u - 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

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

$$a_7 = \begin{pmatrix} 68.7969u^{43} - 105.711u^{42} + \cdots - 427.419u + 148.148 \\ -26.9939u^{43} + 41.3466u^{42} + \cdots + 164.286u - 57.7256 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 48.3780u^{43} - 74.2119u^{42} + \cdots - 300.591u + 103.624 \\ -47.4129u^{43} + 72.8461u^{42} + \cdots + 291.114u - 102.249 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -21.2354u^{43} + 32.3030u^{42} + \cdots + 140.637u - 45.5104 \\ 64.6016u^{43} - 99.5702u^{42} + \cdots - 387.835u + 137.751 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -6.60822u^{43} + 11.0300u^{42} + \cdots + 33.2318u - 11.2429 \\ -30.3756u^{43} + 47.4335u^{42} + \cdots + 187.153u - 65.4032 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 7.06760u^{43} - 10.5739u^{42} + \cdots - 44.3693u + 13.4967 \\ -31.4705u^{43} + 48.2831u^{42} + \cdots + 193.366u - 67.6179 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 7.06760u^{43} - 10.5739u^{42} + \cdots - 44.3693u + 13.4967 \\ -31.4705u^{43} + 48.2831u^{42} + \cdots + 193.366u - 67.6179 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{9883896252019055025281 6}{42861719106225265697 5}u^{43} - \frac{1526584799689341618769 03}{428617191062252656975}u^{42} + \cdots - \frac{605374312863961326763079}{428617191062252656975}u + \frac{218640669764653807216074}{428617191062252656975}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$5(5u^{44} - 21u^{43} + \cdots + 864u + 823)$
c_2, c_6	$u^{44} + 2u^{43} + \cdots + u - 1$
c_3, c_4, c_{10} c_{11}	$u^{44} - 2u^{43} + \cdots + 5u - 1$
c_5	$5(5u^{44} - 2u^{43} + \cdots + 23513u + 5383)$
c_7, c_9	$u^{44} + 4u^{43} + \cdots + 16u - 25$
c_8	$u^{44} + u^{43} + \cdots - 220u + 200$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$25(25y^{44} - 671y^{43} + \cdots - 2153826y + 677329)$
c_2, c_6	$y^{44} + 30y^{43} + \cdots - 23y + 1$
c_3, c_4, c_{10} c_{11}	$y^{44} + 54y^{43} + \cdots - 23y + 1$
c_5	$25(25y^{44} - 914y^{43} + \cdots - 1.98283 \times 10^8 y + 2.89767 \times 10^7)$
c_7, c_9	$y^{44} - 40y^{43} + \cdots - 9756y + 625$
c_8	$y^{44} - 21y^{43} + \cdots - 482000y + 40000$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.531615 + 0.932164I$ $a = 0.040863 + 0.471379I$ $b = -0.29401 + 1.86560I$	$9.4938 - 10.7466I$	0
$u = 0.531615 - 0.932164I$ $a = 0.040863 - 0.471379I$ $b = -0.29401 - 1.86560I$	$9.4938 + 10.7466I$	0
$u = 0.604409 + 0.897873I$ $a = 0.417373 + 0.331876I$ $b = -0.387595 + 1.341230I$	$9.03616 + 1.64979I$	0
$u = 0.604409 - 0.897873I$ $a = 0.417373 - 0.331876I$ $b = -0.387595 - 1.341230I$	$9.03616 - 1.64979I$	0
$u = -0.102848 + 0.888493I$ $a = -0.581285 + 0.418665I$ $b = -0.15348 - 1.41968I$	$7.69062 + 2.11031I$	$11.34242 - 3.52324I$
$u = -0.102848 - 0.888493I$ $a = -0.581285 - 0.418665I$ $b = -0.15348 + 1.41968I$	$7.69062 - 2.11031I$	$11.34242 + 3.52324I$
$u = -0.570126 + 0.967451I$ $a = -0.241178 + 0.550119I$ $b = 0.19226 + 1.63923I$	$4.65109 + 4.83905I$	0
$u = -0.570126 - 0.967451I$ $a = -0.241178 - 0.550119I$ $b = 0.19226 - 1.63923I$	$4.65109 - 4.83905I$	0
$u = -0.872602$ $a = -1.52363$ $b = -0.0954626$	1.65108	6.63730
$u = 0.305076 + 0.810839I$ $a = 0.943477 + 0.286013I$ $b = -0.190221 - 0.529393I$	$3.79818 - 5.24105I$	$5.59410 + 7.80794I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.305076 - 0.810839I$ $a = 0.943477 - 0.286013I$ $b = -0.190221 + 0.529393I$	$3.79818 + 5.24105I$	$5.59410 - 7.80794I$
$u = 0.797364 + 0.047017I$ $a = 1.63358 - 0.22748I$ $b = -0.086123 + 0.241603I$	$6.50673 - 6.32792I$	$4.03492 + 4.79564I$
$u = 0.797364 - 0.047017I$ $a = 1.63358 + 0.22748I$ $b = -0.086123 - 0.241603I$	$6.50673 + 6.32792I$	$4.03492 - 4.79564I$
$u = 0.081349 + 0.763523I$ $a = 0.965343 - 0.286817I$ $b = 0.82836 - 1.74768I$	$3.38183 - 0.95789I$	$3.69098 - 0.13410I$
$u = 0.081349 - 0.763523I$ $a = 0.965343 + 0.286817I$ $b = 0.82836 + 1.74768I$	$3.38183 + 0.95789I$	$3.69098 + 0.13410I$
$u = -0.305152 + 0.698148I$ $a = -0.781840 + 0.333278I$ $b = -0.1039550 - 0.0572812I$	$0.43661 + 1.95503I$	$-1.24229 - 4.92252I$
$u = -0.305152 - 0.698148I$ $a = -0.781840 - 0.333278I$ $b = -0.1039550 + 0.0572812I$	$0.43661 - 1.95503I$	$-1.24229 + 4.92252I$
$u = 0.204088 + 0.682624I$ $a = 0.621470 + 1.202720I$ $b = 1.050420 + 0.714579I$	$3.43037 + 0.37049I$	$6.62918 + 1.94701I$
$u = 0.204088 - 0.682624I$ $a = 0.621470 - 1.202720I$ $b = 1.050420 - 0.714579I$	$3.43037 - 0.37049I$	$6.62918 - 1.94701I$
$u = -0.151472 + 1.375050I$ $a = 0.017281 + 1.065310I$ $b = 0.10520 + 1.54249I$	$4.06071 + 2.79744I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.151472 - 1.375050I$ $a = 0.017281 - 1.065310I$ $b = 0.10520 - 1.54249I$	$4.06071 - 2.79744I$	0
$u = -0.454810 + 0.226491I$ $a = -0.497393 - 0.333605I$ $b = -0.242173 + 0.388805I$	$-0.971761 + 0.735222I$	$-7.08962 - 4.08922I$
$u = -0.454810 - 0.226491I$ $a = -0.497393 + 0.333605I$ $b = -0.242173 - 0.388805I$	$-0.971761 - 0.735222I$	$-7.08962 + 4.08922I$
$u = 0.458929 + 0.000125I$ $a = 0.137414 + 1.167950I$ $b = 0.582805 - 0.448947I$	$1.39676 - 2.58910I$	$-1.63153 + 3.81812I$
$u = 0.458929 - 0.000125I$ $a = 0.137414 - 1.167950I$ $b = 0.582805 + 0.448947I$	$1.39676 + 2.58910I$	$-1.63153 - 3.81812I$
$u = 0.03581 + 1.62441I$ $a = 1.92074 + 0.53469I$ $b = 1.80303 + 0.20163I$	$11.45350 - 0.37506I$	0
$u = 0.03581 - 1.62441I$ $a = 1.92074 - 0.53469I$ $b = 1.80303 - 0.20163I$	$11.45350 + 0.37506I$	0
$u = -0.265508 + 0.254499I$ $a = 0.92439 + 3.14403I$ $b = -1.069800 + 0.487521I$	$4.32587 + 0.97456I$	$-0.21065 - 1.62578I$
$u = -0.265508 - 0.254499I$ $a = 0.92439 - 3.14403I$ $b = -1.069800 - 0.487521I$	$4.32587 - 0.97456I$	$-0.21065 + 1.62578I$
$u = -0.06818 + 1.63407I$ $a = -0.111899 - 0.172474I$ $b = 0.429905 - 0.322388I$	$8.58047 + 3.25505I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.06818 - 1.63407I$ $a = -0.111899 + 0.172474I$ $b = 0.429905 + 0.322388I$	$8.58047 - 3.25505I$	0
$u = 0.01583 + 1.65226I$ $a = 0.98946 - 2.95954I$ $b = 0.81579 - 3.72896I$	$11.90430 - 1.28750I$	0
$u = 0.01583 - 1.65226I$ $a = 0.98946 + 2.95954I$ $b = 0.81579 + 3.72896I$	$11.90430 + 1.28750I$	0
$u = 0.07456 + 1.65915I$ $a = -0.477531 - 0.715296I$ $b = -1.35641 - 0.97677I$	$12.42890 - 6.64650I$	0
$u = 0.07456 - 1.65915I$ $a = -0.477531 + 0.715296I$ $b = -1.35641 + 0.97677I$	$12.42890 + 6.64650I$	0
$u = -0.02340 + 1.67896I$ $a = -0.00277 - 2.47208I$ $b = 0.42738 - 3.58832I$	$16.7506 + 2.5780I$	0
$u = -0.02340 - 1.67896I$ $a = -0.00277 + 2.47208I$ $b = 0.42738 + 3.58832I$	$16.7506 - 2.5780I$	0
$u = 0.15119 + 1.69109I$ $a = -0.86535 + 2.55294I$ $b = -0.64062 + 3.50161I$	$18.5526 - 13.4473I$	0
$u = 0.15119 - 1.69109I$ $a = -0.86535 - 2.55294I$ $b = -0.64062 - 3.50161I$	$18.5526 + 13.4473I$	0
$u = 0.17519 + 1.69800I$ $a = -0.77442 + 2.09319I$ $b = -0.82209 + 2.95091I$	$17.9861 - 1.4504I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.17519 - 1.69800I$ $a = -0.77442 - 2.09319I$ $b = -0.82209 - 2.95091I$	$17.9861 + 1.4504I$	0
$u = -0.15533 + 1.70224I$ $a = 0.72708 + 2.39173I$ $b = 0.60080 + 3.24290I$	$13.8777 + 7.6987I$	0
$u = -0.15533 - 1.70224I$ $a = 0.72708 - 2.39173I$ $b = 0.60080 - 3.24290I$	$13.8777 - 7.6987I$	0
$u = 0.195443$ $a = -4.08600$ $b = 0.516511$	1.30800	9.71570

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

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^2 + 1 \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{4}{5}u^2 - \frac{2}{5}u + \frac{6}{5} \\ -\frac{1}{5}u^2 - \frac{7}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{4}{5}u^2 + \frac{3}{5}u + \frac{6}{5} \\ -\frac{1}{5}u^2 - \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{13}{25}u^2 + \frac{6}{25}u + \frac{42}{25} \\ -\frac{7}{25}u^2 - \frac{9}{25}u - \frac{13}{25} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{4}{25}u^2 - \frac{23}{25}u - \frac{11}{25} \\ -\frac{19}{25}u^2 - \frac{28}{25}u - \frac{21}{25} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{4}{5}u^2 + \frac{3}{5}u + \frac{6}{5} \\ -\frac{1}{5}u^2 - \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{4}{5}u^2 + \frac{3}{5}u + \frac{6}{5} \\ -\frac{1}{5}u^2 - \frac{2}{5}u - \frac{4}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{188}{25}u^2 - \frac{131}{25}u - \frac{92}{25}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$25(25y^3 - 26y^2 + 9y - 1)$
c_2, c_6	$y^3 - y^2 + 2y - 1$
c_3, c_4, c_{10} c_{11}	$y^3 + 3y^2 + 2y - 1$
c_5	$25(25y^3 - 9y^2 + 2y - 1)$
c_7, c_9	$(y-1)^3$
c_8	y^3

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = -0.043855 - 0.972680I$ $b = -0.16642 - 1.71754I$	$4.66906 + 2.82812I$	$9.94796 - 2.62108I$
$u = -0.215080 - 1.307140I$ $a = -0.043855 + 0.972680I$ $b = -0.16642 + 1.71754I$	$4.66906 - 2.82812I$	$9.94796 + 2.62108I$
$u = -0.569840$ $a = 1.68771$ $b = -0.0671672$	0.531480	-3.13590

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$25(5u^3+4u^2-u-1)(5u^{44}-21u^{43}+\cdots+864u+823)$
c_2	$(u^3+u^2-1)(u^{44}+2u^{43}+\cdots+u-1)$
c_3, c_4	$(u^3+u^2+2u+1)(u^{44}-2u^{43}+\cdots+5u-1)$
c_5	$25(5u^3+7u^2+4u+1)(5u^{44}-2u^{43}+\cdots+23513u+5383)$
c_6	$(u^3-u^2+1)(u^{44}+2u^{43}+\cdots+u-1)$
c_7	$((u+1)^3)(u^{44}+4u^{43}+\cdots+16u-25)$
c_8	$u^3(u^{44}+u^{43}+\cdots-220u+200)$
c_9	$((u-1)^3)(u^{44}+4u^{43}+\cdots+16u-25)$
c_{10}, c_{11}	$(u^3-u^2+2u-1)(u^{44}-2u^{43}+\cdots+5u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$625(25y^3 - 26y^2 + 9y - 1)$ $\cdot (25y^{44} - 671y^{43} + \cdots - 2153826y + 677329)$
c_2, c_6	$(y^3 - y^2 + 2y - 1)(y^{44} + 30y^{43} + \cdots - 23y + 1)$
c_3, c_4, c_{10} c_{11}	$(y^3 + 3y^2 + 2y - 1)(y^{44} + 54y^{43} + \cdots - 23y + 1)$
c_5	$625(25y^3 - 9y^2 + 2y - 1)$ $\cdot (25y^{44} - 914y^{43} + \cdots - 198282959y + 28976689)$
c_7, c_9	$((y - 1)^3)(y^{44} - 40y^{43} + \cdots - 9756y + 625)$
c_8	$y^3(y^{44} - 21y^{43} + \cdots - 482000y + 40000)$