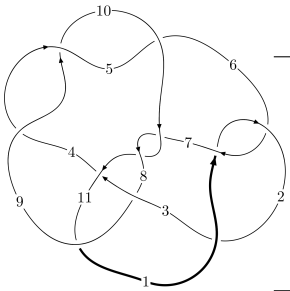
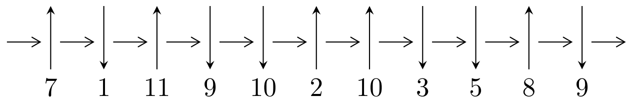
$11n_{110}$ ($K11n_{110}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -5.24577 \times 10^{42} u^{29} - 3.23671 \times 10^{42} u^{28} + \cdots + 1.72502 \times 10^{43} b + 9.64831 \times 10^{44}, \\ & -1.04908 \times 10^{45} u^{29} - 2.98068 \times 10^{44} u^{28} + \cdots + 2.46678 \times 10^{45} a + 3.12089 \times 10^{47}, \\ & u^{30} - 20u^{28} + \cdots - 702u + 143 \rangle \\ I_2^u = \langle & 2u^9 + u^8 - 8u^7 - 3u^6 + 12u^5 + 4u^4 - 5u^3 - 4u^2 + b + 2u + 1, \\ & u^9 + u^8 - 3u^7 - 3u^6 + 2u^5 + 3u^4 + 4u^3 + a - 3u - 1, \\ & u^{10} + u^9 - 4u^8 - 4u^7 + 6u^6 + 7u^5 - 2u^4 - 6u^3 - u^2 + 2u + 1 \rangle \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 40 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. $\boldsymbol{I^u_1 = \langle -5.25 \times 10^{42} u^{29} - 3.24 \times 10^{42} u^{28} + \cdots + 1.73 \times 10^{43} b + 9.65 \times 10^{44},\ -1.05 \times 10^{45} u^{29} - 2.98 \times 10^{44} u^{28} + \cdots + 2.47 \times 10^{45} a + 3.12 \times 10^{47},\ u^{30} - 20u^{28} + \cdots - 702u + 143 \rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.425284u^{29} + 0.120833u^{28} + \cdots + 435.751u - 126.517 \\ 0.304099u^{29} + 0.187633u^{28} + \cdots + 228.271u - 55.9316 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.121185u^{29} - 0.0668003u^{28} + \cdots + 207.480u - 70.5855 \\ 0.304099u^{29} + 0.187633u^{28} + \cdots + 228.271u - 55.9316 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.106102u^{29} - 0.0778641u^{28} + \cdots + 210.361u - 79.9957 \\ 0.135922u^{29} + 0.0365756u^{28} + \cdots + 136.153u - 36.2204 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.232141u^{29} - 0.191193u^{28} + \cdots - 134.653u + 22.1188 \\ -0.164756u^{29} - 0.170846u^{28} + \cdots - 70.5588u + 6.95079 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.232141u^{29} - 0.191193u^{28} + \cdots - 134.653u + 22.1188 \\ -0.0393575u^{29} - 0.0958610u^{28} + \cdots + 30.4623u - 20.3898 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.218809u^{29} + 0.241071u^{28} + \cdots + 63.2104u + 9.67970 \\ -0.0214735u^{29} + 0.132358u^{28} + \cdots - 126.031u + 47.6240 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.186030u^{29} - 0.0243156u^{28} + \cdots + 264.074u - 88.9655 \\ 0.190051u^{29} + 0.0781916u^{28} + \cdots + 163.704u - 37.5328 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.186030u^{29} - 0.0243156u^{28} + \cdots + 264.074u - 88.9655 \\ 0.190051u^{29} + 0.0781916u^{28} + \cdots + 163.704u - 37.5328 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.06625u^{29} - 0.645061u^{28} + \cdots - 715.257u + 115.725$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{30} + 3u^{28} + \cdots + 6u + 1$
c_2	$u^{30} + 6u^{29} + \cdots + 4u + 1$
c_3	$u^{30} + u^{29} + \cdots - 5u + 1$
c_4, c_5, c_9	$u^{30} + u^{27} + \cdots - 4u + 19$
c_7, c_{10}	$u^{30} - 20u^{28} + \cdots + 702u + 143$
c_8	$u^{30} + u^{29} + \cdots - u + 3$
c_{11}	$u^{30} - 4u^{29} + \cdots - 14u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{30} + 6y^{29} + \cdots + 4y + 1$
c_2	$y^{30} + 42y^{29} + \cdots + 124y + 1$
c_3	$y^{30} - 27y^{29} + \cdots + 89y + 1$
c_4, c_5, c_9	$y^{30} + 30y^{28} + \cdots + 5798y + 361$
c_7, c_{10}	$y^{30} - 40y^{29} + \cdots - 169052y + 20449$
c_8	$y^{30} + y^{29} + \cdots + 149y + 9$
c_{11}	$y^{30} + 30y^{29} + \cdots - 30y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.451767 + 0.791950I$ $a = -0.695737 + 0.012247I$ $b = -0.129301 + 0.865185I$	$-0.95851 - 2.62649I$	$-5.25510 + 4.40076I$
$u = 0.451767 - 0.791950I$ $a = -0.695737 - 0.012247I$ $b = -0.129301 - 0.865185I$	$-0.95851 + 2.62649I$	$-5.25510 - 4.40076I$
$u = 0.898711 + 0.095581I$ $a = -0.211923 + 1.074670I$ $b = -0.472373 + 1.278930I$	$0.32537 - 4.54381I$	$1.91240 + 4.46685I$
$u = 0.898711 - 0.095581I$ $a = -0.211923 - 1.074670I$ $b = -0.472373 - 1.278930I$	$0.32537 + 4.54381I$	$1.91240 - 4.46685I$
$u = -0.796766 + 0.348460I$ $a = -1.49520 + 0.87151I$ $b = 0.307391 - 0.308073I$	$1.43336 - 3.12326I$	$2.11949 + 6.95210I$
$u = -0.796766 - 0.348460I$ $a = -1.49520 - 0.87151I$ $b = 0.307391 + 0.308073I$	$1.43336 + 3.12326I$	$2.11949 - 6.95210I$
$u = 1.162640 + 0.268770I$ $a = 0.570691 - 0.011630I$ $b = 0.324375 - 0.250772I$	$-2.62675 - 0.08468I$	$-4.72619 - 2.64005I$
$u = 1.162640 - 0.268770I$ $a = 0.570691 + 0.011630I$ $b = 0.324375 + 0.250772I$	$-2.62675 + 0.08468I$	$-4.72619 + 2.64005I$
$u = -0.971060 + 0.777102I$ $a = -0.21574 + 1.45380I$ $b = 0.344838 + 0.890194I$	$1.65136 - 1.24421I$	$1.024611 - 0.505616I$
$u = -0.971060 - 0.777102I$ $a = -0.21574 - 1.45380I$ $b = 0.344838 - 0.890194I$	$1.65136 + 1.24421I$	$1.024611 + 0.505616I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.484306 + 0.368077I$ $a = 0.08679 - 1.82883I$ $b = -0.943336 - 0.363298I$	$3.55287 + 0.89069I$	$4.27167 - 0.33793I$
$u = 0.484306 - 0.368077I$ $a = 0.08679 + 1.82883I$ $b = -0.943336 + 0.363298I$	$3.55287 - 0.89069I$	$4.27167 + 0.33793I$
$u = 0.497783 + 0.340691I$ $a = 0.06739 + 2.71662I$ $b = 0.425755 + 1.001110I$	$-4.76031 + 3.13588I$	$-9.92249 - 3.96046I$
$u = 0.497783 - 0.340691I$ $a = 0.06739 - 2.71662I$ $b = 0.425755 - 1.001110I$	$-4.76031 - 3.13588I$	$-9.92249 + 3.96046I$
$u = 1.386090 + 0.220291I$ $a = 0.285192 - 0.809687I$ $b = -1.08600 - 0.98826I$	$5.14615 + 3.90437I$	$9.12338 - 9.65977I$
$u = 1.386090 - 0.220291I$ $a = 0.285192 + 0.809687I$ $b = -1.08600 + 0.98826I$	$5.14615 - 3.90437I$	$9.12338 + 9.65977I$
$u = -0.279478 + 0.517536I$ $a = -0.529791 + 0.994280I$ $b = -0.332645 + 0.600289I$	$-0.104103 - 1.239120I$	$-1.20094 + 5.47066I$
$u = -0.279478 - 0.517536I$ $a = -0.529791 - 0.994280I$ $b = -0.332645 - 0.600289I$	$-0.104103 + 1.239120I$	$-1.20094 - 5.47066I$
$u = -0.95950 + 1.37007I$ $a = 0.040805 - 0.860607I$ $b = 0.649057 - 0.680993I$	$2.53446 - 5.24872I$	0
$u = -0.95950 - 1.37007I$ $a = 0.040805 + 0.860607I$ $b = 0.649057 + 0.680993I$	$2.53446 + 5.24872I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.66595 + 0.28622I$ $a = 0.341727 + 1.280250I$ $b = -0.911434 + 1.076300I$	$10.88760 - 3.99108I$	0
$u = -1.66595 - 0.28622I$ $a = 0.341727 - 1.280250I$ $b = -0.911434 - 1.076300I$	$10.88760 + 3.99108I$	0
$u = 1.81937 + 0.16535I$ $a = 0.066198 - 0.673030I$ $b = 1.102130 - 0.866233I$	$12.05590 + 5.16332I$	0
$u = 1.81937 - 0.16535I$ $a = 0.066198 + 0.673030I$ $b = 1.102130 + 0.866233I$	$12.05590 - 5.16332I$	0
$u = 1.84023 + 0.48450I$ $a = -0.235652 + 1.128640I$ $b = 0.93280 + 1.10972I$	$11.2229 + 12.5494I$	0
$u = 1.84023 - 0.48450I$ $a = -0.235652 - 1.128640I$ $b = 0.93280 - 1.10972I$	$11.2229 - 12.5494I$	0
$u = -1.91541 + 0.00143I$ $a = -0.134628 + 0.585582I$ $b = -1.030320 + 0.873089I$	$11.56270 - 3.12726I$	0
$u = -1.91541 - 0.00143I$ $a = -0.134628 - 0.585582I$ $b = -1.030320 - 0.873089I$	$11.56270 + 3.12726I$	0
$u = -1.95273 + 0.27313I$ $a = -0.258299 - 0.863821I$ $b = 0.819056 - 0.903848I$	$5.64984 - 3.06569I$	0
$u = -1.95273 - 0.27313I$ $a = -0.258299 + 0.863821I$ $b = 0.819056 + 0.903848I$	$5.64984 + 3.06569I$	0

II. $\boldsymbol{I_2^u = \langle 2u^9 + u^8 + \cdots + b + 1,\ u^9 + u^8 + \cdots + a - 1,\ u^{10} + u^9 + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^9 - u^8 + 3u^7 + 3u^6 - 2u^5 - 3u^4 - 4u^3 + 3u + 1 \\ -2u^9 - u^8 + 8u^7 + 3u^6 - 12u^5 - 4u^4 + 5u^3 + 4u^2 - 2u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^9 - 5u^7 + 10u^5 + u^4 - 9u^3 - 4u^2 + 5u + 2 \\ -2u^9 - u^8 + 8u^7 + 3u^6 - 12u^5 - 4u^4 + 5u^3 + 4u^2 - 2u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^8 - 4u^6 + u^5 + 6u^4 - 2u^3 - 3u^2 + 2 \\ -u^9 - u^8 + 4u^7 + 4u^6 - 6u^5 - 6u^4 + 2u^3 + 4u^2 + u - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2u^9 + u^8 - 9u^7 - 4u^6 + 15u^5 + 7u^4 - 8u^3 - 7u^2 + u + 2 \\ -u^9 + 5u^7 - 10u^5 - u^4 + 8u^3 + 4u^2 - 3u - 3 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2u^9 + u^8 - 9u^7 - 4u^6 + 15u^5 + 7u^4 - 8u^3 - 7u^2 + u + 2 \\ -u^9 + 6u^7 + u^6 - 13u^5 - 4u^4 + 11u^3 + 7u^2 - 3u - 4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^9 - u^8 + 4u^7 + 4u^6 - 6u^5 - 7u^4 + 2u^3 + 6u^2 + u - 1 \\ u^9 - 5u^7 + 10u^5 + u^4 - 9u^3 - 5u^2 + 4u + 3 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^9 + u^8 - 4u^7 - 3u^6 + 7u^5 + 4u^4 - 5u^3 - 3u^2 + 2u + 2 \\ -u^9 - 2u^8 + 4u^7 + 8u^6 - 6u^5 - 12u^4 + 2u^3 + 7u^2 + 2u - 2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^9 + u^8 - 4u^7 - 3u^6 + 7u^5 + 4u^4 - 5u^3 - 3u^2 + 2u + 2 \\ -u^9 - 2u^8 + 4u^7 + 8u^6 - 6u^5 - 12u^4 + 2u^3 + 7u^2 + 2u - 2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 5u^9 - 2u^8 - 24u^7 + 8u^6 + 45u^5 - 5u^4 - 34u^3 - 16u^2 + 18u + 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10}+u^9+3u^8+2u^7+5u^6+2u^5+5u^4+3u^2+1$
c_2	$u^{10}+5u^9+\cdots+6u+1$
c_3	$u^{10}-2u^8+2u^7+u^6-5u^5+4u^4+4u^3-4u^2-u+1$
c_4, c_5	$u^{10}-u^9-4u^8+4u^7+4u^6-5u^5+u^4+2u^3-2u^2+1$
c_6	$u^{10}-u^9+3u^8-2u^7+5u^6-2u^5+5u^4+3u^2+1$
c_7	$u^{10}+u^9-4u^8-4u^7+6u^6+7u^5-2u^4-6u^3-u^2+2u+1$
c_8	$u^{10}-2u^8-u^7+2u^4+5u^3+4u^2+u+1$
c_9	$u^{10}+u^9-4u^8-4u^7+4u^6+5u^5+u^4-2u^3-2u^2+1$
c_{10}	$u^{10}-u^9-4u^8+4u^7+6u^6-7u^5-2u^4+6u^3-u^2-2u+1$
c_{11}	$u^{10}+u^9+3u^8+u^6-2u^5+3u^4+u^3+2u^2+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{10} + 5y^9 + \cdots + 6y + 1$
c_2	$y^{10} + 5y^9 + \cdots + 2y + 1$
c_3	$y^{10} - 4y^9 + 6y^8 - 3y^6 - 15y^5 + 48y^4 - 56y^3 + 32y^2 - 9y + 1$
c_4, c_5, c_9	$y^{10} - 9y^9 + 32y^8 - 56y^7 + 48y^6 - 15y^5 - 3y^4 + 6y^2 - 4y + 1$
c_7, c_{10}	$y^{10} - 9y^9 + \cdots - 6y + 1$
c_8	$y^{10} - 4y^9 + 4y^8 + 3y^7 - 4y^5 + 2y^4 - 9y^3 + 10y^2 + 7y + 1$
c_{11}	$y^{10} + 5y^9 + \cdots + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.849647 + 0.261463I$ $a = 0.63621 - 2.08969I$ $b = -0.485410 - 1.047400I$	$-3.86861 + 3.23765I$	$0.07935 - 4.10700I$
$u = 0.849647 - 0.261463I$ $a = 0.63621 + 2.08969I$ $b = -0.485410 + 1.047400I$	$-3.86861 - 3.23765I$	$0.07935 + 4.10700I$
$u = -0.533163 + 0.595129I$ $a = -1.81845 + 1.33892I$ $b = 0.188177 + 0.714180I$	$0.81616 - 2.31326I$	$-2.65364 + 2.24652I$
$u = -0.533163 - 0.595129I$ $a = -1.81845 - 1.33892I$ $b = 0.188177 - 0.714180I$	$0.81616 + 2.31326I$	$-2.65364 - 2.24652I$
$u = -0.604487 + 0.305956I$ $a = -0.676843 - 0.030545I$ $b = 0.350077 - 1.119590I$	$-0.92810 - 4.66670I$	$-4.84081 + 6.38694I$
$u = -0.604487 - 0.305956I$ $a = -0.676843 + 0.030545I$ $b = 0.350077 + 1.119590I$	$-0.92810 + 4.66670I$	$-4.84081 - 6.38694I$
$u = 1.289770 + 0.393534I$ $a = -0.321650 + 0.084596I$ $b = -0.487215 + 0.608032I$	$-2.37349 - 0.80372I$	$-1.70130 + 5.71756I$
$u = 1.289770 - 0.393534I$ $a = -0.321650 - 0.084596I$ $b = -0.487215 - 0.608032I$	$-2.37349 + 0.80372I$	$-1.70130 - 5.71756I$
$u = -1.50177 + 0.34547I$ $a = -0.319261 - 0.841088I$ $b = 0.934371 - 0.879616I$	$4.70910 - 3.41496I$	$-0.88361 + 1.66102I$
$u = -1.50177 - 0.34547I$ $a = -0.319261 + 0.841088I$ $b = 0.934371 + 0.879616I$	$4.70910 + 3.41496I$	$-0.88361 - 1.66102I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+u^9+3u^8+2u^7+5u^6+2u^5+5u^4+3u^2+1)$ $\cdot(u^{30}+3u^{28}+\cdots+6u+1)$
c_2	$(u^{10}+5u^9+\cdots+6u+1)(u^{30}+6u^{29}+\cdots+4u+1)$
c_3	$(u^{10}-2u^8+2u^7+u^6-5u^5+4u^4+4u^3-4u^2-u+1)$ $\cdot(u^{30}+u^{29}+\cdots-5u+1)$
c_4, c_5	$(u^{10}-u^9-4u^8+4u^7+4u^6-5u^5+u^4+2u^3-2u^2+1)$ $\cdot(u^{30}+u^{27}+\cdots-4u+19)$
c_6	$(u^{10}-u^9+3u^8-2u^7+5u^6-2u^5+5u^4+3u^2+1)$ $\cdot(u^{30}+3u^{28}+\cdots+6u+1)$
c_7	$(u^{10}+u^9-4u^8-4u^7+6u^6+7u^5-2u^4-6u^3-u^2+2u+1)$ $\cdot(u^{30}-20u^{28}+\cdots+702u+143)$
c_8	$(u^{10}-2u^8+\cdots+u+1)(u^{30}+u^{29}+\cdots-u+3)$
c_9	$(u^{10}+u^9-4u^8-4u^7+4u^6+5u^5+u^4-2u^3-2u^2+1)$ $\cdot(u^{30}+u^{27}+\cdots-4u+19)$
c_{10}	$(u^{10}-u^9-4u^8+4u^7+6u^6-7u^5-2u^4+6u^3-u^2-2u+1)$ $\cdot(u^{30}-20u^{28}+\cdots+702u+143)$
c_{11}	$(u^{10}+u^9+3u^8+u^6-2u^5+3u^4+u^3+2u^2+1)$ $\cdot(u^{30}-4u^{29}+\cdots-14u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^{10}+5y^9+\cdots+6y+1)(y^{30}+6y^{29}+\cdots+4y+1)$
c_2	$(y^{10}+5y^9+\cdots+2y+1)(y^{30}+42y^{29}+\cdots+124y+1)$
c_3	$(y^{10}-4y^9+6y^8-3y^6-15y^5+48y^4-56y^3+32y^2-9y+1)$ $\cdot\,(y^{30}-27y^{29}+\cdots+89y+1)$
c_4, c_5, c_9	$(y^{10}-9y^9+32y^8-56y^7+48y^6-15y^5-3y^4+6y^2-4y+1)$ $\cdot\,(y^{30}+30y^{28}+\cdots+5798y+361)$
c_7, c_{10}	$(y^{10}-9y^9+\cdots-6y+1)(y^{30}-40y^{29}+\cdots-169052y+20449)$
c_8	$(y^{10}-4y^9+4y^8+3y^7-4y^5+2y^4-9y^3+10y^2+7y+1)$ $\cdot\,(y^{30}+y^{29}+\cdots+149y+9)$
c_{11}	$(y^{10}+5y^9+\cdots+4y+1)(y^{30}+30y^{29}+\cdots-30y+1)$