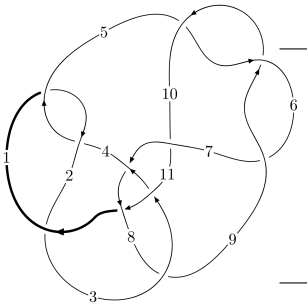
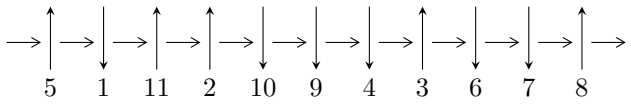
$11a_{69}$ ($K11a_{69}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.93466 \times 10^{44} u^{69} + 1.74032 \times 10^{45} u^{68} + \cdots + 8.25681 \times 10^{45} b + 7.83469 \times 10^{45},$$
$$5.13127 \times 10^{45} u^{69} + 8.43947 \times 10^{44} u^{68} + \cdots + 8.25681 \times 10^{45} a - 4.71677 \times 10^{45},\ u^{70} + u^{69} + \cdots + 5u + 1 \rangle$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 70 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.

$\boldsymbol{I_1^u = \langle 1.93\times 10^{44}u^{69}+1.74\times 10^{45}u^{68}+\cdots+8.26\times 10^{45}b+7.83\times 10^{45},\ 5.13\times 10^{45}u^{69}+8.44\times 10^{44}u^{68}+\cdots+8.26\times 10^{45}a-4.72\times 10^{45},\ u^{70}+u^{69}+\cdots+5u+1\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} -0.621458u^{69} - 0.102212u^{68} + \cdots - 1.03500u + 0.571258 \\ -0.0234310u^{69} - 0.210773u^{68} + \cdots - 5.77695u - 0.948876 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.598027u^{69} + 0.108561u^{68} + \cdots + 4.74196u + 1.52013 \\ -0.0234310u^{69} - 0.210773u^{68} + \cdots - 5.77695u - 0.948876 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.755347u^{69} + 0.563488u^{68} + \cdots - 11.1749u - 1.14377 \\ 0.00374491u^{69} - 0.220825u^{68} + \cdots - 5.42897u - 1.96817 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.586927u^{69} + 0.648245u^{68} + \cdots - 11.4105u - 1.27713 \\ -0.0206773u^{69} - 0.191932u^{68} + \cdots - 5.40917u - 1.81465 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^5 - 2u^3 - u \\ -u^7 - 3u^5 - 2u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.196281u^{69} + 0.196656u^{68} + \cdots - 2.97884u - 0.704438 \\ -0.119642u^{69} - 0.282284u^{68} + \cdots + 2.93455u + 0.00852081 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.196281u^{69} + 0.196656u^{68} + \cdots - 2.97884u - 0.704438 \\ -0.119642u^{69} - 0.282284u^{68} + \cdots + 2.93455u + 0.00852081 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.55662u^{69} - 1.96540u^{68} + \cdots + 29.0576u + 10.9549$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{70} + u^{69} + \cdots + 7u + 1$
c_2	$u^{70} + 29u^{69} + \cdots + 7u + 1$
c_3	$u^{70} + 7u^{69} + \cdots + u + 1$
c_5, c_6, c_9	$u^{70} - u^{69} + \cdots - 5u + 1$
c_7	$u^{70} + 3u^{69} + \cdots - 23u + 1$
c_8	$u^{70} + u^{69} + \cdots + 49u + 4$
c_{10}	$u^{70} + u^{69} + \cdots - 1887u + 578$
c_{11}	$u^{70} - 5u^{69} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{70} + 29y^{69} + \cdots + 7y + 1$
c_2	$y^{70} + 25y^{69} + \cdots + 347y + 1$
c_3	$y^{70} + 5y^{69} + \cdots + 7y + 1$
c_5, c_6, c_9	$y^{70} + 61y^{69} + \cdots - 5y + 1$
c_7	$y^{70} - 71y^{69} + \cdots - 45y + 1$
c_8	$y^{70} - 75y^{69} + \cdots - 401y + 16$
c_{10}	$y^{70} - 15y^{69} + \cdots - 869601y + 334084$
c_{11}	$y^{70} - 7y^{69} + \cdots - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.484335+0.875355I$ $a=-0.060674+0.946739I$ $b=-0.620167+1.091350I$	$0.05172-8.00134I$	0
$u=-0.484335-0.875355I$ $a=-0.060674-0.946739I$ $b=-0.620167-1.091350I$	$0.05172+8.00134I$	0
$u=0.236828+1.056350I$ $a=0.383136-0.264141I$ $b=-0.489406-0.250651I$	$1.23691-2.50489I$	0
$u=0.236828-1.056350I$ $a=0.383136+0.264141I$ $b=-0.489406+0.250651I$	$1.23691+2.50489I$	0
$u=0.829379+0.365662I$ $a=0.94611+1.69775I$ $b=-0.469428+0.973496I$	$-2.85780-3.99529I$	$-10.44720+9.33363I$
$u=0.829379-0.365662I$ $a=0.94611-1.69775I$ $b=-0.469428-0.973496I$	$-2.85780+3.99529I$	$-10.44720-9.33363I$
$u=0.899262+0.112004I$ $a=-0.09567-1.68409I$ $b=-0.406148-0.936613I$	$-3.33093+1.52607I$	$-13.07472-1.31899I$
$u=0.899262-0.112004I$ $a=-0.09567+1.68409I$ $b=-0.406148+0.936613I$	$-3.33093-1.52607I$	$-13.07472+1.31899I$
$u=-0.289959+1.067950I$ $a=1.02846-1.50899I$ $b=-0.140513-1.175150I$	$-3.16104-0.50300I$	0
$u=-0.289959-1.067950I$ $a=1.02846+1.50899I$ $b=-0.140513+1.175150I$	$-3.16104+0.50300I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.403491+0.782625I$ $a=\ \ 0.390557-0.716194I$ $b=-0.768228-0.457281I$	$1.92693-2.73519I$	$2.12851+1.17713I$
$u=-0.403491-0.782625I$ $a=\ \ 0.390557+0.716194I$ $b=-0.768228+0.457281I$	$1.92693+2.73519I$	$2.12851-1.17713I$
$u=\ \ 0.499100+1.027490I$ $a=\ \ 0.80149+1.34174I$ $b=-0.507327+1.004450I$	$-0.50648-6.46270I$	0
$u=\ \ 0.499100-1.027490I$ $a=\ \ 0.80149-1.34174I$ $b=-0.507327-1.004450I$	$-0.50648+6.46270I$	0
$u=-0.814672+0.264193I$ $a=\ \ 0.73755-2.31927I$ $b=-0.652177-1.126720I$	$-1.87843+12.59620I$	$-3.11036-9.02697I$
$u=-0.814672-0.264193I$ $a=\ \ 0.73755+2.31927I$ $b=-0.652177+1.126720I$	$-1.87843-12.59620I$	$-3.11036+9.02697I$
$u=-0.764380+0.264018I$ $a=-0.812441-0.044328I$ $b=-0.884444+0.447119I$	$0.17592+6.93073I$	$-0.67959-5.56176I$
$u=-0.764380-0.264018I$ $a=-0.812441+0.044328I$ $b=-0.884444-0.447119I$	$0.17592-6.93073I$	$-0.67959+5.56176I$
$u=\ \ 0.562477+0.578232I$ $a=\ \ 0.208519-0.713965I$ $b=-0.297139-0.882531I$	$-1.94107-0.75277I$	$-7.49106+4.95501I$
$u=\ \ 0.562477-0.578232I$ $a=\ \ 0.208519+0.713965I$ $b=-0.297139+0.882531I$	$-1.94107+0.75277I$	$-7.49106-4.95501I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.745456+0.148738I$ $a=-0.36458+2.64857I$ $b=-0.050089+1.257290I$	$-5.92974+4.34707I$	$-7.96325-5.56332I$
$u=-0.745456-0.148738I$ $a=-0.36458-2.64857I$ $b=-0.050089-1.257290I$	$-5.92974-4.34707I$	$-7.96325+5.56332I$
$u=-0.107903+1.245720I$ $a=0.523629-1.003470I$ $b=0.416221-1.189180I$	$1.99705-2.44523I$	0
$u=-0.107903-1.245720I$ $a=0.523629+1.003470I$ $b=0.416221+1.189180I$	$1.99705+2.44523I$	0
$u=0.200108+1.261720I$ $a=0.32731+2.79217I$ $b=0.401964+0.917807I$	$2.39518-0.54119I$	0
$u=0.200108-1.261720I$ $a=0.32731-2.79217I$ $b=0.401964-0.917807I$	$2.39518+0.54119I$	0
$u=0.368590+1.279980I$ $a=-0.036929-0.922221I$ $b=-0.254902-0.847557I$	$0.95320-3.02207I$	0
$u=0.368590-1.279980I$ $a=-0.036929+0.922221I$ $b=-0.254902+0.847557I$	$0.95320+3.02207I$	0
$u=0.193666+1.332510I$ $a=-0.68225-2.26640I$ $b=0.541955+0.776960I$	$3.56607-0.95896I$	0
$u=0.193666-1.332510I$ $a=-0.68225+2.26640I$ $b=0.541955-0.776960I$	$3.56607+0.95896I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.150263+1.338740I$ $a=-0.223687+0.346604I$ $b=\ 0.838536-0.993294I$	$5.26003-1.16982I$	0
$u=-0.150263-1.338740I$ $a=-0.223687-0.346604I$ $b=\ 0.838536+0.993294I$	$5.26003+1.16982I$	0
$u=\ 0.231094+1.328390I$ $a=-3.66836-1.80527I$ $b=\ 0.536274-0.919865I$	$3.11019-5.29914I$	0
$u=\ 0.231094-1.328390I$ $a=-3.66836+1.80527I$ $b=\ 0.536274+0.919865I$	$3.11019+5.29914I$	0
$u=\ 0.611770+0.194791I$ $a=\ 0.407403+0.167127I$ $b=-0.224664-0.169997I$	$-1.37636-0.69918I$	$-5.13733+2.33652I$
$u=\ 0.611770-0.194791I$ $a=\ 0.407403-0.167127I$ $b=-0.224664+0.169997I$	$-1.37636+0.69918I$	$-5.13733-2.33652I$
$u=-0.613468+0.166353I$ $a=-0.44642+2.95844I$ $b=\ 0.616639+1.172650I$	$-0.93135+4.88535I$	$-2.28013-10.40687I$
$u=-0.613468-0.166353I$ $a=-0.44642-2.95844I$ $b=\ 0.616639-1.172650I$	$-0.93135-4.88535I$	$-2.28013+10.40687I$
$u=\ 0.200597+1.358150I$ $a=\ 0.286571+0.255300I$ $b=\ 0.250675-0.338013I$	$3.63488-3.48634I$	0
$u=\ 0.200597-1.358150I$ $a=\ 0.286571-0.255300I$ $b=\ 0.250675+0.338013I$	$3.63488+3.48634I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.183760+1.364120I$ $a=-0.072592+0.787390I$ $b=\ \ 1.003970-0.281861I$	$6.67319+1.90375I$	0
$u=-0.183760-1.364120I$ $a=-0.072592-0.787390I$ $b=\ \ 1.003970+0.281861I$	$6.67319-1.90375I$	0
$u=-0.247821+1.358540I$ $a=-1.60160+1.37832I$ $b=\ \ 0.693479+1.215560I$	$3.90043+8.04691I$	0
$u=-0.247821-1.358540I$ $a=-1.60160-1.37832I$ $b=\ \ 0.693479-1.215560I$	$3.90043-8.04691I$	0
$u=-0.212109+1.366200I$ $a=-0.941802+0.648116I$ $b=\ \ 1.001640+0.651261I$	$6.29345+5.42481I$	0
$u=-0.212109-1.366200I$ $a=-0.941802-0.648116I$ $b=\ \ 1.001640-0.651261I$	$6.29345-5.42481I$	0
$u=-0.303558+1.351170I$ $a=-0.92726+1.21935I$ $b=\ \ 0.006202+1.312430I$	$-1.19896+8.13596I$	0
$u=-0.303558-1.351170I$ $a=-0.92726-1.21935I$ $b=\ \ 0.006202-1.312430I$	$-1.19896-8.13596I$	0
$u=\ \ 0.594534+0.061490I$ $a=-2.14747-5.13430I$ $b=\ \ 0.485312-0.908136I$	$-1.29895-2.30609I$	$11.5630-16.8929I$
$u=\ \ 0.594534-0.061490I$ $a=-2.14747+5.13430I$ $b=\ \ 0.485312+0.908136I$	$-1.29895+2.30609I$	$11.5630+16.8929I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.30882+1.41041I$ $a=-0.018285-0.748543I$ $b=-0.938125+0.475226I$	$5.50503+10.82290I$	0
$u=-0.30882-1.41041I$ $a=-0.018285+0.748543I$ $b=-0.938125-0.475226I$	$5.50503-10.82290I$	0
$u=-0.33175+1.41736I$ $a=\ \ 1.66811-1.38164I$ $b=-0.680160-1.138340I$	$3.4715+16.7403I$	0
$u=-0.33175-1.41736I$ $a=\ \ 1.66811+1.38164I$ $b=-0.680160+1.138340I$	$3.4715-16.7403I$	0
$u=\ \ 0.26824+1.43648I$ $a=\ \ 0.320427+0.345844I$ $b=-0.519294-0.588568I$	$4.08495-3.81337I$	0
$u=\ \ 0.26824-1.43648I$ $a=\ \ 0.320427-0.345844I$ $b=-0.519294+0.588568I$	$4.08495+3.81337I$	0
$u=-0.487601+0.208801I$ $a=\ \ 0.30455+1.43000I$ $b=\ \ 0.833768+0.669179I$	$1.32084+2.75218I$	$4.00267-8.42337I$
$u=-0.487601-0.208801I$ $a=\ \ 0.30455-1.43000I$ $b=\ \ 0.833768-0.669179I$	$1.32084-2.75218I$	$4.00267+8.42337I$
$u=-0.04696+1.47919I$ $a=\ \ 1.013550-0.079452I$ $b=-0.776577-0.650017I$	$9.19605-1.61168I$	0
$u=-0.04696-1.47919I$ $a=\ \ 1.013550+0.079452I$ $b=-0.776577+0.650017I$	$9.19605+1.61168I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.34186 + 1.45082I$ $a = 1.47158 + 1.05054I$ $b = -0.558838 + 0.987517I$	$2.91206 - 8.27553I$	0
$u = 0.34186 - 1.45082I$ $a = 1.47158 - 1.05054I$ $b = -0.558838 - 0.987517I$	$2.91206 + 8.27553I$	0
$u = -0.00295 + 1.51219I$ $a = 0.927152 + 0.098522I$ $b = -0.667838 + 0.997816I$	$8.13804 - 7.06461I$	0
$u = -0.00295 - 1.51219I$ $a = 0.927152 - 0.098522I$ $b = -0.667838 - 0.997816I$	$8.13804 + 7.06461I$	0
$u = 0.473311 + 0.093934I$ $a = 2.06318 - 1.63899I$ $b = 0.437497 + 0.816872I$	$-0.93813 + 1.54075I$	$-3.94589 - 11.49495I$
$u = 0.473311 - 0.093934I$ $a = 2.06318 + 1.63899I$ $b = 0.437497 - 0.816872I$	$-0.93813 - 1.54075I$	$-3.94589 + 11.49495I$
$u = -0.380898 + 0.262790I$ $a = 1.44857 + 0.52153I$ $b = 0.728444 - 0.317658I$	$1.64058 - 0.33786I$	$6.07692 - 1.73353I$
$u = -0.380898 - 0.262790I$ $a = 1.44857 - 0.52153I$ $b = 0.728444 + 0.317658I$	$1.64058 + 0.33786I$	$6.07692 + 1.73353I$
$u = -0.130656 + 0.280023I$ $a = 1.342180 - 0.108395I$ $b = 0.612892 - 0.951335I$	$0.54295 - 2.64582I$	$2.44579 + 0.83594I$
$u = -0.130656 - 0.280023I$ $a = 1.342180 + 0.108395I$ $b = 0.612892 + 0.951335I$	$0.54295 + 2.64582I$	$2.44579 - 0.83594I$

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{70} + u^{69} + \cdots + 7u + 1$
c_2	$u^{70} + 29u^{69} + \cdots + 7u + 1$
c_3	$u^{70} + 7u^{69} + \cdots + u + 1$
c_5, c_6, c_9	$u^{70} - u^{69} + \cdots - 5u + 1$
c_7	$u^{70} + 3u^{69} + \cdots - 23u + 1$
c_8	$u^{70} + u^{69} + \cdots + 49u + 4$
c_{10}	$u^{70} + u^{69} + \cdots - 1887u + 578$
c_{11}	$u^{70} - 5u^{69} + \cdots - u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{70} + 29y^{69} + \cdots + 7y + 1$
c_2	$y^{70} + 25y^{69} + \cdots + 347y + 1$
c_3	$y^{70} + 5y^{69} + \cdots + 7y + 1$
c_5, c_6, c_9	$y^{70} + 61y^{69} + \cdots - 5y + 1$
c_7	$y^{70} - 71y^{69} + \cdots - 45y + 1$
c_8	$y^{70} - 75y^{69} + \cdots - 401y + 16$
c_{10}	$y^{70} - 15y^{69} + \cdots - 869601y + 334084$
c_{11}	$y^{70} - 7y^{69} + \cdots - 5y + 1$