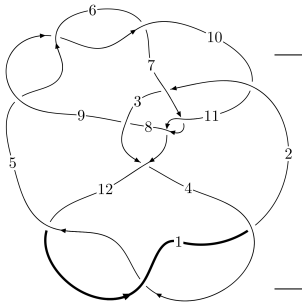
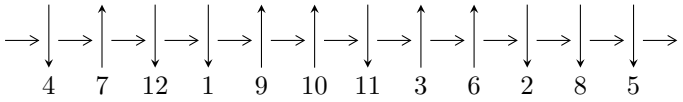
$12a_{1119}$ $(K12a_{1119})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.43683 \times 10^{139} u^{83} + 3.15689 \times 10^{140} u^{82} + \cdots + 5.45656 \times 10^{140} b - 2.22182 \times 10^{139},$$
$$2.34091 \times 10^{140} u^{83} - 1.44662 \times 10^{141} u^{82} + \cdots + 5.45656 \times 10^{140} a - 5.49196 \times 10^{140},\ u^{84} - 7u^{83} + \cdots + 7u^{2}$$

* 1 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 84 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. $\boldsymbol{I_1^u = \langle -2.44 \times 10^{139} u^{83} + 3.16 \times 10^{140} u^{82} + \cdots + 5.46 \times 10^{140} b - 2.22 \times 10^{139},\ 2.34 \times 10^{140} u^{83} - 1.45 \times 10^{141} u^{82} + \cdots + 5.46 \times 10^{140} a - 5.49 \times 10^{140},\ u^{84} - 7u^{83} + \cdots + 7u^2 + 1 \rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.429009u^{83} + 2.65116u^{82} + \cdots + 6.73479u + 1.00649 \\ 0.0446588u^{83} - 0.578550u^{82} + \cdots + 0.0135038u + 0.0407184 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.334513u^{83} - 2.87235u^{82} + \cdots + 1.44740u + 2.70338 \\ -0.162239u^{83} + 0.872984u^{82} + \cdots + 1.58318u - 0.361124 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.133440u^{83} - 0.707253u^{82} + \cdots + 11.9226u + 0.535960 \\ -0.167963u^{83} + 1.28402u^{82} + \cdots + 1.04242u - 1.33717 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.384350u^{83} + 2.07261u^{82} + \cdots + 6.74830u + 1.04721 \\ 0.0446588u^{83} - 0.578550u^{82} + \cdots + 0.0135038u + 0.0407184 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.288339u^{83} + 0.698691u^{82} + \cdots + 11.0956u + 0.146923 \\ -0.197313u^{83} + 1.54442u^{82} + \cdots + 0.418755u - 1.18254 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.911994u^{83} - 5.64628u^{82} + \cdots - 10.3785u - 5.24643 \\ 0.158497u^{83} - 0.788027u^{82} + \cdots + 2.54815u + 0.342618 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.62663u^{83} - 11.7707u^{82} + \cdots - 6.84432u - 3.89169 \\ 0.694473u^{83} - 4.03384u^{82} + \cdots + 1.64447u - 0.0378106 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6.53695u^{83} + 39.5178u^{82} + \cdots + 24.3239u - 1.59872$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$u^{84} - u^{83} + \cdots - 14u + 1$
c_2	$u^{84} + 3u^{83} + \cdots + 4u + 1$
c_3	$u^{84} + u^{83} + \cdots - 43278u + 4801$
c_5, c_6, c_9	$u^{84} - 7u^{83} + \cdots + 7u^2 + 1$
c_7, c_{11}	$u^{84} + u^{83} + \cdots + 7u^2 + 1$
c_8	$u^{84} - u^{83} + \cdots - 6188u + 3431$
c_{10}	$u^{84} + 5u^{83} + \cdots - 46u + 13$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{84} + 73y^{83} + \cdots - 102y + 1$
c_2	$y^{84} - 7y^{83} + \cdots - 78y + 1$
c_3	$y^{84} - 19y^{83} + \cdots - 2061501350y + 23049601$
c_5, c_6, c_9	$y^{84} - 83y^{83} + \cdots + 14y + 1$
c_7, c_{11}	$y^{84} - 59y^{83} + \cdots + 14y + 1$
c_8	$y^{84} - 211y^{83} + \cdots + 403051910y + 11771761$
c_{10}	$y^{84} - 259y^{83} + \cdots + 32802y + 169$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.558103+0.837786I$ $a=\ 1.52550-1.04449I$ $b=\ 0.32653+1.38845I$	$-0.28320-12.83660I$	0
$u=-0.558103-0.837786I$ $a=\ 1.52550+1.04449I$ $b=\ 0.32653-1.38845I$	$-0.28320+12.83660I$	0
$u=-0.639681+0.783616I$ $a=\ 0.411406-0.299400I$ $b=\ 0.711341-0.142714I$	$-4.95491+3.53314I$	0
$u=-0.639681-0.783616I$ $a=\ 0.411406+0.299400I$ $b=\ 0.711341+0.142714I$	$-4.95491-3.53314I$	0
$u=-0.747659+0.597758I$ $a=\ 1.51169-1.14560I$ $b=\ 0.227897+1.113580I$	$-2.10479+0.01557I$	0
$u=-0.747659-0.597758I$ $a=\ 1.51169+1.14560I$ $b=\ 0.227897-1.113580I$	$-2.10479-0.01557I$	0
$u=-0.490660+0.800323I$ $a=\ 0.681388-0.567665I$ $b=\ 0.792584+0.213001I$	$-5.35864-8.79455I$	0
$u=-0.490660-0.800323I$ $a=\ 0.681388+0.567665I$ $b=\ 0.792584-0.213001I$	$-5.35864+8.79455I$	0
$u=\ 0.401609+0.848172I$ $a=\ 0.805169+0.380180I$ $b=\ 0.613779-0.176501I$	$-0.43669+3.36220I$	0
$u=\ 0.401609-0.848172I$ $a=\ 0.805169-0.380180I$ $b=\ 0.613779+0.176501I$	$-0.43669-3.36220I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.593656+0.901541I$ $a=0.177974+0.754728I$ $b=0.288082-1.348880I$	$-0.24649+7.15365I$	0
$u=-0.593656-0.901541I$ $a=0.177974-0.754728I$ $b=0.288082+1.348880I$	$-0.24649-7.15365I$	0
$u=1.088040+0.044118I$ $a=1.15502+1.02120I$ $b=-0.028874-1.253000I$	$5.55571+0.01357I$	0
$u=1.088040-0.044118I$ $a=1.15502-1.02120I$ $b=-0.028874+1.253000I$	$5.55571-0.01357I$	0
$u=0.523355+0.968000I$ $a=1.40292+0.93077I$ $b=0.248772-1.359780I$	$4.42501+6.53157I$	0
$u=0.523355-0.968000I$ $a=1.40292-0.93077I$ $b=0.248772+1.359780I$	$4.42501-6.53157I$	0
$u=0.985199+0.608775I$ $a=0.194220-1.206160I$ $b=0.134578+1.326750I$	$5.97791-0.32219I$	0
$u=0.985199-0.608775I$ $a=0.194220+1.206160I$ $b=0.134578-1.326750I$	$5.97791+0.32219I$	0
$u=-0.014818+0.841024I$ $a=1.022770-0.141577I$ $b=0.101645+1.273120I$	$2.45064+1.09496I$	$0.-4.87467I$
$u=-0.014818-0.841024I$ $a=1.022770+0.141577I$ $b=0.101645-1.273120I$	$2.45064-1.09496I$	$0.+4.87467I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.403808+0.710608I$ $a=\ \ 0.183228+0.122343I$ $b=\ \ 0.390587-0.945271I$	$-3.07733-4.49445I$	$0.+4.03751I$
$u=-0.403808-0.710608I$ $a=\ \ 0.183228-0.122343I$ $b=\ \ 0.390587+0.945271I$	$-3.07733+4.49445I$	$0.-4.03751I$
$u=-0.609196+0.406672I$ $a=-0.28476+1.62479I$ $b=-0.04981-1.43688I$	$4.61918-4.68420I$	$2.69222+7.52303I$
$u=-0.609196-0.406672I$ $a=-0.28476-1.62479I$ $b=-0.04981+1.43688I$	$4.61918+4.68420I$	$2.69222-7.52303I$
$u=\ \ 1.31401$ $a=\ \ 0.437229$ $b=-1.04347$	-1.24406	0
$u=-1.330080+0.068788I$ $a=\ \ 0.429993+0.933227I$ $b=-0.903437-0.502221I$	$-0.39209-2.89833I$	0
$u=-1.330080-0.068788I$ $a=\ \ 0.429993-0.933227I$ $b=-0.903437+0.502221I$	$-0.39209+2.89833I$	0
$u=-1.346290+0.084631I$ $a=-0.465672+0.572476I$ $b=-0.270534-1.164230I$	$6.20610-3.71389I$	0
$u=-1.346290-0.084631I$ $a=-0.465672-0.572476I$ $b=-0.270534+1.164230I$	$6.20610+3.71389I$	0
$u=\ \ 0.470607+0.437247I$ $a=\ \ 0.379162-0.111252I$ $b=\ \ 0.167310+0.380669I$	$1.018620+0.865781I$	$4.46908-2.51048I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.470607 - 0.437247I$ $a = 0.379162 + 0.111252I$ $b = 0.167310 - 0.380669I$	$1.018620 - 0.865781I$	$4.46908 + 2.51048I$
$u = 1.357310 + 0.113910I$ $a = -0.08709 - 1.41361I$ $b = -0.595285 + 1.116090I$	$2.14730 + 5.65478I$	0
$u = 1.357310 - 0.113910I$ $a = -0.08709 + 1.41361I$ $b = -0.595285 - 1.116090I$	$2.14730 - 5.65478I$	0
$u = -1.36225$ $a = -0.619840$ $b = -0.737594$	2.64928	0
$u = 1.372000 + 0.056138I$ $a = 0.166578 - 1.098660I$ $b = -0.589738 + 0.319680I$	$3.44980 + 1.64919I$	0
$u = 1.372000 - 0.056138I$ $a = 0.166578 + 1.098660I$ $b = -0.589738 - 0.319680I$	$3.44980 - 1.64919I$	0
$u = -1.40478$ $a = -9.12724$ $b = -0.576785$	2.15827	0
$u = -1.414000 + 0.020024I$ $a = -10.33470 + 3.36484I$ $b = -0.218790 - 1.310170I$	$6.31232 - 2.86771I$	0
$u = -1.414000 - 0.020024I$ $a = -10.33470 - 3.36484I$ $b = -0.218790 + 1.310170I$	$6.31232 + 2.86771I$	0
$u = -1.41705 + 0.12490I$ $a = -0.72952 + 2.35259I$ $b = -0.36926 - 1.49647I$	$5.91677 - 7.57306I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.41705-0.12490I$ $a=-0.72952-2.35259I$ $b=-0.36926+1.49647I$	$5.91677+7.57306I$	0
$u=1.43896+0.09315I$ $a=-1.15853-2.79825I$ $b=-0.24915+1.42600I$	$9.04553+4.79524I$	0
$u=1.43896-0.09315I$ $a=-1.15853+2.79825I$ $b=-0.24915-1.42600I$	$9.04553-4.79524I$	0
$u=1.42046+0.37578I$ $a=0.456228+0.488501I$ $b=0.548985-0.149764I$	$2.49026+1.60685I$	0
$u=1.42046-0.37578I$ $a=0.456228-0.488501I$ $b=0.548985+0.149764I$	$2.49026-1.60685I$	0
$u=-0.204867+0.486225I$ $a=-0.343437+0.220412I$ $b=-0.482066-0.851406I$	$-2.67638-3.53656I$	$-7.87807+8.61174I$
$u=-0.204867-0.486225I$ $a=-0.343437-0.220412I$ $b=-0.482066+0.851406I$	$-2.67638+3.53656I$	$-7.87807-8.61174I$
$u=1.47597$ $a=0.594054$ $b=0.100712$	3.39757	0
$u=0.287913+0.434694I$ $a=-1.36655-0.68485I$ $b=-0.35900+1.38494I$	$0.44827+5.59393I$	$-4.07425-9.66974I$
$u=0.287913-0.434694I$ $a=-1.36655+0.68485I$ $b=-0.35900-1.38494I$	$0.44827-5.59393I$	$-4.07425+9.66974I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.47315+0.20651I$ $a=-0.143376+0.617668I$ $b=\ \ 0.401164-0.693355I$	$7.23640-3.44789I$	0
$u=-1.47315-0.20651I$ $a=-0.143376-0.617668I$ $b=\ \ 0.401164+0.693355I$	$7.23640+3.44789I$	0
$u=\ \ 1.47977+0.24770I$ $a=-0.358315-0.779942I$ $b=\ \ 0.534813+0.884353I$	$3.04368+7.95765I$	0
$u=\ \ 1.47977-0.24770I$ $a=-0.358315+0.779942I$ $b=\ \ 0.534813-0.884353I$	$3.04368-7.95765I$	0
$u=-0.344988+0.334848I$ $a=\ \ 1.92138+0.14934I$ $b=-0.197517+0.346890I$	$-1.92460+0.99564I$	$-1.96608+2.11328I$
$u=-0.344988-0.334848I$ $a=\ \ 1.92138-0.14934I$ $b=-0.197517-0.346890I$	$-1.92460-0.99564I$	$-1.96608-2.11328I$
$u=\ \ 1.51666+0.14625I$ $a=-0.29716-2.66877I$ $b=-0.00970+1.54752I$	$11.56010+6.78696I$	0
$u=\ \ 1.51666-0.14625I$ $a=-0.29716+2.66877I$ $b=-0.00970-1.54752I$	$11.56010-6.78696I$	0
$u=-1.49761+0.29399I$ $a=\ \ 0.233342-0.820168I$ $b=\ \ 0.726980+0.278450I$	$5.75269-7.44281I$	0
$u=-1.49761-0.29399I$ $a=\ \ 0.233342+0.820168I$ $b=\ \ 0.726980-0.278450I$	$5.75269+7.44281I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.51599 + 0.28498I$ $a = 0.058636 + 0.886807I$ $b = 0.835240 - 0.276491I$	$1.14844 + 12.74900I$	0
$u = 1.51599 - 0.28498I$ $a = 0.058636 - 0.886807I$ $b = 0.835240 + 0.276491I$	$1.14844 - 12.74900I$	0
$u = -0.012086 + 0.442740I$ $a = 0.89158 + 2.28803I$ $b = -0.162190 + 1.277820I$	$2.28626 + 2.04027I$	$-3.92912 - 5.24188I$
$u = -0.012086 - 0.442740I$ $a = 0.89158 - 2.28803I$ $b = -0.162190 - 1.277820I$	$2.28626 - 2.04027I$	$-3.92912 + 5.24188I$
$u = 0.076173 + 0.427342I$ $a = -0.694821 - 0.381532I$ $b = -0.857353 + 0.238672I$	$-4.65098 + 1.20835I$	$-15.0329 - 4.8481I$
$u = 0.076173 - 0.427342I$ $a = -0.694821 + 0.381532I$ $b = -0.857353 - 0.238672I$	$-4.65098 - 1.20835I$	$-15.0329 + 4.8481I$
$u = -1.56700 + 0.14380I$ $a = -0.02967 + 2.52214I$ $b = 0.07633 - 1.46544I$	$14.1292 - 2.0376I$	0
$u = -1.56700 - 0.14380I$ $a = -0.02967 - 2.52214I$ $b = 0.07633 + 1.46544I$	$14.1292 + 2.0376I$	0
$u = 1.54885 + 0.29519I$ $a = 1.34400 + 2.12210I$ $b = 0.33964 - 1.42580I$	$6.5668 + 16.9923I$	0
$u = 1.54885 - 0.29519I$ $a = 1.34400 - 2.12210I$ $b = 0.33964 + 1.42580I$	$6.5668 - 16.9923I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.54618+0.32454I$ $a=\ \ 1.38269-2.01148I$ $b=\ \ 0.29004+1.41078I$	$11.1318-11.1393I$	0
$u=-1.54618-0.32454I$ $a=\ \ 1.38269+2.01148I$ $b=\ \ 0.29004-1.41078I$	$11.1318+11.1393I$	0
$u=\ \ 0.345350+0.231832I$ $a=\ \ 4.98640+1.68201I$ $b=-0.262208-1.299920I$	$0.91964-3.32129I$	$6.11652-8.60509I$
$u=\ \ 0.345350-0.231832I$ $a=\ \ 4.98640-1.68201I$ $b=-0.262208+1.299920I$	$0.91964+3.32129I$	$6.11652+8.60509I$
$u=-0.300231+0.276423I$ $a=-2.82551+2.03371I$ $b=-0.229473-1.345730I$	$3.36187-3.41278I$	$-0.247336+1.025326I$
$u=-0.300231-0.276423I$ $a=-2.82551-2.03371I$ $b=-0.229473+1.345730I$	$3.36187+3.41278I$	$-0.247336-1.025326I$
$u=\ \ 1.61987$ $a=\ \ 0.207346$ $b=\ \ 0.397949$	3.31098	0
$u=\ \ 1.56407+0.45989I$ $a=\ \ 1.32437+1.73919I$ $b=\ \ 0.223403-1.352190I$	$7.25184+4.47084I$	0
$u=\ \ 1.56407-0.45989I$ $a=\ \ 1.32437-1.73919I$ $b=\ \ 0.223403+1.352190I$	$7.25184-4.47084I$	0
$u=\ \ 0.316396$ $a=\ \ 4.76803$ $b=-0.657423$	-3.17231	16.2440

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.116009+0.290071I$ $a=-1.05692+1.73060I$ $b=-0.574135-0.102366I$	$-1.248270-0.474713I$	$-7.55961+0.17216I$
$u=-0.116009-0.290071I$ $a=-1.05692-1.73060I$ $b=-0.574135+0.102366I$	$-1.248270+0.474713I$	$-7.55961-0.17216I$
$u=1.75518+0.17068I$ $a=0.40063-1.98817I$ $b=0.187126+1.339880I$	$7.78775-2.29126I$	0
$u=1.75518-0.17068I$ $a=0.40063+1.98817I$ $b=0.187126-1.339880I$	$7.78775+2.29126I$	0

II. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$u^{84} - u^{83} + \cdots - 14u + 1$
c_2	$u^{84} + 3u^{83} + \cdots + 4u + 1$
c_3	$u^{84} + u^{83} + \cdots - 43278u + 4801$
c_5, c_6, c_9	$u^{84} - 7u^{83} + \cdots + 7u^2 + 1$
c_7, c_{11}	$u^{84} + u^{83} + \cdots + 7u^2 + 1$
c_8	$u^{84} - u^{83} + \cdots - 6188u + 3431$
c_{10}	$u^{84} + 5u^{83} + \cdots - 46u + 13$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{84} + 73y^{83} + \cdots - 102y + 1$
c_2	$y^{84} - 7y^{83} + \cdots - 78y + 1$
c_3	$y^{84} - 19y^{83} + \cdots - 2061501350y + 23049601$
c_5, c_6, c_9	$y^{84} - 83y^{83} + \cdots + 14y + 1$
c_7, c_{11}	$y^{84} - 59y^{83} + \cdots + 14y + 1$
c_8	$y^{84} - 211y^{83} + \cdots + 403051910y + 11771761$
c_{10}	$y^{84} - 259y^{83} + \cdots + 32802y + 169$