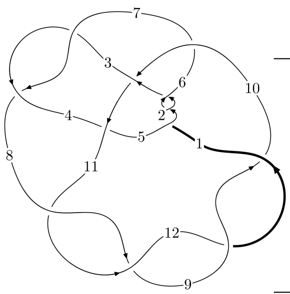
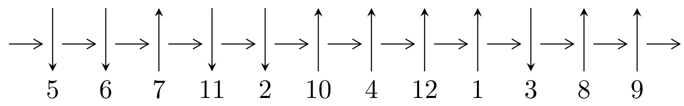
$12a_{1219}$ ($K12a_{1219}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 8.75661\times10^{64}u^{63} + 2.76997\times10^{65}u^{62} + \cdots + 1.65696\times10^{65}b + 2.96457\times10^{65},$$
$$1.00296\times10^{66}u^{63} + 3.44551\times10^{66}u^{62} + \cdots + 8.28478\times10^{64}a + 2.84103\times10^{65},\ u^{64} + 4u^{63} + \cdots - 10u +$$
$$I_2^u = \langle b-1,\ a+2,\ u+1\rangle$$
$$I_3^u = \langle b+1,\ a^2-4a+2,\ u+1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 67 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 8.76\times10^{64}u^{63}+2.77\times10^{65}u^{62}+\cdots+1.66\times10^{65}b+2.96\times10^{65},\ 1.00\times10^{66}u^{63}+ 3.45\times10^{66}u^{62}+\cdots+8.28\times10^{64}a+2.84\times10^{65},\ u^{64}+4u^{63}+\cdots-10u+1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-12.1060u^{63}-41.5885u^{62}+\cdots+205.872u-3.42922\\-0.528476u^{63}-1.67172u^{62}+\cdots+7.65402u-1.78916\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}13.7729u^{63}+46.8393u^{62}+\cdots-229.931u+4.46101\\0.181537u^{63}+0.533529u^{62}+\cdots-1.36851u+1.37956\end{pmatrix}$$
$$a_3 = \begin{pmatrix}4.35303u^{63}+10.6700u^{62}+\cdots-32.5922u-0.381251\\-3.47471u^{63}-8.31368u^{62}+\cdots+28.6251u-2.38908\end{pmatrix}$$
$$a_6 = \begin{pmatrix}8.57909u^{63}+30.0107u^{62}+\cdots-140.536u-4.30529\\5.95601u^{63}+19.1387u^{62}+\cdots-97.4281u+9.72466\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-7.27418u^{63}-25.7859u^{62}+\cdots+120.459u+3.84863\\-5.36032u^{63}-17.4743u^{62}+\cdots+93.0670u-9.06702\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-8.95289u^{63}-28.0262u^{62}+\cdots+182.432u-36.5824\\-5.59890u^{63}-20.4560u^{62}+\cdots+122.657u-8.92048\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -112.789u^{63}-383.132u^{62}+\cdots+2107.64u-184.302$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u^{64} + 5u^{63} + \cdots - 6u - 2$
c_3, c_7	$u^{64} - 2u^{63} + \cdots + 6u - 1$
c_4	$u^{64} + 16u^{63} + \cdots - 397046u + 45841$
c_6	$u^{64} - 18u^{63} + \cdots - 8u + 1$
c_8, c_9, c_{11} c_{12}	$u^{64} - 4u^{63} + \cdots + 10u + 1$
c_{10}	$u^{64} - 2u^{63} + \cdots - 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y^{64} - 61y^{63} + \cdots + 12y + 4$
c_3, c_7	$y^{64} - 52y^{63} + \cdots + 6y + 1$
c_4	$y^{64} - 440y^{63} + \cdots + 63549675954y + 2101397281$
c_6	$y^{64} - 504y^{63} + \cdots - 638y + 1$
c_8, c_9, c_{11} c_{12}	$y^{64} - 76y^{63} + \cdots - 106y + 1$
c_{10}	$y^{64} - 8y^{63} + \cdots - 114y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.626252 + 0.772749I$ $a = -0.442645 - 0.836072I$ $b = 1.282870 - 0.069070I$	$1.37703 - 2.62298I$	0
$u = -0.626252 - 0.772749I$ $a = -0.442645 + 0.836072I$ $b = 1.282870 + 0.069070I$	$1.37703 + 2.62298I$	0
$u = 0.892186 + 0.475186I$ $a = 1.45927 - 1.01010I$ $b = -1.37477 - 0.41692I$	$5.33163 + 8.09564I$	0
$u = 0.892186 - 0.475186I$ $a = 1.45927 + 1.01010I$ $b = -1.37477 + 0.41692I$	$5.33163 - 8.09564I$	0
$u = -0.885933 + 0.573263I$ $a = 0.924110 + 0.935341I$ $b = -1.224840 - 0.045601I$	$4.82419 - 0.31393I$	0
$u = -0.885933 - 0.573263I$ $a = 0.924110 - 0.935341I$ $b = -1.224840 + 0.045601I$	$4.82419 + 0.31393I$	0
$u = 0.866924 + 0.614790I$ $a = -1.33885 + 1.11410I$ $b = 1.36865 + 0.42563I$	$-0.85685 + 11.92020I$	0
$u = 0.866924 - 0.614790I$ $a = -1.33885 - 1.11410I$ $b = 1.36865 - 0.42563I$	$-0.85685 - 11.92020I$	0
$u = -1.088320 + 0.183319I$ $a = -1.033310 + 0.040437I$ $b = 0.007127 - 0.240948I$	$-3.32236 + 0.09828I$	0
$u = -1.088320 - 0.183319I$ $a = -1.033310 - 0.040437I$ $b = 0.007127 + 0.240948I$	$-3.32236 - 0.09828I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.727414 + 0.497209I$ $a = 0.517608 - 0.186664I$ $b = -0.136718 - 0.955922I$	$-5.57662 + 7.00157I$	0
$u = 0.727414 - 0.497209I$ $a = 0.517608 + 0.186664I$ $b = -0.136718 + 0.955922I$	$-5.57662 - 7.00157I$	0
$u = 0.086190 + 0.869107I$ $a = -0.161462 - 0.186514I$ $b = 1.276990 - 0.329837I$	$-3.24005 - 7.03352I$	0
$u = 0.086190 - 0.869107I$ $a = -0.161462 + 0.186514I$ $b = 1.276990 + 0.329837I$	$-3.24005 + 7.03352I$	0
$u = 0.826064 + 0.274343I$ $a = -1.68330 + 0.81928I$ $b = 1.39853 + 0.42614I$	$4.75434 + 3.17966I$	0
$u = 0.826064 - 0.274343I$ $a = -1.68330 - 0.81928I$ $b = 1.39853 - 0.42614I$	$4.75434 - 3.17966I$	0
$u = -1.20392$ $a = 1.35869$ $b = -0.745445$	2.67121	0
$u = -0.735824$ $a = -4.70570$ $b = 1.05067$	2.92949	-31.0790
$u = -0.061375 + 0.731517I$ $a = -0.056369 + 0.272785I$ $b = -1.230620 + 0.271880I$	$2.42658 - 4.10040I$	$5.18854 + 6.65155I$
$u = -0.061375 - 0.731517I$ $a = -0.056369 - 0.272785I$ $b = -1.230620 - 0.271880I$	$2.42658 + 4.10040I$	$5.18854 - 6.65155I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.156350+0.575363I$ $a=-1.056810-0.610432I$ $b=\ \ 1.251050+0.169381I$	$0.45977+2.04940I$	0
$u=-1.156350-0.575363I$ $a=-1.056810+0.610432I$ $b=\ \ 1.251050-0.169381I$	$0.45977-2.04940I$	0
$u=\ \ 0.645610+0.280609I$ $a=-0.622762-0.084173I$ $b=\ \ 0.227169+0.986896I$	$0.39947+3.16035I$	$2.81338-10.76378I$
$u=\ \ 0.645610-0.280609I$ $a=-0.622762+0.084173I$ $b=\ \ 0.227169-0.986896I$	$0.39947-3.16035I$	$2.81338+10.76378I$
$u=-0.537409+0.416579I$ $a=-0.908169+1.049400I$ $b=-0.301281+0.283446I$	$-3.30500-1.49850I$	$-1.71841+4.52498I$
$u=-0.537409-0.416579I$ $a=-0.908169-1.049400I$ $b=-0.301281-0.283446I$	$-3.30500+1.49850I$	$-1.71841-4.52498I$
$u=\ \ 0.171438+0.641396I$ $a=-0.810739+0.661600I$ $b=-0.011504+0.735189I$	$-7.24617-3.15234I$	$-4.81813+1.66839I$
$u=\ \ 0.171438-0.641396I$ $a=-0.810739-0.661600I$ $b=-0.011504-0.735189I$	$-7.24617+3.15234I$	$-4.81813-1.66839I$
$u=-0.622251+0.147718I$ $a=\ \ 0.623442-0.530311I$ $b=\ \ 0.140050-0.093500I$	$1.153010-0.371044I$	$8.52101+0.53269I$
$u=-0.622251-0.147718I$ $a=\ \ 0.623442+0.530311I$ $b=\ \ 0.140050+0.093500I$	$1.153010+0.371044I$	$8.52101-0.53269I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.625236$ $a=-32.6722$ $b=-0.982597$	-2.29108	-335.850
$u=0.571354+0.216286I$ $a=1.058770-0.384713I$ $b=-1.136650+0.669884I$	$-2.52737+1.49035I$	$-1.46490-10.14674I$
$u=0.571354-0.216286I$ $a=1.058770+0.384713I$ $b=-1.136650-0.669884I$	$-2.52737-1.49035I$	$-1.46490+10.14674I$
$u=-1.58313$ $a=2.77393$ $b=-1.86821$	3.83757	0
$u=1.58050+0.10884I$ $a=0.006317-0.340356I$ $b=-0.242493-0.631350I$	$3.96868+3.34904I$	0
$u=1.58050-0.10884I$ $a=0.006317+0.340356I$ $b=-0.242493+0.631350I$	$3.96868-3.34904I$	0
$u=-1.58979+0.03598I$ $a=1.41098+0.68557I$ $b=-1.17421-1.06495I$	$4.95069-2.27479I$	0
$u=-1.58979-0.03598I$ $a=1.41098-0.68557I$ $b=-1.17421+1.06495I$	$4.95069+2.27479I$	0
$u=-1.60546+0.05832I$ $a=-0.671440+0.764979I$ $b=0.437967-1.302070I$	$8.17400-4.30296I$	0
$u=-1.60546-0.05832I$ $a=-0.671440-0.764979I$ $b=0.437967+1.302070I$	$8.17400+4.30296I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.60877 + 0.03569I$ $a = 0.077213 + 0.292537I$ $b = 0.219375 + 0.411958I$	$8.93615 + 1.02069I$	0
$u = 1.60877 - 0.03569I$ $a = 0.077213 - 0.292537I$ $b = 0.219375 - 0.411958I$	$8.93615 - 1.02069I$	0
$u = 0.385731$ $a = 4.06256$ $b = -1.41196$	-3.33490	-8.92110
$u = 0.129453 + 0.356601I$ $a = 1.25594 - 0.67953I$ $b = -0.129998 - 0.580705I$	$-1.019940 - 0.841014I$	$-4.44164 + 2.44385I$
$u = 0.129453 - 0.356601I$ $a = 1.25594 + 0.67953I$ $b = -0.129998 + 0.580705I$	$-1.019940 + 0.841014I$	$-4.44164 - 2.44385I$
$u = -0.151171 + 0.347893I$ $a = 1.51053 - 0.33569I$ $b = 1.087870 - 0.202838I$	$1.93096 - 1.01785I$	$2.25227 - 1.57609I$
$u = -0.151171 - 0.347893I$ $a = 1.51053 + 0.33569I$ $b = 1.087870 + 0.202838I$	$1.93096 + 1.01785I$	$2.25227 + 1.57609I$
$u = -1.61625 + 0.13512I$ $a = 0.579253 - 0.473421I$ $b = -0.254582 + 1.128060I$	$2.39807 - 9.34049I$	0
$u = -1.61625 - 0.13512I$ $a = 0.579253 + 0.473421I$ $b = -0.254582 - 1.128060I$	$2.39807 + 9.34049I$	0
$u = 1.63116 + 0.01107I$ $a = -1.17537 + 1.13475I$ $b = -0.795270 + 0.143585I$	$5.71807 + 0.01867I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.63116 - 0.01107I$ $a = -1.17537 - 1.13475I$ $b = -0.795270 - 0.143585I$	$5.71807 - 0.01867I$	0
$u = 1.62771 + 0.23629I$ $a = -1.53783 + 0.68857I$ $b = 1.350810 + 0.224077I$	$8.99118 + 6.39006I$	0
$u = 1.62771 - 0.23629I$ $a = -1.53783 - 0.68857I$ $b = 1.350810 - 0.224077I$	$8.99118 - 6.39006I$	0
$u = -1.65093 + 0.07673I$ $a = -2.22460 - 0.22306I$ $b = 1.61684 - 0.49505I$	$13.36180 - 4.53477I$	0
$u = -1.65093 - 0.07673I$ $a = -2.22460 + 0.22306I$ $b = 1.61684 + 0.49505I$	$13.36180 + 4.53477I$	0
$u = -1.67065 + 0.13316I$ $a = 2.09031 + 0.47257I$ $b = -1.51390 + 0.48815I$	$14.1665 - 10.4624I$	0
$u = -1.67065 - 0.13316I$ $a = 2.09031 - 0.47257I$ $b = -1.51390 - 0.48815I$	$14.1665 + 10.4624I$	0
$u = -1.66778 + 0.18149I$ $a = -2.03991 - 0.65692I$ $b = 1.46024 - 0.47787I$	$7.7777 - 15.0108I$	0
$u = -1.66778 - 0.18149I$ $a = -2.03991 + 0.65692I$ $b = 1.46024 + 0.47787I$	$7.7777 + 15.0108I$	0
$u = 1.68055$ $a = -2.49868$ $b = 1.25013$	11.5859	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.68516 + 0.14611I$ $a = 1.76330 - 0.59949I$ $b = -1.328680 - 0.151173I$	$13.75650 + 3.08420I$	0
$u = 1.68516 - 0.14611I$ $a = 1.76330 + 0.59949I$ $b = -1.328680 + 0.151173I$	$13.75650 - 3.08420I$	0
$u = 1.73966$ $a = -2.03600$ $b = 1.32403$	11.5124	0
$u = 0.102209$ $a = 13.6904$ $b = -1.15668$	-3.39768	-3.12270

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

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -2 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	u
c_3, c_8, c_9 c_{10}	$u+1$
c_4, c_6, c_7 c_{11}, c_{12}	$u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	y
c_3, c_4, c_6 c_7, c_8, c_9 c_{10}, c_{11}, c_{12}	$y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$		
$a = -2.00000$	3.28987	12.0000
$b = 1.00000$		

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

(i) Arc colorings

$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$

$a_{12} = \begin{pmatrix}0\\-1\end{pmatrix}$

$a_9 = \begin{pmatrix}1\\-1\end{pmatrix}$

$a_1 = \begin{pmatrix}-1\\0\end{pmatrix}$

$a_4 = \begin{pmatrix}a\\-1\end{pmatrix}$

$a_{10} = \begin{pmatrix}0\\-1\end{pmatrix}$

$a_7 = \begin{pmatrix}-a+1\\1\end{pmatrix}$

$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$

$a_6 = \begin{pmatrix}-a+1\\-a+2\end{pmatrix}$

$a_{11} = \begin{pmatrix}1\\-1\end{pmatrix}$

$a_5 = \begin{pmatrix}1\\a-2\end{pmatrix}$

$a_2 = \begin{pmatrix}-a+1\\-2\end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u^2 - 2$
c_3, c_{10}, c_{11} c_{12}	$(u-1)^2$
c_4	$u^2 + 2u - 1$
c_6	$u^2 - 2u - 1$
c_7, c_8, c_9	$(u+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$(y-2)^2$
c_3, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$(y-1)^2$
c_4, c_6	$y^2 - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0.585786$ $b = -1.00000$	-1.64493	4.00000
$u = -1.00000$ $a = 3.41421$ $b = -1.00000$	-1.64493	4.00000

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_5	$u(u^2-2)(u^{64}+5u^{63}+\cdots-6u-2)$
c_3	$((u-1)^2)(u+1)(u^{64}-2u^{63}+\cdots+6u-1)$
c_4	$(u-1)(u^2+2u-1)(u^{64}+16u^{63}+\cdots-397046u+45841)$
c_6	$(u-1)(u^2-2u-1)(u^{64}-18u^{63}+\cdots-8u+1)$
c_7	$(u-1)(u+1)^2(u^{64}-2u^{63}+\cdots+6u-1)$
c_8, c_9	$((u+1)^3)(u^{64}-4u^{63}+\cdots+10u+1)$
c_{10}	$((u-1)^2)(u+1)(u^{64}-2u^{63}+\cdots-2u-1)$
c_{11}, c_{12}	$((u-1)^3)(u^{64}-4u^{63}+\cdots+10u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5	$y(y-2)^2(y^{64} - 61y^{63} + \cdots + 12y + 4)$
c_3, c_7	$((y-1)^3)(y^{64} - 52y^{63} + \cdots + 6y + 1)$
c_4	$(y-1)(y^2 - 6y + 1)$ $\cdot\, (y^{64} - 440y^{63} + \cdots + 63549675954y + 2101397281)$
c_6	$(y-1)(y^2 - 6y + 1)(y^{64} - 504y^{63} + \cdots - 638y + 1)$
c_8, c_9, c_{11} c_{12}	$((y-1)^3)(y^{64} - 76y^{63} + \cdots - 106y + 1)$
c_{10}	$((y-1)^3)(y^{64} - 8y^{63} + \cdots - 114y + 1)$