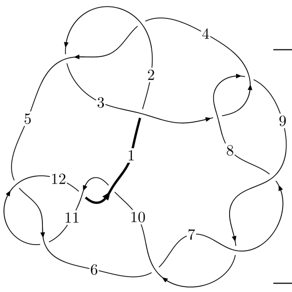
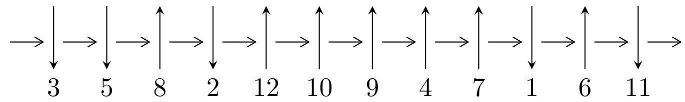
$12a_{0118}$ ($K12a_{0118}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 4.88767 \times 10^{39} u^{69} - 2.05229 \times 10^{38} u^{68} + \cdots + 4.39249 \times 10^{39} b - 2.55827 \times 10^{40},$$
$$- 8.11974 \times 10^{39} u^{69} + 1.40212 \times 10^{39} u^{68} + \cdots + 4.39249 \times 10^{39} a + 6.03714 \times 10^{40},\ u^{70} - u^{69} + \cdots - 12u -$$

$$I_1^v = \langle a,\ b - v - 1,\ v^2 + v + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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.

$\boldsymbol{I_1^u = \langle 4.89\times10^{39}u^{69} - 2.05\times10^{38}u^{68} + \cdots + 4.39\times10^{39}b - 2.56\times10^{40},\ -8.12\times10^{39}u^{69} + 1.40\times10^{39}u^{68} + \cdots + 4.39\times10^{39}a + 6.04\times10^{40},\ u^{70} - u^{69} + \cdots - 12u + 4\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 1.84855u^{69} - 0.319208u^{68} + \cdots + 27.0154u - 13.7442 \\ -1.11273u^{69} + 0.0467228u^{68} + \cdots - 4.82981u + 5.82420 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.48418u^{69} + 0.111209u^{68} + \cdots + 23.4623u - 12.2083 \\ -0.723651u^{69} + 0.0742162u^{68} + \cdots + 0.973362u + 4.02410 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.263656u^{69} - 0.120324u^{68} + \cdots - 11.2277u + 1.80266 \\ -1.58490u^{69} + 0.439531u^{68} + \cdots - 15.7877u + 11.9416 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} u^4 - u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0566762u^{69} + 0.669845u^{68} + \cdots + 13.0126u - 7.86292 \\ -0.888567u^{69} - 0.0370187u^{68} + \cdots - 13.3944u + 7.93011 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^6 + u^4 - 2u^2 + 1 \\ u^6 + u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.233751u^{69} + 0.504289u^{68} + \cdots + 14.1968u - 7.56914 \\ -1.10374u^{69} - 0.0225465u^{68} + \cdots - 15.1789u + 8.49479 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -5.10416u^{69} + 0.201729u^{68} + \cdots - 71.8492u + 42.8742$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{70} + 41u^{69} + \cdots + 8u + 1$
c_2, c_4	$u^{70} - 3u^{69} + \cdots - 4u + 1$
c_3, c_8	$u^{70} + u^{69} + \cdots + 12u + 4$
c_5, c_{11}	$u^{70} + 2u^{69} + \cdots - u + 1$
c_6, c_7, c_9	$u^{70} - 15u^{69} + \cdots - 200u + 16$
c_{10}, c_{12}	$u^{70} + 26u^{69} + \cdots + 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{70} - 21y^{69} + \cdots + 32y + 1$
c_2, c_4	$y^{70} - 41y^{69} + \cdots - 8y + 1$
c_3, c_8	$y^{70} - 15y^{69} + \cdots - 200y + 16$
c_5, c_{11}	$y^{70} + 26y^{69} + \cdots + 11y + 1$
c_6, c_7, c_9	$y^{70} + 77y^{69} + \cdots + 2272y + 256$
c_{10}, c_{12}	$y^{70} + 38y^{69} + \cdots + 131y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.856012+0.547090I$ $a=-0.649388+0.664283I$ $b=\ \ 0.678669-1.019120I$	$-4.18862-5.65542I$	$-4.40524+8.10333I$
$u=-0.856012-0.547090I$ $a=-0.649388-0.664283I$ $b=\ \ 0.678669+1.019120I$	$-4.18862+5.65542I$	$-4.40524-8.10333I$
$u=-0.959078+0.338964I$ $a=\ \ 1.001140-0.104262I$ $b=-0.162521-0.081892I$	$3.53851-0.96635I$	$7.82026+0.I$
$u=-0.959078-0.338964I$ $a=\ \ 1.001140+0.104262I$ $b=-0.162521+0.081892I$	$3.53851+0.96635I$	$7.82026+0.I$
$u=-1.019040+0.052169I$ $a=\ \ 0.438523-0.219399I$ $b=-0.145309-0.850245I$	$4.86369+0.47978I$	$8.80207+0.I$
$u=-1.019040-0.052169I$ $a=\ \ 0.438523+0.219399I$ $b=-0.145309+0.850245I$	$4.86369-0.47978I$	$8.80207+0.I$
$u=\ \ 1.027600+0.119592I$ $a=-0.292337-0.225712I$ $b=\ \ 0.205304-0.936042I$	$4.71065+4.96261I$	$8.04821-7.02524I$
$u=\ \ 1.027600-0.119592I$ $a=-0.292337+0.225712I$ $b=\ \ 0.205304+0.936042I$	$4.71065-4.96261I$	$8.04821+7.02524I$
$u=-0.443664+0.844769I$ $a=-0.538375+0.337845I$ $b=-0.096708-0.471281I$	$-1.19762+5.98159I$	$-0.92170-7.29563I$
$u=-0.443664-0.844769I$ $a=-0.538375-0.337845I$ $b=-0.096708+0.471281I$	$-1.19762-5.98159I$	$-0.92170+7.29563I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.971885 + 0.410627I$ $a = -1.096340 - 0.187273I$ $b = 0.241292 - 0.293397I$	$2.85579 + 6.32679I$	0
$u = 0.971885 - 0.410627I$ $a = -1.096340 + 0.187273I$ $b = 0.241292 + 0.293397I$	$2.85579 - 6.32679I$	0
$u = 0.839415 + 0.383054I$ $a = 0.167368 + 0.464643I$ $b = 0.014763 - 1.203170I$	$-0.17528 + 3.69433I$	$3.69302 - 7.55665I$
$u = 0.839415 - 0.383054I$ $a = 0.167368 - 0.464643I$ $b = 0.014763 + 1.203170I$	$-0.17528 - 3.69433I$	$3.69302 + 7.55665I$
$u = -0.610913 + 0.667828I$ $a = -1.309430 + 0.512503I$ $b = 0.409626 + 0.116110I$	$-5.02013 + 1.13894I$	$-7.42078 - 0.58795I$
$u = -0.610913 - 0.667828I$ $a = -1.309430 - 0.512503I$ $b = 0.409626 - 0.116110I$	$-5.02013 - 1.13894I$	$-7.42078 + 0.58795I$
$u = 1.007960 + 0.482476I$ $a = 0.671035 + 0.116495I$ $b = -0.043821 - 0.531729I$	$1.70900 + 5.48430I$	0
$u = 1.007960 - 0.482476I$ $a = 0.671035 - 0.116495I$ $b = -0.043821 + 0.531729I$	$1.70900 - 5.48430I$	0
$u = 0.367833 + 0.798582I$ $a = 0.547260 + 0.067881I$ $b = 0.238259 - 0.220293I$	$-0.434483 - 0.891477I$	$0.84820 + 1.91068I$
$u = 0.367833 - 0.798582I$ $a = 0.547260 - 0.067881I$ $b = 0.238259 + 0.220293I$	$-0.434483 + 0.891477I$	$0.84820 - 1.91068I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.688189 + 0.495014I$ $a = -0.751143 - 0.485185I$ $b = 0.731991 + 0.183516I$	$-1.70612 + 1.90353I$	$-1.29790 - 4.47310I$
$u = 0.688189 - 0.495014I$ $a = -0.751143 + 0.485185I$ $b = 0.731991 - 0.183516I$	$-1.70612 - 1.90353I$	$-1.29790 + 4.47310I$
$u = -1.024030 + 0.531995I$ $a = -0.847273 + 0.128927I$ $b = 0.143783 - 0.298287I$	$0.79072 - 10.96610I$	0
$u = -1.024030 - 0.531995I$ $a = -0.847273 - 0.128927I$ $b = 0.143783 + 0.298287I$	$0.79072 + 10.96610I$	0
$u = -0.734851 + 0.407087I$ $a = -2.18354 + 0.39505I$ $b = -0.093179 + 0.722090I$	$-1.82583 - 3.75171I$	$-0.39629 + 7.22205I$
$u = -0.734851 - 0.407087I$ $a = -2.18354 - 0.39505I$ $b = -0.093179 - 0.722090I$	$-1.82583 + 3.75171I$	$-0.39629 - 7.22205I$
$u = -0.690889 + 0.415366I$ $a = -0.012282 + 0.905962I$ $b = -0.01931 - 1.84269I$	$-1.97137 + 0.49525I$	$-1.21375 + 3.39141I$
$u = -0.690889 - 0.415366I$ $a = -0.012282 - 0.905962I$ $b = -0.01931 + 1.84269I$	$-1.97137 - 0.49525I$	$-1.21375 - 3.39141I$
$u = 0.859252 + 0.847811I$ $a = -1.12334 - 1.09661I$ $b = 2.28142 - 0.13713I$	$-3.86556 + 1.55363I$	0
$u = 0.859252 - 0.847811I$ $a = -1.12334 + 1.09661I$ $b = 2.28142 + 0.13713I$	$-3.86556 - 1.55363I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.850893 + 0.884624I$ $a = 1.10267 - 1.18353I$ $b = -2.50998 + 0.01246I$	$-5.50548 + 3.78563I$	0
$u = -0.850893 - 0.884624I$ $a = 1.10267 + 1.18353I$ $b = -2.50998 - 0.01246I$	$-5.50548 - 3.78563I$	0
$u = -0.892645 + 0.859249I$ $a = -1.30636 + 1.71490I$ $b = 2.43773 + 0.22609I$	$-7.66688 - 0.08605I$	0
$u = -0.892645 - 0.859249I$ $a = -1.30636 - 1.71490I$ $b = 2.43773 - 0.22609I$	$-7.66688 + 0.08605I$	0
$u = -0.748791 + 0.124504I$ $a = 0.658521 - 0.117735I$ $b = -0.490170 + 0.349419I$	$1.174050 - 0.188994I$	$9.05728 + 0.63012I$
$u = -0.748791 - 0.124504I$ $a = 0.658521 + 0.117735I$ $b = -0.490170 - 0.349419I$	$1.174050 + 0.188994I$	$9.05728 - 0.63012I$
$u = -0.847834 + 0.919383I$ $a = -1.01430 + 1.70268I$ $b = 2.41082 - 0.49572I$	$-7.59275 + 3.10194I$	0
$u = -0.847834 - 0.919383I$ $a = -1.01430 - 1.70268I$ $b = 2.41082 + 0.49572I$	$-7.59275 - 3.10194I$	0
$u = 0.947471 + 0.820362I$ $a = -1.33084 - 1.01743I$ $b = 2.20960 - 0.80470I$	$-3.59203 + 4.66330I$	0
$u = 0.947471 - 0.820362I$ $a = -1.33084 + 1.01743I$ $b = 2.20960 + 0.80470I$	$-3.59203 - 4.66330I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.910528 + 0.864183I$ $a = 1.73727 + 1.07847I$ $b = -3.13501 + 0.34918I$	$-9.32357 + 0.88762I$	0
$u = 0.910528 - 0.864183I$ $a = 1.73727 - 1.07847I$ $b = -3.13501 - 0.34918I$	$-9.32357 - 0.88762I$	0
$u = -0.930113 + 0.845405I$ $a = -1.71742 + 0.97375I$ $b = 2.83461 + 0.49195I$	$-7.54935 - 6.24533I$	0
$u = -0.930113 - 0.845405I$ $a = -1.71742 - 0.97375I$ $b = 2.83461 - 0.49195I$	$-7.54935 + 6.24533I$	0
$u = 0.920205 + 0.860055I$ $a = 1.36723 + 1.80376I$ $b = -2.64509 + 0.40060I$	$-9.29275 + 5.50542I$	0
$u = 0.920205 - 0.860055I$ $a = 1.36723 - 1.80376I$ $b = -2.64509 - 0.40060I$	$-9.29275 - 5.50542I$	0
$u = -0.918074 + 0.869398I$ $a = 1.26727 - 1.14504I$ $b = -2.55438 - 0.51995I$	$-9.50690 - 3.21924I$	0
$u = -0.918074 - 0.869398I$ $a = 1.26727 + 1.14504I$ $b = -2.55438 + 0.51995I$	$-9.50690 + 3.21924I$	0
$u = 0.855164 + 0.943687I$ $a = 0.94923 + 1.77875I$ $b = -2.59048 - 0.67761I$	$-9.18918 - 8.56419I$	0
$u = 0.855164 - 0.943687I$ $a = 0.94923 - 1.77875I$ $b = -2.59048 + 0.67761I$	$-9.18918 + 8.56419I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.895190 + 0.908857I$ $a = 1.15254 + 1.83519I$ $b = -2.76109 - 0.15164I$	$-13.44380 - 1.53868I$	0
$u = 0.895190 - 0.908857I$ $a = 1.15254 - 1.83519I$ $b = -2.76109 + 0.15164I$	$-13.44380 + 1.53868I$	0
$u = -0.969783 + 0.836843I$ $a = 1.39145 - 1.05225I$ $b = -2.35136 - 0.97184I$	$-5.13123 - 10.16380I$	0
$u = -0.969783 - 0.836843I$ $a = 1.39145 + 1.05225I$ $b = -2.35136 + 0.97184I$	$-5.13123 + 10.16380I$	0
$u = 0.659724 + 0.283358I$ $a = 2.35512 + 0.08593I$ $b = 0.315252 + 0.457091I$	$-1.17058 - 1.08332I$	$2.65386 - 2.01895I$
$u = 0.659724 - 0.283358I$ $a = 2.35512 - 0.08593I$ $b = 0.315252 - 0.457091I$	$-1.17058 + 1.08332I$	$2.65386 + 2.01895I$
$u = -0.050359 + 0.716046I$ $a = 0.121117 - 0.635002I$ $b = 0.171445 + 0.650196I$	$0.76923 - 2.33777I$	$2.89499 + 4.69130I$
$u = -0.050359 - 0.716046I$ $a = 0.121117 + 0.635002I$ $b = 0.171445 - 0.650196I$	$0.76923 + 2.33777I$	$2.89499 - 4.69130I$
$u = 0.206898 + 0.671469I$ $a = -0.186235 - 0.643840I$ $b = 0.128642 + 0.779464I$	$0.55234 - 2.49681I$	$1.97976 + 2.11018I$
$u = 0.206898 - 0.671469I$ $a = -0.186235 + 0.643840I$ $b = 0.128642 - 0.779464I$	$0.55234 + 2.49681I$	$1.97976 - 2.11018I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.959789 + 0.876252I$ $a = 1.88469 + 0.94024I$ $b = -3.04179 + 0.99068I$	$-13.2339 + 8.1232I$	0
$u = 0.959789 - 0.876252I$ $a = 1.88469 - 0.94024I$ $b = -3.04179 - 0.99068I$	$-13.2339 - 8.1232I$	0
$u = -0.990634 + 0.851943I$ $a = -1.86694 + 0.78225I$ $b = 2.57901 + 1.20339I$	$-7.13528 - 9.63342I$	0
$u = -0.990634 - 0.851943I$ $a = -1.86694 - 0.78225I$ $b = 2.57901 - 1.20339I$	$-7.13528 + 9.63342I$	0
$u = 1.002140 + 0.866479I$ $a = 1.94196 + 0.77269I$ $b = -2.66868 + 1.42802I$	$-8.7104 + 15.2194I$	0
$u = 1.002140 - 0.866479I$ $a = 1.94196 - 0.77269I$ $b = -2.66868 - 1.42802I$	$-8.7104 - 15.2194I$	0
$u = 0.635965 + 0.105400I$ $a = -0.744808 + 0.354776I$ $b = 1.18138 - 0.88640I$	$-0.93204 + 2.71089I$	$3.68951 - 7.69678I$
$u = 0.635965 - 0.105400I$ $a = -0.744808 - 0.354776I$ $b = 1.18138 + 0.88640I$	$-0.93204 - 2.71089I$	$3.68951 + 7.69678I$
$u = 0.282390 + 0.481929I$ $a = 1.21593 - 0.82030I$ $b = 0.095269 + 0.174525I$	$-1.68308 - 0.59288I$	$-4.15264 + 0.08163I$
$u = 0.282390 - 0.481929I$ $a = 1.21593 + 0.82030I$ $b = 0.095269 - 0.174525I$	$-1.68308 + 0.59288I$	$-4.15264 - 0.08163I$

II. $I_1^v = \langle a,\ b - v - 1,\ v^2 + v + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-3.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-3.00000 - 3.46410I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^2)(u^{70}+41u^{69}+\cdots+8u+1)$
c_2	$((u-1)^2)(u^{70}-3u^{69}+\cdots-4u+1)$
c_3, c_8	$u^2(u^{70}+u^{69}+\cdots+12u+4)$
c_4	$((u+1)^2)(u^{70}-3u^{69}+\cdots-4u+1)$
c_5	$(u^2+u+1)(u^{70}+2u^{69}+\cdots-u+1)$
c_6, c_7, c_9	$u^2(u^{70}-15u^{69}+\cdots-200u+16)$
c_{10}	$(u^2-u+1)(u^{70}+26u^{69}+\cdots+11u+1)$
c_{11}	$(u^2-u+1)(u^{70}+2u^{69}+\cdots-u+1)$
c_{12}	$(u^2+u+1)(u^{70}+26u^{69}+\cdots+11u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^2)(y^{70} - 21y^{69} + \cdots + 32y + 1)$
c_2, c_4	$((y-1)^2)(y^{70} - 41y^{69} + \cdots - 8y + 1)$
c_3, c_8	$y^2(y^{70} - 15y^{69} + \cdots - 200y + 16)$
c_5, c_{11}	$(y^2 + y + 1)(y^{70} + 26y^{69} + \cdots + 11y + 1)$
c_6, c_7, c_9	$y^2(y^{70} + 77y^{69} + \cdots + 2272y + 256)$
c_{10}, c_{12}	$(y^2 + y + 1)(y^{70} + 38y^{69} + \cdots + 131y + 1)$