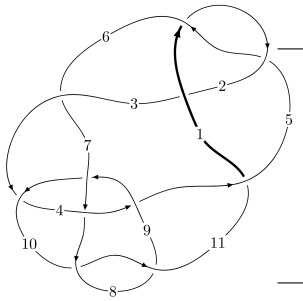
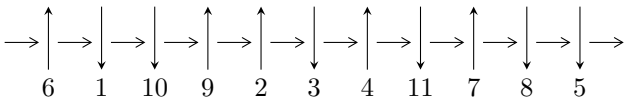
$11a_{81}$ $(K11a_{81})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 1.12437 \times 10^{21} u^{64} + 2.08104 \times 10^{21} u^{63} + \cdots + 3.92161 \times 10^{20} b - 9.56908 \times 10^{20},$
$6.77960 \times 10^{19} u^{64} - 7.94718 \times 10^{20} u^{63} + \cdots + 3.92161 \times 10^{20} a + 1.89541 \times 10^{21},\ u^{65} + 2u^{64} + \cdots + u - 1 \rangle$
$I_2^u = \langle b + u,\ a - u - 1,\ u^2 + u + 1 \rangle$

* 2 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.

$\boldsymbol{I_1^u = \langle 1.12\times 10^{21}u^{64}+2.08\times 10^{21}u^{63}+\cdots+3.92\times 10^{20}b-9.57\times 10^{20},\ 6.78\times 10^{19}u^{64}-7.95\times 10^{20}u^{63}+\cdots+3.92\times 10^{20}a+1.90\times 10^{21},\ u^{65}+2u^{64}+\cdots+u-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0\\u\end{pmatrix}$$

$$a_1 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_3 = \begin{pmatrix}u^2+1\\u^4\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-u^5-2u^3-u\\-u^7-u^5+u\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-0.172878u^{64}+2.02651u^{63}+\cdots+2.31811u-4.83325\\-2.86712u^{64}-5.30659u^{63}+\cdots+1.95308u+2.44009\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.142247u^{64}+2.05786u^{63}+\cdots+1.94975u-4.74893\\-2.69775u^{64}-4.93896u^{63}+\cdots+2.26672u+2.24110\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-u\\u\end{pmatrix}$$

$$a_4 = \begin{pmatrix}5.04000u^{64}+5.88259u^{63}+\cdots-11.8961u+0.0715256\\0.371835u^{64}+4.36917u^{63}+\cdots+11.7089u-4.79741\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}u^4+u^2+1\\-u^4\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.206126u^{64}+1.99373u^{63}+\cdots+3.07367u-4.01687\\-3.03387u^{64}-5.47353u^{63}+\cdots+2.13727u+2.43980\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.206126u^{64}+1.99373u^{63}+\cdots+3.07367u-4.01687\\-3.03387u^{64}-5.47353u^{63}+\cdots+2.13727u+2.43980\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3365010802379045894269}{39216123700713037 4129}u^{64}-\frac{31426269883079294 4879}{39216123700713037 4129}u^{63}+\cdots+\frac{153778118005690511 71877}{39216123700713037 4129}u-\frac{73488352606979765037 36}{39216123700713037 4129}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{65} - 2u^{64} + \cdots + u + 1$
c_2	$u^{65} + 36u^{64} + \cdots - 5u - 1$
c_3	$u^{65} + 2u^{64} + \cdots - 77u - 209$
c_4	$u^{65} - 14u^{63} + \cdots - 51079u - 9713$
c_6, c_{11}	$u^{65} + 2u^{64} + \cdots - 27u + 17$
c_7	$u^{65} - 2u^{64} + \cdots + u - 1$
c_8, c_{10}	$u^{65} - 3u^{64} + \cdots - 6u + 1$
c_9	$u^{65} + 11u^{64} + \cdots - 12u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{65} + 36y^{64} + \cdots - 5y - 1$
c_2	$y^{65} - 12y^{64} + \cdots - 97y - 1$
c_3	$y^{65} - 80y^{64} + \cdots + 680999y - 43681$
c_4	$y^{65} - 28y^{64} + \cdots - 2283276729y - 94342369$
c_6, c_{11}	$y^{65} - 60y^{64} + \cdots - 15013y - 289$
c_7	$y^{65} + 12y^{64} + \cdots - 5y - 1$
c_8, c_{10}	$y^{65} - 51y^{64} + \cdots - 94y - 1$
c_9	$y^{65} + 15y^{64} + \cdots - 152y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.255209 + 0.948908I$ $a = -0.99928 + 1.01479I$ $b = 2.04192 - 0.64047I$	$-4.38791 + 0.83519I$	$-11.90532 - 1.80779I$
$u = 0.255209 - 0.948908I$ $a = -0.99928 - 1.01479I$ $b = 2.04192 + 0.64047I$	$-4.38791 - 0.83519I$	$-11.90532 + 1.80779I$
$u = 0.379172 + 0.954880I$ $a = 0.44986 + 1.99487I$ $b = -0.95093 - 2.01516I$	$-3.54308 + 4.03035I$	$-8.72949 - 8.88482I$
$u = 0.379172 - 0.954880I$ $a = 0.44986 - 1.99487I$ $b = -0.95093 + 2.01516I$	$-3.54308 - 4.03035I$	$-8.72949 + 8.88482I$
$u = 0.484262 + 0.914397I$ $a = 1.118230 + 0.362011I$ $b = -2.04011 - 0.02854I$	$0.85073 + 5.73380I$	$0. - 9.30698I$
$u = 0.484262 - 0.914397I$ $a = 1.118230 - 0.362011I$ $b = -2.04011 + 0.02854I$	$0.85073 - 5.73380I$	$0. + 9.30698I$
$u = -0.350482 + 0.867729I$ $a = 0.86949 - 2.41938I$ $b = -2.39364 - 0.40176I$	$-2.05273 - 1.79214I$	$-3.9608 - 27.3479I$
$u = -0.350482 - 0.867729I$ $a = 0.86949 + 2.41938I$ $b = -2.39364 + 0.40176I$	$-2.05273 + 1.79214I$	$-3.9608 + 27.3479I$
$u = -0.416907 + 0.814224I$ $a = -0.0826608 - 0.0580767I$ $b = -0.394803 + 0.423441I$	$-0.06086 - 1.78141I$	$0.16593 + 3.65886I$
$u = -0.416907 - 0.814224I$ $a = -0.0826608 + 0.0580767I$ $b = -0.394803 - 0.423441I$	$-0.06086 + 1.78141I$	$0.16593 - 3.65886I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.688274+0.597046I$ $a=\ \ 0.937870+0.013321I$ $b=-0.177796-0.445216I$	$-1.20524-3.66120I$	$-3.96415+8.51812I$
$u=-0.688274-0.597046I$ $a=\ \ 0.937870-0.013321I$ $b=-0.177796+0.445216I$	$-1.20524+3.66120I$	$-3.96415-8.51812I$
$u=\ \ 0.895488+0.125785I$ $a=-0.09492+1.43200I$ $b=-0.376735-0.287159I$	$-7.23534-2.53854I$	$-7.87268+2.81634I$
$u=\ \ 0.895488-0.125785I$ $a=-0.09492-1.43200I$ $b=-0.376735+0.287159I$	$-7.23534+2.53854I$	$-7.87268-2.81634I$
$u=\ \ 0.042517+0.896108I$ $a=-1.233970-0.489969I$ $b=\ \ 1.50275+1.00485I$	$-1.88737-1.49983I$	$-7.09909+4.37897I$
$u=\ \ 0.042517-0.896108I$ $a=-1.233970+0.489969I$ $b=\ \ 1.50275-1.00485I$	$-1.88737+1.49983I$	$-7.09909-4.37897I$
$u=-0.873776+0.112840I$ $a=-0.53746-2.51675I$ $b=-0.325555+0.658517I$	$-7.98517+11.01330I$	$-4.27925-5.99396I$
$u=-0.873776-0.112840I$ $a=-0.53746+2.51675I$ $b=-0.325555-0.658517I$	$-7.98517-11.01330I$	$-4.27925+5.99396I$
$u=-0.457366+1.034950I$ $a=-0.505700+0.060882I$ $b=\ \ 0.747461+0.669285I$	$-0.33001-3.05900I$	0
$u=-0.457366-1.034950I$ $a=-0.505700-0.060882I$ $b=\ \ 0.747461-0.669285I$	$-0.33001+3.05900I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.571139 + 0.977969I$ $a = -0.414828 - 0.730148I$ $b = 1.62844 + 0.58978I$	$-3.06278 + 10.75520I$	0
$u = 0.571139 - 0.977969I$ $a = -0.414828 + 0.730148I$ $b = 1.62844 - 0.58978I$	$-3.06278 - 10.75520I$	0
$u = -0.637047 + 0.936500I$ $a = 0.173925 + 0.578410I$ $b = 0.317828 - 0.930103I$	$-2.16059 - 1.39700I$	0
$u = -0.637047 - 0.936500I$ $a = 0.173925 - 0.578410I$ $b = 0.317828 + 0.930103I$	$-2.16059 + 1.39700I$	0
$u = 0.681051 + 0.492285I$ $a = 0.499375 + 1.028690I$ $b = -0.444176 + 0.382574I$	$-1.66713 - 5.95884I$	$-1.87973 + 5.22029I$
$u = 0.681051 - 0.492285I$ $a = 0.499375 - 1.028690I$ $b = -0.444176 - 0.382574I$	$-1.66713 + 5.95884I$	$-1.87973 - 5.22029I$
$u = 0.026760 + 1.174520I$ $a = 0.625886 + 0.349711I$ $b = -1.65520 - 0.65340I$	$-7.09632 - 4.52850I$	0
$u = 0.026760 - 1.174520I$ $a = 0.625886 - 0.349711I$ $b = -1.65520 + 0.65340I$	$-7.09632 + 4.52850I$	0
$u = -0.824553 + 0.021951I$ $a = -0.07187 + 1.73665I$ $b = 0.732613 - 0.631471I$	$-7.00163 + 2.10905I$	$-8.59887 - 3.22074I$
$u = -0.824553 - 0.021951I$ $a = -0.07187 - 1.73665I$ $b = 0.732613 + 0.631471I$	$-7.00163 - 2.10905I$	$-8.59887 + 3.22074I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.816612+0.075250I$ $a=\ \ 0.48242+2.15457I$ $b=-0.036633-0.982310I$	$-2.82170+5.12577I$	$-2.55858-6.00397I$
$u=-0.816612-0.075250I$ $a=\ \ 0.48242-2.15457I$ $b=-0.036633+0.982310I$	$-2.82170-5.12577I$	$-2.55858+6.00397I$
$u=\ \ 0.792642$ $a=\ \ 4.90851$ $b=-0.401921$	-4.52444	15.6460
$u=-0.268889+0.735800I$ $a=-1.80208+0.80816I$ $b=\ \ 2.05899+1.16628I$	$-1.59108-1.22204I$	$-11.25340+3.73985I$
$u=-0.268889-0.735800I$ $a=-1.80208-0.80816I$ $b=\ \ 2.05899-1.16628I$	$-1.59108+1.22204I$	$-11.25340-3.73985I$
$u=\ \ 0.775998+0.055269I$ $a=-1.05405-1.76675I$ $b=\ \ 0.272202+0.513943I$	$-2.68758-0.98018I$	$-2.13142-1.09675I$
$u=\ \ 0.775998-0.055269I$ $a=-1.05405+1.76675I$ $b=\ \ 0.272202-0.513943I$	$-2.68758+0.98018I$	$-2.13142+1.09675I$
$u=\ \ 0.487308+0.547787I$ $a=-0.01925-1.62217I$ $b=\ \ 0.231211+0.350100I$	$1.87042-1.68269I$	$3.98101+2.38110I$
$u=\ \ 0.487308-0.547787I$ $a=-0.01925+1.62217I$ $b=\ \ 0.231211-0.350100I$	$1.87042+1.68269I$	$3.98101-2.38110I$
$u=\ \ 0.432502+1.204000I$ $a=-1.75345+0.89087I$ $b=\ \ 2.78335-1.12697I$	$-6.34559+3.27358I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.432502 - 1.204000I$ $a = -1.75345 - 0.89087I$ $b = 2.78335 + 1.12697I$	$-6.34559 - 3.27358I$	0
$u = 0.477979 + 1.199780I$ $a = 1.55306 + 0.77188I$ $b = -2.26994 - 1.41320I$	$-6.01852 + 5.55484I$	0
$u = 0.477979 - 1.199780I$ $a = 1.55306 - 0.77188I$ $b = -2.26994 + 1.41320I$	$-6.01852 - 5.55484I$	0
$u = -0.420103 + 1.222350I$ $a = -2.02050 + 0.09514I$ $b = 2.61282 - 0.57494I$	$-6.68706 + 0.82473I$	0
$u = -0.420103 - 1.222350I$ $a = -2.02050 - 0.09514I$ $b = 2.61282 + 0.57494I$	$-6.68706 - 0.82473I$	0
$u = 0.457248 + 1.211200I$ $a = 0.96035 - 3.09348I$ $b = -1.90067 + 5.72471I$	$-8.07040 + 4.48064I$	0
$u = 0.457248 - 1.211200I$ $a = 0.96035 + 3.09348I$ $b = -1.90067 - 5.72471I$	$-8.07040 - 4.48064I$	0
$u = -0.448174 + 1.226550I$ $a = -1.149020 - 0.597546I$ $b = 1.70773 - 0.09090I$	$-10.71550 - 2.40472I$	0
$u = -0.448174 - 1.226550I$ $a = -1.149020 + 0.597546I$ $b = 1.70773 + 0.09090I$	$-10.71550 + 2.40472I$	0
$u = -0.490148 + 1.212660I$ $a = 2.22210 + 0.44255I$ $b = -3.07486 - 0.48626I$	$-6.18604 - 9.87507I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.490148-1.212660I$ $a=\ \ 2.22210-0.44255I$ $b=-3.07486+0.48626I$	$-6.18604+9.87507I$	0
$u=-0.468861+1.223140I$ $a=\ \ 1.95666-0.56765I$ $b=-2.74601+0.33365I$	$-10.56670-6.75210I$	0
$u=-0.468861-1.223140I$ $a=\ \ 1.95666+0.56765I$ $b=-2.74601-0.33365I$	$-10.56670+6.75210I$	0
$u=-0.393745+1.260010I$ $a=\ \ 1.72213-0.24493I$ $b=-2.67784+1.24472I$	$-12.22780+6.64210I$	0
$u=-0.393745-1.260010I$ $a=\ \ 1.72213+0.24493I$ $b=-2.67784-1.24472I$	$-12.22780-6.64210I$	0
$u=\ \ 0.384245+1.272530I$ $a=\ \ 0.918549-0.118993I$ $b=-1.61318-0.48242I$	$-11.61320+1.86120I$	0
$u=\ \ 0.384245-1.272530I$ $a=\ \ 0.918549+0.118993I$ $b=-1.61318+0.48242I$	$-11.61320-1.86120I$	0
$u=-0.517285+1.227500I$ $a=-2.38902-0.02987I$ $b=\ \ 3.77402+0.28861I$	$-11.3347-16.0510I$	0
$u=-0.517285-1.227500I$ $a=-2.38902+0.02987I$ $b=\ \ 3.77402-0.28861I$	$-11.3347+16.0510I$	0
$u=\ \ 0.526288+1.234520I$ $a=-1.41665-0.19459I$ $b=\ \ 2.29059+0.00902I$	$-10.58890+7.68258I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.526288 - 1.234520I$ $a = -1.41665 + 0.19459I$ $b = 2.29059 - 0.00902I$	$-10.58890 - 7.68258I$	0
$u = -0.488804 + 0.385911I$ $a = -0.885850 - 0.643188I$ $b = -0.403529 + 0.183900I$	$1.49244 - 0.86359I$	$5.03880 + 1.53624I$
$u = -0.488804 - 0.385911I$ $a = -0.885850 + 0.643188I$ $b = -0.403529 - 0.183900I$	$1.49244 + 0.86359I$	$5.03880 - 1.53624I$
$u = 0.287539 + 0.230477I$ $a = -3.01358 - 1.00850I$ $b = 0.980634 + 0.158120I$	$-1.91160 - 0.92204I$	$-3.30845 + 0.88312I$
$u = 0.287539 - 0.230477I$ $a = -3.01358 + 1.00850I$ $b = 0.980634 - 0.158120I$	$-1.91160 + 0.92204I$	$-3.30845 - 0.88312I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$		
$a=\ \ 0.500000+0.866025I$	$-1.64493-2.02988I$	$-3.00000+3.46410I$
$b=\ \ 0.500000-0.866025I$		
$u=-0.500000-0.866025I$		
$a=\ \ 0.500000-0.866025I$	$-1.64493+2.02988I$	$-3.00000-3.46410I$
$b=\ \ 0.500000+0.866025I$		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)(u^{65}-2u^{64}+\cdots+u+1)$
c_2	$(u^2+u+1)(u^{65}+36u^{64}+\cdots-5u-1)$
c_3	$(u^2-u+1)(u^{65}+2u^{64}+\cdots-77u-209)$
c_4	$(u^2-u+1)(u^{65}-14u^{63}+\cdots-51079u-9713)$
c_5	$(u^2-u+1)(u^{65}-2u^{64}+\cdots+u+1)$
c_6	$(u^2+u+1)(u^{65}+2u^{64}+\cdots-27u+17)$
c_7	$(u^2+u+1)(u^{65}-2u^{64}+\cdots+u-1)$
c_8	$((u-1)^2)(u^{65}-3u^{64}+\cdots-6u+1)$
c_9	$u^2(u^{65}+11u^{64}+\cdots-12u-4)$
c_{10}	$((u+1)^2)(u^{65}-3u^{64}+\cdots-6u+1)$
c_{11}	$(u^2-u+1)(u^{65}+2u^{64}+\cdots-27u+17)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^2+y+1)(y^{65}+36y^{64}+\cdots-5y-1)$
c_2	$(y^2+y+1)(y^{65}-12y^{64}+\cdots-97y-1)$
c_3	$(y^2+y+1)(y^{65}-80y^{64}+\cdots+680999y-43681)$
c_4	$(y^2+y+1)(y^{65}-28y^{64}+\cdots-2.28328\times10^9y-9.43424\times10^7)$
c_6, c_{11}	$(y^2+y+1)(y^{65}-60y^{64}+\cdots-15013y-289)$
c_7	$(y^2+y+1)(y^{65}+12y^{64}+\cdots-5y-1)$
c_8, c_{10}	$((y-1)^2)(y^{65}-51y^{64}+\cdots-94y-1)$
c_9	$y^2(y^{65}+15y^{64}+\cdots-152y-16)$