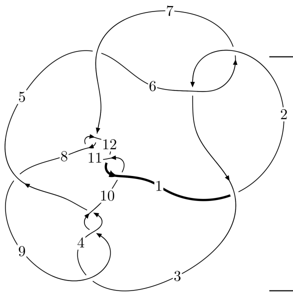
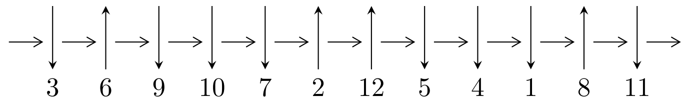
$12a_{0381}$ ($K12a_{0381}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle b-u,\ u^{22}-u^{21}+\cdots+2a+u,\ u^{23}-u^{22}+\cdots+4u^2+1\rangle\\
I_2^u &= \langle -1.58008\times 10^{30}u^{65}+4.09523\times 10^{30}u^{64}+\cdots+2.14580\times 10^{30}b+1.44290\times 10^{31},\\
&\quad -1.35351\times 10^{31}u^{65}+4.37094\times 10^{31}u^{64}+\cdots+3.00412\times 10^{31}a-1.14573\times 10^{30},\\
&\quad u^{66}-2u^{65}+\cdots+19u+7\rangle\\
I_3^u &= \langle b+u,\ a^2+2au-4a-3u+1,\ u^2-u+1\rangle\\
I_4^u &= \langle b+u,\ a+u+2,\ u^2+u+1\rangle\\
I_5^u &= \langle b-u+1,\ a^2+2u,\ u^2-u+1\rangle\\
I_6^u &= \langle b-u-1,\ a,\ u^2+u+1\rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 101 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. $I_1^u = \langle b-u,\ u^{22}-u^{21}+\cdots+2a+u,\ u^{23}-u^{22}+\cdots+4u^2+1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{22}+\frac{1}{2}u^{21}+\cdots-4u^3-\frac{1}{2}u \\ u \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} \frac{1}{2}u^{19}-\frac{1}{2}u^{18}+\cdots+\frac{3}{2}u^2+\frac{3}{2} \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -\frac{1}{2}u^{22}+\frac{1}{2}u^{21}+\cdots-\frac{5}{2}u^3+u \\ u^3+u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{1}{2}u^{19}-\frac{1}{2}u^{18}+\cdots+\frac{5}{2}u^2+\frac{3}{2} \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{2}u^{22}+u^{21}+\cdots+2u^2+\frac{1}{2} \\ -\frac{1}{2}u^{21}+\frac{1}{2}u^{20}+\cdots-3u^2-\frac{1}{2} \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^3 \\ u^5+u^3+u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5-u \\ u^7+u^5+2u^3+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^{21}-\frac{1}{2}u^{20}+\cdots+4u^2+\frac{3}{2} \\ \frac{1}{2}u^{21}-\frac{1}{2}u^{20}+\cdots+2u^2+\frac{1}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -5u^{22}+3u^{21}-16u^{20}+6u^{19}-53u^{18}+17u^{17}-101u^{16}+17u^{15}-174u^{14}+7u^{13}-224u^{12}-20u^{11}-239u^{10}-75u^9-209u^8-97u^7-132u^6-106u^5-73u^4-72u^3-27u^2-17u-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_{10} c_{12}	$u^{23} + 7u^{22} + \cdots - 8u - 1$
c_2, c_6, c_7 c_{11}	$u^{23} - u^{22} + \cdots + 4u^2 + 1$
c_3, c_4, c_9	$u^{23} + 5u^{22} + \cdots + 4u + 4$
c_8	$u^{23} - 15u^{22} + \cdots + 2004u - 332$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_{10} c_{12}	$y^{23} + 23y^{22} + \cdots - 4y - 1$
c_2, c_6, c_7 c_{11}	$y^{23} + 7y^{22} + \cdots - 8y - 1$
c_3, c_4, c_9	$y^{23} - 21y^{22} + \cdots - 48y - 16$
c_8	$y^{23} - y^{22} + \cdots + 356048y - 110224$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.108766+1.038960I$ $a=-0.14445+2.16071I$ $b=-0.108766+1.038960I$	$-9.31458-4.23664I$	$-14.9374+4.2518I$
$u=-0.108766-1.038960I$ $a=-0.14445-2.16071I$ $b=-0.108766-1.038960I$	$-9.31458+4.23664I$	$-14.9374-4.2518I$
$u=\ \ 0.062381+0.953110I$ $a=\ \ 0.17223+1.91880I$ $b=\ \ 0.062381+0.953110I$	$-3.67662+1.63978I$	$-11.45625-4.68535I$
$u=\ \ 0.062381-0.953110I$ $a=\ \ 0.17223-1.91880I$ $b=\ \ 0.062381-0.953110I$	$-3.67662-1.63978I$	$-11.45625+4.68535I$
$u=\ \ 0.878988+0.705166I$ $a=-1.38624-0.52383I$ $b=\ \ 0.878988+0.705166I$	$4.20055-4.17420I$	$-1.40540+0.69157I$
$u=\ \ 0.878988-0.705166I$ $a=-1.38624+0.52383I$ $b=\ \ 0.878988-0.705166I$	$4.20055+4.17420I$	$-1.40540-0.69157I$
$u=-0.709127+0.898384I$ $a=\ \ 3.06567-0.32207I$ $b=-0.709127+0.898384I$	$-2.78113-5.44900I$	$-3.47285+6.34023I$
$u=-0.709127-0.898384I$ $a=\ \ 3.06567+0.32207I$ $b=-0.709127-0.898384I$	$-2.78113+5.44900I$	$-3.47285-6.34023I$
$u=-0.868691+0.769532I$ $a=\ \ 1.60761-0.45900I$ $b=-0.868691+0.769532I$	$9.09763-0.31187I$	$2.24462+1.40830I$
$u=-0.868691-0.769532I$ $a=\ \ 1.60761+0.45900I$ $b=-0.868691-0.769532I$	$9.09763+0.31187I$	$2.24462-1.40830I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.838998 + 0.838326I$ $a = -1.91420 - 0.34412I$ $b = 0.838998 + 0.838326I$	$6.46982 + 5.13305I$	$-0.60159 - 5.77161I$
$u = 0.838998 - 0.838326I$ $a = -1.91420 + 0.34412I$ $b = 0.838998 - 0.838326I$	$6.46982 - 5.13305I$	$-0.60159 + 5.77161I$
$u = 0.780652 + 0.967249I$ $a = -2.39587 + 0.31250I$ $b = 0.780652 + 0.967249I$	$5.63176 + 7.01945I$	$-1.80788 - 4.37801I$
$u = 0.780652 - 0.967249I$ $a = -2.39587 - 0.31250I$ $b = 0.780652 - 0.967249I$	$5.63176 - 7.01945I$	$-1.80788 + 4.37801I$
$u = -0.320435 + 0.678319I$ $a = -1.41963 + 0.05223I$ $b = -0.320435 + 0.678319I$	$-5.40470 - 2.53254I$	$-9.43035 + 2.23223I$
$u = -0.320435 - 0.678319I$ $a = -1.41963 - 0.05223I$ $b = -0.320435 - 0.678319I$	$-5.40470 + 2.53254I$	$-9.43035 - 2.23223I$
$u = -0.770543 + 1.018970I$ $a = 2.33411 + 0.64664I$ $b = -0.770543 + 1.018970I$	$7.50703 - 11.94160I$	$-0.51059 + 8.65040I$
$u = -0.770543 - 1.018970I$ $a = 2.33411 - 0.64664I$ $b = -0.770543 - 1.018970I$	$7.50703 + 11.94160I$	$-0.51059 - 8.65040I$
$u = 0.748511 + 1.049130I$ $a = -2.32792 + 0.88202I$ $b = 0.748511 + 1.049130I$	$2.0337 + 16.3152I$	$-4.71784 - 9.86318I$
$u = 0.748511 - 1.049130I$ $a = -2.32792 - 0.88202I$ $b = 0.748511 - 1.049130I$	$2.0337 - 16.3152I$	$-4.71784 + 9.86318I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.538161$ $a = \ \ 0.226955$ $b = -0.538161$	-2.63402	-1.54930
$u = \ 0.237113 + 0.441635I$ $a = \ 0.295194 - 0.025537I$ $b = \ 0.237113 + 0.441635I$	$-0.109440 + 0.967023I$	$-2.12980 - 6.92815I$
$u = \ 0.237113 - 0.441635I$ $a = \ 0.295194 + 0.025537I$ $b = \ 0.237113 - 0.441635I$	$-0.109440 - 0.967023I$	$-2.12980 + 6.92815I$

II. $\boldsymbol{I^u_2 = \langle -1.58 \times 10^{30}u^{65} + 4.10 \times 10^{30}u^{64} + \cdots + 2.15 \times 10^{30}b + 1.44 \times 10^{31},\ -1.35 \times 10^{31}u^{65} + 4.37 \times 10^{31}u^{64} + \cdots + 3.00 \times 10^{31}a - 1.15 \times 10^{30},\ u^{66} - 2u^{65} + \cdots + 19u + 7\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.450551u^{65} - 1.45498u^{64} + \cdots + 0.601985u + 0.0381388 \\ 0.736361u^{65} - 1.90849u^{64} + \cdots - 17.1039u - 6.72429 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 0.880632u^{65} - 0.628257u^{64} + \cdots + 10.5151u + 7.47661 \\ 0.134748u^{65} - 0.326968u^{64} + \cdots + 19.1692u + 3.77720 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.541655u^{65} - 1.07474u^{64} + \cdots + 13.2018u + 5.03970 \\ 0.859372u^{65} - 2.24529u^{64} + \cdots + 1.06882u - 2.22730 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.01538u^{65} - 0.955224u^{64} + \cdots + 29.6843u + 11.2538 \\ 0.134748u^{65} - 0.326968u^{64} + \cdots + 19.1692u + 3.77720 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.644879u^{65} + 1.15798u^{64} + \cdots + 2.59190u + 1.58917 \\ -0.317784u^{65} - 0.0128892u^{64} + \cdots - 7.61429u - 2.11502 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5 - u \\ u^7 + u^5 + 2u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.40413u^{65} - 1.90048u^{64} + \cdots + 6.61630u + 4.46567 \\ 0.103837u^{65} - 0.390389u^{64} + \cdots + 18.6949u + 4.37292 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.117014u^{65} + 1.08091u^{64} + \cdots - 52.4974u - 13.7114$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_{10} c_{12}	$u^{66} + 22u^{65} + \cdots + 591u + 49$
c_2, c_6, c_7 c_{11}	$u^{66} - 2u^{65} + \cdots + 19u + 7$
c_3, c_4, c_9	$(u^{33} - 2u^{32} + \cdots + 5u^3 - 2)^2$
c_8	$(u^{33} + 6u^{32} + \cdots + 84u + 22)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_{10} c_{12}	$y^{66} + 46y^{65} + \cdots + 47227y + 2401$
c_2, c_6, c_7 c_{11}	$y^{66} + 22y^{65} + \cdots + 591y + 49$
c_3, c_4, c_9	$(y^{33} - 30y^{32} + \cdots - 72y^2 - 4)^2$
c_8	$(y^{33} + 10y^{32} + \cdots + 808y - 484)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.780007 + 0.702896I$ $a = 0.060274 + 0.274900I$ $b = -0.217053 + 1.123410I$	$-3.25939 - 4.10922I$	$-6.90114 + 3.20990I$
$u = 0.780007 - 0.702896I$ $a = 0.060274 - 0.274900I$ $b = -0.217053 - 1.123410I$	$-3.25939 + 4.10922I$	$-6.90114 - 3.20990I$
$u = -0.711321 + 0.791297I$ $a = -0.056822 + 0.187212I$ $b = 0.331350 + 1.060870I$	$1.24121 + 0.80287I$	0
$u = -0.711321 - 0.791297I$ $a = -0.056822 - 0.187212I$ $b = 0.331350 - 1.060870I$	$1.24121 - 0.80287I$	0
$u = 0.718922 + 0.797842I$ $a = 1.47367 - 0.63983I$ $b = -0.435907 - 1.078550I$	$-1.97159 + 3.23829I$	$-4.00000 - 3.70582I$
$u = 0.718922 - 0.797842I$ $a = 1.47367 + 0.63983I$ $b = -0.435907 + 1.078550I$	$-1.97159 - 3.23829I$	$-4.00000 + 3.70582I$
$u = -0.252240 + 0.890572I$ $a = -0.682248 + 0.144403I$ $b = -0.442341 + 0.328309I$	$-5.30265 - 2.57775I$	$-8.82504 + 3.79477I$
$u = -0.252240 - 0.890572I$ $a = -0.682248 - 0.144403I$ $b = -0.442341 - 0.328309I$	$-5.30265 + 2.57775I$	$-8.82504 - 3.79477I$
$u = -0.713764 + 0.843003I$ $a = 1.58827 + 1.87585I$ $b = -0.713764 - 0.843003I$	-2.60888	0
$u = -0.713764 - 0.843003I$ $a = 1.58827 - 1.87585I$ $b = -0.713764 + 0.843003I$	-2.60888	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.587924 + 0.938053I$ $a = 1.54849 - 0.69333I$ $b = -0.233499 - 0.806742I$	$-0.73076 + 3.39395I$	0
$u = 0.587924 - 0.938053I$ $a = 1.54849 + 0.69333I$ $b = -0.233499 + 0.806742I$	$-0.73076 - 3.39395I$	0
$u = 0.786418 + 0.782314I$ $a = 0.842464 - 0.449392I$ $b = -0.769109 + 0.132418I$	$0.933995 - 0.933678I$	0
$u = 0.786418 - 0.782314I$ $a = 0.842464 + 0.449392I$ $b = -0.769109 - 0.132418I$	$0.933995 + 0.933678I$	0
$u = 0.331350 + 1.060870I$ $a = -0.181882 + 0.044732I$ $b = -0.711321 + 0.791297I$	$1.24121 + 0.80287I$	0
$u = 0.331350 - 1.060870I$ $a = -0.181882 - 0.044732I$ $b = -0.711321 - 0.791297I$	$1.24121 - 0.80287I$	0
$u = 0.884836 + 0.675520I$ $a = -1.46006 + 0.36957I$ $b = 0.759584 - 1.033520I$	$3.18615 - 10.25700I$	0
$u = 0.884836 - 0.675520I$ $a = -1.46006 - 0.36957I$ $b = 0.759584 + 1.033520I$	$3.18615 + 10.25700I$	0
$u = 0.258928 + 1.090430I$ $a = 1.03310 - 1.35443I$ $b = -0.704139 - 0.938636I$	$0.78565 + 6.23956I$	0
$u = 0.258928 - 1.090430I$ $a = 1.03310 + 1.35443I$ $b = -0.704139 + 0.938636I$	$0.78565 - 6.23956I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.572109+0.986999I$ $a=-1.90024-0.84110I$ $b=-0.026298-0.856856I$	$-6.63294-1.73715I$	0
$u=-0.572109-0.986999I$ $a=-1.90024+0.84110I$ $b=-0.026298+0.856856I$	$-6.63294+1.73715I$	0
$u=\quad 0.511863+0.689377I$ $a=\quad 0.553781-0.103147I$ $b=-0.239361+0.530434I$	$0.050783+1.125010I$	$-3.91132-5.66806I$
$u=\quad 0.511863-0.689377I$ $a=\quad 0.553781+0.103147I$ $b=-0.239361-0.530434I$	$0.050783-1.125010I$	$-3.91132+5.66806I$
$u=-0.875841+0.733268I$ $a=\quad 1.41304+0.58667I$ $b=-0.784228-0.996367I$	$8.39261+5.82817I$	0
$u=-0.875841-0.733268I$ $a=\quad 1.41304-0.58667I$ $b=-0.784228+0.996367I$	$8.39261-5.82817I$	0
$u=-0.026298+0.856856I$ $a=\quad 1.55713-2.28540I$ $b=-0.572109-0.986999I$	$-6.63294+1.73715I$	$-11.77893-2.62669I$
$u=-0.026298-0.856856I$ $a=\quad 1.55713+2.28540I$ $b=-0.572109+0.986999I$	$-6.63294-1.73715I$	$-11.77893+2.62669I$
$u=-0.217053+1.123410I$ $a=\quad 0.244597+0.082892I$ $b=\quad 0.780007+0.702896I$	$-3.25939-4.10922I$	0
$u=-0.217053-1.123410I$ $a=\quad 0.244597-0.082892I$ $b=\quad 0.780007-0.702896I$	$-3.25939+4.10922I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.233499 + 0.806742I$ $a = -1.71181 - 1.43920I$ $b = 0.587924 - 0.938053I$	$-0.73076 - 3.39395I$	$-8.06022 + 0.66822I$
$u = -0.233499 - 0.806742I$ $a = -1.71181 + 1.43920I$ $b = 0.587924 + 0.938053I$	$-0.73076 + 3.39395I$	$-8.06022 - 0.66822I$
$u = -0.760681 + 0.877322I$ $a = -0.884877 - 0.473302I$ $b = 0.759107 - 0.044308I$	$4.54074 - 2.87533I$	0
$u = -0.760681 - 0.877322I$ $a = -0.884877 + 0.473302I$ $b = 0.759107 + 0.044308I$	$4.54074 + 2.87533I$	0
$u = 0.843301 + 0.798735I$ $a = -1.35150 + 0.89613I$ $b = 0.797643 - 0.937164I$	$6.15793 - 0.96390I$	0
$u = 0.843301 - 0.798735I$ $a = -1.35150 - 0.89613I$ $b = 0.797643 + 0.937164I$	$6.15793 + 0.96390I$	0
$u = -0.182118 + 1.148190I$ $a = -0.87619 - 1.47269I$ $b = 0.715657 - 0.997367I$	$-4.14648 - 9.77183I$	0
$u = -0.182118 - 1.148190I$ $a = -0.87619 + 1.47269I$ $b = 0.715657 + 0.997367I$	$-4.14648 + 9.77183I$	0
$u = 0.707507 + 0.923188I$ $a = -0.016161 + 0.150604I$ $b = -0.475703 + 1.094070I$	$-2.34954 + 2.22028I$	0
$u = 0.707507 - 0.923188I$ $a = -0.016161 - 0.150604I$ $b = -0.475703 - 1.094070I$	$-2.34954 - 2.22028I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.435907 + 1.078550I$ $a = -1.07615 - 1.02066I$ $b = 0.718922 - 0.797842I$	$-1.97159 - 3.23829I$	0
$u = -0.435907 - 1.078550I$ $a = -1.07615 + 1.02066I$ $b = 0.718922 + 0.797842I$	$-1.97159 + 3.23829I$	0
$u = -0.704139 + 0.938636I$ $a = -1.42101 - 0.79245I$ $b = 0.258928 - 1.090430I$	$0.78565 - 6.23956I$	0
$u = -0.704139 - 0.938636I$ $a = -1.42101 + 0.79245I$ $b = 0.258928 + 1.090430I$	$0.78565 + 6.23956I$	0
$u = -0.793318 + 0.194870I$ $a = -1.54496 + 0.21724I$ $b = 0.745981 - 0.954952I$	$0.40872 - 6.71347I$	$-2.25632 + 6.01205I$
$u = -0.793318 - 0.194870I$ $a = -1.54496 - 0.21724I$ $b = 0.745981 + 0.954952I$	$0.40872 + 6.71347I$	$-2.25632 - 6.01205I$
$u = -0.475703 + 1.094070I$ $a = 0.120730 + 0.085039I$ $b = 0.707507 + 0.923188I$	$-2.34954 + 2.22028I$	0
$u = -0.475703 - 1.094070I$ $a = 0.120730 - 0.085039I$ $b = 0.707507 - 0.923188I$	$-2.34954 - 2.22028I$	0
$u = 0.745981 + 0.954952I$ $a = 0.909008 - 0.529042I$ $b = -0.793318 - 0.194870I$	$0.40872 + 6.71347I$	0
$u = 0.745981 - 0.954952I$ $a = 0.909008 + 0.529042I$ $b = -0.793318 + 0.194870I$	$0.40872 - 6.71347I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.769109+0.132418I$ $a=-1.214120-0.606459I$ $b=\ \ 0.786418+0.782314I$	$0.933995-0.933678I$	$-1.133669+0.682217I$
$u=-0.769109-0.132418I$ $a=-1.214120+0.606459I$ $b=\ \ 0.786418-0.782314I$	$0.933995+0.933678I$	$-1.133669-0.682217I$
$u=\ \ 0.715657+0.997367I$ $a=\ \ 1.36718-0.87437I$ $b=-0.182118-1.148190I$	$-4.14648+9.77183I$	0
$u=\ \ 0.715657-0.997367I$ $a=\ \ 1.36718+0.87437I$ $b=-0.182118+1.148190I$	$-4.14648-9.77183I$	0
$u=\ \ 0.797643+0.937164I$ $a=-0.77688+1.31869I$ $b=\ \ 0.843301-0.798735I$	$6.15793+0.96390I$	0
$u=\ \ 0.797643-0.937164I$ $a=-0.77688-1.31869I$ $b=\ \ 0.843301+0.798735I$	$6.15793-0.96390I$	0
$u=\ \ 0.759107+0.044308I$ $a=\ \ 1.46075+0.46313I$ $b=-0.760681-0.877322I$	$4.54074+2.87533I$	$2.79872-3.16413I$
$u=\ \ 0.759107-0.044308I$ $a=\ \ 1.46075-0.46313I$ $b=-0.760681+0.877322I$	$4.54074-2.87533I$	$2.79872+3.16413I$
$u=-0.784228+0.996367I$ $a=\ \ 0.489817+1.288340I$ $b=-0.875841-0.733268I$	$8.39261-5.82817I$	0
$u=-0.784228-0.996367I$ $a=\ \ 0.489817-1.288340I$ $b=-0.875841+0.733268I$	$8.39261+5.82817I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.759584 + 1.033520I$ $a = -0.297584 + 1.272870I$ $b = 0.884836 - 0.675520I$	$3.18615 + 10.25700I$	0
$u = 0.759584 - 1.033520I$ $a = -0.297584 - 1.272870I$ $b = 0.884836 + 0.675520I$	$3.18615 - 10.25700I$	0
$u = -0.239361 + 0.530434I$ $a = 0.264651 - 0.787874I$ $b = 0.511863 + 0.689377I$	$0.050783 + 1.125010I$	$-3.91132 - 5.66806I$
$u = -0.239361 - 0.530434I$ $a = 0.264651 + 0.787874I$ $b = 0.511863 - 0.689377I$	$0.050783 - 1.125010I$	$-3.91132 + 5.66806I$
$u = -0.442341 + 0.328309I$ $a = -0.760163 + 0.891727I$ $b = -0.252240 + 0.890572I$	$-5.30265 - 2.57775I$	$-8.82504 + 3.79477I$
$u = -0.442341 - 0.328309I$ $a = -0.760163 - 0.891727I$ $b = -0.252240 - 0.890572I$	$-5.30265 + 2.57775I$	$-8.82504 - 3.79477I$

III. $\boldsymbol{I_3^u = \langle b+u,\ a^2+2au-4a-3u+1,\ u^2-u+1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -au+1 \\ u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} au-u \\ -u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -au+u \\ u-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -a-3u+3 \\ au-a-3u+2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u \\ u-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1 \\ u-1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -au+a+2u-2 \\ -au+a+3u-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u-4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2 + y + 1)^2$
c_3, c_4, c_8 c_9	$(y - 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.085786 - 0.866025I$ $b = -0.500000 - 0.866025I$	$-4.93480 + 4.05977I$	$-8.00000 - 6.92820I$
$u = 0.500000 + 0.866025I$ $a = 2.91421 - 0.86603I$ $b = -0.500000 - 0.866025I$	$-4.93480 + 4.05977I$	$-8.00000 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 0.085786 + 0.866025I$ $b = -0.500000 + 0.866025I$	$-4.93480 - 4.05977I$	$-8.00000 + 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 2.91421 + 0.86603I$ $b = -0.500000 + 0.866025I$	$-4.93480 - 4.05977I$	$-8.00000 + 6.92820I$

IV. $I_4^u = \langle b+u,\ a+u+2,\ u^2+u+1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u-2 \\ -u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -1 \\ -u-1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1 \\ -u-1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} 1 \\ u+1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u+4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.50000 - 0.86603I$ $b = \ \ 0.500000 - 0.866025I$	$-4.05977I$	$0. + 6.92820I$
$u = -0.500000 - 0.866025I$ $a = -1.50000 + 0.86603I$ $b = \ \ 0.500000 + 0.866025I$	$4.05977I$	$0. - 6.92820I$

V. $I^u_5 = \langle b - u + 1,\ a^2 + 2u,\ u^2 - u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2 + y + 1)^2$
c_3, c_4, c_8 c_9	$(y - 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.707110 - 1.224740I$ $b = -0.500000 + 0.866025I$	-4.93480	-8.00000
$u = 0.500000 + 0.866025I$ $a = -0.707110 + 1.224740I$ $b = -0.500000 + 0.866025I$	-4.93480	-8.00000
$u = 0.500000 - 0.866025I$ $a = 0.707110 + 1.224740I$ $b = -0.500000 - 0.866025I$	-4.93480	-8.00000
$u = 0.500000 - 0.866025I$ $a = -0.707110 - 1.224740I$ $b = -0.500000 - 0.866025I$	-4.93480	-8.00000

VI. $I_6^u = \langle b - u - 1,\ a,\ u^2 + u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$	0	-6.00000
$u = -0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$	0	-6.00000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_5, c_{10}	$((u^2 - u + 1)^6)(u^{23} + 7u^{22} + \cdots - 8u - 1)$ $\cdot (u^{66} + 22u^{65} + \cdots + 591u + 49)$
c_2, c_7	$((u^2 - u + 1)^4)(u^2 + u + 1)^2(u^{23} - u^{22} + \cdots + 4u^2 + 1)$ $\cdot (u^{66} - 2u^{65} + \cdots + 19u + 7)$
c_3, c_4, c_9	$u^4(u^2 - 2)^4(u^{23} + 5u^{22} + \cdots + 4u + 4)(u^{33} - 2u^{32} + \cdots + 5u^3 - 2)^2$
c_6, c_{11}	$((u^2 - u + 1)^2)(u^2 + u + 1)^4(u^{23} - u^{22} + \cdots + 4u^2 + 1)$ $\cdot (u^{66} - 2u^{65} + \cdots + 19u + 7)$
c_8	$u^4(u^2 - 2)^4(u^{23} - 15u^{22} + \cdots + 2004u - 332)$ $\cdot (u^{33} + 6u^{32} + \cdots + 84u + 22)^2$
c_{12}	$((u^2 + u + 1)^6)(u^{23} + 7u^{22} + \cdots - 8u - 1)$ $\cdot (u^{66} + 22u^{65} + \cdots + 591u + 49)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_{10} c_{12}	$((y^2+y+1)^6)(y^{23}+23y^{22}+\cdots-4y-1)$ $\cdot(y^{66}+46y^{65}+\cdots+47227y+2401)$
c_2, c_6, c_7 c_{11}	$((y^2+y+1)^6)(y^{23}+7y^{22}+\cdots-8y-1)$ $\cdot(y^{66}+22y^{65}+\cdots+591y+49)$
c_3, c_4, c_9	$y^4(y-2)^8(y^{23}-21y^{22}+\cdots-48y-16)$ $\cdot(y^{33}-30y^{32}+\cdots-72y^2-4)^2$
c_8	$y^4(y-2)^8(y^{23}-y^{22}+\cdots+356048y-110224)$ $\cdot(y^{33}+10y^{32}+\cdots+808y-484)^2$