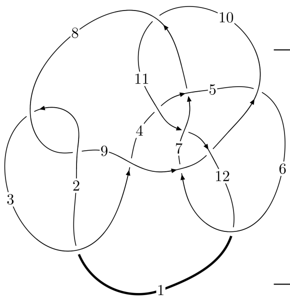
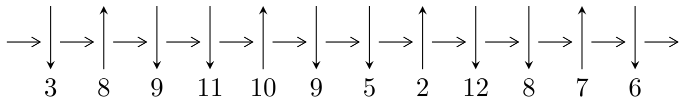
$12n_{0637}$ ($K12n_{0637}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

[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`).

$$
\begin{aligned}
I_1^u = \langle & -35223725986u^{21} + 30523664755u^{20} + \cdots + 210473051795b + 25821213245, \\
& 740868672496u^{21} - 766689885741u^{20} + \cdots + 210473051795a - 869880690251, \\
& u^{22} - u^{21} + \cdots - u + 1 \rangle \\
I_2^u = \langle & 3.78529 \times 10^{20}u^{19} - 4.63105 \times 10^{20}u^{18} + \cdots + 8.62031 \times 10^{21}b - 2.24738 \times 10^{21}, \\
& 2.73069 \times 10^{22}u^{19} - 2.50595 \times 10^{22}u^{18} + \cdots + 8.62031 \times 10^{21}a - 1.80097 \times 10^{23},\ u^{20} - u^{19} + \cdots - 7u + 1 \rangle \\
I_3^u = \langle & -3.35706 \times 10^{35}u^{33} - 7.63609 \times 10^{35}u^{32} + \cdots + 5.24183 \times 10^{36}b - 4.09915 \times 10^{36}, \\
& 1.95717 \times 10^{37}u^{33} + 4.09915 \times 10^{36}u^{32} + \cdots + 5.24183 \times 10^{36}a - 6.08409 \times 10^{37},\ u^{34} - 9u^{32} + \cdots - 5u + 1 \\
I_4^u = \langle & 16685766983482u^{15} + 6555188230121u^{14} + \cdots + 4534367208092816 + 250672039562051, \\
& - 35828884147u^{15} - 26710704549u^{14} + \cdots + 766837175819a + 930772601969, \\
& u^{16} - u^{15} + \cdots - 20u + 13 \rangle \\
I_5^u = \langle & 3.61106 \times 10^{67}u^{31} + 1.33112 \times 10^{67}u^{30} + \cdots + 5.05264 \times 10^{70}b - 7.80220 \times 10^{69}, \\
& - 2.81341 \times 10^{59}u^{31} - 1.32370 \times 10^{59}u^{30} + \cdots + 1.01984 \times 10^{63}a + 2.59788 \times 10^{62}, \\
& u^{32} + u^{31} + \cdots - 1290u + 1501 \rangle \\
I_6^u = \langle & b - u,\ a,\ u^4 + u^3 + 3u^2 + 2u + 1 \rangle \\
I_7^u = \langle & 11u^7 + 19u^6 + 58u^5 + 65u^4 - 6u^3 - 34u^2 + 2b + 9u - 28,\ u^7 + u^6 + 4u^5 + 2u^4 - 5u^3 - 3u^2 + 2a + 3u - 3, \\
& u^8 + u^7 + 4u^6 + 2u^5 - 5u^4 - 3u^3 + 3u^2 - 3u + 2 \rangle \\
I_8^u = \langle & b,\ a + 1,\ u + 1 \rangle
\end{aligned}
$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 137 representations.

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I.

$$I_1^u = \langle -3.52\times10^{10}u^{21}+3.05\times10^{10}u^{20}+\cdots+2.10\times10^{11}b+2.58\times10^{10},\ 7.41\times10^{11}u^{21}-7.67\times10^{11}u^{20}+\cdots+2.10\times10^{11}a-8.70\times10^{11},\ u^{22}-u^{21}+\cdots-u+1\rangle$$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix}-3.52002u^{21}+3.64270u^{20}+\cdots-40.0291u+4.13298\\0.167355u^{21}-0.145024u^{20}+\cdots+4.64270u-0.122682\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-3.52002u^{21}+3.64270u^{20}+\cdots-39.0291u+4.13298\\0.167355u^{21}-0.145024u^{20}+\cdots+4.64270u-0.122682\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-7.95997u^{21}+8.71460u^{20}+\cdots-67.9417u+11.7340\\0.832645u^{21}-0.854976u^{20}+\cdots+13.3573u-0.877318\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-3.13298u^{21}+0.612962u^{20}+\cdots-16.2045u-19.8962\\0.122682u^{21}+0.0446732u^{20}+\cdots+0.612962u+3.52002\end{pmatrix}$$

$$a_9 = \begin{pmatrix}7.72374u^{21}-3.11644u^{20}+\cdots+40.9995u+24.8315\\-0.754636u^{21}+0.0893465u^{20}+\cdots-3.77408u-7.95997\end{pmatrix}$$

$$a_3 = \begin{pmatrix}2.10661u^{21}+3.86613u^{20}+\cdots+4.19416u+30.2779\\4.12150u^{21}-5.66719u^{20}+\cdots+21.5571u-12.2542\end{pmatrix}$$

$$a_2 = \begin{pmatrix}2.10661u^{21}+3.86613u^{20}+\cdots+4.19416u+30.2779\\4.99760u^{21}-7.47535u^{20}+\cdots+25.4233u-18.2269\end{pmatrix}$$

$$a_1 = \begin{pmatrix}2.98797u^{21}-0.624862u^{20}+\cdots+15.5468u+16.5435\\-0.145013u^{21}-0.0118996u^{20}+\cdots-0.657635u-3.35266\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-3.35266u^{21}+3.49767u^{20}+\cdots-35.3864u+4.01030\\0.167355u^{21}-0.145024u^{20}+\cdots+4.64270u-0.122682\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= -\frac{1913935713454}{210473051795}u^{21} - \frac{1492818570442}{210473051795}u^{20} + \cdots - \frac{6526154909884}{210473051795}u - \frac{14593217553892}{210473051795}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} + 8u^{21} + \cdots + 160u + 64$
c_2, c_8	$u^{22} + 6u^{21} + \cdots + 32u + 8$
c_3	$u^{22} - 6u^{21} + \cdots - 5072u + 3880$
c_4, c_6, c_{10} c_{12}	$u^{22} - u^{21} + \cdots - u + 1$
c_5, c_{11}	$u^{22} - u^{21} + \cdots - 16u + 10$
c_7, c_9	$u^{22} - 9u^{21} + \cdots - 15u + 19$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} + 12y^{21} + \cdots + 28160y + 4096$
c_2, c_8	$y^{22} + 8y^{21} + \cdots + 160y + 64$
c_3	$y^{22} + 16y^{21} + \cdots + 18242976y + 15054400$
c_4, c_6, c_{10} c_{12}	$y^{22} + 21y^{21} + \cdots + 35y + 1$
c_5, c_{11}	$y^{22} + y^{21} + \cdots + 624y + 100$
c_7, c_9	$y^{22} - 9y^{21} + \cdots - 187y + 361$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.251396 + 1.197270I$ $a = -0.727101 + 0.853670I$ $b = 0.733815 - 0.410169I$	$-1.69375 - 1.58224I$	$-2.92761 + 2.99168I$
$u = 0.251396 - 1.197270I$ $a = -0.727101 - 0.853670I$ $b = 0.733815 + 0.410169I$	$-1.69375 + 1.58224I$	$-2.92761 - 2.99168I$
$u = -0.439138 + 1.208940I$ $a = -0.366754 + 0.753125I$ $b = 0.825819 + 0.642867I$	$7.22176 + 4.64537I$	$-1.48411 - 2.36378I$
$u = -0.439138 - 1.208940I$ $a = -0.366754 - 0.753125I$ $b = 0.825819 - 0.642867I$	$7.22176 - 4.64537I$	$-1.48411 + 2.36378I$
$u = -0.100425 + 0.610392I$ $a = -0.598286 - 0.326486I$ $b = 0.076424 + 0.802089I$	$-0.049452 + 1.407930I$	$-0.88049 - 5.93296I$
$u = -0.100425 - 0.610392I$ $a = -0.598286 + 0.326486I$ $b = 0.076424 - 0.802089I$	$-0.049452 - 1.407930I$	$-0.88049 + 5.93296I$
$u = 0.311341 + 1.349370I$ $a = 0.386640 + 0.716640I$ $b = -0.957311 + 0.438847I$	$8.03816 + 1.82472I$	$-0.36555 - 2.90365I$
$u = 0.311341 - 1.349370I$ $a = 0.386640 - 0.716640I$ $b = -0.957311 - 0.438847I$	$8.03816 - 1.82472I$	$-0.36555 + 2.90365I$
$u = 0.70785 + 1.27677I$ $a = -0.942108 + 0.435063I$ $b = 0.985198 - 0.917340I$	$-2.15736 - 11.05600I$	$-5.86304 + 8.74726I$
$u = 0.70785 - 1.27677I$ $a = -0.942108 - 0.435063I$ $b = 0.985198 + 0.917340I$	$-2.15736 + 11.05600I$	$-5.86304 - 8.74726I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.43272 + 1.42172I$ $a = 0.745026 + 0.586778I$ $b = -1.077150 - 0.571146I$	$2.42448 + 6.49307I$	$-0.75771 - 5.60630I$
$u = -0.43272 - 1.42172I$ $a = 0.745026 - 0.586778I$ $b = -1.077150 + 0.571146I$	$2.42448 - 6.49307I$	$-0.75771 + 5.60630I$
$u = -0.131155 + 0.475245I$ $a = -1.59000 - 1.04889I$ $b = 0.069853 + 0.892314I$	$-0.69331 + 1.97766I$	$-2.32963 - 3.06093I$
$u = -0.131155 - 0.475245I$ $a = -1.59000 + 1.04889I$ $b = 0.069853 - 0.892314I$	$-0.69331 - 1.97766I$	$-2.32963 + 3.06093I$
$u = 0.145985 + 0.422253I$ $a = 2.38098 - 1.30459I$ $b = -0.066959 + 0.920596I$	$-2.79098 - 6.48658I$	$-4.59769 + 4.99587I$
$u = 0.145985 - 0.422253I$ $a = 2.38098 + 1.30459I$ $b = -0.066959 - 0.920596I$	$-2.79098 + 6.48658I$	$-4.59769 - 4.99587I$
$u = 0.062233 + 0.424223I$ $a = 1.23180 - 2.37884I$ $b = -0.029071 + 0.908159I$	$-4.30511 + 0.52403I$	$-12.36500 - 2.34222I$
$u = 0.062233 - 0.424223I$ $a = 1.23180 + 2.37884I$ $b = -0.029071 - 0.908159I$	$-4.30511 - 0.52403I$	$-12.36500 + 2.34222I$
$u = -1.05080 + 1.58014I$ $a = 0.749692 + 0.219224I$ $b = -1.36686 - 1.21476I$	$7.00864 + 11.78040I$	$-2.49367 - 5.42252I$
$u = -1.05080 - 1.58014I$ $a = 0.749692 - 0.219224I$ $b = -1.36686 + 1.21476I$	$7.00864 - 11.78040I$	$-2.49367 + 5.42252I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.17544 + 1.50294I$ $a = -0.769890 + 0.154115I$ $b = 1.30624 - 1.35244I$	$5.9137 - 18.4120I$	$-4.00000 + 9.61591I$
$u = 1.17544 - 1.50294I$ $a = -0.769890 - 0.154115I$ $b = 1.30624 + 1.35244I$	$5.9137 + 18.4120I$	$-4.00000 - 9.61591I$

II.

$\boldsymbol{I_2^u = \langle 3.79 \times 10^{20} u^{19} - 4.63 \times 10^{20} u^{18} + \cdots + 8.62 \times 10^{21} b - 2.25 \times 10^{21},\ 2.73 \times 10^{22} u^{19} - 2.51 \times 10^{22} u^{18} + \cdots + 8.62 \times 10^{21} a - 1.80 \times 10^{23},\ u^{20} - u^{19} + \cdots - 7u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} -3.16774u^{19} + 2.90704u^{18} + \cdots + 10.9832u + 20.8921 \\ -0.0439113u^{19} + 0.0537225u^{18} + \cdots + 2.34279u + 0.260708 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -3.16774u^{19} + 2.90704u^{18} + \cdots + 11.9832u + 20.8921 \\ -0.0439113u^{19} + 0.0537225u^{18} + \cdots + 2.34279u + 0.260708 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -8.81122u^{19} + 7.79546u^{18} + \cdots - 18.5918u + 54.1639 \\ -0.175015u^{19} + 0.186912u^{18} + \cdots + 4.04373u + 1.27646 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3.92566u^{19} - 3.36351u^{18} + \cdots + 33.8425u - 29.7066 \\ 0.0217085u^{19} - 0.0143026u^{18} + \cdots + 0.00468521u - 0.781074 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.88820u^{19} - 2.46456u^{18} + \cdots + 26.3232u - 20.1143 \\ 0.0364007u^{19} - 0.0247875u^{18} + \cdots + 0.0259089u - 0.598653 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.64440u^{19} - 1.25672u^{18} + \cdots + 38.9478u - 7.71164 \\ 0.0771122u^{19} - 0.0734388u^{18} + \cdots + 0.753454u - 0.595866 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.64440u^{19} - 1.25672u^{18} + \cdots + 38.9478u - 7.71164 \\ 0.122553u^{19} - 0.0983998u^{18} + \cdots + 1.82280u - 0.983543 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.28627u^{19} - 1.10467u^{18} + \cdots + 8.75002u - 13.9350 \\ -0.0118974u^{19} + 0.0110797u^{18} + \cdots - 0.0513570u - 0.175015 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -3.21165u^{19} + 2.96076u^{18} + \cdots + 13.3259u + 21.1528 \\ -0.0439113u^{19} + 0.0537225u^{18} + \cdots + 2.34279u + 0.260708 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{979060727900787729301 40}{862031093492193068715 1}u^{19} + \frac{8152463499141485345958 1}{862031093492193068715 1}u^{18} + \cdots - \frac{10598659789120885742680 36}{862031093492193068715 1}u + \frac{6162713171833491394901 99}{862031093492193068715 1}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{10}+4u^9+\cdots-12u+16)^2$
c_2, c_8	$(u^{10}+4u^9+10u^8+16u^7+19u^6+15u^5+6u^4-5u^3-11u^2-10u-4)^2$
c_3	$(u^{10}-4u^9+\cdots-66u-52)^2$
c_4, c_6, c_{10} c_{12}	$u^{20}-u^{19}+\cdots-7u+1$
c_5, c_{11}	$(u^{10}-4u^8-u^7+10u^6+3u^5-12u^4-4u^3+6u^2+u-1)^2$
c_7, c_9	$u^{20}-7u^{19}+\cdots+710u-71$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{10} + 4y^9 + \cdots - 1008y + 256)^2$
c_2, c_8	$(y^{10} + 4y^9 + \cdots - 12y + 16)^2$
c_3	$(y^{10} + 4y^9 + \cdots - 14028y + 2704)^2$
c_4, c_6, c_{10} c_{12}	$y^{20} + 3y^{19} + \cdots - 77y + 1$
c_5, c_{11}	$(y^{10} - 8y^9 + \cdots - 13y + 1)^2$
c_7, c_9	$y^{20} - 7y^{19} + \cdots - 29394y + 5041$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.606294 + 1.022320I$ $a = 0.506435 + 1.185730I$ $b = -1.20672 + 0.84674I$	$6.80818 - 10.55520I$	$-2.80651 + 7.76192I$
$u = 0.606294 - 1.022320I$ $a = 0.506435 - 1.185730I$ $b = -1.20672 - 0.84674I$	$6.80818 + 10.55520I$	$-2.80651 - 7.76192I$
$u = 0.410689 + 1.146110I$ $a = -0.911522 + 0.251562I$ $b = 1.21747$	3.96203	$1.71627 + 0.I$
$u = 0.410689 - 1.146110I$ $a = -0.911522 - 0.251562I$ $b = 1.21747$	3.96203	$1.71627 + 0.I$
$u = -0.447983 + 1.156950I$ $a = -0.650705 + 0.989358I$ $b = 1.31797 + 0.70573I$	$7.99409 + 4.11330I$	$-0.72706 - 2.84018I$
$u = -0.447983 - 1.156950I$ $a = -0.650705 - 0.989358I$ $b = 1.31797 - 0.70573I$	$7.99409 - 4.11330I$	$-0.72706 + 2.84018I$
$u = -0.050609 + 0.749544I$ $a = 1.71190 + 0.54431I$ $b = -0.966704 + 0.315261I$	$-0.07213 - 3.52780I$	$-2.13233 + 4.34006I$
$u = -0.050609 - 0.749544I$ $a = 1.71190 - 0.54431I$ $b = -0.966704 - 0.315261I$	$-0.07213 + 3.52780I$	$-2.13233 - 4.34006I$
$u = -0.884394 + 1.054470I$ $a = 0.719695 + 0.083108I$ $b = -0.966704 - 0.315261I$	$-0.07213 + 3.52780I$	$-2.13233 - 4.34006I$
$u = -0.884394 - 1.054470I$ $a = 0.719695 - 0.083108I$ $b = -0.966704 + 0.315261I$	$-0.07213 - 3.52780I$	$-2.13233 + 4.34006I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.53443$ $a = 0.408700$ $b = -0.572155$	-3.24417	9.61450
$u = 1.70396 + 0.20280I$ $a = -0.406335 + 0.011690I$ $b = 0.532805 - 0.044567I$	$-6.86440 - 4.53571I$	$10.5005 + 34.9465I$
$u = 1.70396 - 0.20280I$ $a = -0.406335 - 0.011690I$ $b = 0.532805 + 0.044567I$	$-6.86440 + 4.53571I$	$10.5005 - 34.9465I$
$u = -0.213343$ $a = -7.88331$ $b = -0.572155$	-3.24417	9.61450
$u = 1.03765 + 1.47270I$ $a = -0.661123 + 0.144524I$ $b = 1.31797 - 0.70573I$	$7.99409 - 4.11330I$	$-0.72706 + 2.84018I$
$u = 1.03765 - 1.47270I$ $a = -0.661123 - 0.144524I$ $b = 1.31797 + 0.70573I$	$7.99409 + 4.11330I$	$-0.72706 - 2.84018I$
$u = -1.16158 + 1.41196I$ $a = 0.665605 + 0.116987I$ $b = -1.20672 - 0.84674I$	$6.80818 + 10.55520I$	$-2.80651 - 7.76192I$
$u = -1.16158 - 1.41196I$ $a = 0.665605 - 0.116987I$ $b = -1.20672 + 0.84674I$	$6.80818 - 10.55520I$	$-2.80651 + 7.76192I$
$u = 0.159854 + 0.046896I$ $a = 11.26340 - 7.33066I$ $b = 0.532805 + 0.044567I$	$-6.86440 + 4.53571I$	$10.5005 - 34.9465I$
$u = 0.159854 - 0.046896I$ $a = 11.26340 + 7.33066I$ $b = 0.532805 - 0.044567I$	$-6.86440 - 4.53571I$	$10.5005 + 34.9465I$

III.

$\boldsymbol{I_3^u = \langle -3.36\times 10^{35}u^{33} - 7.64\times 10^{35}u^{32} + \cdots + 5.24\times 10^{36}b - 4.10\times 10^{36},\ 1.96\times 10^{37}u^{33} + 4.10\times 10^{36}u^{32} + \cdots + 5.24\times 10^{36}a - 6.08\times 10^{37},\ u^{34} - 9u^{32} + \cdots - 5u + 1\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} -3.73375u^{33} - 0.782006u^{32} + \cdots - 25.6210u + 11.6068 \\ 0.0640435u^{33} + 0.145676u^{32} + \cdots - 1.17628u + 0.782006 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -3.73375u^{33} - 0.782006u^{32} + \cdots - 26.6210u + 11.6068 \\ 0.0640435u^{33} + 0.145676u^{32} + \cdots - 1.17628u + 0.782006 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -8.90770u^{33} - 2.14572u^{32} + \cdots - 71.2828u + 27.4824 \\ -0.376603u^{33} + 0.0354177u^{32} + \cdots - 0.644601u + 1.36371 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -4.42221u^{33} - 0.993348u^{32} + \cdots - 37.1005u + 14.3537 \\ -0.0610815u^{33} - 0.112187u^{32} + \cdots + 1.07701u + 0.552701 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3.06716u^{33} + 0.825714u^{32} + \cdots + 27.3561u - 9.54342 \\ 0.232957u^{33} + 0.180886u^{32} + \cdots - 1.92567u - 0.0777394 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.55716u^{33} + 0.844911u^{32} + \cdots + 11.9349u - 1.31495 \\ -0.0686076u^{33} - 0.182006u^{32} + \cdots + 3.42735u - 1.07782 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.55716u^{33} + 0.844911u^{32} + \cdots + 11.9349u - 1.31495 \\ 0.202905u^{33} - 0.0632946u^{32} + \cdots + 6.09474u - 1.92273 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 2.08828u^{33} + 0.392969u^{32} + \cdots + 13.8037u - 7.12091 \\ 0.0856981u^{33} - 0.102474u^{32} + \cdots + 2.98707u - 0.747975 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -3.66970u^{33} - 0.636330u^{32} + \cdots - 26.7973u + 12.3888 \\ 0.0640435u^{33} + 0.145676u^{32} + \cdots - 1.17628u + 0.782006 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 20.8441u^{33} + 4.37870u^{32} + \cdots + 173.006u - 75.6418$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{17} - 8u^{16} + \cdots - 11u + 2)^2$
c_2, c_8	$u^{34} + 8u^{32} + \cdots - 11u^2 - 2$
c_3	$u^{34} + 12u^{32} + \cdots - 99u^2 - 2$
c_4, c_{10}	$u^{34} - 9u^{32} + \cdots - 5u + 1$
c_5, c_{11}	$u^{34} + 3u^{32} + \cdots + 31u^2 - 2$
c_6, c_{12}	$u^{34} - 9u^{32} + \cdots + 5u + 1$
c_7	$u^{34} + 18u^{33} + \cdots + 10u + 1$
c_9	$u^{34} - 18u^{33} + \cdots - 10u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{17} + 10y^{16} + \cdots - 11y - 4)^2$
c_2, c_8	$(y^{17} + 8y^{16} + \cdots - 11y - 2)^2$
c_3	$(y^{17} + 12y^{16} + \cdots - 99y - 2)^2$
c_4, c_6, c_{10} c_{12}	$y^{34} - 18y^{33} + \cdots - 5y + 1$
c_5, c_{11}	$(y^{17} + 3y^{16} + \cdots + 31y - 2)^2$
c_7, c_9	$y^{34} - 14y^{33} + \cdots - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.948002 + 0.313646I$ $a = 1.49270 + 0.75341I$ $b = -0.201379 + 1.177010I$	$-3.90984 - 7.35529I$	$-10.7026 + 11.0707I$
$u = 0.948002 - 0.313646I$ $a = 1.49270 - 0.75341I$ $b = -0.201379 - 1.177010I$	$-3.90984 + 7.35529I$	$-10.7026 - 11.0707I$
$u = 0.956410 + 0.604090I$ $a = 1.388120 + 0.148389I$ $b = -0.364697 + 1.081480I$	$-4.51641 - 1.30867I$	$-12.27157 + 0.31860I$
$u = 0.956410 - 0.604090I$ $a = 1.388120 - 0.148389I$ $b = -0.364697 - 1.081480I$	$-4.51641 + 1.30867I$	$-12.27157 - 0.31860I$
$u = 0.301826 + 0.794742I$ $a = -0.242452 + 0.645424I$ $b = -0.480417 - 1.259920I$	$-3.12305 + 4.90974I$	$-4.98224 - 0.13853I$
$u = 0.301826 - 0.794742I$ $a = -0.242452 - 0.645424I$ $b = -0.480417 + 1.259920I$	$-3.12305 - 4.90974I$	$-4.98224 + 0.13853I$
$u = -1.127990 + 0.273851I$ $a = -1.138540 + 0.718861I$ $b = 0.208856 + 1.290280I$	$-2.73299 + 3.07671I$	$-3.59376 - 6.57908I$
$u = -1.127990 - 0.273851I$ $a = -1.138540 - 0.718861I$ $b = 0.208856 - 1.290280I$	$-2.73299 - 3.07671I$	$-3.59376 + 6.57908I$
$u = -0.070405 + 0.815044I$ $a = 0.532860 + 0.628017I$ $b = -0.208856 - 1.290280I$	$-2.73299 + 3.07671I$	$-3.59376 - 6.57908I$
$u = -0.070405 - 0.815044I$ $a = 0.532860 - 0.628017I$ $b = -0.208856 + 1.290280I$	$-2.73299 - 3.07671I$	$-3.59376 + 6.57908I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.251748 + 1.192390I$ $a = 1.025750 - 0.598178I$ $b = -1.286020 + 0.236008I$	$4.34137 - 0.62662I$	$0.702844 + 0.664865I$
$u = 0.251748 - 1.192390I$ $a = 1.025750 + 0.598178I$ $b = -1.286020 - 0.236008I$	$4.34137 + 0.62662I$	$0.702844 - 0.664865I$
$u = -1.044090 + 0.683860I$ $a = -0.761913 + 0.166704I$ $b = 0.807885 + 0.507938I$	$-1.39035 + 4.13256I$	$-8.96641 - 7.21181I$
$u = -1.044090 - 0.683860I$ $a = -0.761913 - 0.166704I$ $b = 0.807885 - 0.507938I$	$-1.39035 - 4.13256I$	$-8.96641 + 7.21181I$
$u = 0.647873 + 0.299417I$ $a = 1.00359 + 1.26631I$ $b = -0.807885 + 0.507938I$	$-1.39035 - 4.13256I$	$-8.96641 + 7.21181I$
$u = 0.647873 - 0.299417I$ $a = 1.00359 - 1.26631I$ $b = -0.807885 - 0.507938I$	$-1.39035 + 4.13256I$	$-8.96641 - 7.21181I$
$u = -1.199710 + 0.613641I$ $a = -1.068440 + 0.282667I$ $b = 0.480417 + 1.259920I$	$-3.12305 + 4.90974I$	$-4.98224 + 0.I$
$u = -1.199710 - 0.613641I$ $a = -1.068440 - 0.282667I$ $b = 0.480417 - 1.259920I$	$-3.12305 - 4.90974I$	$-4.98224 + 0.I$
$u = 0.067240 + 0.640701I$ $a = -0.90142 + 1.12971I$ $b = 0.201379 - 1.177010I$	$-3.90984 - 7.35529I$	$-10.7026 + 11.0707I$
$u = 0.067240 - 0.640701I$ $a = -0.90142 - 1.12971I$ $b = 0.201379 + 1.177010I$	$-3.90984 + 7.35529I$	$-10.7026 - 11.0707I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.504150+1.265790I$ $a=-0.961784-0.364583I$ $b=\ \ 1.335370+0.453210I$	$4.40017+6.90997I$	$0.-5.88125I$
$u=-0.504150-1.265790I$ $a=-0.961784+0.364583I$ $b=\ \ 1.335370-0.453210I$	$4.40017-6.90997I$	$0.+5.88125I$
$u=-0.604342$ $a=-2.59153$ $b=-0.342161$	-3.55226	-16.8940
$u=-1.39868$ $a=-0.540058$ $b=\ \ 0.342161$	-3.55226	-16.8940
$u=-0.179282+0.553299I$ $a=\ \ 0.47174+1.58611I$ $b=\ \ 0.364697-1.081480I$	$-4.51641-1.30867I$	$-12.27157+0.31860I$
$u=-0.179282-0.553299I$ $a=\ \ 0.47174-1.58611I$ $b=\ \ 0.364697+1.081480I$	$-4.51641+1.30867I$	$-12.27157-0.31860I$
$u=\ \ 1.56336+0.01828I$ $a=\ \ 0.097753+0.190650I$ $b=-1.335370+0.453210I$	$4.40017-6.90997I$	$0.+5.88125I$
$u=\ \ 1.56336-0.01828I$ $a=\ \ 0.097753-0.190650I$ $b=-1.335370-0.453210I$	$4.40017+6.90997I$	$0.-5.88125I$
$u=\ \ 0.329313+0.165692I$ $a=\ \ 4.37347-4.17301I$ $b=\ \ 0.480307-0.026404I$	$-6.91964+4.44078I$	$-26.1531+27.7299I$
$u=\ \ 0.329313-0.165692I$ $a=\ \ 4.37347+4.17301I$ $b=\ \ 0.480307+0.026404I$	$-6.91964-4.44078I$	$-26.1531-27.7299I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.61858 + 0.22328I$ $a = -0.166497 + 0.131888I$ $b = 1.286020 + 0.236008I$	$4.34137 + 0.62662I$	0
$u = -1.61858 - 0.22328I$ $a = -0.166497 - 0.131888I$ $b = 1.286020 - 0.236008I$	$4.34137 - 0.62662I$	0
$u = 1.67995 + 0.23279I$ $a = 0.420857 - 0.044359I$ $b = -0.480307 - 0.026404I$	$-6.91964 - 4.44078I$	0
$u = 1.67995 - 0.23279I$ $a = 0.420857 + 0.044359I$ $b = -0.480307 + 0.026404I$	$-6.91964 + 4.44078I$	0

IV. $I^u_4 = \langle 1.67\times10^{13}u^{15} + 6.56\times10^{12}u^{14} + \cdots + 4.53\times10^{14}b + 2.51\times10^{14},\ -3.58\times10^{10}u^{15} - 2.67\times10^{10}u^{14} + \cdots + 7.67\times10^{11}a + 9.31\times10^{11},\ u^{16} - u^{15} + \cdots - 20u + 13\rangle$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 0.0467229u^{15} + 0.0348323u^{14} + \cdots + 0.00279962u - 1.21378 \\ -0.0367984u^{15} - 0.0144567u^{14} + \cdots - 0.0545409u - 0.552827 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.00998312u^{15} + 0.0408553u^{14} + \cdots - 1.07545u - 0.706390 \\ -0.00626482u^{15} - 0.0388182u^{14} + \cdots - 0.331023u + 0.106053 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.123646u^{15} - 0.0420908u^{14} + \cdots + 0.00279962u - 2.75224 \\ -0.0640970u^{15} + 0.0544416u^{14} + \cdots - 0.865462u + 1.19024 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.120585u^{15} + 0.0439717u^{14} + \cdots + 0.747958u + 2.30975 \\ 0.0815552u^{15} - 0.0616476u^{14} + \cdots - 0.279323u - 0.607398 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0915566u^{15} - 0.0274596u^{14} + \cdots - 1.75803u - 0.965670 \\ -0.0815552u^{15} + 0.0616476u^{14} + \cdots + 0.279323u + 1.60740 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.114902u^{15} - 0.0966243u^{14} + \cdots + 0.137579u - 0.901552 \\ 0.0610974u^{15} - 0.133458u^{14} + \cdots - 0.754389u + 1.02422 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.114902u^{15} - 0.0966243u^{14} + \cdots + 0.137579u - 0.901552 \\ 0.0568444u^{15} - 0.0636001u^{14} + \cdots - 1.88256u + 0.786613 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0902852u^{15} - 0.105232u^{14} + \cdots + 0.820160u - 2.18073 \\ -0.0303001u^{15} - 0.0612608u^{14} + \cdots + 1.56812u + 0.129018 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00992449u^{15} + 0.0203756u^{14} + \cdots - 0.0517413u - 1.76661 \\ -0.0367984u^{15} - 0.0144567u^{14} + \cdots - 0.0545409u - 0.552827 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= \frac{1464344412728192}{453436720809281}u^{15} - \frac{84018496727016}{453436720809281}u^{14} + \cdots - \frac{5115840542393260}{453436720809281}u - \frac{55929004883582}{453436720809281}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4+u^3+3u^2+2u+1)^4$
c_2, c_8	$(u^4-u^3+u^2+1)^4$
c_3	$(u^4+u^3+5u^2-u+2)^4$
c_4, c_6, c_{10} c_{12}	$u^{16}-u^{15}+\cdots-20u+13$
c_5, c_{11}	$u^{16}-3u^{15}+\cdots+198u+97$
c_7, c_9	$(u^2+u+1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+5y^3+7y^2+2y+1)^4$
c_2, c_8	$(y^4+y^3+3y^2+2y+1)^4$
c_3	$(y^4+9y^3+31y^2+19y+4)^4$
c_4, c_6, c_{10} c_{12}	$y^{16}+7y^{15}+\cdots-400y+169$
c_5, c_{11}	$y^{16}-13y^{15}+\cdots-37264y+9409$
c_7, c_9	$(y^2+y+1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.092007 + 1.034470I$ $a = -0.787948 - 0.553421I$ $b = 2.24681 - 1.28233I$	$6.79074 + 7.22373I$	$1.82674 - 9.49300I$
$u = 0.092007 - 1.034470I$ $a = -0.787948 + 0.553421I$ $b = 2.24681 + 1.28233I$	$6.79074 - 7.22373I$	$1.82674 + 9.49300I$
$u = -0.239797 + 0.921033I$ $a = 0.748218 - 0.737673I$ $b = -1.96980 - 1.53526I$	$6.79074 - 0.89580I$	$1.82674 + 4.36340I$
$u = -0.239797 - 0.921033I$ $a = 0.748218 + 0.737673I$ $b = -1.96980 + 1.53526I$	$6.79074 + 0.89580I$	$1.82674 - 4.36340I$
$u = -0.639205 + 0.691048I$ $a = -1.036040 + 0.234778I$ $b = 1.55457 + 0.29681I$	$-0.21101 + 5.47487I$	$-1.82674 - 11.83695I$
$u = -0.639205 - 0.691048I$ $a = -1.036040 - 0.234778I$ $b = 1.55457 - 0.29681I$	$-0.21101 - 5.47487I$	$-1.82674 + 11.83695I$
$u = -0.811044 + 0.687008I$ $a = -0.885567 + 0.317657I$ $b = 0.759110 + 0.954489I$	$-0.21101 + 2.64466I$	$-1.82674 - 2.01946I$
$u = -0.811044 - 0.687008I$ $a = -0.885567 - 0.317657I$ $b = 0.759110 - 0.954489I$	$-0.21101 - 2.64466I$	$-1.82674 + 2.01946I$
$u = 1.275710 + 0.602283I$ $a = 0.582586 + 0.403811I$ $b = -0.522944 + 0.714888I$	$-0.21101 - 5.47487I$	$-1.82674 + 11.83695I$
$u = 1.275710 - 0.602283I$ $a = 0.582586 - 0.403811I$ $b = -0.522944 - 0.714888I$	$-0.21101 + 5.47487I$	$-1.82674 - 11.83695I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.569666 + 0.091399I$ $a = 1.09347 + 1.34479I$ $b = -0.605365 - 0.147963I$	$-0.21101 - 2.64466I$	$-1.82674 + 2.01946I$
$u = 0.569666 - 0.091399I$ $a = 1.09347 - 1.34479I$ $b = -0.605365 + 0.147963I$	$-0.21101 + 2.64466I$	$-1.82674 - 2.01946I$
$u = -1.05226 + 1.78810I$ $a = -0.481970 + 0.004004I$ $b = 0.782616 + 0.884305I$	$6.79074 + 0.89580I$	$1.82674 - 4.36340I$
$u = -1.05226 - 1.78810I$ $a = -0.481970 - 0.004004I$ $b = 0.782616 - 0.884305I$	$6.79074 - 0.89580I$	$1.82674 + 4.36340I$
$u = 1.30493 + 1.71989I$ $a = 0.459558 + 0.057963I$ $b = -0.744996 + 0.955578I$	$6.79074 - 7.22373I$	$1.82674 + 9.49300I$
$u = 1.30493 - 1.71989I$ $a = 0.459558 - 0.057963I$ $b = -0.744996 - 0.955578I$	$6.79074 + 7.22373I$	$1.82674 - 9.49300I$

V. $\boldsymbol{I_5^u = \langle 3.61 \times 10^{67} u^{31} + 1.33 \times 10^{67} u^{30} + \cdots + 5.05 \times 10^{70} b - 7.80 \times 10^{69},\ -2.81 \times 10^{59} u^{31} - 1.32 \times 10^{59} u^{30} + \cdots + 1.02 \times 10^{63} a + 2.60 \times 10^{62},\ u^{32} + u^{31} + \cdots - 1290u + 1501\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 0.000275867u^{31} + 0.000129795u^{30} + \cdots - 1.94837u - 0.254733 \\ -0.000714688u^{31} - 0.000263450u^{30} + \cdots + 1.30103u + 0.154418 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.000372259u^{31} - 0.000239040u^{30} + \cdots - 0.0448239u - 0.319569 \\ -0.000812029u^{31} - 0.000379010u^{30} + \cdots + 2.63416u - 0.264798 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.000214542u^{31} + 0.000103732u^{30} + \cdots + 1.76603u + 0.160004 \\ 0.000541250u^{31} + 0.000557760u^{30} + \cdots + 0.234939u - 0.714606 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.000104855u^{31} + 0.000223448u^{30} + \cdots + 0.402197u + 1.00171 \\ 0.000587979u^{31} + 0.000584757u^{30} + \cdots - 0.413622u + 0.911091 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0000192851u^{31} + 0.000101444u^{30} + \cdots - 1.67116u - 0.632751 \\ -0.00100745u^{31} - 0.000782374u^{30} + \cdots + 0.820704u - 0.169014 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.000684276u^{31} - 0.000635526u^{30} + \cdots - 0.323358u + 0.130143 \\ -0.000925024u^{31} - 0.000629723u^{30} + \cdots + 4.84174u + 0.562738 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.000684276u^{31} - 0.000635526u^{30} + \cdots - 0.323358u + 0.130143 \\ -0.00111240u^{31} - 0.000654767u^{30} + \cdots + 5.93173u + 0.489565 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.000409598u^{31} - 0.000309788u^{30} + \cdots - 1.27330u - 0.416102 \\ -0.00130652u^{31} - 0.000909626u^{30} + \cdots + 2.57060u + 0.0601876 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.000438821u^{31} - 0.000133655u^{30} + \cdots - 0.647334u - 0.100315 \\ -0.000714688u^{31} - 0.000263450u^{30} + \cdots + 1.30103u + 0.154418 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00301162u^{31} + 0.00331224u^{30} + \cdots + 2.94189u - 18.0165$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4+u^3+3u^2+2u+1)^8$
c_2, c_8	$(u^4-u^3+u^2+1)^8$
c_3	$(u^4+u^3+5u^2-u+2)^8$
c_4, c_6, c_{10} c_{12}	$u^{32}+u^{31}+\cdots-1290u+1501$
c_5, c_{11}	$(u^{16}+u^{15}+\cdots+2u+19)^2$
c_7, c_9	$(u^4+u^3-2u+1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+5y^3+7y^2+2y+1)^8$
c_2, c_8	$(y^4+y^3+3y^2+2y+1)^8$
c_3	$(y^4+9y^3+31y^2+19y+4)^8$
c_4, c_6, c_{10} c_{12}	$y^{32}-23y^{31}+\cdots-13272834y+2253001$
c_5, c_{11}	$(y^{16}-y^{15}+\cdots-2512y+361)^2$
c_7, c_9	$(y^4-y^3+6y^2-4y+1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.933125 + 0.345373I$ $a = 1.42512 + 0.60180I$ $b = -0.507415 + 1.111340I$	$-3.50087 - 2.64466I$	$-13.82674 + 2.01946I$
$u = 0.933125 - 0.345373I$ $a = 1.42512 - 0.60180I$ $b = -0.507415 - 1.111340I$	$-3.50087 + 2.64466I$	$-13.82674 - 2.01946I$
$u = -0.465677 + 0.912383I$ $a = -1.41419 - 0.50791I$ $b = 0.505216 + 0.080628I$	$3.50087 + 0.89580I$	$-10.17326 - 4.36340I$
$u = -0.465677 - 0.912383I$ $a = -1.41419 + 0.50791I$ $b = 0.505216 - 0.080628I$	$3.50087 - 0.89580I$	$-10.17326 + 4.36340I$
$u = 1.105300 + 0.270519I$ $a = -0.570130 - 0.030308I$ $b = 1.91342 - 1.12465I$	$3.50087 - 7.22373I$	$-10.17326 + 9.49300I$
$u = 1.105300 - 0.270519I$ $a = -0.570130 + 0.030308I$ $b = 1.91342 + 1.12465I$	$3.50087 + 7.22373I$	$-10.17326 - 9.49300I$
$u = 0.672655 + 0.976570I$ $a = 1.268540 - 0.275121I$ $b = -0.621358 + 0.257578I$	$3.50087 - 7.22373I$	$-10.17326 + 9.49300I$
$u = 0.672655 - 0.976570I$ $a = 1.268540 + 0.275121I$ $b = -0.621358 - 0.257578I$	$3.50087 + 7.22373I$	$-10.17326 - 9.49300I$
$u = -1.140760 + 0.351108I$ $a = 0.544306 + 0.002963I$ $b = -1.90215 - 0.76605I$	$3.50087 + 0.89580I$	$-10.17326 - 4.36340I$
$u = -1.140760 - 0.351108I$ $a = 0.544306 - 0.002963I$ $b = -1.90215 + 0.76605I$	$3.50087 - 0.89580I$	$-10.17326 + 4.36340I$

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.190410+0.259439I$ $a=-1.083940+0.648970I$ $b=-0.129086+1.200110I$	$-3.50087+2.64466I$	$-13.82674-2.01946I$
$u=-1.190410-0.259439I$ $a=-1.083940-0.648970I$ $b=-0.129086-1.200110I$	$-3.50087-2.64466I$	$-13.82674+2.01946I$
$u=\ \ 1.166990+0.483595I$ $a=\ \ 1.139860+0.430615I$ $b=-0.387825+1.018230I$	$-3.50087-5.47487I$	$-13.8267+11.8369I$
$u=\ \ 1.166990-0.483595I$ $a=\ \ 1.139860-0.430615I$ $b=-0.387825-1.018230I$	$-3.50087+5.47487I$	$-13.8267-11.8369I$
$u=-0.662252+0.286911I$ $a=\ \ 0.687346+0.581256I$ $b=-0.129086-1.200110I$	$-3.50087-2.64466I$	$-13.82674+2.01946I$
$u=-0.662252-0.286911I$ $a=\ \ 0.687346-0.581256I$ $b=-0.129086+1.200110I$	$-3.50087+2.64466I$	$-13.82674-2.01946I$
$u=-0.594845+1.145980I$ $a=\ \ 0.350970+0.360556I$ $b=-0.507415-1.111340I$	$-3.50087+2.64466I$	$-13.82674-2.01946I$
$u=-0.594845-1.145980I$ $a=\ \ 0.350970-0.360556I$ $b=-0.507415+1.111340I$	$-3.50087-2.64466I$	$-13.82674+2.01946I$
$u=-1.187550+0.754071I$ $a=-1.074840+0.204836I$ $b=\ \ 0.62920+1.61384I$	$-3.50087+5.47487I$	$-13.8267-11.8369I$
$u=-1.187550-0.754071I$ $a=-1.074840-0.204836I$ $b=\ \ 0.62920-1.61384I$	$-3.50087-5.47487I$	$-13.8267+11.8369I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.06626 + 1.43374I$ $a = 0.769490 - 0.746980I$ $b = -1.90215 + 0.76605I$	$3.50087 - 0.89580I$	$-10.17326 + 4.36340I$
$u = 0.06626 - 1.43374I$ $a = 0.769490 + 0.746980I$ $b = -1.90215 - 0.76605I$	$3.50087 + 0.89580I$	$-10.17326 - 4.36340I$
$u = 0.353208 + 0.331710I$ $a = -1.200900 + 0.596300I$ $b = 0.62920 - 1.61384I$	$-3.50087 - 5.47487I$	$-13.8267 + 11.8369I$
$u = 0.353208 - 0.331710I$ $a = -1.200900 - 0.596300I$ $b = 0.62920 + 1.61384I$	$-3.50087 + 5.47487I$	$-13.8267 - 11.8369I$
$u = 0.78661 + 1.34122I$ $a = -0.098220 + 0.406126I$ $b = -0.387825 - 1.018230I$	$-3.50087 + 5.47487I$	$-13.8267 - 11.8369I$
$u = 0.78661 - 1.34122I$ $a = -0.098220 - 0.406126I$ $b = -0.387825 + 1.018230I$	$-3.50087 - 5.47487I$	$-13.8267 + 11.8369I$
$u = -0.34699 + 1.54691I$ $a = -0.803463 - 0.545068I$ $b = 1.91342 + 1.12465I$	$3.50087 + 7.22373I$	$-10.17326 - 9.49300I$
$u = -0.34699 - 1.54691I$ $a = -0.803463 + 0.545068I$ $b = 1.91342 - 1.12465I$	$3.50087 - 7.22373I$	$-10.17326 + 9.49300I$
$u = -2.54575 + 0.33352I$ $a = 0.230694 + 0.103966I$ $b = 0.505216 - 0.080628I$	$3.50087 - 0.89580I$	0
$u = -2.54575 - 0.33352I$ $a = 0.230694 - 0.103966I$ $b = 0.505216 + 0.080628I$	$3.50087 + 0.89580I$	0

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 2.55009 + 0.74890I$ $a = -0.204631 + 0.133712I$ $b = -0.621358 - 0.257578I$	$3.50087 + 7.22373I$	0
$u = \quad 2.55009 - 0.74890I$ $a = -0.204631 - 0.133712I$ $b = -0.621358 + 0.257578I$	$3.50087 - 7.22373I$	0

VI. $I_6^u = \langle b-u,\ a,\ u^4+u^3+3u^2+2u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 - 4u^2 - 12u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_5 c_6, c_{10}, c_{11} c_{12}	$u^4 + u^3 + 3u^2 + 2u + 1$
c_2, c_8	$u^4 + u^3 + u^2 + 1$
c_3	$u^4 - u^3 + 5u^2 + u + 2$
c_7, c_9	u^4

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_5 c_6, c_{10}, c_{11} c_{12}	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_2, c_8	$y^4 + y^3 + 3y^2 + 2y + 1$
c_3	$y^4 + 9y^3 + 31y^2 + 19y + 4$
c_7, c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.395123+0.506844I$ $a=\quad 0$ $b=-0.395123+0.506844I$	$-0.21101+1.41510I$	$-1.82674-4.90874I$
$u=-0.395123-0.506844I$ $a=\quad 0$ $b=-0.395123-0.506844I$	$-0.21101-1.41510I$	$-1.82674+4.90874I$
$u=-0.10488+1.55249I$ $a=\quad 0$ $b=-0.10488+1.55249I$	$6.79074+3.16396I$	$1.82674-2.56480I$
$u=-0.10488-1.55249I$ $a=\quad 0$ $b=-0.10488-1.55249I$	$6.79074-3.16396I$	$1.82674+2.56480I$

VII. $\boldsymbol{I_7^u = \langle 11u^7 + 19u^6 + \cdots + 2b - 28,\ u^7 + u^6 + 4u^5 + 2u^4 - 5u^3 - 3u^2 + 2a + 3u - 3,\ u^8 + u^7 + \cdots - 3u + 2\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{1}{2}u^6 + \cdots - \frac{3}{2}u + \frac{3}{2} \\ -\frac{11}{2}u^7 - \frac{19}{2}u^6 + \cdots - \frac{9}{2}u + 14 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -6u^7 - 10u^6 + \cdots - 7u + \frac{31}{2} \\ -\frac{17}{2}u^7 - 15u^6 + \cdots - \frac{11}{2}u + 22 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -\frac{1}{2}u^7 - \frac{1}{2}u^6 + \cdots - \frac{3}{2}u + \frac{3}{2} \\ -\frac{11}{2}u^7 - \frac{19}{2}u^6 + \cdots - \frac{7}{2}u + 14 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 7u^7 + \frac{25}{2}u^6 + \cdots + 4u - \frac{31}{2} \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -7u^7 - \frac{25}{2}u^6 + \cdots - 4u + \frac{33}{2} \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{19}{2}u^7 - 17u^6 + \cdots - \frac{7}{2}u + \frac{51}{2} \\ -\frac{29}{2}u^7 - 26u^6 + \cdots - \frac{13}{2}u + 38 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{19}{2}u^7 - 17u^6 + \cdots - \frac{7}{2}u + \frac{51}{2} \\ -\frac{41}{2}u^7 - \frac{73}{2}u^6 + \cdots - 10u + 53 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -8u^7 - 14u^6 - 43u^5 - 49u^4 + u^3 + 23u^2 - 5u + 23 \\ -8u^7 - 14u^6 - 43u^5 - 49u^4 + u^3 + 23u^2 - 5u + 22 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -6u^7 - 10u^6 + \cdots - 6u + \frac{31}{2} \\ -\frac{11}{2}u^7 - \frac{19}{2}u^6 + \cdots - \frac{9}{2}u + 14 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 52u^7 + 92u^6 + 278u^5 + 318u^4 - 18u^3 - 168u^2 + 30u - 146$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_{11}	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$
c_2, c_8	$(u^4 - u^3 + u^2 + 1)^2$
c_3	$(u^4 + u^3 + 5u^2 - u + 2)^2$
c_4, c_6, c_{10} c_{12}	$u^8 + u^7 + 4u^6 + 2u^5 - 5u^4 - 3u^3 + 3u^2 - 3u + 2$
c_7, c_9	$(u + 1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_{11}	$(y^4 + 5y^3 + 7y^2 + 2y + 1)^2$
c_2, c_8	$(y^4 + y^3 + 3y^2 + 2y + 1)^2$
c_3	$(y^4 + 9y^3 + 31y^2 + 19y + 4)^2$
c_4, c_6, c_{10} c_{12}	$y^8 + 7y^7 + 2y^6 - 32y^5 + 71y^4 - 11y^3 - 29y^2 + 3y + 4$
c_7, c_9	$(y - 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.772314 + 0.004686I$ $a = 1.294760 - 0.007855I$ $b = -0.395123 - 0.506844I$	$-3.50087 - 1.41510I$	$-13.8267 + 4.9087I$
$u = 0.772314 - 0.004686I$ $a = 1.294760 + 0.007855I$ $b = -0.395123 + 0.506844I$	$-3.50087 + 1.41510I$	$-13.8267 - 4.9087I$
$u = -1.167440 + 0.511530I$ $a = -0.718612 - 0.314870I$ $b = -0.395123 + 0.506844I$	$-3.50087 + 1.41510I$	$-13.8267 - 4.9087I$
$u = -1.167440 - 0.511530I$ $a = -0.718612 + 0.314870I$ $b = -0.395123 - 0.506844I$	$-3.50087 - 1.41510I$	$-13.8267 + 4.9087I$
$u = 0.090777 + 0.644863I$ $a = 0.21405 - 1.52058I$ $b = -0.10488 - 1.55249I$	$3.50087 - 3.16396I$	$-10.17326 + 2.56480I$
$u = 0.090777 - 0.644863I$ $a = 0.21405 + 1.52058I$ $b = -0.10488 + 1.55249I$	$3.50087 + 3.16396I$	$-10.17326 - 2.56480I$
$u = -0.19565 + 2.19735I$ $a = -0.040203 - 0.451513I$ $b = -0.10488 + 1.55249I$	$3.50087 + 3.16396I$	$-10.17326 - 2.56480I$
$u = -0.19565 - 2.19735I$ $a = -0.040203 + 0.451513I$ $b = -0.10488 - 1.55249I$	$3.50087 - 3.16396I$	$-10.17326 + 2.56480I$

VIII. $\boldsymbol{I_8^u = \langle b,\ a+1,\ u+1 \rangle}$

(i) Arc colorings

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

(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_3 c_5, c_8, c_{11}	u
c_4, c_7, c_{10}	$u+1$
c_6, c_9, c_{12}	$u-1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.00000$ $b = 0$	-3.28987	-12.0000

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^4+u^3+3u^2+2u+1)^{15}(u^{10}+4u^9+\cdots-12u+16)^2$ $\cdot((u^{17}-8u^{16}+\cdots-11u+2)^2)(u^{22}+8u^{21}+\cdots+160u+64)$
c_2, c_8	$u(u^4-u^3+u^2+1)^{14}(u^4+u^3+u^2+1)$ $\cdot(u^{10}+4u^9+10u^8+16u^7+19u^6+15u^5+6u^4-5u^3-11u^2-10u-4)^2$ $\cdot(u^{22}+6u^{21}+\cdots+32u+8)(u^{34}+8u^{32}+\cdots-11u^2-2)$
c_3	$u(u^4-u^3+5u^2+u+2)(u^4+u^3+5u^2-u+2)^{14}$ $\cdot((u^{10}-4u^9+\cdots-66u-52)^2)(u^{22}-6u^{21}+\cdots-5072u+3880)$ $\cdot(u^{34}+12u^{32}+\cdots-99u^2-2)$
c_4, c_{10}	$(u+1)(u^4+u^3+3u^2+2u+1)$ $\cdot(u^8+u^7+4u^6+2u^5-5u^4-3u^3+3u^2-3u+2)$ $\cdot(u^{16}-u^{15}+\cdots-20u+13)(u^{20}-u^{19}+\cdots-7u+1)$ $\cdot(u^{22}-u^{21}+\cdots-u+1)(u^{32}+u^{31}+\cdots-1290u+1501)$ $\cdot(u^{34}-9u^{32}+\cdots-5u+1)$
c_5, c_{11}	$u(u^4+u^3+3u^2+2u+1)^3$ $\cdot(u^{10}-4u^8-u^7+10u^6+3u^5-12u^4-4u^3+6u^2+u-1)^2$ $\cdot(u^{16}-3u^{15}+\cdots+198u+97)(u^{16}+u^{15}+\cdots+2u+19)^2$ $\cdot(u^{22}-u^{21}+\cdots-16u+10)(u^{34}+3u^{32}+\cdots+31u^2-2)$
c_6, c_{12}	$(u-1)(u^4+u^3+3u^2+2u+1)$ $\cdot(u^8+u^7+4u^6+2u^5-5u^4-3u^3+3u^2-3u+2)$ $\cdot(u^{16}-u^{15}+\cdots-20u+13)(u^{20}-u^{19}+\cdots-7u+1)$ $\cdot(u^{22}-u^{21}+\cdots-u+1)(u^{32}+u^{31}+\cdots-1290u+1501)$ $\cdot(u^{34}-9u^{32}+\cdots+5u+1)$
c_7	$u^4(u+1)^9(u^2+u+1)^8(u^4+u^3-2u+1)^8$ $\cdot(u^{20}-7u^{19}+\cdots+710u-71)(u^{22}-9u^{21}+\cdots-15u+19)$ $\cdot(u^{34}+18u^{33}+\cdots+10u+1)$
c_9	$u^4(u-1)(u+1)^8(u^2+u+1)^8(u^4+u^3-2u+1)^8$ $\cdot(u^{20}-7u^{19}+\cdots+710u-71)(u^{22}-9u^{21}+\cdots-15u+19)$ $\cdot(u^{34}-18u^{33}+\cdots-10u+1)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^4+5y^3+\cdots+2y+1)^{15}(y^{10}+4y^9+\cdots-1008y+256)^2$ $\cdot((y^{17}+10y^{16}+\cdots-11y-4)^2)(y^{22}+12y^{21}+\cdots+28160y+4096)$
c_2, c_8	$y(y^4+y^3+3y^2+2y+1)^{15}(y^{10}+4y^9+\cdots-12y+16)^2$ $\cdot((y^{17}+8y^{16}+\cdots-11y-2)^2)(y^{22}+8y^{21}+\cdots+160y+64)$
c_3	$y(y^4+9y^3+\cdots+19y+4)^{15}(y^{10}+4y^9+\cdots-14028y+2704)^2$ $\cdot(y^{17}+12y^{16}+\cdots-99y-2)^2$ $\cdot(y^{22}+16y^{21}+\cdots+18242976y+15054400)$
c_4, c_6, c_{10} c_{12}	$(y-1)(y^4+5y^3+7y^2+2y+1)$ $\cdot(y^8+7y^7+2y^6-32y^5+71y^4-11y^3-29y^2+3y+4)$ $\cdot(y^{16}+7y^{15}+\cdots-400y+169)(y^{20}+3y^{19}+\cdots-77y+1)$ $\cdot(y^{22}+21y^{21}+\cdots+35y+1)$ $\cdot(y^{32}-23y^{31}+\cdots-13272834y+2253001)$ $\cdot(y^{34}-18y^{33}+\cdots-5y+1)$
c_5, c_{11}	$y(y^4+5y^3+\cdots+2y+1)^3(y^{10}-8y^9+\cdots-13y+1)^2$ $\cdot(y^{16}-13y^{15}+\cdots-37264y+9409)$ $\cdot((y^{16}-y^{15}+\cdots-2512y+361)^2)(y^{17}+3y^{16}+\cdots+31y-2)^2$ $\cdot(y^{22}+y^{21}+\cdots+624y+100)$
c_7, c_9	$y^4(y-1)^9(y^2+y+1)^8(y^4-y^3+6y^2-4y+1)^8$ $\cdot(y^{20}-7y^{19}+\cdots-29394y+5041)(y^{22}-9y^{21}+\cdots-187y+361)$ $\cdot(y^{34}-14y^{33}+\cdots-4y+1)$