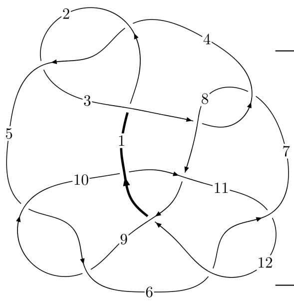
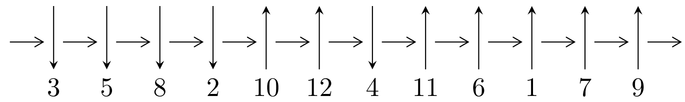
$12a_{0100}$ ($K12a_{0100}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & 1.87861 \times 10^{82} u^{47} + 1.04155 \times 10^{83} u^{46} + \cdots + 3.05135 \times 10^{83} b - 3.51869 \times 10^{84}, \\
& - 3.38702 \times 10^{82} u^{47} - 2.61769 \times 10^{83} u^{46} + \cdots + 2.44108 \times 10^{84} a + 1.57211 \times 10^{85}, \\
& u^{48} + 6u^{47} + \cdots - 608u - 128 \rangle \\
I^u_2 = \langle & 34725u^{16}a^3 - 26335u^{16}a^2 + \cdots - 126824a + 31474,\ -2u^{16}a^3 + 23u^{16}a^2 + \cdots + 842a + 2659, \\
& u^{17} + 2u^{16} + \cdots - 2u - 2 \rangle \\
I^u_3 = \langle & 338183u^{20} - 78918u^{19} + \cdots + 334723b + 221323, \\
& - 2123279u^{20} + 2034822u^{19} + \cdots + 334723a + 4096060,\ u^{21} - u^{20} + \cdots - 2u + 1 \rangle \\
I^u_4 = \langle & -1746a^5u - 3784a^4u + \cdots + 44299a - 6066, \\
& a^6 - 4a^5u + 4a^5 - 10a^4u - 6a^4 + 18a^3u - 27a^3 + 33a^2u + 3a^2 - 27au + 26a + 4u - 7,\ u^2 - u + 1 \rangle \\
I^u_5 = \langle & 30a^5u - 47a^4u + \cdots + 104a - 142,\ a^6 - 4a^5 + 4a^4 - a^3u - a^3 - a^2u + 5a^2 - a + 2u,\ u^2 - u + 1 \rangle
\end{aligned}$$

$$\begin{aligned}
I^v_1 &= \langle a,\ -8v^2 + b + 26v - 7,\ 4v^3 - 14v^2 + 7v - 1 \rangle \\
I^v_2 &= \langle a,\ b^4 - b^3 + 2b^2 - 2b + 1,\ v + 1 \rangle
\end{aligned}$$

* 7 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 168 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. $\boldsymbol{I_1^u = \langle 1.88 \times 10^{82} u^{47} + 1.04 \times 10^{83} u^{46} + \cdots + 3.05 \times 10^{83} b - 3.52 \times 10^{84},\ -3.39 \times 10^{82} u^{47} - 2.62 \times 10^{83} u^{46} + \cdots + 2.44 \times 10^{84} a + 1.57 \times 10^{85},\ u^{48} + 6u^{47} + \cdots - 608u - 128 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0138751u^{47} + 0.107235u^{46} + \cdots - 25.5601u - 6.44022 \\ -0.0615666u^{47} - 0.341342u^{46} + \cdots + 44.5324u + 11.5316 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0773618u^{47} + 0.445624u^{46} + \cdots - 51.2591u - 9.84291 \\ 0.0862284u^{47} + 0.487720u^{46} + \cdots - 62.1112u - 12.9461 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0476915u^{47} - 0.234107u^{46} + \cdots + 18.9724u + 5.09137 \\ -0.0615666u^{47} - 0.341342u^{46} + \cdots + 44.5324u + 11.5316 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0708863u^{47} - 0.354435u^{46} + \cdots + 15.5178u + 0.0840131 \\ -0.109737u^{47} - 0.627104u^{46} + \cdots + 72.2764u + 12.8045 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0947782u^{47} - 0.492160u^{46} + \cdots + 28.6120u + 2.50397 \\ -0.123753u^{47} - 0.710763u^{46} + \cdots + 85.7340u + 15.9448 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.116272u^{47} - 0.613951u^{46} + \cdots + 58.0413u + 11.2491 \\ -0.126215u^{47} - 0.696047u^{46} + \cdots + 77.0279u + 15.8185 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0714285u^{47} + 0.418715u^{46} + \cdots - 65.5831u - 16.3972 \\ 0.123594u^{47} + 0.671965u^{46} + \cdots - 88.7374u - 22.0222 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0124958u^{47} + 0.0938805u^{46} + \cdots - 22.7356u - 3.64759 \\ 0.0833820u^{47} + 0.448316u^{46} + \cdots - 38.2534u - 3.73160 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.109672u^{47} - 0.524268u^{46} + \cdots - 20.2898u - 35.2434$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{48} + 25u^{47} + \cdots + 18800u + 256$
c_2, c_4	$u^{48} - 3u^{47} + \cdots + 76u + 16$
c_3, c_7	$u^{48} + 6u^{47} + \cdots - 608u - 128$
c_5, c_6, c_9 c_{11}	$u^{48} + 19u^{46} + \cdots - u - 1$
c_8, c_{10}	$u^{48} - 3u^{47} + \cdots - 23u + 1$
c_{12}	$u^{48} - 51u^{47} + \cdots - 285212672u + 8388608$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{48} - y^{47} + \cdots - 279621376y + 65536$
c_2, c_4	$y^{48} - 25y^{47} + \cdots - 18800y + 256$
c_3, c_7	$y^{48} + 18y^{47} + \cdots - 158720y + 16384$
c_5, c_6, c_9 c_{11}	$y^{48} + 38y^{47} + \cdots - 31y + 1$
c_8, c_{10}	$y^{48} + 5y^{47} + \cdots - 237y + 1$
c_{12}	$y^{48} + 5y^{47} + \cdots - 5875790138834944y + 70368744177664$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.191047 + 1.007770I$ $a = 0.728739 + 0.164163I$ $b = -0.607742 - 0.383050I$	$1.84375 + 0.90076I$	$5.50791 - 3.88202I$
$u = 0.191047 - 1.007770I$ $a = 0.728739 - 0.164163I$ $b = -0.607742 + 0.383050I$	$1.84375 - 0.90076I$	$5.50791 + 3.88202I$
$u = -0.824028 + 0.494777I$ $a = 0.775855 - 0.447940I$ $b = -0.719486 - 0.096265I$	$-0.84172 - 2.79098I$	$2.56303 + 3.67085I$
$u = -0.824028 - 0.494777I$ $a = 0.775855 + 0.447940I$ $b = -0.719486 + 0.096265I$	$-0.84172 + 2.79098I$	$2.56303 - 3.67085I$
$u = -0.061009 + 1.092180I$ $a = -1.55932 + 0.14388I$ $b = 0.586610 + 0.474683I$	$4.73028 - 1.19532I$	$7.39057 - 1.46823I$
$u = -0.061009 - 1.092180I$ $a = -1.55932 - 0.14388I$ $b = 0.586610 - 0.474683I$	$4.73028 + 1.19532I$	$7.39057 + 1.46823I$
$u = 0.449465 + 1.031100I$ $a = -1.28963 - 0.62914I$ $b = 0.789520 + 0.202426I$	$3.26311 - 3.26704I$	$7.67341 + 2.61304I$
$u = 0.449465 - 1.031100I$ $a = -1.28963 + 0.62914I$ $b = 0.789520 - 0.202426I$	$3.26311 + 3.26704I$	$7.67341 - 2.61304I$
$u = 0.333088 + 1.109900I$ $a = -1.33371 - 0.49028I$ $b = 0.463573 - 0.639486I$	$3.87618 - 3.65220I$	$3.08711 + 8.05406I$
$u = 0.333088 - 1.109900I$ $a = -1.33371 + 0.49028I$ $b = 0.463573 + 0.639486I$	$3.87618 + 3.65220I$	$3.08711 - 8.05406I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.538501 + 1.036350I$ $a = 0.711782 - 0.232849I$ $b = -0.803519 + 0.258105I$	$0.15510 + 3.68398I$	$2.64964 - 1.96684I$
$u = -0.538501 - 1.036350I$ $a = 0.711782 + 0.232849I$ $b = -0.803519 - 0.258105I$	$0.15510 - 3.68398I$	$2.64964 + 1.96684I$
$u = 1.066610 + 0.483181I$ $a = -0.048708 + 0.338357I$ $b = 0.44345 + 1.38767I$	$-7.17044 + 7.50868I$	$-1.58512 - 3.77436I$
$u = 1.066610 - 0.483181I$ $a = -0.048708 - 0.338357I$ $b = 0.44345 - 1.38767I$	$-7.17044 - 7.50868I$	$-1.58512 + 3.77436I$
$u = -0.593763 + 0.555003I$ $a = -0.050418 - 0.332210I$ $b = 0.32635 - 1.49374I$	$-11.74940 - 4.76001I$	$-6.57262 - 2.96707I$
$u = -0.593763 - 0.555003I$ $a = -0.050418 + 0.332210I$ $b = 0.32635 + 1.49374I$	$-11.74940 + 4.76001I$	$-6.57262 + 2.96707I$
$u = -0.601845 + 1.052800I$ $a = 2.05390 + 0.10513I$ $b = -0.46620 - 1.43355I$	$-10.21060 + 9.59449I$	$-3.60142 - 6.18831I$
$u = -0.601845 - 1.052800I$ $a = 2.05390 - 0.10513I$ $b = -0.46620 + 1.43355I$	$-10.21060 - 9.59449I$	$-3.60142 + 6.18831I$
$u = -0.485413 + 0.601421I$ $a = -1.28070 + 1.69925I$ $b = 0.627305 - 0.012830I$	$-1.262120 + 0.607533I$	$3.19613 - 5.27342I$
$u = -0.485413 - 0.601421I$ $a = -1.28070 - 1.69925I$ $b = 0.627305 + 0.012830I$	$-1.262120 - 0.607533I$	$3.19613 + 5.27342I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.635379+1.085340I$ $a=-1.035040+0.645312I$ $b=\ 0.890242-0.142272I$	$0.95191+8.23122I$	$3.50123-7.17855I$
$u=-0.635379-1.085340I$ $a=-1.035040-0.645312I$ $b=\ 0.890242+0.142272I$	$0.95191-8.23122I$	$3.50123+7.17855I$
$u=-1.096040+0.664816I$ $a=-0.054336-0.338178I$ $b=\ 0.49492-1.44926I$	$-9.5879-12.5892I$	$-3.60578+7.24500I$
$u=-1.096040-0.664816I$ $a=-0.054336+0.338178I$ $b=\ 0.49492+1.44926I$	$-9.5879+12.5892I$	$-3.60578-7.24500I$
$u=\ 0.638998+0.071034I$ $a=\ 1.28773-1.29641I$ $b=-0.345569-0.223570I$	$0.673431+0.110718I$	$7.7390-14.7279I$
$u=\ 0.638998-0.071034I$ $a=\ 1.28773+1.29641I$ $b=-0.345569+0.223570I$	$0.673431-0.110718I$	$7.7390+14.7279I$
$u=\ 0.710349+1.174450I$ $a=\ 1.68838+0.12583I$ $b=-0.53527+1.45440I$	$-4.9700-13.8549I$	0
$u=\ 0.710349-1.174450I$ $a=\ 1.68838-0.12583I$ $b=-0.53527-1.45440I$	$-4.9700+13.8549I$	0
$u=-0.420346+0.423788I$ $a=-0.053647+0.334365I$ $b=\ 0.17258+1.45355I$	$-11.27470+5.48110I$	$-7.3979-14.4496I$
$u=-0.420346-0.423788I$ $a=-0.053647-0.334365I$ $b=\ 0.17258-1.45355I$	$-11.27470-5.48110I$	$-7.3979+14.4496I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.806830+1.155070I$ $a=\ \ 1.66382-0.32906I$ $b=-0.54117-1.49832I$	$-7.9747+19.4545I$	0
$u=-0.806830-1.155070I$ $a=\ \ 1.66382+0.32906I$ $b=-0.54117+1.49832I$	$-7.9747-19.4545I$	0
$u=\ \ 0.33726+1.38273I$ $a=\ \ 1.048030-0.444775I$ $b=-0.535063+1.197840I$	$-0.00671-10.39530I$	0
$u=\ \ 0.33726-1.38273I$ $a=\ \ 1.048030+0.444775I$ $b=-0.535063-1.197840I$	$-0.00671+10.39530I$	0
$u=-0.22239+1.42242I$ $a=\ \ 0.721683+0.463533I$ $b=-0.458297-1.049830I$	$1.00442+4.31512I$	0
$u=-0.22239-1.42242I$ $a=\ \ 0.721683-0.463533I$ $b=-0.458297+1.049830I$	$1.00442-4.31512I$	0
$u=-0.89457+1.16056I$ $a=-1.001830+0.221515I$ $b=\ \ 0.118376+1.224700I$	$-5.81153+10.03740I$	0
$u=-0.89457-1.16056I$ $a=-1.001830-0.221515I$ $b=\ \ 0.118376-1.224700I$	$-5.81153-10.03740I$	0
$u=\ \ 1.47382+0.09648I$ $a=-0.023063-0.280597I$ $b=\ \ 0.214306-1.129300I$	$-5.30932-4.33878I$	0
$u=\ \ 1.47382-0.09648I$ $a=-0.023063+0.280597I$ $b=\ \ 0.214306+1.129300I$	$-5.30932+4.33878I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.90750 + 1.20267I$ $a = -0.791351 - 0.168123I$ $b = 0.072284 - 1.150090I$	$-2.35143 - 4.21639I$	0
$u = 0.90750 - 1.20267I$ $a = -0.791351 + 0.168123I$ $b = 0.072284 + 1.150090I$	$-2.35143 + 4.21639I$	0
$u = -0.441911$ $a = 1.53998$ $b = 0.237250$	-1.26980	-9.92780
$u = -1.32729 + 0.82837I$ $a = -0.162773 + 0.297503I$ $b = 0.006720 + 1.165660I$	$-7.13142 - 2.34962I$	0
$u = -1.32729 - 0.82837I$ $a = -0.162773 - 0.297503I$ $b = 0.006720 - 1.165660I$	$-7.13142 + 2.34962I$	0
$u = -0.55430 + 1.47189I$ $a = -0.471137 - 0.489578I$ $b = -0.089207 + 1.159830I$	$-7.97723 - 1.25475I$	0
$u = -0.55430 - 1.47189I$ $a = -0.471137 + 0.489578I$ $b = -0.089207 - 1.159830I$	$-7.97723 + 1.25475I$	0
$u = 0.349047$ $a = 1.28651$ $b = -0.446661$	0.908064	11.6320

II. $\boldsymbol{I_2^u = \langle 3.47 \times 10^4 a^3 u^{16} - 2.63 \times 10^4 a^2 u^{16} + \cdots - 1.27 \times 10^5 a + 3.15 \times 10^4,\ -2u^{16}a^3 + 23u^{16}a^2 + \cdots + 842a + 2659,\ u^{17} + 2u^{16} + \cdots - 2u - 2\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -1.15889a^3u^{16} + 0.878888a^2u^{16} + \cdots + 4.23255a - 1.05039 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.454445a^3u^{16} - 0.378888a^2u^{16} + \cdots - 1.44961a + 3.55039 \\ -0.295555a^2u^{16} - 0.352223u^{16} + \cdots + 0.565879a^2 + 1.21706 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.15889a^3u^{16} + 0.878888a^2u^{16} + \cdots + 5.23255a - 1.05039 \\ -1.15889a^3u^{16} + 0.878888a^2u^{16} + \cdots + 4.23255a - 1.05039 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{1}{2}u^{16} - \frac{1}{4}u^{15} + \cdots - \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{2}u^{16} - \frac{1}{2}u^{15} + \cdots - \frac{3}{4}u^2 + \frac{1}{2} \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -\frac{1}{4}u^{16} - \frac{3}{4}u^{14} + \cdots - \frac{3}{2}u - \frac{1}{2} \\ -\frac{1}{4}u^{16} - \frac{1}{2}u^{14} + \cdots - \frac{1}{2}u^2 - u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.811107a^3u^{16} + 1.06778a^2u^{16} + \cdots + 0.418636a - 4.13176 \\ -0.356661a^3u^{16} + 0.688893a^2u^{16} + \cdots - 1.03097a - 2.58136 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.908891a^3u^{16} - 0.795555a^2u^{16} + \cdots + 1.93412a - 1.28294 \\ 0.158891a^3u^{16} - 0.212221a^2u^{16} + \cdots + 4.10079a - 0.616273 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}u^{16} - u^{15} + \cdots - \frac{11}{4}u^2 + \frac{1}{2} \\ -\frac{3}{4}u^{15} - \frac{3}{4}u^{14} + \cdots + \frac{1}{2}u + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{12718}{7491}u^{16}a^3 + \frac{4539}{2497}u^{16}a^2 + \cdots + \frac{82924}{7491}a - \frac{17808}{2497}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{17}+8u^{16}+\cdots+3u+1)^4$
c_2, c_4	$(u^{17}-2u^{16}+\cdots-u+1)^4$
c_3, c_7	$(u^{17}+2u^{16}+\cdots-2u-2)^4$
c_5, c_6, c_9 c_{11}	$u^{68}-2u^{67}+\cdots+942u+61$
c_8, c_{10}	$u^{68}+18u^{67}+\cdots+8600u+373$
c_{12}	$(u^2+u+1)^{34}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{17}+4y^{16}+\cdots-13y-1)^4$
c_2, c_4	$(y^{17}-8y^{16}+\cdots+3y-1)^4$
c_3, c_7	$(y^{17}+6y^{16}+\cdots+8y-4)^4$
c_5, c_6, c_9 c_{11}	$y^{68}+54y^{67}+\cdots+221616y+3721$
c_8, c_{10}	$y^{68}+14y^{67}+\cdots+20523884y+139129$
c_{12}	$(y^2+y+1)^{34}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.742615 + 0.650908I$ $a = -0.858913 - 0.213402I$ $b = -0.66649 + 1.56071I$	$-8.59404 - 3.25712I$	$-8.14847 + 4.31915I$
$u = -0.742615 + 0.650908I$ $a = -0.17250 - 1.68551I$ $b = -0.040339 - 1.225610I$	$-8.59404 + 0.80264I$	$-8.14847 - 2.60905I$
$u = -0.742615 + 0.650908I$ $a = -2.43226 + 1.27156I$ $b = 0.59407 + 1.60818I$	$-8.59404 + 0.80264I$	$-8.14847 - 2.60905I$
$u = -0.742615 + 0.650908I$ $a = 2.51978 - 1.83542I$ $b = 0.058310 - 1.272450I$	$-8.59404 - 3.25712I$	$-8.14847 + 4.31915I$
$u = -0.742615 - 0.650908I$ $a = -0.858913 + 0.213402I$ $b = -0.66649 - 1.56071I$	$-8.59404 + 3.25712I$	$-8.14847 - 4.31915I$
$u = -0.742615 - 0.650908I$ $a = -0.17250 + 1.68551I$ $b = -0.040339 + 1.225610I$	$-8.59404 - 0.80264I$	$-8.14847 + 2.60905I$
$u = -0.742615 - 0.650908I$ $a = -2.43226 - 1.27156I$ $b = 0.59407 - 1.60818I$	$-8.59404 - 0.80264I$	$-8.14847 + 2.60905I$
$u = -0.742615 - 0.650908I$ $a = 2.51978 + 1.83542I$ $b = 0.058310 + 1.272450I$	$-8.59404 + 3.25712I$	$-8.14847 - 4.31915I$
$u = -0.834865 + 0.265014I$ $a = -0.016132 + 0.733452I$ $b = 0.960620 - 0.161520I$	$-2.31524 - 2.46376I$	$0.56834 + 2.58870I$
$u = -0.834865 + 0.265014I$ $a = 0.284668 - 0.665934I$ $b = 0.509050 - 0.033729I$	$-2.31524 + 1.59601I$	$0.56834 - 4.33950I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.834865 + 0.265014I$ $a = 0.475849 + 0.326477I$ $b = -0.232899 + 1.178170I$	$-2.31524 - 2.46376I$	$0.56834 + 2.58870I$
$u = -0.834865 + 0.265014I$ $a = 0.403399 - 0.262157I$ $b = 0.007533 - 1.104820I$	$-2.31524 + 1.59601I$	$0.56834 - 4.33950I$
$u = -0.834865 - 0.265014I$ $a = -0.016132 - 0.733452I$ $b = 0.960620 + 0.161520I$	$-2.31524 + 2.46376I$	$0.56834 - 2.58870I$
$u = -0.834865 - 0.265014I$ $a = 0.284668 + 0.665934I$ $b = 0.509050 + 0.033729I$	$-2.31524 - 1.59601I$	$0.56834 + 4.33950I$
$u = -0.834865 - 0.265014I$ $a = 0.475849 - 0.326477I$ $b = -0.232899 - 1.178170I$	$-2.31524 + 2.46376I$	$0.56834 - 2.58870I$
$u = -0.834865 - 0.265014I$ $a = 0.403399 + 0.262157I$ $b = 0.007533 + 1.104820I$	$-2.31524 - 1.59601I$	$0.56834 + 4.33950I$
$u = 0.976738 + 0.562668I$ $a = 0.453582 + 0.523609I$ $b = 0.097566 + 0.148491I$	$-4.32437 + 2.61783I$	$-2.43915 - 0.65285I$
$u = 0.976738 + 0.562668I$ $a = -0.163065 - 0.655845I$ $b = 1.225180 + 0.226983I$	$-4.32437 + 6.67759I$	$-2.43915 - 7.58105I$
$u = 0.976738 + 0.562668I$ $a = 0.462635 - 0.371400I$ $b = -0.336705 - 1.223300I$	$-4.32437 + 6.67759I$	$-2.43915 - 7.58105I$
$u = 0.976738 + 0.562668I$ $a = 0.286253 + 0.249449I$ $b = 0.321037 + 1.119110I$	$-4.32437 + 2.61783I$	$-2.43915 - 0.65285I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.976738 - 0.562668I$ $a = 0.453582 - 0.523609I$ $b = 0.097566 - 0.148491I$	$-4.32437 - 2.61783I$	$-2.43915 + 0.65285I$
$u = 0.976738 - 0.562668I$ $a = -0.163065 + 0.655845I$ $b = 1.225180 - 0.226983I$	$-4.32437 - 6.67759I$	$-2.43915 + 7.58105I$
$u = 0.976738 - 0.562668I$ $a = 0.462635 + 0.371400I$ $b = -0.336705 + 1.223300I$	$-4.32437 - 6.67759I$	$-2.43915 + 7.58105I$
$u = 0.976738 - 0.562668I$ $a = 0.286253 - 0.249449I$ $b = 0.321037 - 1.119110I$	$-4.32437 - 2.61783I$	$-2.43915 + 0.65285I$
$u = -0.003992 + 0.842342I$ $a = 0.823514 + 0.703163I$ $b = -0.188923 + 1.380570I$	$-3.62498 - 3.49944I$	$1.63583 + 8.12938I$
$u = -0.003992 + 0.842342I$ $a = 0.354576 + 0.342592I$ $b = -0.17222 - 1.57777I$	$-3.62498 + 0.56033I$	$1.63583 + 1.20118I$
$u = -0.003992 + 0.842342I$ $a = -1.14706 + 1.36568I$ $b = 0.865544 - 1.043820I$	$-3.62498 - 3.49944I$	$1.63583 + 8.12938I$
$u = -0.003992 + 0.842342I$ $a = 1.59887 - 1.09681I$ $b = 0.125548 + 0.823426I$	$-3.62498 + 0.56033I$	$1.63583 + 1.20118I$
$u = -0.003992 - 0.842342I$ $a = 0.823514 - 0.703163I$ $b = -0.188923 - 1.380570I$	$-3.62498 + 3.49944I$	$1.63583 - 8.12938I$
$u = -0.003992 - 0.842342I$ $a = 0.354576 - 0.342592I$ $b = -0.17222 + 1.57777I$	$-3.62498 - 0.56033I$	$1.63583 - 1.20118I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.003992-0.842342I$ $a=-1.14706-1.36568I$ $b=\ \ 0.865544+1.043820I$	$-3.62498+3.49944I$	$1.63583-8.12938I$
$u=-0.003992-0.842342I$ $a=\ \ 1.59887+1.09681I$ $b=\ \ 0.125548-0.823426I$	$-3.62498-0.56033I$	$1.63583-1.20118I$
$u=-0.656745+1.004700I$ $a=\ \ 0.146155-1.227280I$ $b=-0.025709-1.355530I$	$-7.51458+8.60052I$	$-5.26005-9.89862I$
$u=-0.656745+1.004700I$ $a=-0.376762-0.223958I$ $b=-0.55941+1.77505I$	$-7.51458+4.54075I$	$-5.26005-2.97041I$
$u=-0.656745+1.004700I$ $a=-1.80331+0.32050I$ $b=\ \ 0.84173+1.60733I$	$-7.51458+8.60052I$	$-5.26005-9.89862I$
$u=-0.656745+1.004700I$ $a=\ \ 1.99063-0.75779I$ $b=-0.066671-1.194250I$	$-7.51458+4.54075I$	$-5.26005-2.97041I$
$u=-0.656745-1.004700I$ $a=\ \ 0.146155+1.227280I$ $b=-0.025709+1.355530I$	$-7.51458-8.60052I$	$-5.26005+9.89862I$
$u=-0.656745-1.004700I$ $a=-0.376762+0.223958I$ $b=-0.55941-1.77505I$	$-7.51458-4.54075I$	$-5.26005+2.97041I$
$u=-0.656745-1.004700I$ $a=-1.80331-0.32050I$ $b=\ \ 0.84173-1.60733I$	$-7.51458-8.60052I$	$-5.26005+9.89862I$
$u=-0.656745-1.004700I$ $a=\ \ 1.99063+0.75779I$ $b=-0.066671+1.194250I$	$-7.51458-4.54075I$	$-5.26005+2.97041I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.110097 + 1.246510I$ $a = -0.537569 + 0.828636I$ $b = 0.247183 - 0.880435I$	$3.09988 + 0.68177I$	$3.84242 + 0.32700I$
$u = -0.110097 + 1.246510I$ $a = 1.147850 - 0.201747I$ $b = -0.922464 - 0.394135I$	$3.09988 + 0.68177I$	$3.84242 + 0.32700I$
$u = -0.110097 + 1.246510I$ $a = 1.301120 + 0.007909I$ $b = -1.089750 + 0.222504I$	$3.09988 + 4.74154I$	$3.84242 - 6.60120I$
$u = -0.110097 + 1.246510I$ $a = -1.063350 - 0.849870I$ $b = 0.323575 + 0.999592I$	$3.09988 + 4.74154I$	$3.84242 - 6.60120I$
$u = -0.110097 - 1.246510I$ $a = -0.537569 - 0.828636I$ $b = 0.247183 + 0.880435I$	$3.09988 - 0.68177I$	$3.84242 - 0.32700I$
$u = -0.110097 - 1.246510I$ $a = 1.147850 + 0.201747I$ $b = -0.922464 + 0.394135I$	$3.09988 - 0.68177I$	$3.84242 - 0.32700I$
$u = -0.110097 - 1.246510I$ $a = 1.301120 - 0.007909I$ $b = -1.089750 - 0.222504I$	$3.09988 - 4.74154I$	$3.84242 + 6.60120I$
$u = -0.110097 - 1.246510I$ $a = -1.063350 + 0.849870I$ $b = 0.323575 - 0.999592I$	$3.09988 - 4.74154I$	$3.84242 + 6.60120I$
$u = -0.578864 + 1.116300I$ $a = 1.204300 - 0.022501I$ $b = -0.488361 - 1.049000I$	$0.11501 + 3.48170I$	$2.25126 - 0.38080I$
$u = -0.578864 + 1.116300I$ $a = 1.27173 - 0.65139I$ $b = -1.312600 - 0.151182I$	$0.11501 + 7.54146I$	$2.25126 - 7.30900I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.578864 + 1.116300I$ $a = -0.194398 - 0.198117I$ $b = 0.042359 - 0.283882I$	$0.11501 + 3.48170I$	$2.25126 - 0.38080I$
$u = -0.578864 + 1.116300I$ $a = -1.96774 - 0.11289I$ $b = 0.381291 + 1.203870I$	$0.11501 + 7.54146I$	$2.25126 - 7.30900I$
$u = -0.578864 - 1.116300I$ $a = 1.204300 + 0.022501I$ $b = -0.488361 + 1.049000I$	$0.11501 - 3.48170I$	$2.25126 + 0.38080I$
$u = -0.578864 - 1.116300I$ $a = 1.27173 + 0.65139I$ $b = -1.312600 + 0.151182I$	$0.11501 - 7.54146I$	$2.25126 + 7.30900I$
$u = -0.578864 - 1.116300I$ $a = -0.194398 + 0.198117I$ $b = 0.042359 + 0.283882I$	$0.11501 - 3.48170I$	$2.25126 + 0.38080I$
$u = -0.578864 - 1.116300I$ $a = -1.96774 + 0.11289I$ $b = 0.381291 - 1.203870I$	$0.11501 - 7.54146I$	$2.25126 + 7.30900I$
$u = 0.718492 + 1.129370I$ $a = 1.275350 + 0.228864I$ $b = -0.553021 + 1.205800I$	$-2.53156 - 8.80385I$	$-1.10622 + 3.94851I$
$u = 0.718492 + 1.129370I$ $a = 1.097970 + 0.736493I$ $b = -1.40257 + 0.22167I$	$-2.53156 - 12.86360I$	$-1.10622 + 10.87671I$
$u = 0.718492 + 1.129370I$ $a = -0.420731 + 0.192335I$ $b = 0.164364 + 0.168623I$	$-2.53156 - 8.80385I$	$-1.10622 + 3.94851I$
$u = 0.718492 + 1.129370I$ $a = -1.89005 - 0.20697I$ $b = 0.406612 - 1.245470I$	$-2.53156 - 12.86360I$	$-1.10622 + 10.87671I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.718492 - 1.129370I$ $a = 1.275350 - 0.228864I$ $b = -0.553021 - 1.205800I$	$-2.53156 + 8.80385I$	$-1.10622 - 3.94851I$
$u = 0.718492 - 1.129370I$ $a = 1.097970 - 0.736493I$ $b = -1.40257 - 0.22167I$	$-2.53156 + 12.86360I$	$-1.10622 - 10.87671I$
$u = 0.718492 - 1.129370I$ $a = -0.420731 - 0.192335I$ $b = 0.164364 - 0.168623I$	$-2.53156 + 8.80385I$	$-1.10622 - 3.94851I$
$u = 0.718492 - 1.129370I$ $a = -1.89005 + 0.20697I$ $b = 0.406612 + 1.245470I$	$-2.53156 + 12.86360I$	$-1.10622 - 10.87671I$
$u = 0.463897$ $a = -4.47126 + 2.76907I$ $b = -0.397720 + 1.155250I$	$-6.19292 - 2.02988I$	$-10.68792 + 3.46410I$
$u = 0.463897$ $a = -4.47126 - 2.76907I$ $b = -0.397720 - 1.155250I$	$-6.19292 + 2.02988I$	$-10.68792 - 3.46410I$
$u = 0.463897$ $a = -0.58311 + 11.52350I$ $b = 0.284280 + 1.351730I$	$-6.19292 + 2.02988I$	$-10.68792 - 3.46410I$
$u = 0.463897$ $a = -0.58311 - 11.52350I$ $b = 0.284280 - 1.351730I$	$-6.19292 - 2.02988I$	$-10.68792 + 3.46410I$

III.

$\boldsymbol{I_3^u = \langle 3.38\times 10^5 u^{20} - 7.89\times 10^4 u^{19} + \cdots + 3.35\times 10^5 b + 2.21\times 10^5,\ -2.12\times 10^6 u^{20} + 2.03\times 10^6 u^{19} + \cdots + 3.35\times 10^5 a + 4.10\times 10^6,\ u^{21} - u^{20} + \cdots - 2u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 6.34339u^{20} - 6.07912u^{19} + \cdots + 17.6956u - 12.2372 \\ -1.01034u^{20} + 0.235771u^{19} + \cdots - 2.20402u - 0.661212 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.312375u^{20} + 2.96012u^{19} + \cdots + 3.86554u + 11.9528 \\ 1.35474u^{20} - 1.24479u^{19} + \cdots + 3.63887u - 1.82860 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 5.33305u^{20} - 5.84335u^{19} + \cdots + 15.4916u - 12.8984 \\ -1.01034u^{20} + 0.235771u^{19} + \cdots - 2.20402u - 0.661212 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.24963u^{20} + 0.461943u^{19} + \cdots - 4.25896u + 0.00811417 \\ -0.0988130u^{20} + 0.262465u^{19} + \cdots + 0.213051u + 0.0131213 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.47255u^{20} + 1.20487u^{19} + \cdots - 4.89251u + 0.996355 \\ -0.180295u^{20} + 0.767210u^{19} + \cdots + 0.842431u + 0.481356 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 4.42387u^{20} - 1.98590u^{19} + \cdots + 22.5450u + 0.373646 \\ -0.411406u^{20} + 0.417725u^{19} + \cdots - 3.61084u - 0.603057 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 4.98866u^{20} - 4.83433u^{19} + \cdots + 14.0567u - 9.40856 \\ -1.01034u^{20} + 0.235771u^{19} + \cdots - 2.20402u - 0.661212 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.34293u^{20} - 0.354687u^{19} + \cdots + 4.79776u - 0.782680 \\ 0.0932980u^{20} + 0.107256u^{19} + \cdots + 0.538795u - 0.774566 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{2811940}{334723}u^{20} - \frac{1365409}{334723}u^{19} + \cdots + \frac{14890533}{334723}u - \frac{3065752}{334723}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} - 11u^{20} + \cdots + 2u - 1$
c_2	$u^{21} + 3u^{20} + \cdots - 4u - 1$
c_3	$u^{21} + u^{20} + \cdots - 2u - 1$
c_4	$u^{21} - 3u^{20} + \cdots - 4u + 1$
c_5, c_{11}	$u^{21} + 12u^{19} + \cdots + 5u - 1$
c_6, c_9	$u^{21} + 12u^{19} + \cdots + 5u + 1$
c_7	$u^{21} - u^{20} + \cdots - 2u + 1$
c_8, c_{10}	$u^{21} - 3u^{20} + \cdots - 3u + 1$
c_{12}	$u^{21} + 3u^{20} + \cdots - 3u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} + y^{20} + \cdots - 6y - 1$
c_2, c_4	$y^{21} - 11y^{20} + \cdots + 2y - 1$
c_3, c_7	$y^{21} + 9y^{20} + \cdots - 6y - 1$
c_5, c_6, c_9 c_{11}	$y^{21} + 24y^{20} + \cdots + 99y - 1$
c_8, c_{10}	$y^{21} + 3y^{20} + \cdots - 3y - 1$
c_{12}	$y^{21} + 3y^{20} + \cdots - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.490243 + 0.937388I$ $a = 0.514333 + 0.625527I$ $b = -0.528540 - 1.286100I$	$-5.52103 - 1.78110I$	$-3.65173 + 3.65315I$
$u = 0.490243 - 0.937388I$ $a = 0.514333 - 0.625527I$ $b = -0.528540 + 1.286100I$	$-5.52103 + 1.78110I$	$-3.65173 - 3.65315I$
$u = -0.156277 + 1.122180I$ $a = -1.217350 + 0.179026I$ $b = 0.410410 + 0.113082I$	$4.06250 + 2.43837I$	$5.17498 - 3.14519I$
$u = -0.156277 - 1.122180I$ $a = -1.217350 - 0.179026I$ $b = 0.410410 - 0.113082I$	$4.06250 - 2.43837I$	$5.17498 + 3.14519I$
$u = -0.130234 + 0.829741I$ $a = 1.35637 - 0.71728I$ $b = -0.43014 + 1.34934I$	$-3.93501 - 2.17155I$	$0.14652 + 1.48581I$
$u = -0.130234 - 0.829741I$ $a = 1.35637 + 0.71728I$ $b = -0.43014 - 1.34934I$	$-3.93501 + 2.17155I$	$0.14652 - 1.48581I$
$u = -0.659203 + 0.963090I$ $a = 1.009120 - 0.683478I$ $b = -0.18280 - 1.48861I$	$-7.11068 + 6.86906I$	$-4.04608 - 5.76368I$
$u = -0.659203 - 0.963090I$ $a = 1.009120 + 0.683478I$ $b = -0.18280 + 1.48861I$	$-7.11068 - 6.86906I$	$-4.04608 + 5.76368I$
$u = 0.410688 + 0.721803I$ $a = 1.56660 + 0.92039I$ $b = -0.280481 + 1.376890I$	$-4.50106 - 2.68972I$	$0.55053 + 1.78075I$
$u = 0.410688 - 0.721803I$ $a = 1.56660 - 0.92039I$ $b = -0.280481 - 1.376890I$	$-4.50106 + 2.68972I$	$0.55053 - 1.78075I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.156740 + 0.305908I$ $a = -0.338936 - 0.137814I$ $b = -0.304972 - 1.054660I$	$-5.35947 + 3.69430I$	$-6.58451 - 3.53350I$
$u = 1.156740 - 0.305908I$ $a = -0.338936 + 0.137814I$ $b = -0.304972 + 1.054660I$	$-5.35947 - 3.69430I$	$-6.58451 + 3.53350I$
$u = -0.730687 + 0.973520I$ $a = 1.040580 - 0.020751I$ $b = 0.089617 - 1.248120I$	$-7.52481 - 1.55740I$	$-4.73995 + 2.30181I$
$u = -0.730687 - 0.973520I$ $a = 1.040580 + 0.020751I$ $b = 0.089617 + 1.248120I$	$-7.52481 + 1.55740I$	$-4.73995 - 2.30181I$
$u = 0.731610 + 1.181440I$ $a = -1.096200 - 0.010581I$ $b = 0.526976 - 0.918183I$	$-2.90296 - 10.25050I$	$-2.57335 + 9.34499I$
$u = 0.731610 - 1.181440I$ $a = -1.096200 + 0.010581I$ $b = 0.526976 + 0.918183I$	$-2.90296 + 10.25050I$	$-2.57335 - 9.34499I$
$u = -0.640346 + 1.260900I$ $a = -0.845339 - 0.135710I$ $b = 0.381374 + 0.865230I$	$-0.24350 + 4.56805I$	$-0.64289 - 8.18526I$
$u = -0.640346 - 1.260900I$ $a = -0.845339 + 0.135710I$ $b = 0.381374 - 0.865230I$	$-0.24350 - 4.56805I$	$-0.64289 + 8.18526I$
$u = -0.549197$ $a = 3.01565$ $b = -0.100536$	0.498833	-32.6110
$u = 0.302066 + 0.377168I$ $a = -8.99701 + 2.20814I$ $b = 0.368826 - 1.244610I$	$-6.69180 - 1.84270I$	$-6.8280 + 14.0564I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.302066 - 0.377168I$		
$a = -8.99701 - 2.20814I$	$-6.69180 + 1.84270I$	$-6.8280 - 14.0564I$
$b = 0.368826 + 1.244610I$		

IV. $I_4^u = \langle -1746a^5u - 3784a^4u + \cdots + 44299a - 6066,\ -4a^5u - 10a^4u + \cdots + 26a - 7,\ u^2 - u + 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ 0.232583a^5u + 0.504063a^4u + \cdots - 5.90103a + 0.808046 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.285067a^5u - 0.983216a^4u + \cdots + 4.04822a + 0.452911 \\ -0.273611a^5u - 0.980152a^4u + \cdots + 4.54909a + 0.472093 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.232583a^5u + 0.504063a^4u + \cdots - 4.90103a + 0.808046 \\ 0.232583a^5u + 0.504063a^4u + \cdots - 5.90103a + 0.808046 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0166511a^5u + 0.332756a^4u + \cdots - 1.12335a + 0.344212 \\ 0.0410284a^5u + 0.476089a^4u + \cdots - 0.648062a + 0.719861 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.136806a^5u + 0.490076a^4u + \cdots - 2.27454a + 1.76395 \\ 0.189290a^5u + 0.969229a^4u + \cdots - 2.42174a + 2.50300 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.309445a^5u + 1.79206a^4u + \cdots - 4.81964a - 1.38884 \\ 0.0243772a^5u + 0.808845a^4u + \cdots - 0.771413a - 2.93593 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.131877a^5u - 0.244572a^4u + \cdots + 2.58306a + 0.686160 \\ -0.0492873a^5u - 0.455042a^4u + \cdots - 1.08512a + 1.49887 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.148262a^5u - 0.493140a^4u + \cdots + 1.77368a - 1.78314 \\ -0.131610a^5u - 0.825896a^4u + \cdots + 2.89703a - 2.12735 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 8u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6+4u^5+6u^4+3u^3-u^2-u+1)^2$
c_2, c_4	$(u^6-2u^4+u^3+u^2-u+1)^2$
c_3, c_7	$(u^2-u+1)^6$
c_5, c_6, c_9 c_{11}	$u^{12}+6u^{10}+\cdots-2u+4$
c_8, c_{10}	$u^{12}+4u^{11}+\cdots+14u+13$
c_{12}	$(u^2+u+1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 4y^5 + 10y^4 - 11y^3 + 19y^2 - 3y + 1)^2$
c_2, c_4	$(y^6 - 4y^5 + 6y^4 - 3y^3 - y^2 + y + 1)^2$
c_3, c_7, c_{12}	$(y^2 + y + 1)^6$
c_5, c_6, c_9 c_{11}	$y^{12} + 12y^{11} + \cdots + 228y + 16$
c_8, c_{10}	$y^{12} + 8y^{11} + \cdots + 558y + 169$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.800900 + 0.692255I$ $b = 0.020130 - 0.405138I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = 0.37705 + 1.39893I$ $b = -0.086959 + 1.331210I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = 0.296620 + 0.036933I$ $b = 0.12517 + 1.51446I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = 1.72107 + 0.97581I$ $b = -1.127070 + 0.261490I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = -2.29509 + 0.00735I$ $b = 0.77338 - 1.47468I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = -2.90055 + 0.35282I$ $b = 0.295351 - 1.227340I$	$-4.93480 - 4.05977I$	$-2.00000 + 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 0.800900 - 0.692255I$ $b = 0.020130 + 0.405138I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 0.37705 - 1.39893I$ $b = -0.086959 - 1.331210I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 0.296620 - 0.036933I$ $b = 0.12517 - 1.51446I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 1.72107 - 0.97581I$ $b = -1.127070 - 0.261490I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = -2.29509 - 0.00735I$ $b = 0.77338 + 1.47468I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = -2.90055 - 0.35282I$ $b = 0.295351 + 1.227340I$	$-4.93480 + 4.05977I$	$-2.00000 - 6.92820I$

V.

$$\boldsymbol{I^u_5 = \langle 30a^5u - 47a^4u + \cdots + 104a - 142,\ -a^3u - a^2u + \cdots + 5a^2 - a,\ u^2 - u + 1\rangle}$$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -0.189873a^5u + 0.297468a^4u + \cdots - 0.658228a + 0.898734 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.462025a^5u - 1.74051a^4u + \cdots - 1.03165a + 1.37975 \\ 0.0506329a^5u - 0.0126582a^4u + \cdots + 0.708861a + 1.49367 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.189873a^5u + 0.297468a^4u + \cdots + 0.341772a + 0.898734 \\ -0.189873a^5u + 0.297468a^4u + \cdots - 0.658228a + 0.898734 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.101266a^5u + 0.0253165a^4u + \cdots - 1.41772a + 1.01266 \\ 0.0253165a^5u - 0.00632911a^4u + \cdots - 0.645570a + 0.746835 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} -0.0822785a^5u + 0.145570a^4u + \cdots + 0.348101a + 0.822785 \\ 0.481013a^5u - 1.62025a^4u + \cdots - 0.265823a + 1.18987 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.139241a^5u + 0.284810a^4u + \cdots + 1.05063a - 1.60759 \\ 0.322785a^5u - 1.45570a^4u + \cdots + 0.0189873a - 2.22785 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.151899a^5u - 1.03797a^4u + \cdots - 0.873418a + 0.481013 \\ -0.354430a^5u + 1.08861a^4u + \cdots - 1.96203a + 1.54430 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.455696a^5u + 1.61392a^4u + \cdots - 0.379747a - 0.443038 \\ -0.354430a^5u + 1.58861a^4u + \cdots + 1.03797a - 1.45570 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6+4u^5+6u^4+3u^3-u^2-u+1)^2$
c_2, c_4	$(u^6-2u^4+u^3+u^2-u+1)^2$
c_3, c_7	$(u^2-u+1)^6$
c_5, c_6, c_9 c_{11}	$u^{12}+6u^{10}+\cdots-8u+1$
c_8, c_{10}	$u^{12}+4u^{11}+\cdots+14u+4$
c_{12}	$(u^2+u+1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - 4y^5 + 10y^4 - 11y^3 + 19y^2 - 3y + 1)^2$
c_2, c_4	$(y^6 - 4y^5 + 6y^4 - 3y^3 - y^2 + y + 1)^2$
c_3, c_7, c_{12}	$(y^2 + y + 1)^6$
c_5, c_6, c_9 c_{11}	$y^{12} + 12y^{11} + \cdots - 30y + 1$
c_8, c_{10}	$y^{12} + 8y^{11} + \cdots + 132y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.458927 - 0.846317I$ $b = 1.154960 + 0.679619I$	-4.93480	-2.00000
$u = 0.500000 + 0.866025I$ $a = -0.120980 + 0.945900I$ $b = -0.227005 + 0.048397I$	-4.93480	-2.00000
$u = 0.500000 + 0.866025I$ $a = 0.541662 - 0.468758I$ $b = -0.266914 - 1.360110I$	-4.93480	-2.00000
$u = 0.500000 + 0.866025I$ $a = -0.375061 + 0.467634I$ $b = -0.48176 - 1.66531I$	-4.93480	-2.00000
$u = 0.500000 + 0.866025I$ $a = 1.86135 - 0.58876I$ $b = -0.193588 + 1.154820I$	-4.93480	-2.00000
$u = 0.500000 + 0.866025I$ $a = 2.55196 + 0.49030I$ $b = 0.014308 + 1.142590I$	-4.93480	-2.00000
$u = 0.500000 - 0.866025I$ $a = -0.458927 + 0.846317I$ $b = 1.154960 - 0.679619I$	-4.93480	-2.00000
$u = 0.500000 - 0.866025I$ $a = -0.120980 - 0.945900I$ $b = -0.227005 - 0.048397I$	-4.93480	-2.00000
$u = 0.500000 - 0.866025I$ $a = 0.541662 + 0.468758I$ $b = -0.266914 + 1.360110I$	-4.93480	-2.00000
$u = 0.500000 - 0.866025I$ $a = -0.375061 - 0.467634I$ $b = -0.48176 + 1.66531I$	-4.93480	-2.00000

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = 1.86135 + 0.58876I$ $b = -0.193588 - 1.154820I$	-4.93480	-2.00000
$u = 0.500000 - 0.866025I$ $a = 2.55196 - 0.49030I$ $b = 0.014308 - 1.142590I$	-4.93480	-2.00000

VI. $I_1^v = \langle a,\ -8v^2 + b + 26v - 7,\ 4v^3 - 14v^2 + 7v - 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ 8v^2 - 26v + 7 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -4v^2 + 12v - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 8v^2 - 26v + 7 \\ 8v^2 - 26v + 7 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ -4v^2 + 14v - 7 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} v - 1 \\ -4v^2 + 14v - 7 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 4v^2 - 12v + 2 \\ 4v^2 - 12v + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -8v^2 + 26v - 7 \\ -20v^2 + 64v - 16 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 4v^2 - 14v + 7 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 13v^2 - 38v + 13$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_7	y^3
c_5, c_6, c_8 c_9, c_{10}, c_{11}	$y^3 + 4y^2 + 4y - 1$
c_{12}	$y^3 + y^2 + 13y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.283866 + 0.068399I$ $a = 0$ $b = 0.22670 - 1.46771I$	$-11.08570 - 5.13794I$	$3.19982 - 2.09434I$
$v = 0.283866 - 0.068399I$ $a = 0$ $b = 0.22670 + 1.46771I$	$-11.08570 + 5.13794I$	$3.19982 + 2.09434I$
$v = 2.93227$ $a = 0$ $b = -0.453398$	-0.857735	13.3500

VII. $I_2^v = \langle a,\ b^4 - b^3 + 2b^2 - 2b + 1,\ v + 1 \rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 0 \\ b \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -b^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} b \\ b \end{pmatrix}$$

$$a_1 = \begin{pmatrix} b^3 + 2b \\ 1 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} b^3 + 2b - 1 \\ 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} b^2 + 1 \\ b^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2b^3 + b^2 - 3b + 3 \\ -b^3 - b + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -b^3 - 2b \\ -1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4b^3 - 4b$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 0.621744 + 0.440597I$	$-4.93480 + 2.02988I$	$-2.00000 - 3.46410I$
$v = -1.00000$ $a = 0$ $b = 0.621744 - 0.440597I$	$-4.93480 - 2.02988I$	$-2.00000 + 3.46410I$
$v = -1.00000$ $a = 0$ $b = -0.121744 + 1.306620I$	$-4.93480 - 2.02988I$	$-2.00000 + 3.46410I$
$v = -1.00000$ $a = 0$ $b = -0.121744 - 1.306620I$	$-4.93480 + 2.02988I$	$-2.00000 - 3.46410I$

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^7(u^6+4u^5+6u^4+3u^3-u^2-u+1)^4$ $\cdot((u^{17}+8u^{16}+\cdots+3u+1)^4)(u^{21}-11u^{20}+\cdots+2u-1)$ $\cdot(u^{48}+25u^{47}+\cdots+18800u+256)$
c_2	$((u-1)^7)(u^6-2u^4+\cdots-u+1)^4(u^{17}-2u^{16}+\cdots-u+1)^4$ $\cdot(u^{21}+3u^{20}+\cdots-4u-1)(u^{48}-3u^{47}+\cdots+76u+16)$
c_3	$u^7(u^2-u+1)^{12}(u^{17}+2u^{16}+\cdots-2u-2)^4(u^{21}+u^{20}+\cdots-2u-1)$ $\cdot(u^{48}+6u^{47}+\cdots-608u-128)$
c_4	$((u+1)^7)(u^6-2u^4+\cdots-u+1)^4(u^{17}-2u^{16}+\cdots-u+1)^4$ $\cdot(u^{21}-3u^{20}+\cdots-4u+1)(u^{48}-3u^{47}+\cdots+76u+16)$
c_5	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{12}+6u^{10}+\cdots-2u+4)$ $\cdot(u^{12}+6u^{10}+\cdots-8u+1)(u^{21}+12u^{19}+\cdots+5u-1)$ $\cdot(u^{48}+19u^{46}+\cdots-u-1)(u^{68}-2u^{67}+\cdots+942u+61)$
c_6	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{12}+6u^{10}+\cdots-2u+4)$ $\cdot(u^{12}+6u^{10}+\cdots-8u+1)(u^{21}+12u^{19}+\cdots+5u+1)$ $\cdot(u^{48}+19u^{46}+\cdots-u-1)(u^{68}-2u^{67}+\cdots+942u+61)$
c_7	$u^7(u^2-u+1)^{12}(u^{17}+2u^{16}+\cdots-2u-2)^4(u^{21}-u^{20}+\cdots-2u+1)$ $\cdot(u^{48}+6u^{47}+\cdots-608u-128)$
c_8, c_{10}	$(u^3+2u+1)(u^4-u^3+2u^2-2u+1)(u^{12}+4u^{11}+\cdots+14u+13)$ $\cdot(u^{12}+4u^{11}+\cdots+14u+4)(u^{21}-3u^{20}+\cdots-3u+1)$ $\cdot(u^{48}-3u^{47}+\cdots-23u+1)(u^{68}+18u^{67}+\cdots+8600u+373)$
c_9	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{12}+6u^{10}+\cdots-2u+4)$ $\cdot(u^{12}+6u^{10}+\cdots-8u+1)(u^{21}+12u^{19}+\cdots+5u+1)$ $\cdot(u^{48}+19u^{46}+\cdots-u-1)(u^{68}-2u^{67}+\cdots+942u+61)$
c_{11}	$(u^3+2u-1)(u^4+u^3+2u^2+2u+1)(u^{12}+6u^{10}+\cdots-2u+4)$ $\cdot(u^{12}+6u^{10}+\cdots-8u+1)(u^{21}+12u^{19}+\cdots+5u-1)$ $\cdot(u^{48}+19u^{46}+\cdots-u-1)(u^{68}-2u^{67}+\cdots+942u+61)$
c_{12}	$((u^2+u+1)^{48})(u^3-3u^2+5u-2)(u^{21}+3u^{20}+\cdots-3u-1)$ $\cdot(u^{48}-51u^{47}+\cdots-285212672u+8388608)$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^7(y^6-4y^5+10y^4-11y^3+19y^2-3y+1)^4$ $\cdot((y^{17}+4y^{16}+\cdots-13y-1)^4)(y^{21}+y^{20}+\cdots-6y-1)$ $\cdot(y^{48}-y^{47}+\cdots-279621376y+65536)$
c_2, c_4	$(y-1)^7(y^6-4y^5+6y^4-3y^3-y^2+y+1)^4$ $\cdot((y^{17}-8y^{16}+\cdots+3y-1)^4)(y^{21}-11y^{20}+\cdots+2y-1)$ $\cdot(y^{48}-25y^{47}+\cdots-18800y+256)$
c_3, c_7	$y^7(y^2+y+1)^{12}(y^{17}+6y^{16}+\cdots+8y-4)^4$ $\cdot(y^{21}+9y^{20}+\cdots-6y-1)(y^{48}+18y^{47}+\cdots-158720y+16384)$
c_5, c_6, c_9 c_{11}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{12}+12y^{11}+\cdots+228y+16)$ $\cdot(y^{12}+12y^{11}+\cdots-30y+1)(y^{21}+24y^{20}+\cdots+99y-1)$ $\cdot(y^{48}+38y^{47}+\cdots-31y+1)(y^{68}+54y^{67}+\cdots+221616y+3721)$
c_8, c_{10}	$(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)(y^{12}+8y^{11}+\cdots+132y+16)$ $\cdot(y^{12}+8y^{11}+\cdots+558y+169)(y^{21}+3y^{20}+\cdots-3y-1)$ $\cdot(y^{48}+5y^{47}+\cdots-237y+1)$ $\cdot(y^{68}+14y^{67}+\cdots+20523884y+139129)$
c_{12}	$((y^2+y+1)^{48})(y^3+y^2+13y-4)(y^{21}+3y^{20}+\cdots-3y-1)$ $\cdot(y^{48}+5y^{47}+\cdots-5875790138834944y+70368744177664)$