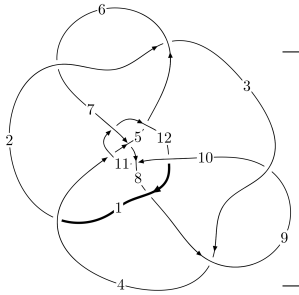
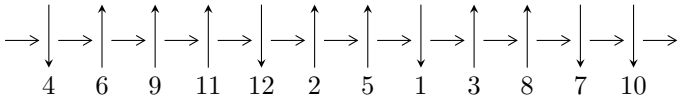
$12a_{0928}$ $(K12a_{0928})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & 1.47919 \times 10^{1912} u^{223} - 1.05500 \times 10^{1912} u^{222} + \cdots + 3.20851 \times 10^{1913} b + 2.03884 \times 10^{1918}, \\ & - 2.76178 \times 10^{1918} u^{223} + 3.34651 \times 10^{1917} u^{222} + \cdots + 3.27326 \times 10^{1919} a - 7.16190 \times 10^{1923}, \\ & u^{224} + 58 u^{222} + \cdots + 10407259 u - 1020181 \rangle \\ I_2^u = \langle & 5.94368 \times 10^{106} u^{69} + 5.99927 \times 10^{103} u^{68} + \cdots + 2.96461 \times 10^{103} b + 2.35908 \times 10^{107}, \\ & 6.45672 \times 10^{107} u^{69} + 8.20316 \times 10^{107} u^{68} + \cdots + 2.96461 \times 10^{103} a - 4.17631 \times 10^{107}, \ u^{70} + u^{69} + \cdots + 4u - \end{aligned}$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 294 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $\boldsymbol{I_1^u = \langle 1.48 \times 10^{1912} u^{223} - 1.06 \times 10^{1912} u^{222} + \cdots + 3.21 \times 10^{1913} b + 2.04 \times 10^{1918},\ -2.76 \times 10^{1918} u^{223} + 3.35 \times 10^{1917} u^{222} + \cdots + 3.27 \times 10^{1919} a - 7.16 \times 10^{1923},\ u^{224} + 58 u^{222} + \cdots + 10407259 u - 1020181 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} 0.0843742 u^{223} - 0.0102238 u^{222} + \cdots - 396537. u + 21880.0 \\ -0.0461021 u^{223} + 0.0328815 u^{222} + \cdots + 736214. u - 63544.8 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0335478 u^{223} + 0.0433988 u^{222} + \cdots + 897140. u - 94669.5 \\ -0.0226919 u^{223} - 0.0140044 u^{222} + \cdots - 331627. u + 37274.6 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.111918 u^{223} + 0.00602668 u^{222} + \cdots - 102353. u - 15422.6 \\ 0.0812510 u^{223} - 0.0732771 u^{222} + \cdots - 1.63911 \times 10^6 u + 144541. \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0382721 u^{223} + 0.0226577 u^{222} + \cdots + 339677. u - 41664.8 \\ -0.0461021 u^{223} + 0.0328815 u^{222} + \cdots + 736214. u - 63544.8 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0939944 u^{223} + 0.0913905 u^{222} + \cdots + 2.12056 \times 10^6 u - 188627. \\ -0.0767902 u^{223} + 0.0620023 u^{222} + \cdots + 1.31570 \times 10^6 u - 114559. \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.161572 u^{223} - 0.112029 u^{222} + \cdots - 2.52455 \times 10^6 u + 214159. \\ 0.100309 u^{223} - 0.0852634 u^{222} + \cdots - 1.93144 \times 10^6 u + 168230. \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0343535 u^{223} + 0.00304065 u^{222} + \cdots + 24150.1 u + 1722.80 \\ -0.0440112 u^{223} - 0.0906800 u^{222} + \cdots - 1.79462 \times 10^6 u + 184517. \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0477589 u^{223} - 0.0432239 u^{222} + \cdots - 884137. u + 94093.1 \\ -0.0523464 u^{223} - 0.113465 u^{222} + \cdots - 2.23509 \times 10^6 u + 229689. \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.160781 u^{223} + 0.0842712 u^{222} + \cdots + 3.15422 \times 10^6 u - 282054.$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{224} - 6u^{223} + \cdots - 44884222454179u + 3701456034894$
c_2, c_6	$u^{224} + 58u^{222} + \cdots - 10407259u - 1020181$
c_3, c_9	$u^{224} + 70u^{222} + \cdots - 41463065u - 6221089$
c_4	$u^{224} + 3u^{223} + \cdots + 130u + 3$
c_5	$u^{224} + u^{223} + \cdots - 77486276384u - 21859583968$
c_7	$u^{224} + 7u^{223} + \cdots + 147u + 4$
c_8	$u^{224} - 18u^{222} + \cdots + 104743724u - 8194483$
c_{10}	$u^{224} + 18u^{223} + \cdots + 274516829u + 44605981$
c_{11}	$u^{224} + 10u^{223} + \cdots - 88u + 1$
c_{12}	$u^{224} + 17u^{223} + \cdots + 1907648737u - 198403544$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{224} - 44y^{223} + \cdots - 4.74 \times 10^{26}y + 1.37 \times 10^{25}$
c_2, c_6	$y^{224} + 116y^{223} + \cdots + 49650999012427y + 1040769272761$
c_3, c_9	$y^{224} + 140y^{223} + \cdots + 1546004300630517y + 38701948345921$
c_4	$y^{224} + 19y^{223} + \cdots - 1648y + 9$
c_5	$y^{224} - 11y^{223} + \cdots - 6.27 \times 10^{22}y + 4.78 \times 10^{20}$
c_7	$y^{224} + y^{223} + \cdots + 1687y + 16$
c_8	$y^{224} - 36y^{223} + \cdots - 2069920790809914y + 67149551637289$
c_{10}	$y^{224} + 44y^{223} + \cdots + 260712383021021931y + 1989693540972361$
c_{11}	$y^{224} - 10y^{223} + \cdots - 794y + 1$
c_{12}	$y^{224} - 65y^{223} + \cdots - 2773728249316168385y + 39363966271759936$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.246680+0.968079I$ $a=-0.193061+0.324629I$ $b=\ \ 0.60379-1.46738I$	$-0.68120-3.11872I$	0
$u=-0.246680-0.968079I$ $a=-0.193061-0.324629I$ $b=\ \ 0.60379+1.46738I$	$-0.68120+3.11872I$	0
$u=-0.993198+0.072659I$ $a=-0.0505007-0.0219220I$ $b=-0.330285+0.675026I$	$2.53407-1.20893I$	0
$u=-0.993198-0.072659I$ $a=-0.0505007+0.0219220I$ $b=-0.330285-0.675026I$	$2.53407+1.20893I$	0
$u=\ \ 0.073702+1.007280I$ $a=\ \ 1.013460+0.933734I$ $b=-0.47380-1.60126I$	$-5.48416+2.75086I$	0
$u=\ \ 0.073702-1.007280I$ $a=\ \ 1.013460-0.933734I$ $b=-0.47380+1.60126I$	$-5.48416-2.75086I$	0
$u=\ \ 0.198193+0.994831I$ $a=-0.99611-1.40905I$ $b=\ \ 1.023280+0.553505I$	$-5.27316-2.46423I$	0
$u=\ \ 0.198193-0.994831I$ $a=-0.99611+1.40905I$ $b=\ \ 1.023280-0.553505I$	$-5.27316+2.46423I$	0
$u=\ \ 0.830253+0.523341I$ $a=-0.0454747+0.0619247I$ $b=\ \ 0.833881+1.073070I$	$-0.01144-4.15724I$	0
$u=\ \ 0.830253-0.523341I$ $a=-0.0454747-0.0619247I$ $b=\ \ 0.833881-1.073070I$	$-0.01144+4.15724I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.600508 + 0.826764I$ $a = -2.40079 - 0.87774I$ $b = 1.028710 - 0.931482I$	$-0.73254 + 9.72249I$	0
$u = 0.600508 - 0.826764I$ $a = -2.40079 + 0.87774I$ $b = 1.028710 + 0.931482I$	$-0.73254 - 9.72249I$	0
$u = 0.206091 + 0.954631I$ $a = -2.03538 + 0.62276I$ $b = 0.70426 - 1.63563I$	$-3.19125 + 3.66430I$	0
$u = 0.206091 - 0.954631I$ $a = -2.03538 - 0.62276I$ $b = 0.70426 + 1.63563I$	$-3.19125 - 3.66430I$	0
$u = -0.883266 + 0.410614I$ $a = 0.242310 - 0.121944I$ $b = -0.402660 - 0.822752I$	$2.37092 - 4.94967I$	0
$u = -0.883266 - 0.410614I$ $a = 0.242310 + 0.121944I$ $b = -0.402660 + 0.822752I$	$2.37092 + 4.94967I$	0
$u = 0.269160 + 0.993396I$ $a = -2.23684 - 0.63348I$ $b = 1.89695 + 0.00675I$	$-8.32522 + 0.93037I$	0
$u = 0.269160 - 0.993396I$ $a = -2.23684 + 0.63348I$ $b = 1.89695 - 0.00675I$	$-8.32522 - 0.93037I$	0
$u = 0.687380 + 0.677174I$ $a = -0.263852 - 0.527823I$ $b = -0.312952 + 0.077026I$	$-4.65097 - 1.88430I$	0
$u = 0.687380 - 0.677174I$ $a = -0.263852 + 0.527823I$ $b = -0.312952 - 0.077026I$	$-4.65097 + 1.88430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.169309+1.022710I$ $a=\ \ 1.94395-1.23637I$ $b=-1.88125+0.42798I$	$-9.27992-0.52672I$	0
$u=-0.169309-1.022710I$ $a=\ \ 1.94395+1.23637I$ $b=-1.88125-0.42798I$	$-9.27992+0.52672I$	0
$u=-0.420078+0.857739I$ $a=\ \ 1.47310-1.05146I$ $b=-0.261401+0.064373I$	$-1.79828-2.82980I$	0
$u=-0.420078-0.857739I$ $a=\ \ 1.47310+1.05146I$ $b=-0.261401-0.064373I$	$-1.79828+2.82980I$	0
$u=-0.534871+0.914963I$ $a=\ \ 0.885710+0.057814I$ $b=-0.728001+0.844098I$	$-0.468694+0.806213I$	0
$u=-0.534871-0.914963I$ $a=\ \ 0.885710-0.057814I$ $b=-0.728001-0.844098I$	$-0.468694-0.806213I$	0
$u=\ \ 1.040620+0.234862I$ $a=-0.0077561-0.0772805I$ $b=-0.907908-0.960018I$	$0.41796-9.89358I$	0
$u=\ \ 1.040620-0.234862I$ $a=-0.0077561+0.0772805I$ $b=-0.907908+0.960018I$	$0.41796+9.89358I$	0
$u=\ \ 0.387986+0.847531I$ $a=-0.407522+0.326223I$ $b=\ \ 0.233801-1.362520I$	$-2.07571+8.67551I$	0
$u=\ \ 0.387986-0.847531I$ $a=-0.407522-0.326223I$ $b=\ \ 0.233801+1.362520I$	$-2.07571-8.67551I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.372067+1.002120I$ $a=\ \ 0.08672-1.64461I$ $b=-0.190586-0.646327I$	$-1.39310-6.26746I$	0
$u=-0.372067-1.002120I$ $a=\ \ 0.08672+1.64461I$ $b=-0.190586+0.646327I$	$-1.39310+6.26746I$	0
$u=-0.031498+0.927638I$ $a=-0.688086-0.902761I$ $b=\ \ 0.512754-0.957496I$	$-4.94344+2.75167I$	0
$u=-0.031498-0.927638I$ $a=-0.688086+0.902761I$ $b=\ \ 0.512754+0.957496I$	$-4.94344-2.75167I$	0
$u=\ \ 0.093339+0.922140I$ $a=\ \ 1.91399-0.46762I$ $b=-0.508987+1.155420I$	$-2.44308-2.20778I$	0
$u=\ \ 0.093339-0.922140I$ $a=\ \ 1.91399+0.46762I$ $b=-0.508987-1.155420I$	$-2.44308+2.20778I$	0
$u=\ \ 0.325789+1.036390I$ $a=\ \ 2.13653-0.24101I$ $b=-1.23830+1.06149I$	$2.01558+5.36344I$	0
$u=\ \ 0.325789-1.036390I$ $a=\ \ 2.13653+0.24101I$ $b=-1.23830-1.06149I$	$2.01558-5.36344I$	0
$u=-0.801242+0.738432I$ $a=-0.178862+0.150998I$ $b=-0.823534+1.030560I$	$-3.66233+0.11803I$	0
$u=-0.801242-0.738432I$ $a=-0.178862-0.150998I$ $b=-0.823534-1.030560I$	$-3.66233-0.11803I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.061000+0.269022I$ $a=\ \ 0.587269-1.254070I$ $b=\ \ 0.88951-1.35828I$	$-3.15631-7.66459I$	0
$u=-1.061000-0.269022I$ $a=\ \ 0.587269+1.254070I$ $b=\ \ 0.88951+1.35828I$	$-3.15631+7.66459I$	0
$u=\ \ 0.984138+0.481871I$ $a=\ \ 0.041404-0.337479I$ $b=-0.240164+0.513956I$	$-3.49402+4.72460I$	0
$u=\ \ 0.984138-0.481871I$ $a=\ \ 0.041404+0.337479I$ $b=-0.240164-0.513956I$	$-3.49402-4.72460I$	0
$u=-0.965922+0.518712I$ $a=\ \ 0.550099+0.122921I$ $b=\ \ 0.031852+0.468285I$	$0.83790-3.82553I$	0
$u=-0.965922-0.518712I$ $a=\ \ 0.550099-0.122921I$ $b=\ \ 0.031852-0.468285I$	$0.83790+3.82553I$	0
$u=\ \ 1.076060+0.305936I$ $a=-0.645958+0.120868I$ $b=-0.0756926+0.0281362I$	$1.21896+2.81927I$	0
$u=\ \ 1.076060-0.305936I$ $a=-0.645958-0.120868I$ $b=-0.0756926-0.0281362I$	$1.21896-2.81927I$	0
$u=\ \ 0.551102+0.982649I$ $a=-0.87510-1.12978I$ $b=\ \ 1.021070-0.213814I$	$-6.43001+5.35045I$	0
$u=\ \ 0.551102-0.982649I$ $a=-0.87510+1.12978I$ $b=\ \ 1.021070+0.213814I$	$-6.43001-5.35045I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.726282 + 0.868802I$ $a = 0.547760 - 0.513988I$ $b = 0.045530 + 0.803959I$	$-2.18108 - 4.43327I$	0
$u = 0.726282 - 0.868802I$ $a = 0.547760 + 0.513988I$ $b = 0.045530 - 0.803959I$	$-2.18108 + 4.43327I$	0
$u = 0.612237 + 0.954801I$ $a = -1.94166 - 0.70885I$ $b = 0.95526 - 1.48372I$	$-2.60012 + 4.56433I$	0
$u = 0.612237 - 0.954801I$ $a = -1.94166 + 0.70885I$ $b = 0.95526 + 1.48372I$	$-2.60012 - 4.56433I$	0
$u = 0.161606 + 1.136140I$ $a = 1.78787 - 0.21828I$ $b = -1.225740 + 0.010475I$	$-9.87289 - 0.17709I$	0
$u = 0.161606 - 1.136140I$ $a = 1.78787 + 0.21828I$ $b = -1.225740 - 0.010475I$	$-9.87289 + 0.17709I$	0
$u = -0.773781 + 0.847591I$ $a = -0.283499 - 0.078158I$ $b = 0.093732 + 0.602934I$	$0.855479 - 0.688485I$	0
$u = -0.773781 - 0.847591I$ $a = -0.283499 + 0.078158I$ $b = 0.093732 - 0.602934I$	$0.855479 + 0.688485I$	0
$u = -0.058290 + 0.849363I$ $a = -0.163991 + 0.617662I$ $b = -0.181704 + 1.201700I$	$1.59962 + 1.42906I$	0
$u = -0.058290 - 0.849363I$ $a = -0.163991 - 0.617662I$ $b = -0.181704 - 1.201700I$	$1.59962 - 1.42906I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.412663 + 1.075000I$ $a = -0.94419 - 1.18316I$ $b = 1.44435 + 0.63921I$	$-3.47884 + 1.62067I$	0
$u = 0.412663 - 1.075000I$ $a = -0.94419 + 1.18316I$ $b = 1.44435 - 0.63921I$	$-3.47884 - 1.62067I$	0
$u = -0.538777 + 1.018620I$ $a = 1.40680 - 0.93950I$ $b = -0.494615 - 0.711948I$	$-0.37561 - 2.85297I$	0
$u = -0.538777 - 1.018620I$ $a = 1.40680 + 0.93950I$ $b = -0.494615 + 0.711948I$	$-0.37561 + 2.85297I$	0
$u = 0.748338 + 0.389432I$ $a = 0.110507 + 0.625641I$ $b = 0.491007 + 1.025150I$	$-0.19730 - 2.26153I$	0
$u = 0.748338 - 0.389432I$ $a = 0.110507 - 0.625641I$ $b = 0.491007 - 1.025150I$	$-0.19730 + 2.26153I$	0
$u = -1.145140 + 0.181052I$ $a = 0.151423 + 0.192948I$ $b = 0.883118 + 0.645457I$	$-3.67825 - 4.43839I$	0
$u = -1.145140 - 0.181052I$ $a = 0.151423 - 0.192948I$ $b = 0.883118 - 0.645457I$	$-3.67825 + 4.43839I$	0
$u = -0.491778 + 0.677742I$ $a = 0.371257 + 0.498664I$ $b = 0.000972 + 0.964042I$	$1.44781 - 0.33560I$	0
$u = -0.491778 - 0.677742I$ $a = 0.371257 - 0.498664I$ $b = 0.000972 - 0.964042I$	$1.44781 + 0.33560I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.536077+1.040720I$ $a=\ \ 1.48064+0.03491I$ $b=-0.236829-0.383144I$	$-1.16655-1.43810I$	0
$u=-0.536077-1.040720I$ $a=\ \ 1.48064-0.03491I$ $b=-0.236829+0.383144I$	$-1.16655+1.43810I$	0
$u=-0.421134+1.092790I$ $a=-1.99855+0.13083I$ $b=\ \ 0.888962+0.104506I$	$-3.47761-5.46656I$	0
$u=-0.421134-1.092790I$ $a=-1.99855-0.13083I$ $b=\ \ 0.888962-0.104506I$	$-3.47761+5.46656I$	0
$u=-0.532143+1.046040I$ $a=\ \ 1.321720-0.243005I$ $b=-0.513894-0.630575I$	$-0.50299-3.30103I$	0
$u=-0.532143-1.046040I$ $a=\ \ 1.321720+0.243005I$ $b=-0.513894+0.630575I$	$-0.50299+3.30103I$	0
$u=\ \ 0.463130+1.084280I$ $a=\ \ 0.0981589+0.0431803I$ $b=\ \ 0.473285+1.211760I$	$-3.37056-0.10788I$	0
$u=\ \ 0.463130-1.084280I$ $a=\ \ 0.0981589-0.0431803I$ $b=\ \ 0.473285-1.211760I$	$-3.37056+0.10788I$	0
$u=-0.461625+1.087320I$ $a=\ \ 1.60872-0.14645I$ $b=-0.764618-0.682787I$	$-0.61724-3.39050I$	0
$u=-0.461625-1.087320I$ $a=\ \ 1.60872+0.14645I$ $b=-0.764618+0.682787I$	$-0.61724+3.39050I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.345845+0.741963I$ $a=\ \ 2.54676+0.36452I$ $b=-0.047745-0.414225I$	$1.19324-3.09931I$	0
$u=-0.345845-0.741963I$ $a=\ \ 2.54676-0.36452I$ $b=-0.047745+0.414225I$	$1.19324+3.09931I$	0
$u=-0.585789+1.026770I$ $a=-0.510536+1.102190I$ $b=\ \ 0.355143+0.345808I$	$-2.56068-1.34414I$	0
$u=-0.585789-1.026770I$ $a=-0.510536-1.102190I$ $b=\ \ 0.355143-0.345808I$	$-2.56068+1.34414I$	0
$u=\ \ 0.295983+1.145430I$ $a=\ \ 1.12862+1.34384I$ $b=-1.77990-1.31248I$	$-3.15329+6.32542I$	0
$u=\ \ 0.295983-1.145430I$ $a=\ \ 1.12862-1.34384I$ $b=-1.77990+1.31248I$	$-3.15329-6.32542I$	0
$u=\ \ 0.496680+1.078890I$ $a=-2.17023-0.20384I$ $b=\ \ 0.78910-1.22720I$	$-2.99137+11.00130I$	0
$u=\ \ 0.496680-1.078890I$ $a=-2.17023+0.20384I$ $b=\ \ 0.78910+1.22720I$	$-2.99137-11.00130I$	0
$u=-0.167251+0.782085I$ $a=-3.14708-1.01296I$ $b=\ \ 1.20049+0.91877I$	$0.073817+1.053920I$	0
$u=-0.167251-0.782085I$ $a=-3.14708+1.01296I$ $b=\ \ 1.20049-0.91877I$	$0.073817-1.053920I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.769750 + 0.205672I$ $a = 1.149770 + 0.182551I$ $b = -0.639643 - 0.404851I$	$-4.28696 - 7.26017I$	0
$u = 0.769750 - 0.205672I$ $a = 1.149770 - 0.182551I$ $b = -0.639643 + 0.404851I$	$-4.28696 + 7.26017I$	0
$u = -0.287032 + 0.739916I$ $a = 3.00163 - 0.09737I$ $b = -1.224620 - 0.467825I$	$0.14527 - 4.44486I$	0
$u = -0.287032 - 0.739916I$ $a = 3.00163 + 0.09737I$ $b = -1.224620 + 0.467825I$	$0.14527 + 4.44486I$	0
$u = -0.545202 + 0.575390I$ $a = 0.096427 + 0.380426I$ $b = -0.034089 + 0.607824I$	$0.97461 - 1.07759I$	0
$u = -0.545202 - 0.575390I$ $a = 0.096427 - 0.380426I$ $b = -0.034089 - 0.607824I$	$0.97461 + 1.07759I$	0
$u = 0.065777 + 1.213450I$ $a = -1.97764 + 0.42102I$ $b = 2.15312 - 0.90985I$	$-8.78334 + 0.91079I$	0
$u = 0.065777 - 1.213450I$ $a = -1.97764 - 0.42102I$ $b = 2.15312 + 0.90985I$	$-8.78334 - 0.91079I$	0
$u = -0.295429 + 1.179420I$ $a = 1.86553 + 0.42298I$ $b = -0.826252 - 0.974004I$	$-2.75687 - 7.80298I$	0
$u = -0.295429 - 1.179420I$ $a = 1.86553 - 0.42298I$ $b = -0.826252 + 0.974004I$	$-2.75687 + 7.80298I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.492388 + 1.113220I$ $a = -0.820496 - 0.641785I$ $b = 0.364368 - 1.001360I$	$-2.86969 + 7.30630I$	0
$u = 0.492388 - 1.113220I$ $a = -0.820496 + 0.641785I$ $b = 0.364368 + 1.001360I$	$-2.86969 - 7.30630I$	0
$u = 0.571197 + 1.081530I$ $a = -1.79474 - 0.39573I$ $b = 0.651485 - 1.118090I$	$-2.20377 + 7.25367I$	0
$u = 0.571197 - 1.081530I$ $a = -1.79474 + 0.39573I$ $b = 0.651485 + 1.118090I$	$-2.20377 - 7.25367I$	0
$u = 0.372013 + 1.167670I$ $a = 0.128433 - 1.167000I$ $b = 0.072514 - 0.863652I$	$-4.44796 + 11.46850I$	0
$u = 0.372013 - 1.167670I$ $a = 0.128433 + 1.167000I$ $b = 0.072514 + 0.863652I$	$-4.44796 - 11.46850I$	0
$u = -0.146893 + 1.219220I$ $a = -1.53777 - 0.59995I$ $b = 0.953793 + 0.614516I$	$-5.96065 - 2.69863I$	0
$u = -0.146893 - 1.219220I$ $a = -1.53777 + 0.59995I$ $b = 0.953793 - 0.614516I$	$-5.96065 + 2.69863I$	0
$u = 0.471192 + 1.150570I$ $a = -1.48561 - 0.37876I$ $b = 0.470585 - 0.635642I$	$-2.67333 + 6.32063I$	0
$u = 0.471192 - 1.150570I$ $a = -1.48561 + 0.37876I$ $b = 0.470585 + 0.635642I$	$-2.67333 - 6.32063I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.498761+1.149980I$ $a=\ \ 1.95446-0.19606I$ $b=-1.16556-1.44151I$	$-6.48655-10.55080I$	0
$u=-0.498761-1.149980I$ $a=\ \ 1.95446+0.19606I$ $b=-1.16556+1.44151I$	$-6.48655+10.55080I$	0
$u=\ \ 0.531314+0.514967I$ $a=\ \ 0.223811+0.662767I$ $b=\ \ 0.590063+1.256420I$	$-1.20071-6.80269I$	0
$u=\ \ 0.531314-0.514967I$ $a=\ \ 0.223811-0.662767I$ $b=\ \ 0.590063-1.256420I$	$-1.20071+6.80269I$	0
$u=-0.113130+0.730306I$ $a=\ \ 0.82182+2.55487I$ $b=-0.002285+0.806086I$	$1.17951-1.67770I$	0
$u=-0.113130-0.730306I$ $a=\ \ 0.82182-2.55487I$ $b=-0.002285-0.806086I$	$1.17951+1.67770I$	0
$u=\ \ 0.043256+0.734570I$ $a=\ \ 0.480503+0.626911I$ $b=-0.55787-1.42393I$	$3.85392-3.34518I$	0
$u=\ \ 0.043256-0.734570I$ $a=\ \ 0.480503-0.626911I$ $b=-0.55787+1.42393I$	$3.85392+3.34518I$	0
$u=\ \ 0.262205+0.681425I$ $a=-0.047197-1.402260I$ $b=-0.194230+0.655425I$	$-4.60174-1.69992I$	0
$u=\ \ 0.262205-0.681425I$ $a=-0.047197+1.402260I$ $b=-0.194230-0.655425I$	$-4.60174+1.69992I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.425137+1.202770I$ $a=\ \ 0.694466-0.946977I$ $b=-1.36244+0.62267I$	$-7.02226+2.20334I$	0
$u=-0.425137-1.202770I$ $a=\ \ 0.694466+0.946977I$ $b=-1.36244-0.62267I$	$-7.02226-2.20334I$	0
$u=\ \ 0.381266+1.219640I$ $a=\ \ 1.20782+0.76737I$ $b=-0.491918+0.101771I$	$-8.29200-3.45008I$	0
$u=\ \ 0.381266-1.219640I$ $a=\ \ 1.20782-0.76737I$ $b=-0.491918-0.101771I$	$-8.29200+3.45008I$	0
$u=-0.303947+1.245790I$ $a=\ \ 1.44967+0.03066I$ $b=-0.66189-1.50075I$	$-8.36136-7.38004I$	0
$u=-0.303947-1.245790I$ $a=\ \ 1.44967-0.03066I$ $b=-0.66189+1.50075I$	$-8.36136+7.38004I$	0
$u=\ \ 0.685408+0.198921I$ $a=\ \ 0.86930+1.39221I$ $b=\ \ 0.688104+0.638943I$	$-0.32285-2.91065I$	0
$u=\ \ 0.685408-0.198921I$ $a=\ \ 0.86930-1.39221I$ $b=\ \ 0.688104-0.638943I$	$-0.32285+2.91065I$	0
$u=-0.011800+0.711455I$ $a=-0.540941+0.547454I$ $b=-0.362051+1.182340I$	$-0.36779+6.34467I$	0
$u=-0.011800-0.711455I$ $a=-0.540941-0.547454I$ $b=-0.362051-1.182340I$	$-0.36779-6.34467I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.613474 + 0.357942I$ $a = 0.081798 + 0.984318I$ $b = 0.303373 + 0.888900I$	$-0.20029 - 2.19351I$	0
$u = 0.613474 - 0.357942I$ $a = 0.081798 - 0.984318I$ $b = 0.303373 - 0.888900I$	$-0.20029 + 2.19351I$	0
$u = 0.533187 + 1.180110I$ $a = 1.82208 + 0.41244I$ $b = -0.849530 + 0.322092I$	$-7.15444 + 12.15980I$	0
$u = 0.533187 - 1.180110I$ $a = 1.82208 - 0.41244I$ $b = -0.849530 - 0.322092I$	$-7.15444 - 12.15980I$	0
$u = -1.262110 + 0.338329I$ $a = -0.032177 - 0.153567I$ $b = 1.03972 - 1.01261I$	$-3.6324 + 15.2890I$	0
$u = -1.262110 - 0.338329I$ $a = -0.032177 + 0.153567I$ $b = 1.03972 + 1.01261I$	$-3.6324 - 15.2890I$	0
$u = 0.015948 + 0.691726I$ $a = -1.38698 + 2.15721I$ $b = -0.129632 - 0.129260I$	$1.65657 - 1.44632I$	0
$u = 0.015948 - 0.691726I$ $a = -1.38698 - 2.15721I$ $b = -0.129632 + 0.129260I$	$1.65657 + 1.44632I$	0
$u = 0.633483 + 0.260774I$ $a = -0.509143 + 0.252585I$ $b = -0.634859 - 1.002890I$	$4.48696 - 1.95326I$	0
$u = 0.633483 - 0.260774I$ $a = -0.509143 - 0.252585I$ $b = -0.634859 + 1.002890I$	$4.48696 + 1.95326I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.272831+1.288940I$ $a=\ \ 0.297872+0.826579I$ $b=-0.203027+1.094510I$	$0.298758+0.944089I$	0
$u=-0.272831-1.288940I$ $a=\ \ 0.297872-0.826579I$ $b=-0.203027-1.094510I$	$0.298758-0.944089I$	0
$u=\ \ 0.399596+1.261780I$ $a=\ \ 1.65275-0.14033I$ $b=-0.921919+0.626215I$	$-8.33391+8.73755I$	0
$u=\ \ 0.399596-1.261780I$ $a=\ \ 1.65275+0.14033I$ $b=-0.921919-0.626215I$	$-8.33391-8.73755I$	0
$u=\ \ 0.107852+0.665948I$ $a=-2.61944-1.99770I$ $b=\ \ 0.206685+0.870608I$	$-5.15013+6.16964I$	0
$u=\ \ 0.107852-0.665948I$ $a=-2.61944+1.99770I$ $b=\ \ 0.206685-0.870608I$	$-5.15013-6.16964I$	0
$u=-1.090650+0.756662I$ $a=\ \ 0.639776-0.549553I$ $b=-0.903261-0.674634I$	$-2.27042-4.30552I$	0
$u=-1.090650-0.756662I$ $a=\ \ 0.639776+0.549553I$ $b=-0.903261+0.674634I$	$-2.27042+4.30552I$	0
$u=\ \ 0.636212+1.174320I$ $a=-1.76069-0.39586I$ $b=\ \ 1.01266-1.17777I$	$-2.06586+9.97892I$	0
$u=\ \ 0.636212-1.174320I$ $a=-1.76069+0.39586I$ $b=\ \ 1.01266+1.17777I$	$-2.06586-9.97892I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.416881 + 1.269060I$ $a = -1.264130 + 0.095481I$ $b = 0.418881 - 0.303502I$	$-2.63290 + 2.58438I$	0
$u = 0.416881 - 1.269060I$ $a = -1.264130 - 0.095481I$ $b = 0.418881 + 0.303502I$	$-2.63290 - 2.58438I$	0
$u = -0.267523 + 1.309470I$ $a = 0.575653 + 0.654771I$ $b = -0.196434 - 0.471548I$	$0.18137 - 2.36720I$	0
$u = -0.267523 - 1.309470I$ $a = 0.575653 - 0.654771I$ $b = -0.196434 + 0.471548I$	$0.18137 + 2.36720I$	0
$u = -1.305120 + 0.291104I$ $a = 0.300805 + 0.003968I$ $b = 1.25694 - 0.72303I$	$0.01756 + 6.30277I$	0
$u = -1.305120 - 0.291104I$ $a = 0.300805 - 0.003968I$ $b = 1.25694 + 0.72303I$	$0.01756 - 6.30277I$	0
$u = -0.525269 + 0.385880I$ $a = 0.070716 + 1.332270I$ $b = -0.470382 + 0.444795I$	$1.26884 - 1.48339I$	0
$u = -0.525269 - 0.385880I$ $a = 0.070716 - 1.332270I$ $b = -0.470382 - 0.444795I$	$1.26884 + 1.48339I$	0
$u = 0.756248 + 1.137050I$ $a = 0.574139 + 0.597517I$ $b = -0.487688 + 0.464056I$	$-5.84607 + 7.86736I$	0
$u = 0.756248 - 1.137050I$ $a = 0.574139 - 0.597517I$ $b = -0.487688 - 0.464056I$	$-5.84607 - 7.86736I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.182393+0.606334I$ $a=-3.95379+0.11196I$ $b=-0.1281800-0.0221979I$	$0.06534+3.37244I$	0
$u=-0.182393-0.606334I$ $a=-3.95379-0.11196I$ $b=-0.1281800+0.0221979I$	$0.06534-3.37244I$	0
$u=-0.459741+1.312380I$ $a=-0.838853+0.959911I$ $b=\ \ 1.81510-1.05440I$	$-7.8520-12.6206I$	0
$u=-0.459741-1.312380I$ $a=-0.838853-0.959911I$ $b=\ \ 1.81510+1.05440I$	$-7.8520+12.6206I$	0
$u=-0.431238+1.323450I$ $a=-1.58963-0.04089I$ $b=\ \ 1.26255+1.13111I$	$-8.52140-9.52828I$	0
$u=-0.431238-1.323450I$ $a=-1.58963+0.04089I$ $b=\ \ 1.26255-1.13111I$	$-8.52140+9.52828I$	0
$u=\ \ 0.445875+1.327470I$ $a=\ \ 1.43163+0.01170I$ $b=-1.40037+1.14203I$	$0.85623+5.74256I$	0
$u=\ \ 0.445875-1.327470I$ $a=\ \ 1.43163-0.01170I$ $b=-1.40037-1.14203I$	$0.85623-5.74256I$	0
$u=\ \ 0.607818+1.264870I$ $a=\ \ 1.65075+0.25554I$ $b=-1.14580+1.17186I$	$-2.7887+15.8025I$	0
$u=\ \ 0.607818-1.264870I$ $a=\ \ 1.65075-0.25554I$ $b=-1.14580-1.17186I$	$-2.7887-15.8025I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.27805 + 0.60603I$ $a = -0.146104 + 0.224821I$ $b = 0.94386 + 1.10052I$	$-0.03358 - 3.78894I$	0
$u = 1.27805 - 0.60603I$ $a = -0.146104 - 0.224821I$ $b = 0.94386 - 1.10052I$	$-0.03358 + 3.78894I$	0
$u = 0.541110 + 0.204810I$ $a = 0.807954 - 0.314360I$ $b = 0.939977 - 0.218141I$	$-4.66036 - 1.33200I$	0
$u = 0.541110 - 0.204810I$ $a = 0.807954 + 0.314360I$ $b = 0.939977 + 0.218141I$	$-4.66036 + 1.33200I$	0
$u = -0.82779 + 1.15691I$ $a = 1.37541 - 0.71850I$ $b = -1.18340 - 1.47680I$	$-4.60227 - 6.50869I$	0
$u = -0.82779 - 1.15691I$ $a = 1.37541 + 0.71850I$ $b = -1.18340 + 1.47680I$	$-4.60227 + 6.50869I$	0
$u = -0.555664 + 0.143550I$ $a = -1.013170 + 0.559770I$ $b = -0.823793 + 1.090880I$	$-3.71512 + 6.20223I$	0
$u = -0.555664 - 0.143550I$ $a = -1.013170 - 0.559770I$ $b = -0.823793 - 1.090880I$	$-3.71512 - 6.20223I$	0
$u = 0.25358 + 1.42061I$ $a = 0.751158 + 0.498575I$ $b = -1.000260 - 0.281419I$	$-5.23376 - 5.22767I$	0
$u = 0.25358 - 1.42061I$ $a = 0.751158 - 0.498575I$ $b = -1.000260 + 0.281419I$	$-5.23376 + 5.22767I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.46733$ $a = -0.233106$ $b = -0.875352$	6.18193	0
$u = 0.48381 + 1.38976I$ $a = 0.727046 + 0.158786I$ $b = -0.495576 + 0.401554I$	$-7.25249 + 1.84102I$	0
$u = 0.48381 - 1.38976I$ $a = 0.727046 - 0.158786I$ $b = -0.495576 - 0.401554I$	$-7.25249 - 1.84102I$	0
$u = -0.63761 + 1.32870I$ $a = -0.784218 + 0.033635I$ $b = 0.488460 + 0.566997I$	$-1.78270 - 7.46289I$	0
$u = -0.63761 - 1.32870I$ $a = -0.784218 - 0.033635I$ $b = 0.488460 - 0.566997I$	$-1.78270 + 7.46289I$	0
$u = -0.43522 + 1.42925I$ $a = -0.793458 + 0.361648I$ $b = 1.269360 + 0.063373I$	$-8.20287 - 1.76835I$	0
$u = -0.43522 - 1.42925I$ $a = -0.793458 - 0.361648I$ $b = 1.269360 - 0.063373I$	$-8.20287 + 1.76835I$	0
$u = -0.70546 + 1.31811I$ $a = -1.51913 + 0.36739I$ $b = 1.12620 + 1.24805I$	$-6.7960 - 22.1883I$	0
$u = -0.70546 - 1.31811I$ $a = -1.51913 - 0.36739I$ $b = 1.12620 - 1.24805I$	$-6.7960 + 22.1883I$	0
$u = -0.66831 + 1.33745I$ $a = -1.38806 + 0.31132I$ $b = 1.35637 + 1.32490I$	$-3.44305 - 13.14780I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.66831-1.33745I$ $a=-1.38806-0.31132I$ $b=1.35637-1.32490I$	$-3.44305+13.14780I$	0
$u=1.40417+0.53021I$ $a=0.000852-0.313393I$ $b=1.170460-0.002789I$	$-1.94802+4.15150I$	0
$u=1.40417-0.53021I$ $a=0.000852+0.313393I$ $b=1.170460+0.002789I$	$-1.94802-4.15150I$	0
$u=0.222480+0.418673I$ $a=6.15847-1.32261I$ $b=0.358924+0.182054I$	$-1.79636-8.53423I$	0
$u=0.222480-0.418673I$ $a=6.15847+1.32261I$ $b=0.358924-0.182054I$	$-1.79636+8.53423I$	0
$u=0.365997+0.275387I$ $a=-0.97724-1.76227I$ $b=0.717839-0.678455I$	$-1.18942+1.81684I$	0
$u=0.365997-0.275387I$ $a=-0.97724+1.76227I$ $b=0.717839+0.678455I$	$-1.18942-1.81684I$	0
$u=0.05517+1.54934I$ $a=1.106760-0.363068I$ $b=-1.001050+0.599247I$	$-11.11790-1.04218I$	0
$u=0.05517-1.54934I$ $a=1.106760+0.363068I$ $b=-1.001050-0.599247I$	$-11.11790+1.04218I$	0
$u=0.73082+1.37137I$ $a=0.850689+0.078319I$ $b=-0.559933+0.614672I$	$-5.6646+13.5571I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.73082 - 1.37137I$ $a = 0.850689 - 0.078319I$ $b = -0.559933 - 0.614672I$	$-5.6646 - 13.5571I$	0
$u = -0.269767 + 0.353128I$ $a = 0.48484 - 2.51325I$ $b = -0.722281 - 0.885047I$	$-3.86225 - 6.12919I$	0
$u = -0.269767 - 0.353128I$ $a = 0.48484 + 2.51325I$ $b = -0.722281 + 0.885047I$	$-3.86225 + 6.12919I$	0
$u = -0.53618 + 1.50336I$ $a = 0.721055 - 0.605608I$ $b = -1.64142 + 0.87039I$	$-5.61249 - 3.73477I$	0
$u = -0.53618 - 1.50336I$ $a = 0.721055 + 0.605608I$ $b = -1.64142 - 0.87039I$	$-5.61249 + 3.73477I$	0
$u = -0.279198 + 0.289095I$ $a = -2.69054 + 0.19491I$ $b = 0.664264 - 0.450741I$	$-1.16999 + 2.00817I$	0
$u = -0.279198 - 0.289095I$ $a = -2.69054 - 0.19491I$ $b = 0.664264 + 0.450741I$	$-1.16999 - 2.00817I$	0
$u = -0.71124 + 1.44445I$ $a = 1.353100 - 0.303817I$ $b = -1.09197 - 1.17534I$	$-4.68987 - 12.74780I$	0
$u = -0.71124 - 1.44445I$ $a = 1.353100 + 0.303817I$ $b = -1.09197 + 1.17534I$	$-4.68987 + 12.74780I$	0
$u = -0.11894 + 1.61464I$ $a = -1.227790 - 0.081891I$ $b = 2.25387 + 0.76162I$	$-7.44738 + 0.69252I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.11894-1.61464I$ $a=-1.227790+0.081891I$ $b=\ \ 2.25387-0.76162I$	$-7.44738-0.69252I$	0
$u=\ \ 1.60681+0.36660I$ $a=\ \ 0.1256630+0.0253050I$ $b=-0.160106-0.193592I$	$-2.20812-5.89681I$	0
$u=\ \ 1.60681-0.36660I$ $a=\ \ 0.1256630-0.0253050I$ $b=-0.160106+0.193592I$	$-2.20812+5.89681I$	0
$u=\ \ 0.83413+1.43480I$ $a=-0.604837-0.246798I$ $b=\ \ 0.793409-0.155471I$	$-4.84907+3.92005I$	0
$u=\ \ 0.83413-1.43480I$ $a=-0.604837+0.246798I$ $b=\ \ 0.793409+0.155471I$	$-4.84907-3.92005I$	0
$u=-0.08945+1.65836I$ $a=-0.922109+0.339637I$ $b=\ \ 1.279050-0.567475I$	$-11.1429+9.7129I$	0
$u=-0.08945-1.65836I$ $a=-0.922109-0.339637I$ $b=\ \ 1.279050+0.567475I$	$-11.1429-9.7129I$	0
$u=-0.36246+1.62809I$ $a=-1.164320-0.129230I$ $b=\ \ 1.71363+1.96065I$	$-7.65889+0.65248I$	0
$u=-0.36246-1.62809I$ $a=-1.164320+0.129230I$ $b=\ \ 1.71363-1.96065I$	$-7.65889-0.65248I$	0
$u=\ \ 0.319394+0.055181I$ $a=-0.89799-4.03805I$ $b=-0.725631-0.554313I$	$-0.08719+3.72409I$	$4.53254-5.09970I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.319394 - 0.055181I$ $a = -0.89799 + 4.03805I$ $b = -0.725631 + 0.554313I$	$-0.08719 - 3.72409I$	$4.53254 + 5.09970I$
$u = -1.75327 + 0.13607I$ $a = \quad 0.117900 + 0.258891I$ $b = -1.25544 + 0.86603I$	$-0.43973 + 4.74595I$	0
$u = -1.75327 - 0.13607I$ $a = \quad 0.117900 - 0.258891I$ $b = -1.25544 - 0.86603I$	$-0.43973 - 4.74595I$	0
$u = -1.94245$ $a = -0.0428406$ $b = -0.0468294$	2.59680	0

II. $I_2^u = \langle 5.94\times10^{106}u^{69} + 6.00\times10^{103}u^{68} + \cdots + 2.96\times10^{103}b + 2.36\times10^{107},\ 6.46\times10^{107}u^{69} + 8.20\times10^{107}u^{68} + \cdots + 2.96\times10^{103}a - 4.18\times10^{107},\ u^{70} + u^{69} + \cdots + 4u - 1\rangle$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} -21779.3u^{69} - 27670.3u^{68} + \cdots + 27602.9u + 14087.2 \\ -2004.88u^{69} - 2.02363u^{68} + \cdots + 36537.1u - 7957.46 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 7748.66u^{69} - 3853.34u^{68} + \cdots - 177933.u + 44622.9 \\ -3556.49u^{69} - 8980.02u^{68} + \cdots - 49423.9u + 17086.6 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -6493.58u^{69} + 7743.33u^{68} + \cdots + 191814.u - 49573.2 \\ 7.02904u^{69} + 11521.2u^{68} + \cdots + 139274.u - 38825.4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -23784.2u^{69} - 27672.3u^{68} + \cdots + 64139.9u + 6129.77 \\ -2004.88u^{69} - 2.02363u^{68} + \cdots + 36537.1u - 7957.46 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 13522.5u^{69} + 740.226u^{68} + \cdots - 214173.u + 46565.3 \\ -5906.22u^{69} - 17538.2u^{68} + \cdots - 115244.u + 37675.1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -10698.1u^{69} + 7339.12u^{68} + \cdots + 271182.u - 65792.7 \\ 11334.4u^{69} + 12420.7u^{68} + \cdots - 29169.2u - 2867.32 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -17106.6u^{69} - 8912.51u^{68} + \cdots + 194116.u - 36615.3 \\ 2656.63u^{69} + 3213.94u^{68} + \cdots + 1220.29u - 2819.00 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -12371.5u^{69} - 5450.55u^{68} + \cdots + 155814.u - 30557.9 \\ 5851.23u^{69} + 5335.08u^{68} + \cdots - 27254.3u + 1965.26 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 84853.1u^{69} + 87918.3u^{68} + \cdots - 376170.u + 29127.9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{70} - 15u^{69} + \cdots - 35u + 1$
c_2	$u^{70} - u^{69} + \cdots - 4u - 1$
c_3	$u^{70} + u^{69} + \cdots - 2u - 1$
c_4	$u^{70} + 2u^{69} + \cdots + 3u + 1$
c_5	$u^{70} + 2u^{69} + \cdots + 208u + 32$
c_6	$u^{70} + u^{69} + \cdots + 4u - 1$
c_7	$u^{70} - 14u^{69} + \cdots + 6u + 1$
c_8	$u^{70} + u^{69} + \cdots - 15u - 1$
c_9	$u^{70} - u^{69} + \cdots + 2u - 1$
c_{10}	$u^{70} - 3u^{69} + \cdots - 22u + 1$
c_{11}	$u^{70} + 5u^{69} + \cdots - u + 1$
c_{12}	$u^{70} + 18u^{69} + \cdots + 92u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{70}+7y^{69}+\cdots-7y+1$
c_2, c_6	$y^{70}+27y^{69}+\cdots+66y+1$
c_3, c_9	$y^{70}+39y^{69}+\cdots+28y+1$
c_4	$y^{70}+14y^{69}+\cdots+27y+1$
c_5	$y^{70}+24y^{69}+\cdots-46336y+1024$
c_7	$y^{70}-20y^{69}+\cdots+20y+1$
c_8	$y^{70}+11y^{69}+\cdots-79y+1$
c_{10}	$y^{70}-9y^{69}+\cdots-82y+1$
c_{11}	$y^{70}-11y^{69}+\cdots-83y+1$
c_{12}	$y^{70}-38y^{69}+\cdots-10464y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.491454 + 0.869687I$ $a = -0.110678 + 0.470871I$ $b = 0.485599 + 0.817678I$	$-1.62007 + 0.01002I$	0
$u = 0.491454 - 0.869687I$ $a = -0.110678 - 0.470871I$ $b = 0.485599 - 0.817678I$	$-1.62007 - 0.01002I$	0
$u = 0.663869 + 0.760182I$ $a = -1.27783 - 0.70954I$ $b = 0.790120 - 0.854876I$	$-1.75354 + 3.70214I$	0
$u = 0.663869 - 0.760182I$ $a = -1.27783 + 0.70954I$ $b = 0.790120 + 0.854876I$	$-1.75354 - 3.70214I$	0
$u = 0.469359 + 0.911562I$ $a = -2.20207 - 0.70157I$ $b = 0.695238 - 0.683299I$	$-1.72329 + 3.90520I$	0
$u = 0.469359 - 0.911562I$ $a = -2.20207 + 0.70157I$ $b = 0.695238 + 0.683299I$	$-1.72329 - 3.90520I$	0
$u = 0.906849 + 0.341238I$ $a = -0.853095 + 0.224739I$ $b = -0.212390 + 0.258669I$	$2.25953 + 3.10602I$	0
$u = 0.906849 - 0.341238I$ $a = -0.853095 - 0.224739I$ $b = -0.212390 - 0.258669I$	$2.25953 - 3.10602I$	0
$u = -0.291405 + 0.921679I$ $a = 2.24907 - 0.80022I$ $b = -1.81811 + 0.15076I$	$-8.67989 - 1.22092I$	0
$u = -0.291405 - 0.921679I$ $a = 2.24907 + 0.80022I$ $b = -1.81811 - 0.15076I$	$-8.67989 + 1.22092I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.511298+0.914389I$ $a=\ \ 0.379758-0.575661I$ $b=-0.440341-0.913821I$	$-4.13898-7.74792I$	0
$u=-0.511298-0.914389I$ $a=\ \ 0.379758+0.575661I$ $b=-0.440341+0.913821I$	$-4.13898+7.74792I$	0
$u=\ \ 0.067908+1.058730I$ $a=-2.22823-0.61404I$ $b=\ \ 2.11406+0.16850I$	$-8.49617+0.22534I$	0
$u=\ \ 0.067908-1.058730I$ $a=-2.22823+0.61404I$ $b=\ \ 2.11406-0.16850I$	$-8.49617-0.22534I$	0
$u=-0.366171+0.998100I$ $a=\ \ 0.801218-1.158340I$ $b=-0.805887+0.999387I$	$-4.27242-3.63656I$	0
$u=-0.366171-0.998100I$ $a=\ \ 0.801218+1.158340I$ $b=-0.805887-0.999387I$	$-4.27242+3.63656I$	0
$u=\ \ 0.412565+0.826079I$ $a=-1.94271-0.47427I$ $b=\ \ 0.183127-0.835291I$	$-1.56567+4.23004I$	0
$u=\ \ 0.412565-0.826079I$ $a=-1.94271+0.47427I$ $b=\ \ 0.183127+0.835291I$	$-1.56567-4.23004I$	0
$u=-0.772814+0.772773I$ $a=\ \ 1.59190-1.29173I$ $b=-0.30888-1.42061I$	$-3.93350-7.14563I$	0
$u=-0.772814-0.772773I$ $a=\ \ 1.59190+1.29173I$ $b=-0.30888+1.42061I$	$-3.93350+7.14563I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.419592+1.076060I$ $a=\ \ 0.353709-1.036150I$ $b=-0.854387+0.525630I$	$-4.87731+3.63784I$	0
$u=-0.419592-1.076060I$ $a=\ \ 0.353709+1.036150I$ $b=-0.854387-0.525630I$	$-4.87731-3.63784I$	0
$u=\ \ 0.239118+1.140130I$ $a=-0.910787+0.982190I$ $b=\ \ 0.159331-0.396209I$	$-0.04035+2.12403I$	0
$u=\ \ 0.239118-1.140130I$ $a=-0.910787-0.982190I$ $b=\ \ 0.159331+0.396209I$	$-0.04035-2.12403I$	0
$u=\ \ 0.346917+1.125020I$ $a=\ \ 0.951138+0.040573I$ $b=-0.855676-0.403636I$	$-2.41866+5.60421I$	0
$u=\ \ 0.346917-1.125020I$ $a=\ \ 0.951138-0.040573I$ $b=-0.855676+0.403636I$	$-2.41866-5.60421I$	0
$u=\ \ 0.202913+1.181680I$ $a=-0.272570+1.084270I$ $b=\ \ 0.140898+1.021230I$	$-0.086149-0.765244I$	0
$u=\ \ 0.202913-1.181680I$ $a=-0.272570-1.084270I$ $b=\ \ 0.140898-1.021230I$	$-0.086149+0.765244I$	0
$u=\ \ 0.512388+1.086440I$ $a=-1.251310-0.228801I$ $b=\ \ 0.274240-0.305664I$	$-0.20527+1.65852I$	0
$u=\ \ 0.512388-1.086440I$ $a=-1.251310+0.228801I$ $b=\ \ 0.274240+0.305664I$	$-0.20527-1.65852I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.588792 + 0.463416I$ $a = 0.767233 - 1.013960I$ $b = 0.581759 - 0.633168I$	$-3.23850 + 3.36650I$	0
$u = 0.588792 - 0.463416I$ $a = 0.767233 + 1.013960I$ $b = 0.581759 + 0.633168I$	$-3.23850 - 3.36650I$	0
$u = -0.571394 + 1.134260I$ $a = 1.94138 - 0.31879I$ $b = -0.88491 - 1.18169I$	$-3.20310 - 10.33750I$	0
$u = -0.571394 - 1.134260I$ $a = 1.94138 + 0.31879I$ $b = -0.88491 + 1.18169I$	$-3.20310 + 10.33750I$	0
$u = 0.124399 + 0.692567I$ $a = 3.77412 - 0.48842I$ $b = -0.748225 - 0.159033I$	$-0.39473 - 3.42723I$	0
$u = 0.124399 - 0.692567I$ $a = 3.77412 + 0.48842I$ $b = -0.748225 + 0.159033I$	$-0.39473 + 3.42723I$	0
$u = 0.478913 + 1.238790I$ $a = -1.73626 - 0.09425I$ $b = 1.11512 - 1.33562I$	$-5.79526 + 10.05900I$	0
$u = 0.478913 - 1.238790I$ $a = -1.73626 + 0.09425I$ $b = 1.11512 + 1.33562I$	$-5.79526 - 10.05900I$	0
$u = -0.414731 + 1.264750I$ $a = 1.55591 + 0.02619I$ $b = -1.37639 - 1.14496I$	$0.90199 - 5.41124I$	0
$u = -0.414731 - 1.264750I$ $a = 1.55591 - 0.02619I$ $b = -1.37639 + 1.14496I$	$0.90199 + 5.41124I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.063225+0.642101I$ $a=\ \ 0.544943-0.776589I$ $b=-0.56820+1.36028I$	$4.01830+3.35228I$	0
$u=-0.063225-0.642101I$ $a=\ \ 0.544943+0.776589I$ $b=-0.56820-1.36028I$	$4.01830-3.35228I$	0
$u=-0.512245+1.260840I$ $a=-1.193750+0.101008I$ $b=\ \ 0.866308+0.032593I$	$-6.26801-11.78670I$	0
$u=-0.512245-1.260840I$ $a=-1.193750-0.101008I$ $b=\ \ 0.866308-0.032593I$	$-6.26801+11.78670I$	0
$u=\ \ 0.148803+0.600789I$ $a=-0.32970+2.73627I$ $b=-0.095185+0.724461I$	$2.26847+1.90559I$	0
$u=\ \ 0.148803-0.600789I$ $a=-0.32970-2.73627I$ $b=-0.095185-0.724461I$	$2.26847-1.90559I$	0
$u=\ \ 0.085371+1.405540I$ $a=-1.212120-0.151678I$ $b=\ \ 1.63367-0.13073I$	$-8.14634+0.37774I$	0
$u=\ \ 0.085371-1.405540I$ $a=-1.212120+0.151678I$ $b=\ \ 1.63367+0.13073I$	$-8.14634-0.37774I$	0
$u=\ \ 1.41848+0.15036I$ $a=-0.024888-0.389798I$ $b=\ \ 1.139300-0.708583I$	$-1.12151+4.60206I$	0
$u=\ \ 1.41848-0.15036I$ $a=-0.024888+0.389798I$ $b=\ \ 1.139300+0.708583I$	$-1.12151-4.60206I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.44979$ $a=-0.248181$ $b=-0.862893$	6.20953	0
$u=0.049020+0.545031I$ $a=1.081650-0.862877I$ $b=0.428048+1.317970I$	$-2.24055-7.34902I$	$0.+8.05606I$
$u=0.049020-0.545031I$ $a=1.081650+0.862877I$ $b=0.428048-1.317970I$	$-2.24055+7.34902I$	$0.-8.05606I$
$u=0.074533+0.528539I$ $a=-0.76700+1.75060I$ $b=-0.126359+0.997765I$	$2.36987+1.69229I$	$11.06200-3.78254I$
$u=0.074533-0.528539I$ $a=-0.76700-1.75060I$ $b=-0.126359-0.997765I$	$2.36987-1.69229I$	$11.06200+3.78254I$
$u=-0.81691+1.22247I$ $a=0.590458-0.474278I$ $b=-0.861285-0.036461I$	$-4.47070-4.16304I$	0
$u=-0.81691-1.22247I$ $a=0.590458+0.474278I$ $b=-0.861285+0.036461I$	$-4.47070+4.16304I$	0
$u=-1.47734+0.24048I$ $a=-0.133544+0.160572I$ $b=0.285552+0.045178I$	$-2.29239+5.78767I$	0
$u=-1.47734-0.24048I$ $a=-0.133544-0.160572I$ $b=0.285552-0.045178I$	$-2.29239-5.78767I$	0
$u=0.093371+0.473219I$ $a=-2.75050-1.25112I$ $b=0.686941+0.942867I$	$0.52657+1.85431I$	$3.61991-2.71882I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.093371 - 0.473219I$ $a = -2.75050 + 1.25112I$ $b = 0.686941 - 0.942867I$	$0.52657 - 1.85431I$	$3.61991 + 2.71882I$
$u = -0.132725 + 0.457402I$ $a = -0.62452 + 1.47340I$ $b = -0.435415 + 1.125430I$	$0.09228 + 6.26607I$	$11.14930 - 4.26874I$
$u = -0.132725 - 0.457402I$ $a = -0.62452 - 1.47340I$ $b = -0.435415 - 1.125430I$	$0.09228 - 6.26607I$	$11.14930 + 4.26874I$
$u = -1.51021 + 0.22909I$ $a = 0.177727 + 0.245821I$ $b = -1.016900 + 0.901340I$	$-0.20373 + 4.31437I$	0
$u = -1.51021 - 0.22909I$ $a = 0.177727 - 0.245821I$ $b = -1.016900 - 0.901340I$	$-0.20373 - 4.31437I$	0
$u = -0.004936 + 0.466083I$ $a = -5.57284 - 3.77943I$ $b = 0.611889 - 0.388484I$	$-2.01703 + 8.79931I$	$-7.9058 - 15.5087I$
$u = -0.004936 - 0.466083I$ $a = -5.57284 + 3.77943I$ $b = 0.611889 + 0.388484I$	$-2.01703 - 8.79931I$	$-7.9058 + 15.5087I$
$u = -0.25363 + 1.64831I$ $a = -1.246740 - 0.127801I$ $b = 2.20713 + 1.57974I$	$-7.65361 + 0.80641I$	0
$u = -0.25363 - 1.64831I$ $a = -1.246740 + 0.127801I$ $b = 2.20713 - 1.57974I$	$-7.65361 - 0.80641I$	0
$u = 1.93701$ $a = 0.0100437$ $b = -0.116690$	2.58585	0

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{70}-15u^{69}+\cdots-35u+1)$ $\cdot(u^{224}-6u^{223}+\cdots-44884222454179u+3701456034894)$
c_2	$(u^{70}-u^{69}+\cdots-4u-1)$ $\cdot(u^{224}+58u^{222}+\cdots-10407259u-1020181)$
c_3	$(u^{70}+u^{69}+\cdots-2u-1)$ $\cdot(u^{224}+70u^{222}+\cdots-41463065u-6221089)$
c_4	$(u^{70}+2u^{69}+\cdots+3u+1)(u^{224}+3u^{223}+\cdots+130u+3)$
c_5	$(u^{70}+2u^{69}+\cdots+208u+32)$ $\cdot(u^{224}+u^{223}+\cdots-77486276384u-21859583968)$
c_6	$(u^{70}+u^{69}+\cdots+4u-1)$ $\cdot(u^{224}+58u^{222}+\cdots-10407259u-1020181)$
c_7	$(u^{70}-14u^{69}+\cdots+6u+1)(u^{224}+7u^{223}+\cdots+147u+4)$
c_8	$(u^{70}+u^{69}+\cdots-15u-1)$ $\cdot(u^{224}-18u^{222}+\cdots+104743724u-8194483)$
c_9	$(u^{70}-u^{69}+\cdots+2u-1)$ $\cdot(u^{224}+70u^{222}+\cdots-41463065u-6221089)$
c_{10}	$(u^{70}-3u^{69}+\cdots-22u+1)$ $\cdot(u^{224}+18u^{223}+\cdots+274516829u+44605981)$
c_{11}	$(u^{70}+5u^{69}+\cdots-u+1)(u^{224}+10u^{223}+\cdots-88u+1)$
c_{12}	$(u^{70}+18u^{69}+\cdots+92u-1)$ $\cdot(u^{224}+17u^{223}+\cdots+1907648737u-198403544)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{70}+7y^{69}+\cdots-7y+1)(y^{224}-44y^{223}+\cdots-4.73547\times10^{26}y+1.37008\times10^{25})$
c_2, c_6	$(y^{70}+27y^{69}+\cdots+66y+1)$ $\cdot(y^{224}+116y^{223}+\cdots+49650999012427y+1040769272761)$
c_3, c_9	$(y^{70}+39y^{69}+\cdots+28y+1)$ $\cdot(y^{224}+140y^{223}+\cdots+1546004300630517y+38701948345921)$
c_4	$(y^{70}+14y^{69}+\cdots+27y+1)(y^{224}+19y^{223}+\cdots-1648y+9)$
c_5	$(y^{70}+24y^{69}+\cdots-46336y+1024)$ $\cdot(y^{224}-11y^{223}+\cdots-6.27\times10^{22}y+4.78\times10^{20})$
c_7	$(y^{70}-20y^{69}+\cdots+20y+1)(y^{224}+y^{223}+\cdots+1687y+16)$
c_8	$(y^{70}+11y^{69}+\cdots-79y+1)$ $\cdot(y^{224}-36y^{223}+\cdots-2069920790809914y+67149551637289)$
c_{10}	$(y^{70}-9y^{69}+\cdots-82y+1)$ $\cdot(y^{224}+44y^{223}+\cdots+260712383021021931y+1989693540972361)$
c_{11}	$(y^{70}-11y^{69}+\cdots-83y+1)(y^{224}-10y^{223}+\cdots-794y+1)$
c_{12}	$(y^{70}-38y^{69}+\cdots-10464y+1)$ $\cdot(y^{224}-65y^{223}+\cdots-2773728249316168385y+39363966271759936)$