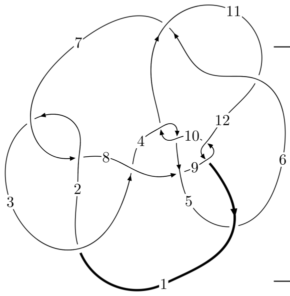
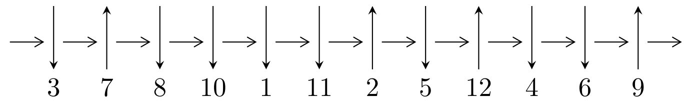
$12a_{0546}$ ($K12a_{0546}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 &= \langle -177u^{48} - 2295u^{47} + \cdots + 16b - 22288,\ -1039u^{48} - 10379u^{47} + \cdots + 32a - 6640,\\
&\quad u^{49} + 11u^{48} + \cdots + 336u + 32\rangle\\
I^u_2 &= \langle -3.75564 \times 10^{34}a^9u^3 + 9.36038 \times 10^{34}a^8u^3 + \cdots + 3.47750 \times 10^{34}a - 1.15768 \times 10^{36},\\
&\quad -a^9u^3 + 8a^8u^3 + \cdots - 140a + 56,\ u^4 + u^2 + u + 1\rangle\\
I^u_3 &= \langle 4u^{33} - u^{32} + \cdots + b - 3,\ -u^{33} + 5u^{32} + \cdots + a + 6,\ u^{34} + 9u^{32} + \cdots + 5u^2 + 1\rangle\\
I^u_4 &= \langle -1.40412 \times 10^{42}a^9u^5 - 1.78290 \times 10^{42}a^8u^5 + \cdots - 6.44973 \times 10^{41}a - 1.75326 \times 10^{42},\\
&\quad -a^8u^5 - 5a^7u^5 + \cdots + 43a + 33,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 183 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. $\boldsymbol{I_1^u = \langle -177u^{48} - 2295u^{47} + \cdots + 16b - 22288,\ -1039u^{48} - 10379u^{47} + \cdots + 32a - 6640,\ u^{49} + 11u^{48} + \cdots + 336u + 32\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1039}{32}u^{48} + \frac{10379}{32}u^{47} + \cdots + 2331u + \frac{415}{2} \\ \frac{177}{16}u^{48} + \frac{2295}{16}u^{47} + \cdots + 13026u + 1393 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{48} - 8u^{47} + \cdots - 2888u - \frac{607}{2} \\ 15u^{48} + \frac{327}{2}u^{47} + \cdots + \frac{10033}{2}u + 496 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{523}{16}u^{48} + 293u^{47} + \cdots - 6815u - 776 \\ \frac{143}{16}u^{48} + \frac{2251}{16}u^{47} + \cdots + 13224u + 1390 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -15u^{48} - \frac{311}{2}u^{47} + \cdots - 2400u - \frac{447}{2} \\ \frac{15}{2}u^{48} + \frac{143}{2}u^{47} + \cdots + \frac{1425}{2}u + 80 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{209}{32}u^{48} - \frac{1493}{32}u^{47} + \cdots + 6055u + \frac{1359}{2} \\ \frac{185}{16}u^{48} + \frac{1691}{16}u^{47} + \cdots + 1056u + 103 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{21}{2}u^{48} + 136u^{47} + \cdots + \frac{27905}{4}u + 705 \\ -\frac{13}{4}u^{48} - \frac{69}{2}u^{47} + \cdots + 1840u + 224 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{13}{2}u^{48} + 136u^{47} + \cdots + 19132u + 2014$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{49} + 23u^{48} + \cdots - 2304u - 1024$
c_2, c_7	$u^{49} + 11u^{48} + \cdots + 336u + 32$
c_3	$u^{49} - 11u^{48} + \cdots - 1796480u + 194816$
c_4, c_6, c_{10} c_{11}	$u^{49} + 15u^{47} + \cdots + 3u + 1$
c_5, c_8	$u^{49} - 13u^{47} + \cdots + 45u^2 + 1$
c_9, c_{12}	$u^{49} + 24u^{48} + \cdots + 20992u + 1024$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{49} + 7y^{48} + \cdots + 3342336y - 1048576$
c_2, c_7	$y^{49} + 23y^{48} + \cdots - 2304y - 1024$
c_3	$y^{49} - 9y^{48} + \cdots + 105434251264y - 37953273856$
c_4, c_6, c_{10} c_{11}	$y^{49} + 30y^{48} + \cdots - 7y - 1$
c_5, c_8	$y^{49} - 26y^{48} + \cdots - 90y - 1$
c_9, c_{12}	$y^{49} + 18y^{48} + \cdots - 13893632y - 1048576$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.478052 + 0.856443I$ $a = 0.326341 - 0.492210I$ $b = -0.305506 + 0.147125I$	$-1.49827 + 2.65503I$	0
$u = 0.478052 - 0.856443I$ $a = 0.326341 + 0.492210I$ $b = -0.305506 - 0.147125I$	$-1.49827 - 2.65503I$	0
$u = 0.766749 + 0.715877I$ $a = 0.739711 + 0.674856I$ $b = -0.247125 - 0.492473I$	$5.20437 + 10.91700I$	0
$u = 0.766749 - 0.715877I$ $a = 0.739711 - 0.674856I$ $b = -0.247125 + 0.492473I$	$5.20437 - 10.91700I$	0
$u = -0.873499 + 0.354678I$ $a = -0.494292 - 0.464853I$ $b = -1.10940 + 1.28651I$	$6.00554 + 7.82565I$	0
$u = -0.873499 - 0.354678I$ $a = -0.494292 + 0.464853I$ $b = -1.10940 - 1.28651I$	$6.00554 - 7.82565I$	0
$u = -0.928111 + 0.072870I$ $a = 0.0795687 - 0.0803024I$ $b = -0.092121 - 1.024010I$	$-0.88139 - 3.32643I$	0
$u = -0.928111 - 0.072870I$ $a = 0.0795687 + 0.0803024I$ $b = -0.092121 + 1.024010I$	$-0.88139 + 3.32643I$	0
$u = -0.854709 + 0.330936I$ $a = 0.589192 + 0.476228I$ $b = 1.27262 - 1.43921I$	$2.9680 + 14.0850I$	0
$u = -0.854709 - 0.330936I$ $a = 0.589192 - 0.476228I$ $b = 1.27262 + 1.43921I$	$2.9680 - 14.0850I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.834815 + 0.695048I$ $a = -0.600762 - 0.546152I$ $b = 0.215820 + 0.394312I$	$8.04704 + 4.10210I$	0
$u = 0.834815 - 0.695048I$ $a = -0.600762 + 0.546152I$ $b = 0.215820 - 0.394312I$	$8.04704 - 4.10210I$	0
$u = -0.772371 + 0.438945I$ $a = 0.441341 + 0.697787I$ $b = 1.22235 - 0.84048I$	$-0.97909 + 3.38897I$	0
$u = -0.772371 - 0.438945I$ $a = 0.441341 - 0.697787I$ $b = 1.22235 + 0.84048I$	$-0.97909 - 3.38897I$	0
$u = -0.176690 + 1.110960I$ $a = -1.37363 + 0.70599I$ $b = 1.192360 + 0.396112I$	$-5.86501 + 1.18942I$	0
$u = -0.176690 - 1.110960I$ $a = -1.37363 - 0.70599I$ $b = 1.192360 - 0.396112I$	$-5.86501 - 1.18942I$	0
$u = 0.720620 + 0.910593I$ $a = 0.851674 - 0.093308I$ $b = -0.487414 - 0.153696I$	$4.63672 - 5.35669I$	0
$u = 0.720620 - 0.910593I$ $a = 0.851674 + 0.093308I$ $b = -0.487414 + 0.153696I$	$4.63672 + 5.35669I$	0
$u = -0.784834 + 0.882632I$ $a = 0.495169 - 0.986231I$ $b = -1.42077 + 0.19958I$	$5.13191 - 2.94920I$	0
$u = -0.784834 - 0.882632I$ $a = 0.495169 + 0.986231I$ $b = -1.42077 - 0.19958I$	$5.13191 + 2.94920I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.374297+1.159210I$ $a=\ \ 1.59406+0.04146I$ $b=-0.99157-1.09139I$	$-7.96185-1.00016I$	0
$u=-0.374297-1.159210I$ $a=\ \ 1.59406-0.04146I$ $b=-0.99157+1.09139I$	$-7.96185+1.00016I$	0
$u=-0.440430+1.140610I$ $a=-1.229590+0.512090I$ $b=\ \ 1.165190+0.534330I$	$-4.40899-3.96742I$	0
$u=-0.440430-1.140610I$ $a=-1.229590-0.512090I$ $b=\ \ 1.165190-0.534330I$	$-4.40899+3.96742I$	0
$u=-0.199279+1.223060I$ $a=-0.92640+1.45535I$ $b=\ \ 1.41221-0.37985I$	$-2.20258+10.92800I$	0
$u=-0.199279-1.223060I$ $a=-0.92640-1.45535I$ $b=\ \ 1.41221+0.37985I$	$-2.20258-10.92800I$	0
$u=\ \ 0.226512+0.722089I$ $a=\ \ 0.478385+0.339901I$ $b=-0.067581-0.304627I$	$-0.435531+1.029440I$	$-6.73597-6.27362I$
$u=\ \ 0.226512-0.722089I$ $a=\ \ 0.478385-0.339901I$ $b=-0.067581+0.304627I$	$-0.435531-1.029440I$	$-6.73597+6.27362I$
$u=-0.161961+1.234220I$ $a=\ \ 0.786447-1.166120I$ $b=-1.136990+0.290901I$	$0.57747+4.75186I$	0
$u=-0.161961-1.234220I$ $a=\ \ 0.786447+1.166120I$ $b=-1.136990-0.290901I$	$0.57747-4.75186I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.762483 + 0.986272I$ $a = -0.664376 + 0.055284I$ $b = 0.390680 + 0.129241I$	$7.19998 + 1.81506I$	0
$u = 0.762483 - 0.986272I$ $a = -0.664376 - 0.055284I$ $b = 0.390680 - 0.129241I$	$7.19998 - 1.81506I$	0
$u = -0.733012 + 0.139560I$ $a = -0.196963 - 0.376645I$ $b = -0.961605 - 0.428464I$	$-4.20707 + 2.68572I$	$-8.43914 - 0.98514I$
$u = -0.733012 - 0.139560I$ $a = -0.196963 + 0.376645I$ $b = -0.961605 + 0.428464I$	$-4.20707 - 2.68572I$	$-8.43914 + 0.98514I$
$u = -0.491321 + 1.163850I$ $a = 0.753297 - 1.171010I$ $b = -1.360560 + 0.258355I$	$-7.16891 - 7.24449I$	0
$u = -0.491321 - 1.163850I$ $a = 0.753297 + 1.171010I$ $b = -1.360560 - 0.258355I$	$-7.16891 + 7.24449I$	0
$u = -0.610741 + 1.106510I$ $a = -1.82526 + 0.70262I$ $b = 1.87393 + 0.96407I$	$-2.96315 - 8.64038I$	0
$u = -0.610741 - 1.106510I$ $a = -1.82526 - 0.70262I$ $b = 1.87393 - 0.96407I$	$-2.96315 + 8.64038I$	0
$u = 0.517947 + 0.519025I$ $a = 0.297309 + 0.781886I$ $b = 0.035740 - 0.380670I$	$-0.65164 + 1.35300I$	$-3.66413 - 3.95386I$
$u = 0.517947 - 0.519025I$ $a = 0.297309 - 0.781886I$ $b = 0.035740 + 0.380670I$	$-0.65164 - 1.35300I$	$-3.66413 + 3.95386I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.595665 + 1.157710I$ $a = -2.39362 + 0.13659I$ $b = \ \ 1.85518 + 1.74290I$	$0.4891 - 19.4430I$	0
$u = -0.595665 - 1.157710I$ $a = -2.39362 - 0.13659I$ $b = \ \ 1.85518 - 1.74290I$	$0.4891 + 19.4430I$	0
$u = -0.608941 + 1.156550I$ $a = \ \ 2.10503 - 0.13730I$ $b = -1.65929 - 1.53207I$	$3.58691 - 13.28800I$	0
$u = -0.608941 - 1.156550I$ $a = \ \ 2.10503 + 0.13730I$ $b = -1.65929 + 1.53207I$	$3.58691 + 13.28800I$	0
$u = -0.403571 + 1.266070I$ $a = \ \ 0.793970 + 0.803823I$ $b = -0.032613 - 1.072270I$	$-5.12980 - 7.92840I$	0
$u = -0.403571 - 1.266070I$ $a = \ \ 0.793970 - 0.803823I$ $b = -0.032613 + 1.072270I$	$-5.12980 + 7.92840I$	0
$u = -0.482995 + 1.261900I$ $a = -0.592524 - 0.822612I$ $b = -0.130388 + 0.995982I$	$-4.59017 - 1.74004I$	0
$u = -0.482995 - 1.261900I$ $a = -0.592524 + 0.822612I$ $b = -0.130388 - 0.995982I$	$-4.59017 + 1.74004I$	0
$u = -0.629499$ $a = \ \ 0.431846$ $b = \ \ 0.733727$	-1.32172	-7.66060

II. $\boldsymbol{I_2^u = \langle -3.76\times 10^{34}a^9u^3 + 9.36\times 10^{34}a^8u^3 + \cdots + 3.48\times 10^{34}a - 1.16\times 10^{36},\ -a^9u^3 + 8a^8u^3 + \cdots - 140a + 56,\ u^4 + u^2 + u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ 0.0192083a^9u^3 - 0.0478739a^8u^3 + \cdots - 0.0177858a + 0.592099 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.00387234a^9u^3 + 4.04744\times 10^{-6}a^8u^3 + \cdots + 0.286154a + 0.695075 \\ -0.0207142a^9u^3 + 0.0403472a^8u^3 + \cdots - 0.0248324a - 0.987236 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0113983a^9u^3 + 0.00828088a^8u^3 + \cdots - 0.595655a + 0.525412 \\ 0.0291838a^9u^3 - 0.0117244a^8u^3 + \cdots - 0.480714a + 1.19425 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.00469576a^9u^3 + 0.00153863a^8u^3 + \cdots - 0.594584a + 1.37528 \\ -0.0249612a^9u^3 + 0.0282996a^8u^3 + \cdots + 0.838625a - 0.740159 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.00875384a^9u^3 + 0.00505333a^8u^3 + \cdots - 0.278193a - 1.43301 \\ 0.0203720a^9u^3 - 0.0751696a^8u^3 + \cdots + 0.737034a + 2.44408 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0298026a^9u^3 + 0.00481884a^8u^3 + \cdots - 0.776901a - 1.24375 \\ 0.0280847a^9u^3 - 0.00770531a^8u^3 + \cdots - 0.625473a + 1.44098 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.000262201a^9u^3 + 0.0975732a^8u^3 + \cdots - 0.00295730a + 0.996708$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^4 + 2u^3 + 3u^2 + u + 1)^{10}$
c_2, c_7	$(u^4 + u^2 + u + 1)^{10}$
c_3	$(u^4 + 3u^3 + 4u^2 + 3u + 2)^{10}$
c_4, c_6, c_{10} c_{11}	$u^{40} + 15u^{38} + \cdots + 58u + 1$
c_5, c_8	$u^{40} + 3u^{38} + \cdots + 52u + 17$
c_9, c_{12}	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+2y^3+7y^2+5y+1)^{10}$
c_2, c_7	$(y^4+2y^3+3y^2+y+1)^{10}$
c_3	$(y^4-y^3+2y^2+7y+4)^{10}$
c_4, c_6, c_{10} c_{11}	$y^{40}+30y^{39}+\cdots+2452y+1$
c_5, c_8	$y^{40}+6y^{39}+\cdots-7260y+289$
c_9, c_{12}	$(y^5+3y^4+4y^3+y^2-y-1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 0.585652I$ $a = 0.221497 + 0.902974I$ $b = 1.20773 - 1.11641I$	$0.04234 + 3.00374I$	$-0.974125 + 0.368774I$
$u = -0.547424 + 0.585652I$ $a = -1.002660 + 0.500950I$ $b = -0.220534 - 0.928964I$	$5.58580 - 2.92767I$	$3.25507 + 8.29801I$
$u = -0.547424 + 0.585652I$ $a = 0.827670 - 0.764225I$ $b = -0.336750 + 1.236380I$	$5.58580 + 0.13349I$	$3.25507 - 0.56329I$
$u = -0.547424 + 0.585652I$ $a = 0.780499 + 0.214919I$ $b = 1.274850 - 0.209977I$	$0.04234 - 5.79792I$	$-0.97412 + 7.36595I$
$u = -0.547424 + 0.585652I$ $a = -1.150910 - 0.353292I$ $b = -0.779043 + 0.360018I$	$3.51382 - 1.39709I$	$2.28905 + 3.86736I$
$u = -0.547424 + 0.585652I$ $a = 0.06089 - 1.53723I$ $b = -1.05256 + 1.13396I$	$3.51382 - 1.39709I$	$2.28905 + 3.86736I$
$u = -0.547424 + 0.585652I$ $a = 1.38874 + 1.10350I$ $b = 0.657391 - 0.953872I$	$0.04234 + 3.00374I$	$-0.974125 + 0.368774I$
$u = -0.547424 + 0.585652I$ $a = -1.95881 + 0.77532I$ $b = 0.545262 - 0.029038I$	$5.58580 + 0.13349I$	$3.25507 - 0.56329I$
$u = -0.547424 + 0.585652I$ $a = 1.57898 - 1.47433I$ $b = -0.920272 + 0.482059I$	$5.58580 - 2.92767I$	$3.25507 + 8.29801I$
$u = -0.547424 + 0.585652I$ $a = 0.14923 + 2.18391I$ $b = 1.12804 - 1.20101I$	$0.04234 - 5.79792I$	$-0.97412 + 7.36595I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.547424-0.585652I$ $a=\ \ 0.221497-0.902974I$ $b=\ \ 1.20773+1.11641I$	$0.04234-3.00374I$	$-0.974125-0.368774I$
$u=-0.547424-0.585652I$ $a=-1.002660-0.500950I$ $b=-0.220534+0.928964I$	$5.58580+2.92767I$	$3.25507-8.29801I$
$u=-0.547424-0.585652I$ $a=\ \ 0.827670+0.764225I$ $b=-0.336750-1.236380I$	$5.58580-0.13349I$	$3.25507+0.56329I$
$u=-0.547424-0.585652I$ $a=\ \ 0.780499-0.214919I$ $b=\ \ 1.274850+0.209977I$	$0.04234+5.79792I$	$-0.97412-7.36595I$
$u=-0.547424-0.585652I$ $a=-1.150910+0.353292I$ $b=-0.779043-0.360018I$	$3.51382+1.39709I$	$2.28905-3.86736I$
$u=-0.547424-0.585652I$ $a=\ \ 0.06089+1.53723I$ $b=-1.05256-1.13396I$	$3.51382+1.39709I$	$2.28905-3.86736I$
$u=-0.547424-0.585652I$ $a=\ \ 1.38874-1.10350I$ $b=\ \ 0.657391+0.953872I$	$0.04234-3.00374I$	$-0.974125-0.368774I$
$u=-0.547424-0.585652I$ $a=-1.95881-0.77532I$ $b=\ \ 0.545262+0.029038I$	$5.58580-0.13349I$	$3.25507+0.56329I$
$u=-0.547424-0.585652I$ $a=\ \ 1.57898+1.47433I$ $b=-0.920272-0.482059I$	$5.58580+2.92767I$	$3.25507-8.29801I$
$u=-0.547424-0.585652I$ $a=\ \ 0.14923-2.18391I$ $b=\ \ 1.12804+1.20101I$	$0.04234+5.79792I$	$-0.97412-7.36595I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.547424 + 1.120870I$ $a = -0.247228 - 1.022000I$ $b = 0.694936 - 0.038214I$	$-3.56279 + 3.24254I$	$-6.51450 - 3.01228I$
$u = 0.547424 + 1.120870I$ $a = 1.216500 + 0.435470I$ $b = -1.43346 + 0.07856I$	$-3.56279 + 3.24254I$	$-6.51450 - 3.01228I$
$u = 0.547424 + 1.120870I$ $a = 1.20787 + 0.82266I$ $b = -1.17538 + 0.78950I$	$-0.09131 + 7.64338I$	$-3.25133 - 6.51087I$
$u = 0.547424 + 1.120870I$ $a = -1.94445 - 0.20546I$ $b = 1.78925 - 0.91897I$	$-0.09131 + 7.64338I$	$-3.25133 - 6.51087I$
$u = 0.547424 + 1.120870I$ $a = -1.46157 - 1.48954I$ $b = 1.73674 - 0.54283I$	$-3.56279 + 12.04420I$	$-6.51450 - 10.00946I$
$u = 0.547424 + 1.120870I$ $a = 2.14871 - 0.54708I$ $b = -1.18440 + 2.26626I$	$1.98067 + 6.11280I$	$-2.28530 - 2.08022I$
$u = 0.547424 + 1.120870I$ $a = 2.20868 + 0.63787I$ $b = -2.42866 + 0.80414I$	$-3.56279 + 12.04420I$	$-6.51450 - 10.00946I$
$u = 0.547424 + 1.120870I$ $a = -2.54283 + 0.36709I$ $b = 1.74184 - 2.22507I$	$1.98067 + 9.17395I$	$-2.28530 - 10.94152I$
$u = 0.547424 + 1.120870I$ $a = 2.63408 + 0.12261I$ $b = -1.64407 + 1.91490I$	$1.98067 + 9.17395I$	$-2.28530 - 10.94152I$
$u = 0.547424 + 1.120870I$ $a = -2.61489 + 0.37153I$ $b = 1.39909 - 2.02199I$	$1.98067 + 6.11280I$	$-2.28530 - 2.08022I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.547424 - 1.120870I$ $a = -0.247228 + 1.022000I$ $b = 0.694936 + 0.038214I$	$-3.56279 - 3.24254I$	$-6.51450 + 3.01228I$
$u = 0.547424 - 1.120870I$ $a = 1.216500 - 0.435470I$ $b = -1.43346 - 0.07856I$	$-3.56279 - 3.24254I$	$-6.51450 + 3.01228I$
$u = 0.547424 - 1.120870I$ $a = 1.20787 - 0.82266I$ $b = -1.17538 - 0.78950I$	$-0.09131 - 7.64338I$	$-3.25133 + 6.51087I$
$u = 0.547424 - 1.120870I$ $a = -1.94445 + 0.20546I$ $b = 1.78925 + 0.91897I$	$-0.09131 - 7.64338I$	$-3.25133 + 6.51087I$
$u = 0.547424 - 1.120870I$ $a = -1.46157 + 1.48954I$ $b = 1.73674 + 0.54283I$	$-3.56279 - 12.04420I$	$-6.51450 + 10.00946I$
$u = 0.547424 - 1.120870I$ $a = 2.14871 + 0.54708I$ $b = -1.18440 - 2.26626I$	$1.98067 - 6.11280I$	$-2.28530 + 2.08022I$
$u = 0.547424 - 1.120870I$ $a = 2.20868 - 0.63787I$ $b = -2.42866 - 0.80414I$	$-3.56279 - 12.04420I$	$-6.51450 + 10.00946I$
$u = 0.547424 - 1.120870I$ $a = -2.54283 - 0.36709I$ $b = 1.74184 + 2.22507I$	$1.98067 - 9.17395I$	$-2.28530 + 10.94152I$
$u = 0.547424 - 1.120870I$ $a = 2.63408 - 0.12261I$ $b = -1.64407 - 1.91490I$	$1.98067 - 9.17395I$	$-2.28530 + 10.94152I$
$u = 0.547424 - 1.120870I$ $a = -2.61489 - 0.37153I$ $b = 1.39909 + 2.02199I$	$1.98067 - 6.11280I$	$-2.28530 + 2.08022I$

III.
$$\boldsymbol{I_3^u = \langle 4u^{33}-u^{32}+\cdots+b-3,\ -u^{33}+5u^{32}+\cdots+a+6,\ u^{34}+9u^{32}+\cdots+5u^2+1\rangle}$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5+u^3+u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{33}-5u^{32}+\cdots-5u-6 \\ -4u^{33}+u^{32}+\cdots-3u+3 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{33}+3u^{32}+\cdots-3u+9 \\ 3u^{33}+26u^{31}+\cdots+6u-2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{33}-2u^{32}+\cdots+u-7 \\ -3u^{33}-u^{32}+\cdots-5u^2-7u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{33}+3u^{32}+\cdots-3u+8 \\ 3u^{33}+26u^{31}+\cdots+23u^3+6u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 4u^{33}-4u^{32}+\cdots-2u-6 \\ -4u^{33}-32u^{31}+\cdots-4u+2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 8u^{33}+3u^{32}+\cdots+6u+5 \\ -3u^{32}-27u^{30}+\cdots-2u-5 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 9u^{33}-10u^{32}+67u^{31}-87u^{30}+263u^{29}-380u^{28}+658u^{27}-1080u^{26}+1131u^{25}-2208u^{24}+1283u^{23}-3393u^{22}+713u^{21}-3977u^{20}-553u^{19}-3510u^{18}-1834u^{17}-2248u^{16}-2366u^{15}-980u^{14}-1938u^{13}-336u^{12}-1099u^{11}-240u^{10}-414u^9-292u^8-89u^7-243u^6+7u^5-149u^4+3u^3-60u^2-6u-20$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{34} - 18u^{33} + \cdots - 10u + 1$
c_2	$u^{34} + 9u^{32} + \cdots + 5u^2 + 1$
c_3	$u^{34} - 3u^{32} + \cdots - 11u + 2$
c_4, c_{11}	$u^{34} + 17u^{32} + \cdots - u + 1$
c_5, c_8	$u^{34} + u^{32} + \cdots + 14u^2 + 1$
c_6, c_{10}	$u^{34} + 17u^{32} + \cdots + u + 1$
c_7	$u^{34} + 9u^{32} + \cdots + 5u^2 + 1$
c_9	$u^{34} + 7u^{33} + \cdots + 7u + 2$
c_{12}	$u^{34} - 7u^{33} + \cdots - 7u + 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{34} + 6y^{33} + \cdots + 6y + 1$
c_2, c_7	$y^{34} + 18y^{33} + \cdots + 10y + 1$
c_3	$y^{34} - 6y^{33} + \cdots + 35y + 4$
c_4, c_6, c_{10} c_{11}	$y^{34} + 34y^{33} + \cdots + 25y + 1$
c_5, c_8	$y^{34} + 2y^{33} + \cdots + 28y + 1$
c_9, c_{12}	$y^{34} + 15y^{33} + \cdots + 91y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.175447 + 0.908387I$ $a = 0.93384 + 1.29509I$ $b = -1.203890 - 0.021941I$	$1.24636 + 0.77692I$	$-1.59232 - 0.45733I$
$u = 0.175447 - 0.908387I$ $a = 0.93384 - 1.29509I$ $b = -1.203890 + 0.021941I$	$1.24636 - 0.77692I$	$-1.59232 + 0.45733I$
$u = 0.378298 + 1.025040I$ $a = -1.65359 - 1.98904I$ $b = 2.35690 - 0.05072I$	$-2.70143 - 2.21044I$	$-10.00411 + 2.97913I$
$u = 0.378298 - 1.025040I$ $a = -1.65359 + 1.98904I$ $b = 2.35690 + 0.05072I$	$-2.70143 + 2.21044I$	$-10.00411 - 2.97913I$
$u = -0.446576 + 1.007670I$ $a = 1.284690 + 0.264149I$ $b = -0.772388 + 0.275318I$	$3.32629 - 4.17850I$	$-9.34971 + 5.36525I$
$u = -0.446576 - 1.007670I$ $a = 1.284690 - 0.264149I$ $b = -0.772388 - 0.275318I$	$3.32629 + 4.17850I$	$-9.34971 - 5.36525I$
$u = -0.735794 + 0.868998I$ $a = -0.777395 + 0.164568I$ $b = 0.381336 - 0.268041I$	$7.20535 - 2.79984I$	$0.68714 + 4.48210I$
$u = -0.735794 - 0.868998I$ $a = -0.777395 - 0.164568I$ $b = 0.381336 + 0.268041I$	$7.20535 + 2.79984I$	$0.68714 - 4.48210I$
$u = -0.493215 + 1.032640I$ $a = -1.169460 - 0.418848I$ $b = 0.770877 - 0.137293I$	$3.70762 - 1.98587I$	$-7.17262 + 5.77733I$
$u = -0.493215 - 1.032640I$ $a = -1.169460 + 0.418848I$ $b = 0.770877 + 0.137293I$	$3.70762 + 1.98587I$	$-7.17262 - 5.77733I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766467 + 0.886453I$ $a = 0.591369 + 1.076620I$ $b = -1.56273 - 0.15360I$	$5.24088 + 2.89492I$	$28.9377 + 11.1946I$
$u = 0.766467 - 0.886453I$ $a = 0.591369 - 1.076620I$ $b = -1.56273 + 0.15360I$	$5.24088 - 2.89492I$	$28.9377 - 11.1946I$
$u = 0.319562 + 1.129570I$ $a = 0.43367 + 1.91770I$ $b = -1.50967 - 0.88561I$	$0.197406 + 0.068322I$	$-5.69119 + 0.41650I$
$u = 0.319562 - 1.129570I$ $a = 0.43367 - 1.91770I$ $b = -1.50967 + 0.88561I$	$0.197406 - 0.068322I$	$-5.69119 - 0.41650I$
$u = 0.550999 + 1.052080I$ $a = -2.49049 - 0.77299I$ $b = 2.25741 - 1.49473I$	$-1.43767 + 8.62180I$	$-4.00584 - 11.42538I$
$u = 0.550999 - 1.052080I$ $a = -2.49049 + 0.77299I$ $b = 2.25741 + 1.49473I$	$-1.43767 - 8.62180I$	$-4.00584 + 11.42538I$
$u = 0.602122 + 0.543667I$ $a = 0.89996 - 1.27699I$ $b = 1.41856 + 1.23555I$	$0.13723 - 4.00384I$	$0.26497 + 8.82336I$
$u = 0.602122 - 0.543667I$ $a = 0.89996 + 1.27699I$ $b = 1.41856 - 1.23555I$	$0.13723 + 4.00384I$	$0.26497 - 8.82336I$
$u = -0.802781 + 0.092125I$ $a = -0.179602 - 0.535483I$ $b = 0.095376 + 0.234147I$	$-1.95884 - 2.97586I$	$-6.98733 + 4.04383I$
$u = -0.802781 - 0.092125I$ $a = -0.179602 + 0.535483I$ $b = 0.095376 - 0.234147I$	$-1.95884 + 2.97586I$	$-6.98733 - 4.04383I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.356604 + 0.700327I$ $a = 1.87192 - 0.13022I$ $b = -0.743288 + 0.616870I$	$4.48703 + 0.69517I$	$-3.98417 - 4.15847I$
$u = -0.356604 - 0.700327I$ $a = 1.87192 + 0.13022I$ $b = -0.743288 - 0.616870I$	$4.48703 - 0.69517I$	$-3.98417 + 4.15847I$
$u = 0.533410 + 1.126150I$ $a = 2.50830 - 0.43425I$ $b = -1.39156 + 2.19888I$	$1.66627 + 7.70167I$	$-4.99272 - 6.16421I$
$u = 0.533410 - 1.126150I$ $a = 2.50830 + 0.43425I$ $b = -1.39156 - 2.19888I$	$1.66627 - 7.70167I$	$-4.99272 + 6.16421I$
$u = 0.206145 + 0.713441I$ $a = -0.53672 - 1.94505I$ $b = 1.380820 + 0.253515I$	$-1.36419 + 4.96005I$	$-6.45146 - 4.53589I$
$u = 0.206145 - 0.713441I$ $a = -0.53672 + 1.94505I$ $b = 1.380820 - 0.253515I$	$-1.36419 - 4.96005I$	$-6.45146 + 4.53589I$
$u = 0.691184 + 0.263602I$ $a = -1.020880 - 0.035967I$ $b = -0.83399 - 1.66380I$	$4.12969 - 3.00464I$	$-0.91662 + 1.90953I$
$u = 0.691184 - 0.263602I$ $a = -1.020880 + 0.035967I$ $b = -0.83399 + 1.66380I$	$4.12969 + 3.00464I$	$-0.91662 - 1.90953I$
$u = -0.428148 + 1.203320I$ $a = -0.356418 + 0.053099I$ $b = 0.192146 - 0.154330I$	$-5.71922 - 7.18271I$	$-8.44231 + 3.95769I$
$u = -0.428148 - 1.203320I$ $a = -0.356418 - 0.053099I$ $b = 0.192146 + 0.154330I$	$-5.71922 + 7.18271I$	$-8.44231 - 3.95769I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.477945 + 0.531567I$ $a = -1.57856 + 1.14238I$ $b = 0.386660 - 0.798114I$	$5.25433 - 2.08567I$	$-1.36649 - 1.54128I$
$u = -0.477945 - 0.531567I$ $a = -1.57856 - 1.14238I$ $b = 0.386660 + 0.798114I$	$5.25433 + 2.08567I$	$-1.36649 + 1.54128I$
$u = -0.482570 + 1.217200I$ $a = 0.239364 + 0.240727I$ $b = -0.222552 - 0.064553I$	$-5.32283 - 1.76180I$	$-12.93293 + 0.46359I$
$u = -0.482570 - 1.217200I$ $a = 0.239364 - 0.240727I$ $b = -0.222552 + 0.064553I$	$-5.32283 + 1.76180I$	$-12.93293 - 0.46359I$

IV. $\boldsymbol{I_4^u = \langle -1.40\times 10^{42}a^9u^5 - 1.78\times 10^{42}a^8u^5 + \cdots - 6.45\times 10^{41}a - 1.75\times 10^{42},\ -a^8u^5 - 5a^7u^5 + \cdots + 43a + 33,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} a \\ 1.97714a^9u^5 + 2.51051a^8u^5 + \cdots + 0.908190a + 2.46877 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.554073a^9u^5 + 0.0117925a^8u^5 + \cdots + 0.224704a + 0.603423 \\ -4.91503a^9u^5 - 2.80199a^8u^5 + \cdots + 1.55705a - 2.84529 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.988162a^9u^5 + 0.735866a^8u^5 + \cdots - 1.38300a - 0.489711 \\ 3.44692a^9u^5 + 7.76734a^8u^5 + \cdots - 2.71457a + 4.19964 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.466786a^9u^5 + 0.225244a^8u^5 + \cdots - 0.185849a + 1.00601 \\ -2.30113a^9u^5 - 2.81848a^8u^5 + \cdots + 0.871344a - 1.23856 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.611779a^9u^5 - 0.0411682a^8u^5 + \cdots - 0.604032a + 0.0609651 \\ 3.33926a^9u^5 + 1.66335a^8u^5 + \cdots + 3.54626a + 2.64082 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2.63968a^9u^5 - 0.0951509a^8u^5 + \cdots + 0.0679385a - 1.00362 \\ -1.58545a^9u^5 + 3.85770a^8u^5 + \cdots + 1.28057a + 0.346556 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -3.40314a^9u^5 - 1.49935a^8u^5 + \cdots - 5.36747a - 4.60915$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + 3u^5 + 4u^4 + 2u^3 + 1)^{10}$
c_2, c_7	$(u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1)^{10}$
c_3	$(u^3 - u^2 + 1)^{20}$
c_4, c_6, c_{10} c_{11}	$u^{60} - u^{59} + \cdots - 3670u + 2669$
c_5, c_8	$u^{60} + 5u^{59} + \cdots + 62u + 113$
c_9, c_{12}	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 - y^5 + 4y^4 - 2y^3 + 8y^2 + 1)^{10}$
c_2, c_7	$(y^6 + 3y^5 + 4y^4 + 2y^3 + 1)^{10}$
c_3	$(y^3 - y^2 + 2y - 1)^{20}$
c_4, c_6, c_{10} c_{11}	$y^{60} + 45y^{59} + \cdots + 201780612y + 7123561$
c_5, c_8	$y^{60} + 9y^{59} + \cdots + 482056y + 12769$
c_9, c_{12}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = 1.187190 - 0.580549I$ $b = -1.53567 + 0.73738I$	$4.33996 - 1.29754I$	$0.99464 - 1.45120I$
$u = -0.498832 + 1.001300I$ $a = 0.98473 - 1.14241I$ $b = -1.29543 - 0.83221I$	$2.26798 - 2.82812I$	$0.02861 + 2.97945I$
$u = -0.498832 + 1.001300I$ $a = -0.386326 + 0.284240I$ $b = 0.626993 - 1.222260I$	$4.33996 - 4.35870I$	$0.99464 + 7.41010I$
$u = -0.498832 + 1.001300I$ $a = -1.53224 + 0.59576I$ $b = 1.62811 + 1.44810I$	$-1.20350 - 7.22895I$	$-3.23456 + 6.47803I$
$u = -0.498832 + 1.001300I$ $a = -1.18533 - 1.36196I$ $b = -0.016793 + 0.427166I$	$4.33996 - 1.29754I$	$0.99464 - 1.45120I$
$u = -0.498832 + 1.001300I$ $a = 2.04707 + 0.72336I$ $b = -0.819193 - 0.708896I$	$4.33996 - 4.35870I$	$0.99464 + 7.41010I$
$u = -0.498832 + 1.001300I$ $a = -1.25879 + 1.91035I$ $b = 1.70598 + 0.42213I$	$-1.20350 + 1.57271I$	$-3.23456 - 0.51914I$
$u = -0.498832 + 1.001300I$ $a = -2.21633 + 0.81752I$ $b = 2.55859 + 0.71574I$	$-1.20350 + 1.57271I$	$-3.23456 - 0.51914I$
$u = -0.498832 + 1.001300I$ $a = 2.28167 - 0.69433I$ $b = -2.13217 - 0.67389I$	$2.26798 - 2.82812I$	$0.02861 + 2.97945I$
$u = -0.498832 + 1.001300I$ $a = -2.60402 + 0.95635I$ $b = 2.09434 + 0.92355I$	$-1.20350 - 7.22895I$	$-3.23456 + 6.47803I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.498832-1.001300I$ $a=\ \ 1.187190+0.580549I$ $b=-1.53567-0.73738I$	$4.33996+1.29754I$	$0.99464+1.45120I$
$u=-0.498832-1.001300I$ $a=\ \ 0.98473+1.14241I$ $b=-1.29543+0.83221I$	$2.26798+2.82812I$	$0.02861-2.97945I$
$u=-0.498832-1.001300I$ $a=-0.386326-0.284240I$ $b=\ \ 0.626993+1.222260I$	$4.33996+4.35870I$	$0.99464-7.41010I$
$u=-0.498832-1.001300I$ $a=-1.53224-0.59576I$ $b=\ \ 1.62811-1.44810I$	$-1.20350+7.22895I$	$-3.23456-6.47803I$
$u=-0.498832-1.001300I$ $a=-1.18533+1.36196I$ $b=-0.016793-0.427166I$	$4.33996+1.29754I$	$0.99464+1.45120I$
$u=-0.498832-1.001300I$ $a=\ \ 2.04707-0.72336I$ $b=-0.819193+0.708896I$	$4.33996+4.35870I$	$0.99464-7.41010I$
$u=-0.498832-1.001300I$ $a=-1.25879-1.91035I$ $b=\ \ 1.70598-0.42213I$	$-1.20350-1.57271I$	$-3.23456+0.51914I$
$u=-0.498832-1.001300I$ $a=-2.21633-0.81752I$ $b=\ \ 2.55859-0.71574I$	$-1.20350-1.57271I$	$-3.23456+0.51914I$
$u=-0.498832-1.001300I$ $a=\ \ 2.28167+0.69433I$ $b=-2.13217+0.67389I$	$2.26798+2.82812I$	$0.02861-2.97945I$
$u=-0.498832-1.001300I$ $a=-2.60402-0.95635I$ $b=\ \ 2.09434-0.92355I$	$-1.20350+7.22895I$	$-3.23456-6.47803I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.284920 + 1.115140I$ $a = -0.447866 - 0.773534I$ $b = 0.607666 - 0.410398I$	-1.86960	$-6.50065 + 0.I$
$u = 0.284920 + 1.115140I$ $a = 0.909856 + 0.827852I$ $b = -0.996411 + 0.795087I$	$-5.34108 - 4.40083I$	$-9.76382 + 3.49859I$
$u = 0.284920 + 1.115140I$ $a = 0.566727 + 0.144152I$ $b = -0.148379 + 0.928428I$	$-5.34108 + 4.40083I$	$-9.76382 - 3.49859I$
$u = 0.284920 + 1.115140I$ $a = 0.42898 + 1.52583I$ $b = -1.52554 - 0.71276I$	$0.20238 + 1.53058I$	$-5.53463 - 4.43065I$
$u = 0.284920 + 1.115140I$ $a = 1.58056 + 0.44067I$ $b = -1.365780 + 0.159127I$	-1.86960	$-6.50065 + 0.I$
$u = 0.284920 + 1.115140I$ $a = -0.53674 - 1.64005I$ $b = 1.58601 + 0.41462I$	$0.20238 - 1.53058I$	$-5.53463 + 4.43065I$
$u = 0.284920 + 1.115140I$ $a = -1.82651 + 0.44752I$ $b = 1.076880 - 0.772116I$	$-5.34108 + 4.40083I$	$-9.76382 - 3.49859I$
$u = 0.284920 + 1.115140I$ $a = -0.29102 - 2.12205I$ $b = 1.21913 + 0.99116I$	$0.20238 + 1.53058I$	$-5.53463 - 4.43065I$
$u = 0.284920 + 1.115140I$ $a = 0.97533 + 2.06684I$ $b = -1.66548 - 0.82093I$	$0.20238 - 1.53058I$	$-5.53463 + 4.43065I$
$u = 0.284920 + 1.115140I$ $a = -2.28946 - 0.64389I$ $b = 1.83447 - 0.36589I$	$-5.34108 - 4.40083I$	$-9.76382 + 3.49859I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.284920 - 1.115140I$ $a = -0.447866 + 0.773534I$ $b = 0.607666 + 0.410398I$	-1.86960	$-6.50065 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0.909856 - 0.827852I$ $b = -0.996411 - 0.795087I$	$-5.34108 + 4.40083I$	$-9.76382 - 3.49859I$
$u = 0.284920 - 1.115140I$ $a = 0.566727 - 0.144152I$ $b = -0.148379 - 0.928428I$	$-5.34108 - 4.40083I$	$-9.76382 + 3.49859I$
$u = 0.284920 - 1.115140I$ $a = 0.42898 - 1.52583I$ $b = -1.52554 + 0.71276I$	$0.20238 - 1.53058I$	$-5.53463 + 4.43065I$
$u = 0.284920 - 1.115140I$ $a = 1.58056 - 0.44067I$ $b = -1.365780 - 0.159127I$	-1.86960	$-6.50065 + 0.I$
$u = 0.284920 - 1.115140I$ $a = -0.53674 + 1.64005I$ $b = 1.58601 - 0.41462I$	$0.20238 + 1.53058I$	$-5.53463 - 4.43065I$
$u = 0.284920 - 1.115140I$ $a = -1.82651 - 0.44752I$ $b = 1.076880 + 0.772116I$	$-5.34108 - 4.40083I$	$-9.76382 + 3.49859I$
$u = 0.284920 - 1.115140I$ $a = -0.29102 + 2.12205I$ $b = 1.21913 - 0.99116I$	$0.20238 - 1.53058I$	$-5.53463 + 4.43065I$
$u = 0.284920 - 1.115140I$ $a = 0.97533 - 2.06684I$ $b = -1.66548 + 0.82093I$	$0.20238 + 1.53058I$	$-5.53463 - 4.43065I$
$u = 0.284920 - 1.115140I$ $a = -2.28946 + 0.64389I$ $b = 1.83447 + 0.36589I$	$-5.34108 + 4.40083I$	$-9.76382 - 3.49859I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.713912 + 0.305839I$ $a = 0.429948 - 1.005930I$ $b = 0.856359 + 0.958840I$	$2.26798 - 2.82812I$	$0.02861 + 2.97945I$
$u = 0.713912 + 0.305839I$ $a = 0.144154 + 1.099060I$ $b = -0.615263 - 0.248701I$	$-1.20350 + 1.57271I$	$-3.23456 - 0.51914I$
$u = 0.713912 + 0.305839I$ $a = -0.720705 + 0.032856I$ $b = -1.19093 - 1.54922I$	$4.33996 - 4.35870I$	$0.99464 + 7.41010I$
$u = 0.713912 + 0.305839I$ $a = -1.299170 - 0.066752I$ $b = -0.62005 - 1.56486I$	$4.33996 - 1.29754I$	$0.99464 - 1.45120I$
$u = 0.713912 + 0.305839I$ $a = 0.656118 - 0.214127I$ $b = 0.87114 + 1.75180I$	$4.33996 - 1.29754I$	$0.99464 - 1.45120I$
$u = 0.713912 + 0.305839I$ $a = -0.566965 - 0.340836I$ $b = -0.932711 - 0.359785I$	$2.26798 - 2.82812I$	$0.02861 + 2.97945I$
$u = 0.713912 + 0.305839I$ $a = 1.294010 - 0.437485I$ $b = 0.90098 + 1.66721I$	$4.33996 - 4.35870I$	$0.99464 + 7.41010I$
$u = 0.713912 + 0.305839I$ $a = 0.486682 + 0.192068I$ $b = 1.48640 + 0.19696I$	$-1.20350 - 7.22895I$	$-3.23456 + 6.47803I$
$u = 0.713912 + 0.305839I$ $a = 0.257873 + 0.445393I$ $b = 0.596404 - 0.463000I$	$-1.20350 + 1.57271I$	$-3.23456 - 0.51914I$
$u = 0.713912 + 0.305839I$ $a = -0.56943 + 1.40171I$ $b = -1.28963 - 0.88118I$	$-1.20350 - 7.22895I$	$-3.23456 + 6.47803I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.713912 - 0.305839I$ $a = 0.429948 + 1.005930I$ $b = 0.856359 - 0.958840I$	$2.26798 + 2.82812I$	$0.02861 - 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0.144154 - 1.099060I$ $b = -0.615263 + 0.248701I$	$-1.20350 - 1.57271I$	$-3.23456 + 0.51914I$
$u = 0.713912 - 0.305839I$ $a = -0.720705 - 0.032856I$ $b = -1.19093 + 1.54922I$	$4.33996 + 4.35870I$	$0.99464 - 7.41010I$
$u = 0.713912 - 0.305839I$ $a = -1.299170 + 0.066752I$ $b = -0.62005 + 1.56486I$	$4.33996 + 1.29754I$	$0.99464 + 1.45120I$
$u = 0.713912 - 0.305839I$ $a = 0.656118 + 0.214127I$ $b = 0.87114 - 1.75180I$	$4.33996 + 1.29754I$	$0.99464 + 1.45120I$
$u = 0.713912 - 0.305839I$ $a = -0.566965 + 0.340836I$ $b = -0.932711 + 0.359785I$	$2.26798 + 2.82812I$	$0.02861 - 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 1.294010 + 0.437485I$ $b = 0.90098 - 1.66721I$	$4.33996 + 4.35870I$	$0.99464 - 7.41010I$
$u = 0.713912 - 0.305839I$ $a = 0.486682 - 0.192068I$ $b = 1.48640 - 0.19696I$	$-1.20350 + 7.22895I$	$-3.23456 - 6.47803I$
$u = 0.713912 - 0.305839I$ $a = 0.257873 - 0.445393I$ $b = 0.596404 + 0.463000I$	$-1.20350 - 1.57271I$	$-3.23456 + 0.51914I$
$u = 0.713912 - 0.305839I$ $a = -0.56943 - 1.40171I$ $b = -1.28963 + 0.88118I$	$-1.20350 + 7.22895I$	$-3.23456 - 6.47803I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^4+2u^3+3u^2+u+1)^{10}(u^6+3u^5+4u^4+2u^3+1)^{10}$ $\cdot(u^{34}-18u^{33}+\cdots-10u+1)(u^{49}+23u^{48}+\cdots-2304u-1024)$
c_2	$(u^4+u^2+u+1)^{10}(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^{10}$ $\cdot(u^{34}+9u^{32}+\cdots+5u^2+1)(u^{49}+11u^{48}+\cdots+336u+32)$
c_3	$((u^3-u^2+1)^{20})(u^4+3u^3+\cdots+3u+2)^{10}(u^{34}-3u^{32}+\cdots-11u+2)$ $\cdot(u^{49}-11u^{48}+\cdots-1796480u+194816)$
c_4, c_{11}	$(u^{34}+17u^{32}+\cdots-u+1)(u^{40}+15u^{38}+\cdots+58u+1)$ $\cdot(u^{49}+15u^{47}+\cdots+3u+1)(u^{60}-u^{59}+\cdots-3670u+2669)$
c_5, c_8	$(u^{34}+u^{32}+\cdots+14u^2+1)(u^{40}+3u^{38}+\cdots+52u+17)$ $\cdot(u^{49}-13u^{47}+\cdots+45u^2+1)(u^{60}+5u^{59}+\cdots+62u+113)$
c_6, c_{10}	$(u^{34}+17u^{32}+\cdots+u+1)(u^{40}+15u^{38}+\cdots+58u+1)$ $\cdot(u^{49}+15u^{47}+\cdots+3u+1)(u^{60}-u^{59}+\cdots-3670u+2669)$
c_7	$(u^4+u^2+u+1)^{10}(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^{10}$ $\cdot(u^{34}+9u^{32}+\cdots+5u^2+1)(u^{49}+11u^{48}+\cdots+336u+32)$
c_9	$((u^5-u^4+2u^3-u^2+u-1)^{20})(u^{34}+7u^{33}+\cdots+7u+2)$ $\cdot(u^{49}+24u^{48}+\cdots+20992u+1024)$
c_{12}	$((u^5-u^4+2u^3-u^2+u-1)^{20})(u^{34}-7u^{33}+\cdots-7u+2)$ $\cdot(u^{49}+24u^{48}+\cdots+20992u+1024)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^4+2y^3+7y^2+5y+1)^{10}(y^6-y^5+4y^4-2y^3+8y^2+1)^{10}$ $\cdot(y^{34}+6y^{33}+\cdots+6y+1)(y^{49}+7y^{48}+\cdots+3342336y-1048576)$
c_2, c_7	$(y^4+2y^3+3y^2+y+1)^{10}(y^6+3y^5+4y^4+2y^3+1)^{10}$ $\cdot(y^{34}+18y^{33}+\cdots+10y+1)(y^{49}+23y^{48}+\cdots-2304y-1024)$
c_3	$(y^3-y^2+2y-1)^{20}(y^4-y^3+2y^2+7y+4)^{10}$ $\cdot(y^{34}-6y^{33}+\cdots+35y+4)$ $\cdot(y^{49}-9y^{48}+\cdots+105434251264y-37953273856)$
c_4, c_6, c_{10} c_{11}	$(y^{34}+34y^{33}+\cdots+25y+1)(y^{40}+30y^{39}+\cdots+2452y+1)$ $\cdot(y^{49}+30y^{48}+\cdots-7y-1)$ $\cdot(y^{60}+45y^{59}+\cdots+201780612y+7123561)$
c_5, c_8	$(y^{34}+2y^{33}+\cdots+28y+1)(y^{40}+6y^{39}+\cdots-7260y+289)$ $\cdot(y^{49}-26y^{48}+\cdots-90y-1)(y^{60}+9y^{59}+\cdots+482056y+12769)$
c_9, c_{12}	$((y^5+3y^4+4y^3+y^2-y-1)^{20})(y^{34}+15y^{33}+\cdots+91y+4)$ $\cdot(y^{49}+18y^{48}+\cdots-13893632y-1048576)$