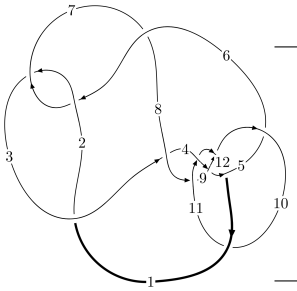
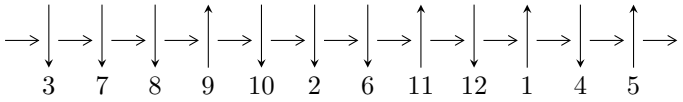
$12a_{0496}$ $(K12a_{0496})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1734730u^{63} + 7359550u^{62} + \cdots + 238897b + 11914608,$$
$$\quad -8636494u^{63} + 40140921u^{62} + \cdots + 1672279a + 84242322,\ u^{64} - 5u^{63} + \cdots - 46u + 7\rangle$$
$$I_2^u = \langle 150u^{46}a - 680138u^{46} + \cdots - 95994a - 523234,\ -6u^{46}a + 4u^{46} + \cdots + 2a - 4,$$
$$\quad u^{47} + 2u^{46} + \cdots + 6u^2 - 1\rangle$$
$$I_3^u = \langle 2u^{19} - 3u^{18} + \cdots + b - 3,\ 2u^{19} - 2u^{18} + \cdots + a - 1,\ u^{20} - 2u^{19} + \cdots - 2u + 1\rangle$$
$$I_4^u = \langle -2u^2 + b - u + 1,\ -2u^2 + a - u,\ u^3 + u^2 - 1\rangle$$
$$I_5^u = \langle -u^2 + b - 2u,\ -u^2 + a - u + 1,\ u^3 + u^2 - 1\rangle$$

$$I_1^v = \langle a,\ b - 1,\ v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 185 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.

$\boldsymbol{I_1^u = \langle -1.73\times 10^6 u^{63} + 7.36\times 10^6 u^{62} + \cdots + 2.39\times 10^5 b + 1.19\times 10^7,\ -8.64\times 10^6 u^{63} + 4.01\times 10^7 u^{62} + \cdots + 1.67\times 10^6 a + 8.42\times 10^7,\ u^{64} - 5u^{63} + \cdots - 46u + 7\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 5.16451u^{63} - 24.0037u^{62} + \cdots + 303.319u - 50.3758 \\ 7.26141u^{63} - 30.8064u^{62} + \cdots + 292.630u - 49.8734 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2.48151u^{63} - 20.2200u^{62} + \cdots + 322.081u - 53.6177 \\ -7.81243u^{63} + 18.6263u^{62} + \cdots + 60.5318u - 17.3706 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^3 \\ -u^3+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^8+u^6-u^4+1 \\ -u^8+2u^6-2u^4+2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 16.0754u^{63} - 59.9879u^{62} + \cdots + 275.423u - 35.9390 \\ 18.6758u^{63} - 76.4973u^{62} + \cdots + 561.005u - 87.3529 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 3.22947u^{63} - 27.3703u^{62} + \cdots + 454.241u - 78.3087 \\ -10.5895u^{63} + 24.5239u^{62} + \cdots + 149.285u - 35.7643 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.61568u^{63} - 11.2817u^{62} + \cdots + 143.423u - 21.8542 \\ 1.79666u^{63} - 8.38758u^{62} + \cdots + 99.4670u - 18.3098 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{185551}{238897}u^{63} + \frac{3341470}{238897}u^{62} + \cdots - \frac{143830148}{238897}u + \frac{29363823}{238897}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{64} + 23u^{63} + \cdots + 464u + 49$
c_2, c_6	$u^{64} - 5u^{63} + \cdots - 46u + 7$
c_3	$u^{64} + 7u^{63} + \cdots - 34358u + 14287$
c_4, c_{12}	$u^{64} + 3u^{63} + \cdots - u - 1$
c_5, c_{11}	$u^{64} + 2u^{63} + \cdots - 2u + 1$
c_8, c_{10}	$u^{64} - 10u^{63} + \cdots + 14u + 1$
c_9	$u^{64} - 34u^{63} + \cdots + 22u - 7$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{64} + 41y^{63} + \cdots + 127704y + 2401$
c_2, c_6	$y^{64} - 23y^{63} + \cdots - 464y + 49$
c_3	$y^{64} - 21y^{63} + \cdots - 4975613696y + 204118369$
c_4, c_{12}	$y^{64} - 35y^{63} + \cdots - 77y + 1$
c_5, c_{11}	$y^{64} - 14y^{63} + \cdots - 14y + 1$
c_8, c_{10}	$y^{64} - 26y^{63} + \cdots - 118y + 1$
c_9	$y^{64} + 22y^{62} + \cdots - 946y + 49$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.697962+0.708130I$ $a=-1.67956-1.76520I$ $b=-0.852517-0.546831I$	$3.23555-0.09263I$	0
$u=-0.697962-0.708130I$ $a=-1.67956+1.76520I$ $b=-0.852517+0.546831I$	$3.23555+0.09263I$	0
$u=1.00820$ $a=1.45537$ $b=2.94663$	-1.74441	-5.99190
$u=0.639156+0.782956I$ $a=-1.10014+2.11562I$ $b=-1.50171+1.10683I$	$2.98257+5.54336I$	$0.-6.27222I$
$u=0.639156-0.782956I$ $a=-1.10014-2.11562I$ $b=-1.50171-1.10683I$	$2.98257-5.54336I$	$0.+6.27222I$
$u=0.728093+0.711367I$ $a=0.68572+1.76281I$ $b=-0.46330+1.96744I$	$3.52720-0.00884I$	0
$u=0.728093-0.711367I$ $a=0.68572-1.76281I$ $b=-0.46330-1.96744I$	$3.52720+0.00884I$	0
$u=0.572354+0.786065I$ $a=-0.051150+0.959296I$ $b=-0.059433+0.598116I$	$2.29221+1.37861I$	$3.68261-1.26528I$
$u=0.572354-0.786065I$ $a=-0.051150-0.959296I$ $b=-0.059433-0.598116I$	$2.29221-1.37861I$	$3.68261+1.26528I$
$u=0.804285+0.524113I$ $a=0.190288-1.042600I$ $b=1.091820-0.891582I$	$1.03742-3.37211I$	$-1.80469+6.78145I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.804285 - 0.524113I$ $a = 0.190288 + 1.042600I$ $b = 1.091820 + 0.891582I$	$1.03742 + 3.37211I$	$-1.80469 - 6.78145I$
$u = 0.634325 + 0.833636I$ $a = 1.54312 - 2.00028I$ $b = 1.54828 - 0.43921I$	$1.2900 + 14.4309I$	0
$u = 0.634325 - 0.833636I$ $a = 1.54312 + 2.00028I$ $b = 1.54828 + 0.43921I$	$1.2900 - 14.4309I$	0
$u = -0.932588 + 0.007398I$ $a = 0.415698 + 0.467945I$ $b = -0.186759 - 0.248263I$	$-1.339460 + 0.449150I$	$-6.56145 - 1.67611I$
$u = -0.932588 - 0.007398I$ $a = 0.415698 - 0.467945I$ $b = -0.186759 + 0.248263I$	$-1.339460 - 0.449150I$	$-6.56145 + 1.67611I$
$u = -1.071850 + 0.068659I$ $a = 0.669015 + 1.069670I$ $b = 1.293700 + 0.264092I$	$-2.98372 + 5.03113I$	0
$u = -1.071850 - 0.068659I$ $a = 0.669015 - 1.069670I$ $b = 1.293700 - 0.264092I$	$-2.98372 - 5.03113I$	0
$u = 1.07680$ $a = -0.786660$ $b = -1.75843$	-6.33617	-14.1800
$u = -0.592507 + 0.702795I$ $a = 0.752269 + 0.978771I$ $b = 0.174748 + 0.081898I$	$-1.043970 - 0.946914I$	$-6.98595 + 0.I$
$u = -0.592507 - 0.702795I$ $a = 0.752269 - 0.978771I$ $b = 0.174748 - 0.081898I$	$-1.043970 + 0.946914I$	$-6.98595 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.736786 + 0.817581I$ $a = 0.149009 - 1.133040I$ $b = 0.832202 - 0.663254I$	$4.13608 - 1.87912I$	0
$u = 0.736786 - 0.817581I$ $a = 0.149009 + 1.133040I$ $b = 0.832202 + 0.663254I$	$4.13608 + 1.87912I$	0
$u = -1.117060 + 0.109814I$ $a = -0.807439 - 0.795984I$ $b = -2.03240 - 0.10781I$	$-5.2527 + 13.7489I$	0
$u = -1.117060 - 0.109814I$ $a = -0.807439 + 0.795984I$ $b = -2.03240 + 0.10781I$	$-5.2527 - 13.7489I$	0
$u = -0.856164 + 0.736535I$ $a = -0.84854 - 2.26839I$ $b = -1.46492 - 1.86228I$	$6.33526 + 4.44087I$	0
$u = -0.856164 - 0.736535I$ $a = -0.84854 + 2.26839I$ $b = -1.46492 + 1.86228I$	$6.33526 - 4.44087I$	0
$u = -0.868762 + 0.731876I$ $a = -2.00888 - 1.13797I$ $b = -2.31883 - 0.53167I$	$6.29588 + 1.13543I$	0
$u = -0.868762 - 0.731876I$ $a = -2.00888 + 1.13797I$ $b = -2.31883 + 0.53167I$	$6.29588 - 1.13543I$	0
$u = -1.15307$ $a = 0.601343$ $b = 0.930830$	-3.58190	0
$u = 0.986087 + 0.603160I$ $a = 0.759306 - 0.700975I$ $b = 0.609793 + 0.181630I$	$0.175719 - 1.083750I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.986087 - 0.603160I$ $a = 0.759306 + 0.700975I$ $b = 0.609793 - 0.181630I$	$0.175719 + 1.083750I$	0
$u = 1.062550 + 0.468285I$ $a = -0.200162 + 0.267131I$ $b = -1.041540 + 0.047587I$	$-1.95009 - 8.80692I$	0
$u = 1.062550 - 0.468285I$ $a = -0.200162 - 0.267131I$ $b = -1.041540 - 0.047587I$	$-1.95009 + 8.80692I$	0
$u = -0.846265 + 0.805401I$ $a = 1.84643 + 0.87650I$ $b = 1.95412 - 0.27824I$	$6.28695 - 5.68542I$	0
$u = -0.846265 - 0.805401I$ $a = 1.84643 - 0.87650I$ $b = 1.95412 + 0.27824I$	$6.28695 + 5.68542I$	0
$u = 1.044360 + 0.535925I$ $a = -0.297767 - 0.010643I$ $b = 0.287388 - 1.086830I$	$-2.64693 + 6.82839I$	0
$u = 1.044360 - 0.535925I$ $a = -0.297767 + 0.010643I$ $b = 0.287388 + 1.086830I$	$-2.64693 - 6.82839I$	0
$u = 0.965327 + 0.681396I$ $a = -1.83686 - 0.09440I$ $b = -1.57566 - 1.07217I$	$2.80623 - 5.34875I$	0
$u = 0.965327 - 0.681396I$ $a = -1.83686 + 0.09440I$ $b = -1.57566 + 1.07217I$	$2.80623 + 5.34875I$	0
$u = -0.982823 + 0.674637I$ $a = -1.31717 - 1.51958I$ $b = -2.48194 - 2.08681I$	$2.37380 + 5.42471I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.982823-0.674637I$ $a=-1.31717+1.51958I$ $b=-2.48194+2.08681I$	$2.37380-5.42471I$	0
$u=-1.172950+0.233278I$ $a=-0.046370+0.198660I$ $b=\ \ 0.219915+0.658412I$	$-3.53632-1.31927I$	0
$u=-1.172950-0.233278I$ $a=-0.046370-0.198660I$ $b=\ \ 0.219915-0.658412I$	$-3.53632+1.31927I$	0
$u=-0.904136+0.786401I$ $a=\ \ 0.45867+2.05749I$ $b=\ \ 1.62123+1.88253I$	$6.10887+11.63470I$	0
$u=-0.904136-0.786401I$ $a=\ \ 0.45867-2.05749I$ $b=\ \ 1.62123-1.88253I$	$6.10887-11.63470I$	0
$u=-1.016970+0.654432I$ $a=\ \ 0.747567+0.699678I$ $b=\ \ 1.53161+1.07598I$	$-2.27025+6.19345I$	0
$u=-1.016970-0.654432I$ $a=\ \ 0.747567-0.699678I$ $b=\ \ 1.53161-1.07598I$	$-2.27025-6.19345I$	0
$u=\ \ 0.303108+0.722084I$ $a=\ \ 0.781154-0.316034I$ $b=-0.878500+0.638191I$	$-0.52027-11.41630I$	$-2.49256+8.08162I$
$u=\ \ 0.303108-0.722084I$ $a=\ \ 0.781154+0.316034I$ $b=-0.878500-0.638191I$	$-0.52027+11.41630I$	$-2.49256-8.08162I$
$u=\ \ 0.981513+0.732663I$ $a=\ \ 1.019970-0.631499I$ $b=\ \ 1.48785-0.02952I$	$3.38294-3.93081I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.981513 - 0.732663I$ $a = 1.019970 + 0.631499I$ $b = 1.48785 + 0.02952I$	$3.38294 + 3.93081I$	0
$u = 0.154501 + 0.750893I$ $a = 0.336028 + 0.604708I$ $b = -0.436498 - 0.329752I$	$0.75067 + 4.55551I$	$2.40157 - 10.29146I$
$u = 0.154501 - 0.750893I$ $a = 0.336028 - 0.604708I$ $b = -0.436498 + 0.329752I$	$0.75067 - 4.55551I$	$2.40157 + 10.29146I$
$u = 1.023840 + 0.691795I$ $a = -1.96311 + 1.54995I$ $b = -2.78367 + 1.14339I$	$1.82985 - 11.12330I$	0
$u = 1.023840 - 0.691795I$ $a = -1.96311 - 1.54995I$ $b = -2.78367 - 1.14339I$	$1.82985 + 11.12330I$	0
$u = 1.052550 + 0.676673I$ $a = -0.954979 + 0.296922I$ $b = -1.312160 + 0.307764I$	$0.87367 - 6.91136I$	0
$u = 1.052550 - 0.676673I$ $a = -0.954979 - 0.296922I$ $b = -1.312160 - 0.307764I$	$0.87367 + 6.91136I$	0
$u = 1.043210 + 0.709927I$ $a = 1.67256 - 1.84369I$ $b = 2.98654 - 1.78795I$	$0.0504 - 20.2068I$	0
$u = 1.043210 - 0.709927I$ $a = 1.67256 + 1.84369I$ $b = 2.98654 + 1.78795I$	$0.0504 + 20.2068I$	0
$u = 0.361556 + 0.559052I$ $a = -0.400060 - 0.573207I$ $b = 1.044170 - 0.600052I$	$1.50411 - 3.41073I$	$3.06252 + 7.09437I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.361556 - 0.559052I$ $a = -0.400060 + 0.573207I$ $b = 1.044170 + 0.600052I$	$1.50411 + 3.41073I$	$3.06252 - 7.09437I$
$u = -0.640733$ $a = 0.559622$ $b = -0.336776$	-0.999154	-9.88350
$u = 0.320846 + 0.345616I$ $a = 0.856259 - 0.836701I$ $b = 0.815333 + 0.325629I$	$1.85294 + 0.24098I$	$3.67461 + 0.64977I$
$u = 0.320846 - 0.345616I$ $a = 0.856259 + 0.836701I$ $b = 0.815333 - 0.325629I$	$1.85294 - 0.24098I$	$3.67461 - 0.64977I$

II. $\boldsymbol{I_2^u = \langle 150u^{46}a - 680138u^{46} + \cdots - 95994a - 523234,\ -6u^{46}a + 4u^{46} + \cdots + 2a - 4,\ u^{47} + 2u^{46} + \cdots + 6u^2 - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ -0.000413819au^{46} + 1.87636u^{46} + \cdots + 0.264828a + 1.44350 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.312516au^{46} - 2.77156u^{46} + \cdots + 1.59798a + 2.72797 \\ 0.149146au^{46} - 1.41248u^{46} + \cdots + 0.312516a + 4.77156 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^8 + u^6 - u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 + 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.368892au^{46} + 0.918130u^{46} + \cdots + 1.87636a + 1.91354 \\ -0.640937au^{46} + 1.83838u^{46} + \cdots + 1.17418a + 1.06763 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.205293au^{46} - 2.92275u^{46} + \cdots + 1.65932a + 1.52194 \\ 0.251020au^{46} - 1.41523u^{46} + \cdots + 0.0771994a + 3.97178 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.503113au^{46} + 2.92316u^{46} + \cdots + 2.81239a - 1.78677 \\ -0.111028au^{46} + 2.22787u^{46} + \cdots + 1.45331a - 3.31010 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{46} - 6u^{45} + \cdots - 25u - 17$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^{47} + 16u^{46} + \cdots + 12u + 1)^2$
c_2, c_6	$(u^{47} + 2u^{46} + \cdots + 6u^2 - 1)^2$
c_3	$(u^{47} - 2u^{46} + \cdots + 122u - 37)^2$
c_4, c_{12}	$u^{94} + 10u^{92} + \cdots - 7u + 1$
c_5, c_{11}	$u^{94} - 4u^{92} + \cdots - 18201u + 761$
c_8, c_{10}	$u^{94} + 7u^{93} + \cdots + 74u + 19$
c_9	$(u^{47} + 23u^{46} + \cdots + 12u + 8)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{47} + 32y^{46} + \cdots + 12y - 1)^2$
c_2, c_6	$(y^{47} - 16y^{46} + \cdots + 12y - 1)^2$
c_3	$(y^{47} - 16y^{46} + \cdots + 37824y - 1369)^2$
c_4, c_{12}	$y^{94} + 20y^{93} + \cdots + 9y + 1$
c_5, c_{11}	$y^{94} - 8y^{93} + \cdots - 190343767y + 579121$
c_8, c_{10}	$y^{94} + 33y^{93} + \cdots - 11366y + 361$
c_9	$(y^{47} - 7y^{46} + \cdots + 1424y - 64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.776349+0.661422I$ $a=\ 0.758981+0.193716I$ $b=\ 1.77645+0.49361I$	$1.10849+5.40536I$	$-0.41152-9.36246I$
$u=-0.776349+0.661422I$ $a=\ 0.54263-3.15148I$ $b=-0.76174-2.41245I$	$1.10849+5.40536I$	$-0.41152-9.36246I$
$u=-0.776349-0.661422I$ $a=\ 0.758981-0.193716I$ $b=\ 1.77645-0.49361I$	$1.10849-5.40536I$	$-0.41152+9.36246I$
$u=-0.776349-0.661422I$ $a=\ 0.54263+3.15148I$ $b=-0.76174+2.41245I$	$1.10849-5.40536I$	$-0.41152+9.36246I$
$u=\ 1.019790+0.092510I$ $a=\ 0.68972-1.40592I$ $b=\ 1.70152-0.86662I$	$-2.43130-5.51015I$	$-4.82916+8.03335I$
$u=\ 1.019790+0.092510I$ $a=\ 0.029262+0.176413I$ $b=\ 0.12157-1.45314I$	$-2.43130-5.51015I$	$-4.82916+8.03335I$
$u=\ 1.019790-0.092510I$ $a=\ 0.68972+1.40592I$ $b=\ 1.70152+0.86662I$	$-2.43130+5.51015I$	$-4.82916-8.03335I$
$u=\ 1.019790-0.092510I$ $a=\ 0.029262-0.176413I$ $b=\ 0.12157+1.45314I$	$-2.43130+5.51015I$	$-4.82916-8.03335I$
$u=\ 0.648071+0.723212I$ $a=-0.736502-0.524748I$ $b=-1.243130+0.114753I$	$-0.49007+4.87876I$	$-5.65107-6.38090I$
$u=\ 0.648071+0.723212I$ $a=-1.79929+2.64042I$ $b=-1.93267+0.81735I$	$-0.49007+4.87876I$	$-5.65107-6.38090I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.648071 - 0.723212I$ $a = -0.736502 + 0.524748I$ $b = -1.243130 - 0.114753I$	$-0.49007 - 4.87876I$	$-5.65107 + 6.38090I$
$u = 0.648071 - 0.723212I$ $a = -1.79929 - 2.64042I$ $b = -1.93267 - 0.81735I$	$-0.49007 - 4.87876I$	$-5.65107 + 6.38090I$
$u = -0.681587 + 0.784410I$ $a = -0.42546 + 2.27854I$ $b = 1.20914 + 1.53709I$	$3.54465 - 5.47609I$	$3.45857 + 5.88892I$
$u = -0.681587 + 0.784410I$ $a = -1.85767 - 1.81979I$ $b = -1.80898 - 0.69665I$	$3.54465 - 5.47609I$	$3.45857 + 5.88892I$
$u = -0.681587 - 0.784410I$ $a = -0.42546 - 2.27854I$ $b = 1.20914 - 1.53709I$	$3.54465 + 5.47609I$	$3.45857 - 5.88892I$
$u = -0.681587 - 0.784410I$ $a = -1.85767 + 1.81979I$ $b = -1.80898 + 0.69665I$	$3.54465 + 5.47609I$	$3.45857 - 5.88892I$
$u = -1.048580 + 0.022164I$ $a = 0.670100 + 0.764343I$ $b = 2.00093 - 0.27133I$	$-5.85788 + 4.38390I$	$-13.6960 - 5.4679I$
$u = -1.048580 + 0.022164I$ $a = -1.05745 + 1.50356I$ $b = -1.65854 + 1.43422I$	$-5.85788 + 4.38390I$	$-13.6960 - 5.4679I$
$u = -1.048580 - 0.022164I$ $a = 0.670100 - 0.764343I$ $b = 2.00093 + 0.27133I$	$-5.85788 - 4.38390I$	$-13.6960 + 5.4679I$
$u = -1.048580 - 0.022164I$ $a = -1.05745 - 1.50356I$ $b = -1.65854 - 1.43422I$	$-5.85788 - 4.38390I$	$-13.6960 + 5.4679I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.643340+0.833331I$ $a=-1.20226-0.85122I$ $b=-1.027200-0.118397I$	$-0.23631-6.14773I$	$-6.28409+6.42865I$
$u=-0.643340+0.833331I$ $a=\ \ 1.43841+1.82679I$ $b=\ \ 1.45781+0.21030I$	$-0.23631-6.14773I$	$-6.28409+6.42865I$
$u=-0.643340-0.833331I$ $a=-1.20226+0.85122I$ $b=-1.027200+0.118397I$	$-0.23631+6.14773I$	$-6.28409-6.42865I$
$u=-0.643340-0.833331I$ $a=\ \ 1.43841-1.82679I$ $b=\ \ 1.45781-0.21030I$	$-0.23631+6.14773I$	$-6.28409-6.42865I$
$u=\ \ 1.07542$ $a=-0.782008+0.163949I$ $b=-1.74468+0.12456I$	-6.33500	-14.0910
$u=\ \ 1.07542$ $a=-0.782008-0.163949I$ $b=-1.74468-0.12456I$	-6.33500	-14.0910
$u=\ \ 0.642944+0.643850I$ $a=-1.078100-0.664840I$ $b=\ \ 0.621290-1.023730I$	$-1.02865-3.62128I$	$-7.85432+4.03793I$
$u=\ \ 0.642944+0.643850I$ $a=\ \ 1.48670-1.74194I$ $b=\ \ 1.18147-1.47113I$	$-1.02865-3.62128I$	$-7.85432+4.03793I$
$u=\ \ 0.642944-0.643850I$ $a=-1.078100+0.664840I$ $b=\ \ 0.621290+1.023730I$	$-1.02865+3.62128I$	$-7.85432-4.03793I$
$u=\ \ 0.642944-0.643850I$ $a=\ \ 1.48670+1.74194I$ $b=\ \ 1.18147+1.47113I$	$-1.02865+3.62128I$	$-7.85432-4.03793I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.574541+0.684773I$ $a=\ 0.906959+0.595184I$ $b=\ 0.189356-0.393389I$	$-1.09201-0.99704I$	$-7.43094+0.59298I$
$u=-0.574541+0.684773I$ $a=\ 0.68672+1.27674I$ $b=\ 0.036037+0.532121I$	$-1.09201-0.99704I$	$-7.43094+0.59298I$
$u=-0.574541-0.684773I$ $a=\ 0.906959-0.595184I$ $b=\ 0.189356+0.393389I$	$-1.09201+0.99704I$	$-7.43094-0.59298I$
$u=-0.574541-0.684773I$ $a=\ 0.68672-1.27674I$ $b=\ 0.036037-0.532121I$	$-1.09201+0.99704I$	$-7.43094-0.59298I$
$u=\ 1.108130+0.117843I$ $a=\ 0.197788-0.818395I$ $b=\ 0.958445-0.713043I$	$-6.80256-5.57711I$	$-13.3130+6.5645I$
$u=\ 1.108130+0.117843I$ $a=-0.640637+0.530645I$ $b=-1.88288-0.12291I$	$-6.80256-5.57711I$	$-13.3130+6.5645I$
$u=\ 1.108130-0.117843I$ $a=\ 0.197788+0.818395I$ $b=\ 0.958445+0.713043I$	$-6.80256+5.57711I$	$-13.3130-6.5645I$
$u=\ 1.108130-0.117843I$ $a=-0.640637-0.530645I$ $b=-1.88288+0.12291I$	$-6.80256+5.57711I$	$-13.3130-6.5645I$
$u=\ 0.809770+0.776587I$ $a=\ 0.33531+1.81344I$ $b=-0.40943+1.85077I$	$5.52793-3.37748I$	$7.24336+9.19029I$
$u=\ 0.809770+0.776587I$ $a=\ 2.04613-1.57298I$ $b=\ 2.13651+0.08512I$	$5.52793-3.37748I$	$7.24336+9.19029I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.809770 - 0.776587I$ $a = 0.33531 - 1.81344I$ $b = -0.40943 - 1.85077I$	$5.52793 + 3.37748I$	$7.24336 - 9.19029I$
$u = 0.809770 - 0.776587I$ $a = 2.04613 + 1.57298I$ $b = 2.13651 - 0.08512I$	$5.52793 + 3.37748I$	$7.24336 - 9.19029I$
$u = -0.804168 + 0.325690I$ $a = 1.032170 + 0.238929I$ $b = 0.199742 - 0.568143I$	$-0.561606 - 0.847966I$	$-6.35285 + 0.66182I$
$u = -0.804168 + 0.325690I$ $a = -0.424709 + 0.510863I$ $b = -1.48737 + 0.88084I$	$-0.561606 - 0.847966I$	$-6.35285 + 0.66182I$
$u = -0.804168 - 0.325690I$ $a = 1.032170 - 0.238929I$ $b = 0.199742 + 0.568143I$	$-0.561606 + 0.847966I$	$-6.35285 - 0.66182I$
$u = -0.804168 - 0.325690I$ $a = -0.424709 - 0.510863I$ $b = -1.48737 - 0.88084I$	$-0.561606 + 0.847966I$	$-6.35285 - 0.66182I$
$u = -0.938082 + 0.646765I$ $a = 0.267718 + 1.012250I$ $b = -0.225138 + 0.137298I$	$0.600942 - 0.316659I$	$-1.40018 + 2.53507I$
$u = -0.938082 + 0.646765I$ $a = -2.64915 - 0.16749I$ $b = -3.17830 + 1.10512I$	$0.600942 - 0.316659I$	$-1.40018 + 2.53507I$
$u = -0.938082 - 0.646765I$ $a = 0.267718 - 1.012250I$ $b = -0.225138 - 0.137298I$	$0.600942 + 0.316659I$	$-1.40018 - 2.53507I$
$u = -0.938082 - 0.646765I$ $a = -2.64915 + 0.16749I$ $b = -3.17830 - 1.10512I$	$0.600942 + 0.316659I$	$-1.40018 - 2.53507I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.029320+0.521102I$ $a=-0.235544+0.360586I$ $b=\ \ 0.352893+1.295700I$	$-4.35818+1.21721I$	$-12.24472-0.73106I$
$u=-1.029320+0.521102I$ $a=\ \ 0.303321+0.053585I$ $b=-0.374463-0.238009I$	$-4.35818+1.21721I$	$-12.24472-0.73106I$
$u=-1.029320-0.521102I$ $a=-0.235544-0.360586I$ $b=\ \ 0.352893-1.295700I$	$-4.35818-1.21721I$	$-12.24472+0.73106I$
$u=-1.029320-0.521102I$ $a=\ \ 0.303321-0.053585I$ $b=-0.374463+0.238009I$	$-4.35818-1.21721I$	$-12.24472+0.73106I$
$u=\ \ 0.993847+0.647375I$ $a=\ \ 0.845776+0.381787I$ $b=\ \ 0.25649+1.68941I$	$-2.06171-1.47775I$	$-9.32770+1.15281I$
$u=\ \ 0.993847+0.647375I$ $a=\ \ 1.69546-1.77990I$ $b=\ \ 2.04398-1.89942I$	$-2.06171-1.47775I$	$-9.32770+1.15281I$
$u=\ \ 0.993847-0.647375I$ $a=\ \ 0.845776-0.381787I$ $b=\ \ 0.25649-1.68941I$	$-2.06171+1.47775I$	$-9.32770-1.15281I$
$u=\ \ 0.993847-0.647375I$ $a=\ \ 1.69546+1.77990I$ $b=\ \ 2.04398+1.89942I$	$-2.06171+1.47775I$	$-9.32770-1.15281I$
$u=\ \ 0.927543+0.748868I$ $a=-1.71080-0.09887I$ $b=-1.58120-0.72712I$	$5.16961-2.37615I$	$6.79993-5.84948I$
$u=\ \ 0.927543+0.748868I$ $a=\ \ 0.90921-2.19048I$ $b=\ \ 2.50095-2.03389I$	$5.16961-2.37615I$	$6.79993-5.84948I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.927543 - 0.748868I$ $a = -1.71080 + 0.09887I$ $b = -1.58120 + 0.72712I$	$5.16961 + 2.37615I$	$6.79993 + 5.84948I$
$u = 0.927543 - 0.748868I$ $a = 0.90921 + 2.19048I$ $b = 2.50095 + 2.03389I$	$5.16961 + 2.37615I$	$6.79993 + 5.84948I$
$u = 0.881371 + 0.803017I$ $a = -0.165659 + 0.325119I$ $b = -0.222654 + 0.344546I$	$4.05779 - 2.99996I$	$-17.5576 + 5.0015I$
$u = 0.881371 + 0.803017I$ $a = 0.96433 - 1.49953I$ $b = 1.88261 - 0.69916I$	$4.05779 - 2.99996I$	$-17.5576 + 5.0015I$
$u = 0.881371 - 0.803017I$ $a = -0.165659 - 0.325119I$ $b = -0.222654 - 0.344546I$	$4.05779 + 2.99996I$	$-17.5576 - 5.0015I$
$u = 0.881371 - 0.803017I$ $a = 0.96433 + 1.49953I$ $b = 1.88261 + 0.69916I$	$4.05779 + 2.99996I$	$-17.5576 - 5.0015I$
$u = -1.013000 + 0.648985I$ $a = 0.219984 + 0.625623I$ $b = 1.04442 + 1.12606I$	$-2.32658 + 6.17353I$	$-9.42839 - 5.54710I$
$u = -1.013000 + 0.648985I$ $a = 1.22370 + 0.78552I$ $b = 1.87218 + 1.11325I$	$-2.32658 + 6.17353I$	$-9.42839 - 5.54710I$
$u = -1.013000 - 0.648985I$ $a = 0.219984 - 0.625623I$ $b = 1.04442 - 1.12606I$	$-2.32658 - 6.17353I$	$-9.42839 + 5.54710I$
$u = -1.013000 - 0.648985I$ $a = 1.22370 - 0.78552I$ $b = 1.87218 - 1.11325I$	$-2.32658 - 6.17353I$	$-9.42839 + 5.54710I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.005010 + 0.672828I$ $a = 0.372572 + 1.043990I$ $b = 0.911748 + 0.658883I$	$-1.54872 - 10.24500I$	$-7.55162 + 10.89875I$
$u = 1.005010 + 0.672828I$ $a = -2.02921 + 2.22835I$ $b = -3.53175 + 1.94128I$	$-1.54872 - 10.24500I$	$-7.55162 + 10.89875I$
$u = 1.005010 - 0.672828I$ $a = 0.372572 - 1.043990I$ $b = 0.911748 - 0.658883I$	$-1.54872 + 10.24500I$	$-7.55162 - 10.89875I$
$u = 1.005010 - 0.672828I$ $a = -2.02921 - 2.22835I$ $b = -3.53175 - 1.94128I$	$-1.54872 + 10.24500I$	$-7.55162 - 10.89875I$
$u = -1.006600 + 0.704989I$ $a = 2.21682 + 0.31076I$ $b = 2.76853 - 1.14567I$	$2.56157 + 11.10870I$	$0. - 10.69982I$
$u = -1.006600 + 0.704989I$ $a = -1.58865 - 2.12298I$ $b = -2.56665 - 2.07037I$	$2.56157 + 11.10870I$	$0. - 10.69982I$
$u = -1.006600 - 0.704989I$ $a = 2.21682 - 0.31076I$ $b = 2.76853 + 1.14567I$	$2.56157 - 11.10870I$	$0. + 10.69982I$
$u = -1.006600 - 0.704989I$ $a = -1.58865 + 2.12298I$ $b = -2.56665 + 2.07037I$	$2.56157 - 11.10870I$	$0. + 10.69982I$
$u = -0.276974 + 0.708893I$ $a = 0.995607 + 0.328280I$ $b = -0.612898 - 0.567032I$	$-2.20701 + 3.21583I$	$-8.52754 - 5.71295I$
$u = -0.276974 + 0.708893I$ $a = -0.096933 - 0.250118I$ $b = 0.332782 + 0.564920I$	$-2.20701 + 3.21583I$	$-8.52754 - 5.71295I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.276974-0.708893I$ $a=\ \ 0.995607-0.328280I$ $b=-0.612898+0.567032I$	$-2.20701-3.21583I$	$-8.52754+5.71295I$
$u=-0.276974-0.708893I$ $a=-0.096933+0.250118I$ $b=\ \ 0.332782-0.564920I$	$-2.20701-3.21583I$	$-8.52754+5.71295I$
$u=-1.039600+0.713019I$ $a=-0.72514-1.39716I$ $b=-1.38896-1.50717I$	$-1.43938+11.93490I$	$-7.71369-10.76632I$
$u=-1.039600+0.713019I$ $a=\ \ 1.43644+1.73632I$ $b=\ \ 2.81521+1.68606I$	$-1.43938+11.93490I$	$-7.71369-10.76632I$
$u=-1.039600-0.713019I$ $a=-0.72514+1.39716I$ $b=-1.38896+1.50717I$	$-1.43938-11.93490I$	$-7.71369+10.76632I$
$u=-1.039600-0.713019I$ $a=\ \ 1.43644-1.73632I$ $b=\ \ 2.81521-1.68606I$	$-1.43938-11.93490I$	$-7.71369+10.76632I$
$u=-0.169763+0.526481I$ $a=-0.621754-0.410489I$ $b=\ \ 0.870560+0.773366I$	$1.28051+3.72235I$	$3.63725-7.32254I$
$u=-0.169763+0.526481I$ $a=\ \ 1.34819-1.75846I$ $b=-0.644969-0.030356I$	$1.28051+3.72235I$	$3.63725-7.32254I$
$u=-0.169763-0.526481I$ $a=-0.621754+0.410489I$ $b=\ \ 0.870560-0.773366I$	$1.28051-3.72235I$	$3.63725+7.32254I$
$u=-0.169763-0.526481I$ $a=\ \ 1.34819+1.75846I$ $b=-0.644969+0.030356I$	$1.28051-3.72235I$	$3.63725+7.32254I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.427714 + 0.128339I$ $a = 0.96062 - 1.18896I$ $b = -0.45366 - 1.58721I$	$-1.40151 - 3.87082I$	$-11.36079 + 7.52746I$
$u = 0.427714 + 0.128339I$ $a = -2.25370 - 2.21196I$ $b = 0.494622 - 0.881617I$	$-1.40151 - 3.87082I$	$-11.36079 + 7.52746I$
$u = 0.427714 - 0.128339I$ $a = 0.96062 + 1.18896I$ $b = -0.45366 + 1.58721I$	$-1.40151 + 3.87082I$	$-11.36079 - 7.52746I$
$u = 0.427714 - 0.128339I$ $a = -2.25370 + 2.21196I$ $b = 0.494622 + 0.881617I$	$-1.40151 + 3.87082I$	$-11.36079 - 7.52746I$

III.

$\boldsymbol{I_3^u = \langle 2u^{19}-3u^{18}+\cdots+b-3,\ 2u^{19}-2u^{18}+\cdots+a-1,\ u^{20}-2u^{19}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2+1 \\ -u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2u^{19}+2u^{18}+\cdots-4u+1 \\ -2u^{19}+3u^{18}+\cdots-4u+3 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -5u^{19}+4u^{18}+\cdots-8u+2 \\ -6u^{19}+7u^{18}+\cdots-8u+5 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -u^3 \\ -u^3+u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^8+u^6-u^4+1 \\ -u^8+2u^6-2u^4+2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 3u^{19}-6u^{18}+\cdots+7u-4 \\ -3u^{18}+u^{17}+\cdots+2u-3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -3u^{19}+3u^{18}+\cdots-5u+2 \\ -3u^{19}+4u^{18}+\cdots-5u+3 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2u^{19}+8u^{17}+\cdots-u-2 \\ -4u^{19}+4u^{18}+\cdots-5u+2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= 17u^{19}-22u^{18}-55u^{17}+85u^{16}+124u^{15}-210u^{14}-184u^{13}+368u^{12}+178u^{11}-463u^{10}-107u^9+450u^8-8u^7-291u^6+62u^5+123u^4-47u^3-26u^2+33u-20$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} - 8u^{19} + \cdots + 2u + 1$
c_2	$u^{20} - 2u^{19} + \cdots - 2u + 1$
c_3	$u^{20} - u^{18} + \cdots - 3u^2 + 1$
c_4, c_{12}	$u^{20} - 2u^{19} + \cdots - u + 1$
c_5, c_{11}	$u^{20} + u^{19} + \cdots + 2u + 1$
c_6	$u^{20} + 2u^{19} + \cdots + 2u + 1$
c_7	$u^{20} + 8u^{19} + \cdots - 2u + 1$
c_8, c_{10}	$u^{20} + 5u^{19} + \cdots + 4u + 1$
c_9	$u^{20} - 15u^{19} + \cdots - 348u + 25$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{20} + 12y^{19} + \cdots - 14y + 1$
c_2, c_6	$y^{20} - 8y^{19} + \cdots + 2y + 1$
c_3	$y^{20} - 2y^{19} + \cdots - 6y + 1$
c_4, c_{12}	$y^{20} + 4y^{19} + \cdots + 5y + 1$
c_5, c_{11}	$y^{20} + 5y^{19} + \cdots + 4y + 1$
c_8, c_{10}	$y^{20} + 17y^{19} + \cdots + 20y + 1$
c_9	$y^{20} + 7y^{19} + \cdots - 9504y + 625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.666143 + 0.783105I$ $a = -1.27315 + 1.74718I$ $b = -1.67471 + 0.68682I$	$1.76978 + 5.48057I$	$-2.80463 - 5.80608I$
$u = 0.666143 - 0.783105I$ $a = -1.27315 - 1.74718I$ $b = -1.67471 - 0.68682I$	$1.76978 - 5.48057I$	$-2.80463 + 5.80608I$
$u = -1.040020 + 0.070690I$ $a = 0.193110 + 1.103820I$ $b = 0.906546 + 0.225670I$	$-4.13829 + 5.28856I$	$-10.94237 - 7.77287I$
$u = -1.040020 - 0.070690I$ $a = 0.193110 - 1.103820I$ $b = 0.906546 - 0.225670I$	$-4.13829 - 5.28856I$	$-10.94237 + 7.77287I$
$u = 0.714204 + 0.615617I$ $a = 0.21064 - 1.74863I$ $b = 1.41852 - 1.64526I$	$-0.02013 - 4.56194I$	$-4.71384 + 7.99241I$
$u = 0.714204 - 0.615617I$ $a = 0.21064 + 1.74863I$ $b = 1.41852 + 1.64526I$	$-0.02013 + 4.56194I$	$-4.71384 - 7.99241I$
$u = -0.698035 + 0.580142I$ $a = -0.27138 + 1.49983I$ $b = -0.520510 + 0.448149I$	$-0.17060 - 2.73692I$	$-3.32837 + 3.91179I$
$u = -0.698035 - 0.580142I$ $a = -0.27138 - 1.49983I$ $b = -0.520510 - 0.448149I$	$-0.17060 + 2.73692I$	$-3.32837 - 3.91179I$
$u = 1.120920 + 0.219372I$ $a = -0.035895 + 0.344729I$ $b = -0.332239 + 0.792126I$	$-3.60919 + 1.16294I$	$-14.7378 + 11.3130I$
$u = 1.120920 - 0.219372I$ $a = -0.035895 - 0.344729I$ $b = -0.332239 - 0.792126I$	$-3.60919 - 1.16294I$	$-14.7378 - 11.3130I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.972477 + 0.632866I$ $a = 1.46152 - 0.77839I$ $b = 1.301680 + 0.237230I$	$-0.839247 - 0.384926I$	$-6.85126 - 2.25388I$
$u = 0.972477 - 0.632866I$ $a = 1.46152 + 0.77839I$ $b = 1.301680 - 0.237230I$	$-0.839247 + 0.384926I$	$-6.85126 + 2.25388I$
$u = -0.991864 + 0.607465I$ $a = 0.928383 - 0.088421I$ $b = 1.70546 - 0.09808I$	$-1.12841 + 7.50023I$	$-4.46736 - 9.20296I$
$u = -0.991864 - 0.607465I$ $a = 0.928383 + 0.088421I$ $b = 1.70546 + 0.09808I$	$-1.12841 - 7.50023I$	$-4.46736 + 9.20296I$
$u = -0.869777 + 0.801650I$ $a = -0.679339 - 1.075670I$ $b = -1.202540 - 0.582098I$	$4.47518 + 2.98841I$	$6.85305 - 4.79073I$
$u = -0.869777 - 0.801650I$ $a = -0.679339 + 1.075670I$ $b = -1.202540 + 0.582098I$	$4.47518 - 2.98841I$	$6.85305 + 4.79073I$
$u = 1.013830 + 0.698724I$ $a = -1.55497 + 1.69525I$ $b = -2.43716 + 1.26705I$	$0.71948 - 11.08790I$	$-5.09964 + 10.57150I$
$u = 1.013830 - 0.698724I$ $a = -1.55497 - 1.69525I$ $b = -2.43716 - 1.26705I$	$0.71948 + 11.08790I$	$-5.09964 - 10.57150I$
$u = 0.112132 + 0.472540I$ $a = -1.47892 + 0.01768I$ $b = 0.334951 - 0.743675I$	$-0.34843 - 3.78733I$	$-1.90782 + 6.91613I$
$u = 0.112132 - 0.472540I$ $a = -1.47892 - 0.01768I$ $b = 0.334951 + 0.743675I$	$-0.34843 + 3.78733I$	$-1.90782 - 6.91613I$

IV. $I_4^u = \langle -2u^2 + b - u + 1,\ -2u^2 + a - u,\ u^3 + u^2 - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2 - u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-0.44728-1.86942I$ $b=-1.44728-1.86942I$	$4.66906+2.82812I$	$-0.69240-3.35914I$
$u=-0.877439-0.744862I$ $a=-0.44728+1.86942I$ $b=-1.44728+1.86942I$	$4.66906-2.82812I$	$-0.69240+3.35914I$
$u=\ 0.754878$ $a=\ 1.89456$ $b=\ 0.894558$	0.531480	-1.61520

V. $I_5^u = \langle -u^2 + b - 2u,\ -u^2 + a - u + 1,\ u^3 + u^2 - 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 - u + 1 \end{pmatrix}$$

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

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

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

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

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

$$a_5 = \begin{pmatrix} u^2 + u - 1 \\ -2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^2 + u \\ -u^2 + u + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2 - u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-1.66236-0.56228I$ $b=-1.53980+0.18258I$	$4.66906+2.82812I$	$-0.69240-3.35914I$
$u=-0.877439-0.744862I$ $a=-1.66236+0.56228I$ $b=-1.53980-0.18258I$	$4.66906-2.82812I$	$-0.69240+3.35914I$
$u=\ \ 0.754878$ $a=\ \ 0.324718$ $b=\ \ 2.07960$	0.531480	-1.61520

VI. $I_1^v = \langle a,\ b-1,\ v+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$	1.64493	6.00000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^3-u^2+2u-1)^2(u^{20}-8u^{19}+\cdots+2u+1)$ $\cdot((u^{47}+16u^{46}+\cdots+12u+1)^2)(u^{64}+23u^{63}+\cdots+464u+49)$
c_2	$u(u^3+u^2-1)^2(u^{20}-2u^{19}+\cdots-2u+1)$ $\cdot((u^{47}+2u^{46}+\cdots+6u^2-1)^2)(u^{64}-5u^{63}+\cdots-46u+7)$
c_3	$u(u^3-u^2+2u-1)^2(u^{20}-u^{18}+\cdots-3u^2+1)$ $\cdot((u^{47}-2u^{46}+\cdots+122u-37)^2)(u^{64}+7u^{63}+\cdots-34358u+14287)$
c_4, c_{12}	$(u-1)(u^3-u-1)(u^3-u^2+1)(u^{20}-2u^{19}+\cdots-u+1)$ $\cdot(u^{64}+3u^{63}+\cdots-u-1)(u^{94}+10u^{92}+\cdots-7u+1)$
c_5, c_{11}	$(u-1)(u^3-u-1)(u^3-u^2+1)(u^{20}+u^{19}+\cdots+2u+1)$ $\cdot(u^{64}+2u^{63}+\cdots-2u+1)(u^{94}-4u^{92}+\cdots-18201u+761)$
c_6	$u(u^3-u^2+1)^2(u^{20}+2u^{19}+\cdots+2u+1)$ $\cdot((u^{47}+2u^{46}+\cdots+6u^2-1)^2)(u^{64}-5u^{63}+\cdots-46u+7)$
c_7	$u(u^3+u^2+2u+1)^2(u^{20}+8u^{19}+\cdots-2u+1)$ $\cdot((u^{47}+16u^{46}+\cdots+12u+1)^2)(u^{64}+23u^{63}+\cdots+464u+49)$
c_8, c_{10}	$(u-1)(u+1)^6(u^{20}+5u^{19}+\cdots+4u+1)(u^{64}-10u^{63}+\cdots+14u+1)$ $\cdot(u^{94}+7u^{93}+\cdots+74u+19)$
c_9	$u^7(u^{20}-15u^{19}+\cdots-348u+25)(u^{47}+23u^{46}+\cdots+12u+8)^2$ $\cdot(u^{64}-34u^{63}+\cdots+22u-7)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y(y^3+3y^2+2y-1)^2(y^{20}+12y^{19}+\cdots-14y+1)$ $\cdot((y^{47}+32y^{46}+\cdots+12y-1)^2)(y^{64}+41y^{63}+\cdots+127704y+2401)$
c_2, c_6	$y(y^3-y^2+2y-1)^2(y^{20}-8y^{19}+\cdots+2y+1)$ $\cdot((y^{47}-16y^{46}+\cdots+12y-1)^2)(y^{64}-23y^{63}+\cdots-464y+49)$
c_3	$y(y^3+3y^2+2y-1)^2(y^{20}-2y^{19}+\cdots-6y+1)$ $\cdot(y^{47}-16y^{46}+\cdots+37824y-1369)^2$ $\cdot(y^{64}-21y^{63}+\cdots-4975613696y+204118369)$
c_4, c_{12}	$(y-1)(y^3-2y^2+y-1)(y^3-y^2+2y-1)(y^{20}+4y^{19}+\cdots+5y+1)$ $\cdot(y^{64}-35y^{63}+\cdots-77y+1)(y^{94}+20y^{93}+\cdots+9y+1)$
c_5, c_{11}	$(y-1)(y^3-2y^2+y-1)(y^3-y^2+2y-1)(y^{20}+5y^{19}+\cdots+4y+1)$ $\cdot(y^{64}-14y^{63}+\cdots-14y+1)$ $\cdot(y^{94}-8y^{93}+\cdots-190343767y+579121)$
c_8, c_{10}	$((y-1)^7)(y^{20}+17y^{19}+\cdots+20y+1)(y^{64}-26y^{63}+\cdots-118y+1)$ $\cdot(y^{94}+33y^{93}+\cdots-11366y+361)$
c_9	$y^7(y^{20}+7y^{19}+\cdots-9504y+625)(y^{47}-7y^{46}+\cdots+1424y-64)^2$ $\cdot(y^{64}+22y^{62}+\cdots-946y+49)$