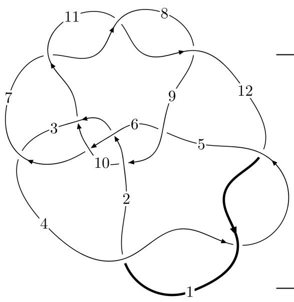
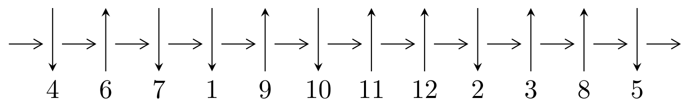
$12a_{0889}$ $(K12a_{0889})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.44342 \times 10^{568} u^{109} - 5.63890 \times 10^{568} u^{108} + \cdots + 2.52973 \times 10^{568} b - 7.41395 \times 10^{568}, \\
& - 5.01819 \times 10^{569} u^{109} + 1.42633 \times 10^{570} u^{108} + \cdots + 1.26486 \times 10^{569} a - 8.15947 \times 10^{570}, \\
& u^{110} - 3u^{109} + \cdots + 21u + 1 \rangle \\
I_2^u = \langle & -2.15930 \times 10^{15} u^{20} - 9.88518 \times 10^{15} u^{19} + \cdots + 1.08985 \times 10^{15} b - 4.65481 \times 10^{15}, \\
& - 4.00480 \times 10^{15} u^{20} - 1.80755 \times 10^{16} u^{19} + \cdots + 1.08985 \times 10^{15} a - 7.18818 \times 10^{15},\ u^{21} + 5u^{20} + \cdots + 5u - \\
I_3^u = \langle & b,\ -u^5 - 4u^4 - 5u^3 - 2u^2 + a - 2u - 3,\ u^6 + 3u^5 + 2u^4 - u^3 + u^2 + 2u - 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 137 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. $I_1^u = \langle 1.44 \times 10^{568} u^{109} - 5.64 \times 10^{568} u^{108} + \cdots + 2.53 \times 10^{568} b - 7.41 \times 10^{568},\ -5.02 \times 10^{569} u^{109} + 1.43 \times 10^{570} u^{108} + \cdots + 1.26 \times 10^{569} a - 8.16 \times 10^{570},\ u^{110} - 3u^{109} + \cdots + 21u + 1 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 3.96738u^{109} - 11.2766u^{108} + \cdots + 710.062u + 64.5087 \\ -0.570582u^{109} + 2.22905u^{108} + \cdots + 8.69317u + 2.93073 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 4.01600u^{109} - 11.7395u^{108} + \cdots + 684.265u + 60.9524 \\ -0.359351u^{109} + 1.46248u^{108} + \cdots + 15.3016u + 3.24774 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -7.92618u^{109} + 25.6136u^{108} + \cdots - 555.057u - 43.9460 \\ -1.48877u^{109} + 4.66015u^{108} + \cdots - 143.849u - 11.6428 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -2.52216u^{109} + 6.77640u^{108} + \cdots - 613.962u - 68.2999 \\ -0.392391u^{109} + 1.13085u^{108} + \cdots - 78.1210u - 8.94244 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 4.53796u^{109} - 13.5056u^{108} + \cdots + 701.369u + 61.5780 \\ -0.570582u^{109} + 2.22905u^{108} + \cdots + 8.69317u + 2.93073 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 7.32097u^{109} - 22.4072u^{108} + \cdots + 873.765u + 74.0818 \\ 0.953125u^{109} - 3.04274u^{108} + \cdots + 83.6563u + 7.91593 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -6.06911u^{109} + 20.0584u^{108} + \cdots - 322.474u - 24.0997 \\ -0.368302u^{109} + 0.895009u^{108} + \cdots - 86.7341u - 8.20350 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 6.02161u^{109} - 18.1467u^{108} + \cdots + 821.524u + 72.9777 \\ 0.00590647u^{109} + 0.241512u^{108} + \cdots + 48.2897u + 6.22933 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 9.98424u^{109} - 30.9702u^{108} + \cdots + 1068.56u + 89.7856 \\ 1.79589u^{109} - 5.80409u^{108} + \cdots + 145.185u + 12.5127 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 23.7845u^{109} - 78.8398u^{108} + \cdots + 1380.90u + 90.0800$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4, c_{12}	$u^{110} + 3u^{109} + \cdots - 62u + 7$
c_2	$u^{110} - 6u^{108} + \cdots - 1248u + 64$
c_3	$u^{110} + 18u^{108} + \cdots - 5982u + 511$
c_5	$u^{110} - u^{109} + \cdots + 127044378u + 11982227$
c_6	$u^{110} - 3u^{109} + \cdots + 21u + 1$
c_7, c_8, c_{11}	$u^{110} - 4u^{109} + \cdots + 146u + 11$
c_9	$u^{110} - 2u^{108} + \cdots - 434u + 115$
c_{10}	$u^{110} + u^{109} + \cdots + 4063u + 1795$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{110} + 115y^{109} + \cdots - 694y + 49$
c_2	$y^{110} - 12y^{109} + \cdots - 844800y + 4096$
c_3	$y^{110} + 36y^{109} + \cdots - 9724346y + 261121$
c_5	$y^{110} - 59y^{109} + \cdots - 8074941417464332y + 143573763879529$
c_6	$y^{110} - 15y^{109} + \cdots - 183y + 1$
c_7, c_8, c_{11}	$y^{110} - 128y^{109} + \cdots - 17642y + 121$
c_9	$y^{110} - 4y^{109} + \cdots - 38396y + 13225$
c_{10}	$y^{110} - 27y^{109} + \cdots - 181138189y + 3222025$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.774572 + 0.632471I$ $a = -0.89220 + 1.52122I$ $b = -0.548053 + 0.137687I$	$7.93768 - 5.25317I$	0
$u = 0.774572 - 0.632471I$ $a = -0.89220 - 1.52122I$ $b = -0.548053 - 0.137687I$	$7.93768 + 5.25317I$	0
$u = -0.560346 + 0.853408I$ $a = 0.047334 - 1.169540I$ $b = -0.535513 - 0.176348I$	$1.56438 + 2.47087I$	0
$u = -0.560346 - 0.853408I$ $a = 0.047334 + 1.169540I$ $b = -0.535513 + 0.176348I$	$1.56438 - 2.47087I$	0
$u = 0.124231 + 0.956021I$ $a = -0.332111 + 0.655043I$ $b = -1.24931 + 1.41822I$	$14.9970 - 6.5880I$	0
$u = 0.124231 - 0.956021I$ $a = -0.332111 - 0.655043I$ $b = -1.24931 - 1.41822I$	$14.9970 + 6.5880I$	0
$u = -0.715385 + 0.756555I$ $a = 0.877620 + 0.541968I$ $b = 1.141200 - 0.158237I$	$8.97543 - 0.77350I$	0
$u = -0.715385 - 0.756555I$ $a = 0.877620 - 0.541968I$ $b = 1.141200 + 0.158237I$	$8.97543 + 0.77350I$	0
$u = -0.310378 + 0.905410I$ $a = -0.015555 - 0.706392I$ $b = -1.14977 - 1.14634I$	$8.12852 + 4.99064I$	0
$u = -0.310378 - 0.905410I$ $a = -0.015555 + 0.706392I$ $b = -1.14977 + 1.14634I$	$8.12852 - 4.99064I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.591904 + 0.870733I$ $a = 0.130086 + 1.177850I$ $b = -1.08337 + 0.94972I$	$8.72354 - 3.03179I$	0
$u = 0.591904 - 0.870733I$ $a = 0.130086 - 1.177850I$ $b = -1.08337 - 0.94972I$	$8.72354 + 3.03179I$	0
$u = 0.838495 + 0.390871I$ $a = 0.889756 + 0.699588I$ $b = -0.089294 + 0.460614I$	$2.44031 - 0.26635I$	0
$u = 0.838495 - 0.390871I$ $a = 0.889756 - 0.699588I$ $b = -0.089294 - 0.460614I$	$2.44031 + 0.26635I$	0
$u = 0.476011 + 0.782871I$ $a = 0.494024 - 0.502108I$ $b = 1.50207 - 0.99579I$	$7.79132 - 3.43252I$	0
$u = 0.476011 - 0.782871I$ $a = 0.494024 + 0.502108I$ $b = 1.50207 + 0.99579I$	$7.79132 + 3.43252I$	0
$u = 0.475946 + 0.976502I$ $a = -0.24106 - 1.59534I$ $b = 0.873118 - 0.085672I$	$16.7347 - 7.7979I$	0
$u = 0.475946 - 0.976502I$ $a = -0.24106 + 1.59534I$ $b = 0.873118 + 0.085672I$	$16.7347 + 7.7979I$	0
$u = -0.677755 + 0.612424I$ $a = 0.053848 + 0.679869I$ $b = 1.083870 + 0.901794I$	$0.92636 + 3.37225I$	0
$u = -0.677755 - 0.612424I$ $a = 0.053848 - 0.679869I$ $b = 1.083870 - 0.901794I$	$0.92636 - 3.37225I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.945732 + 0.546364I$ $a = 0.070342 + 0.756458I$ $b = 1.045450 + 0.883608I$	$0.95831 + 3.29223I$	0
$u = -0.945732 - 0.546364I$ $a = 0.070342 - 0.756458I$ $b = 1.045450 - 0.883608I$	$0.95831 - 3.29223I$	0
$u = 0.891739$ $a = 2.12201$ $b = 0.428233$	4.79546	0
$u = -0.732004 + 0.848914I$ $a = -0.02463 - 1.55659I$ $b = -1.23288 - 0.92476I$	$16.4324 + 2.2483I$	0
$u = -0.732004 - 0.848914I$ $a = -0.02463 + 1.55659I$ $b = -1.23288 + 0.92476I$	$16.4324 - 2.2483I$	0
$u = -0.828689 + 0.765989I$ $a = -0.451776 - 0.468277I$ $b = 0.260810 - 0.056998I$	$2.75921 + 2.65033I$	0
$u = -0.828689 - 0.765989I$ $a = -0.451776 + 0.468277I$ $b = 0.260810 + 0.056998I$	$2.75921 - 2.65033I$	0
$u = -0.785131$ $a = 1.46415$ $b = 0.0826449$	-1.06875	0
$u = -0.661247 + 0.408466I$ $a = 1.83442 - 1.69581I$ $b = -0.596866 - 0.927607I$	$12.5489 + 8.8816I$	0
$u = -0.661247 - 0.408466I$ $a = 1.83442 + 1.69581I$ $b = -0.596866 + 0.927607I$	$12.5489 - 8.8816I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.106860+0.536656I$ $a=-0.401468-0.704362I$ $b=-0.153166-0.706136I$	$2.53752+2.32422I$	0
$u=-1.106860-0.536656I$ $a=-0.401468+0.704362I$ $b=-0.153166+0.706136I$	$2.53752-2.32422I$	0
$u=\ \ 0.654893+0.375970I$ $a=-0.281669+1.103070I$ $b=\ \ 0.59368+1.30161I$	$4.93851-5.82307I$	0
$u=\ \ 0.654893-0.375970I$ $a=-0.281669-1.103070I$ $b=\ \ 0.59368-1.30161I$	$4.93851+5.82307I$	0
$u=-1.157250+0.509604I$ $a=-0.935247-0.035605I$ $b=-1.278610+0.474048I$	$15.0541+3.2345I$	0
$u=-1.157250-0.509604I$ $a=-0.935247+0.035605I$ $b=-1.278610-0.474048I$	$15.0541-3.2345I$	0
$u=\ \ 0.975718+0.808390I$ $a=\ \ 0.213090-1.081970I$ $b=\ \ 1.12209-0.94361I$	$1.06256-5.18407I$	0
$u=\ \ 0.975718-0.808390I$ $a=\ \ 0.213090+1.081970I$ $b=\ \ 1.12209+0.94361I$	$1.06256+5.18407I$	0
$u=\ \ 1.011570+0.788569I$ $a=-0.823264-0.221926I$ $b=\ \ 0.232331-0.660204I$	$8.66796-0.78567I$	0
$u=\ \ 1.011570-0.788569I$ $a=-0.823264+0.221926I$ $b=\ \ 0.232331+0.660204I$	$8.66796+0.78567I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.992265 + 0.832307I$ $a = 0.338617 + 1.315790I$ $b = 1.32936 + 1.00820I$	$8.35865 + 6.84750I$	0
$u = -0.992265 - 0.832307I$ $a = 0.338617 - 1.315790I$ $b = 1.32936 - 1.00820I$	$8.35865 - 6.84750I$	0
$u = -0.290577 + 1.294510I$ $a = -0.446532 + 0.767605I$ $b = 0.781428 - 0.075730I$	$8.52066 + 3.04058I$	0
$u = -0.290577 - 1.294510I$ $a = -0.446532 - 0.767605I$ $b = 0.781428 + 0.075730I$	$8.52066 - 3.04058I$	0
$u = 0.585661 + 1.201620I$ $a = -0.163568 + 0.494662I$ $b = -0.642186 - 0.037791I$	$1.98677 + 2.15796I$	0
$u = 0.585661 - 1.201620I$ $a = -0.163568 - 0.494662I$ $b = -0.642186 + 0.037791I$	$1.98677 - 2.15796I$	0
$u = 1.218800 + 0.550512I$ $a = 0.451453 - 0.351078I$ $b = 0.627504 - 0.232141I$	$1.088670 - 0.212814I$	0
$u = 1.218800 - 0.550512I$ $a = 0.451453 + 0.351078I$ $b = 0.627504 + 0.232141I$	$1.088670 + 0.212814I$	0
$u = 1.266440 + 0.438516I$ $a = -0.444059 + 0.139336I$ $b = -1.48742 + 0.18860I$	$6.81283 + 0.18653I$	0
$u = 1.266440 - 0.438516I$ $a = -0.444059 - 0.139336I$ $b = -1.48742 - 0.18860I$	$6.81283 - 0.18653I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.658241+0.031826I$ $a=\ \ 0.394930+0.351966I$ $b=-0.719040+0.317896I$	$-1.407700+0.051950I$	$-7.32066+0.87113I$
$u=-0.658241-0.031826I$ $a=\ \ 0.394930-0.351966I$ $b=-0.719040-0.317896I$	$-1.407700-0.051950I$	$-7.32066-0.87113I$
$u=-0.639006+0.142930I$ $a=-1.01394+3.27755I$ $b=\ \ 0.264559+1.069070I$	$4.82862+3.59852I$	$-2.49071-6.47593I$
$u=-0.639006-0.142930I$ $a=-1.01394-3.27755I$ $b=\ \ 0.264559-1.069070I$	$4.82862-3.59852I$	$-2.49071+6.47593I$
$u=\ \ 0.503809+0.382796I$ $a=\ \ 2.19844+0.92750I$ $b=-0.728895+0.615188I$	$5.78183-5.82433I$	$2.76550+9.85542I$
$u=\ \ 0.503809-0.382796I$ $a=\ \ 2.19844-0.92750I$ $b=-0.728895-0.615188I$	$5.78183+5.82433I$	$2.76550-9.85542I$
$u=\ \ 0.599522$ $a=\ \ 1.09470$ $b=\ \ 0.509246$	1.20815	8.23520
$u=\ \ 0.940720+1.038890I$ $a=-0.258390+0.915531I$ $b=-0.453797+0.622087I$	$7.19253-5.38461I$	0
$u=\ \ 0.940720-1.038890I$ $a=-0.258390-0.915531I$ $b=-0.453797-0.622087I$	$7.19253+5.38461I$	0
$u=-0.530334+0.260982I$ $a=-0.35708-1.59712I$ $b=\ \ 0.77505-2.06037I$	$13.0946+8.0575I$	$1.85904-10.14716I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.530334 - 0.260982I$ $a = -0.35708 + 1.59712I$ $b = 0.77505 + 2.06037I$	$13.0946 - 8.0575I$	$1.85904 + 10.14716I$
$u = 0.551499 + 0.202743I$ $a = -0.06841 - 2.08947I$ $b = 0.482359 - 1.142180I$	$-0.68842 - 2.45858I$	$-2.82743 - 12.79099I$
$u = 0.551499 - 0.202743I$ $a = -0.06841 + 2.08947I$ $b = 0.482359 + 1.142180I$	$-0.68842 + 2.45858I$	$-2.82743 + 12.79099I$
$u = -1.07049 + 0.95663I$ $a = 0.185131 + 0.691196I$ $b = 0.639211 + 0.760069I$	$-1.01440 + 3.57337I$	0
$u = -1.07049 - 0.95663I$ $a = 0.185131 - 0.691196I$ $b = 0.639211 - 0.760069I$	$-1.01440 - 3.57337I$	0
$u = -0.77761 + 1.21084I$ $a = -0.534344 - 0.449709I$ $b = -0.853078 + 0.209963I$	$9.25940 - 5.46029I$	0
$u = -0.77761 - 1.21084I$ $a = -0.534344 + 0.449709I$ $b = -0.853078 - 0.209963I$	$9.25940 + 5.46029I$	0
$u = 0.537860 + 0.113065I$ $a = 0.34732 - 1.46044I$ $b = -0.463002 - 1.318780I$	$-1.32056 - 2.31790I$	$-8.22376 + 9.76978I$
$u = 0.537860 - 0.113065I$ $a = 0.34732 + 1.46044I$ $b = -0.463002 + 1.318780I$	$-1.32056 + 2.31790I$	$-8.22376 - 9.76978I$
$u = 0.92147 + 1.12188I$ $a = 0.098895 - 0.858374I$ $b = 0.596369 - 1.099270I$	$4.05554 - 5.99285I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.92147 - 1.12188I$ $a = 0.098895 + 0.858374I$ $b = 0.596369 + 1.099270I$	$4.05554 + 5.99285I$	0
$u = 1.46526 + 0.06585I$ $a = -0.498390 + 0.371200I$ $b = -0.501537 + 0.613741I$	$5.49251 + 1.87089I$	0
$u = 1.46526 - 0.06585I$ $a = -0.498390 - 0.371200I$ $b = -0.501537 - 0.613741I$	$5.49251 - 1.87089I$	0
$u = -1.12400 + 0.94748I$ $a = -0.315673 - 1.094540I$ $b = -1.34237 - 0.99895I$	$8.1642 + 13.0472I$	0
$u = -1.12400 - 0.94748I$ $a = -0.315673 + 1.094540I$ $b = -1.34237 + 0.99895I$	$8.1642 - 13.0472I$	0
$u = 1.13720 + 0.95650I$ $a = -0.197715 + 0.921183I$ $b = -1.17583 + 0.87305I$	$0.56405 - 9.77507I$	0
$u = 1.13720 - 0.95650I$ $a = -0.197715 - 0.921183I$ $b = -1.17583 - 0.87305I$	$0.56405 + 9.77507I$	0
$u = -0.502519 + 0.108029I$ $a = 0.18397 + 2.04925I$ $b = -0.25502 + 2.34163I$	$5.42423 + 3.37899I$	$-9.68824 - 6.26167I$
$u = -0.502519 - 0.108029I$ $a = 0.18397 - 2.04925I$ $b = -0.25502 - 2.34163I$	$5.42423 - 3.37899I$	$-9.68824 + 6.26167I$
$u = 0.487910 + 0.157981I$ $a = -1.61676 - 2.24024I$ $b = 0.416359 - 0.793132I$	$-1.04722 - 2.44814I$	$-10.34845 + 9.07272I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.487910 - 0.157981I$ $a = -1.61676 + 2.24024I$ $b = 0.416359 + 0.793132I$	$-1.04722 + 2.44814I$	$-10.34845 - 9.07272I$
$u = -0.311773 + 0.363570I$ $a = 2.18479 + 0.87316I$ $b = -1.042800 - 0.172901I$	$6.35083 + 1.43301I$	$8.05925 - 0.03819I$
$u = -0.311773 - 0.363570I$ $a = 2.18479 - 0.87316I$ $b = -1.042800 + 0.172901I$	$6.35083 - 1.43301I$	$8.05925 + 0.03819I$
$u = 0.95715 + 1.18988I$ $a = -0.066184 + 0.804498I$ $b = -0.62708 + 1.32672I$	$9.82782 - 6.51847I$	0
$u = 0.95715 - 1.18988I$ $a = -0.066184 - 0.804498I$ $b = -0.62708 - 1.32672I$	$9.82782 + 6.51847I$	0
$u = -0.386570 + 0.271191I$ $a = 0.86298 + 3.49150I$ $b = 0.162485 + 0.818563I$	$3.63818 + 2.84038I$	$0.92503 - 6.05029I$
$u = -0.386570 - 0.271191I$ $a = 0.86298 - 3.49150I$ $b = 0.162485 - 0.818563I$	$3.63818 - 2.84038I$	$0.92503 + 6.05029I$
$u = -1.16827 + 1.00540I$ $a = -0.092294 - 0.645658I$ $b = -1.041720 - 0.639340I$	$-0.45195 + 4.75197I$	0
$u = -1.16827 - 1.00540I$ $a = -0.092294 + 0.645658I$ $b = -1.041720 + 0.639340I$	$-0.45195 - 4.75197I$	0
$u = -1.16474 + 1.06625I$ $a = 0.234664 + 0.993604I$ $b = 1.34481 + 1.02397I$	$15.2715 + 17.6049I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.16474 - 1.06625I$ $a = 0.234664 - 0.993604I$ $b = 1.34481 - 1.02397I$	$15.2715 - 17.6049I$	0
$u = 0.170612 + 0.337681I$ $a = 1.03643 - 2.29648I$ $b = -1.67443 - 0.27296I$	$14.1811 + 1.2153I$	$11.26046 + 0.21873I$
$u = 0.170612 - 0.337681I$ $a = 1.03643 + 2.29648I$ $b = -1.67443 + 0.27296I$	$14.1811 - 1.2153I$	$11.26046 - 0.21873I$
$u = 1.19603 + 1.10006I$ $a = 0.139764 - 0.851353I$ $b = 1.23014 - 0.82756I$	$7.0682 - 13.1651I$	0
$u = 1.19603 - 1.10006I$ $a = 0.139764 + 0.851353I$ $b = 1.23014 + 0.82756I$	$7.0682 + 13.1651I$	0
$u = -1.10362 + 1.20410I$ $a = -0.160490 - 0.593138I$ $b = -0.665528 - 0.924470I$	$3.20052 + 5.24080I$	0
$u = -1.10362 - 1.20410I$ $a = -0.160490 + 0.593138I$ $b = -0.665528 + 0.924470I$	$3.20052 - 5.24080I$	0
$u = -0.99443 + 1.42886I$ $a = 0.451569 + 0.333754I$ $b = 0.738648 - 0.347544I$	$16.0502 - 8.9937I$	0
$u = -0.99443 - 1.42886I$ $a = 0.451569 - 0.333754I$ $b = 0.738648 + 0.347544I$	$16.0502 + 8.9937I$	0
$u = -1.28221 + 1.22669I$ $a = 0.044226 + 0.582219I$ $b = 1.158710 + 0.516395I$	$5.55745 + 6.41435I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.28221-1.22669I$ $a=0.044226-0.582219I$ $b=1.158710-0.516395I$	$5.55745-6.41435I$	0
$u=-0.198149+0.050179I$ $a=-6.69900-0.11868I$ $b=0.526139+0.167191I$	$0.781838+0.037322I$	$11.63850-5.91538I$
$u=-0.198149-0.050179I$ $a=-6.69900+0.11868I$ $b=0.526139-0.167191I$	$0.781838-0.037322I$	$11.63850+5.91538I$
$u=0.75630+1.64062I$ $a=0.112136-0.363934I$ $b=0.737898+0.162123I$	$8.29439+4.05354I$	0
$u=0.75630-1.64062I$ $a=0.112136+0.363934I$ $b=0.737898-0.162123I$	$8.29439-4.05354I$	0
$u=1.52815+1.01068I$ $a=-0.350173+0.271355I$ $b=-0.717603+0.257453I$	$5.27041-3.19239I$	0
$u=1.52815-1.01068I$ $a=-0.350173-0.271355I$ $b=-0.717603-0.257453I$	$5.27041+3.19239I$	0
$u=-0.0985245$ $a=10.3601$ $b=1.56643$	8.74873	10.9230
$u=1.93847+0.68258I$ $a=0.285643-0.106787I$ $b=1.349280-0.010229I$	$12.76100+1.35297I$	0
$u=1.93847-0.68258I$ $a=0.285643+0.106787I$ $b=1.349280+0.010229I$	$12.76100-1.35297I$	0

II.
$\boldsymbol{I_2^u = \langle -2.16\times10^{15}u^{20} - 9.89\times10^{15}u^{19} + \cdots + 1.09\times10^{15}b - 4.65\times10^{15},\ -4.00\times10^{15}u^{20} - 1.81\times10^{16}u^{19} + \cdots + 1.09\times10^{15}a - 7.19\times10^{15},\ u^{21} + 5u^{20} + \cdots + 5u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}3.67464u^{20} + 16.5853u^{19} + \cdots + 24.8798u + 6.59558\\1.98128u^{20} + 9.07024u^{19} + \cdots + 13.4202u + 4.27106\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}2.57607u^{20} + 11.3767u^{19} + \cdots + 16.7244u + 4.11240\\2.06257u^{20} + 9.34609u^{19} + \cdots + 13.0978u + 3.98687\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.201806u^{20} - 0.123444u^{19} + \cdots + 0.0708185u + 4.67599\\-1.20181u^{20} - 5.12344u^{19} + \cdots - 7.92918u - 0.324007\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.525812u^{20} + 1.54167u^{19} + \cdots - 0.119256u - 5.98514\\0.613561u^{20} + 2.86270u^{19} + \cdots + 5.87725u - 1.10926\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.69335u^{20} + 7.51507u^{19} + \cdots + 11.4596u + 2.32452\\1.98128u^{20} + 9.07024u^{19} + \cdots + 13.4202u + 4.27106\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-1.09570u^{20} - 5.20905u^{19} + \cdots - 7.73516u - 4.06925\\0.496029u^{20} + 1.81653u^{19} + \cdots + 0.734766u - 0.606939\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1.16125u^{20} + 5.57961u^{19} + \cdots + 9.96612u + 3.80335\\-0.161246u^{20} - 0.579612u^{19} + \cdots + 0.0338831u + 1.19665\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1.24091u^{20} + 6.15483u^{19} + \cdots + 11.3716u + 4.81809\\0.182357u^{20} + 1.01313u^{19} + \cdots + 4.06781u + 2.29253\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.311068u^{20} - 2.28332u^{19} + \cdots - 7.75150u - 6.74757\\1.04683u^{20} + 4.44080u^{19} + \cdots + 5.65114u - 0.994846\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{8551280081932515}{1089847935407689}u^{20} - \frac{38333007895654212}{1089847935407689}u^{19} + \cdots - \frac{52902484388170668}{1089847935407689}u - \frac{4952793532390205}{1089847935407689}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{12}	$u^{21} - 4u^{20} + \cdots + 2u + 1$
c_2	$u^{21} - u^{20} + \cdots - 99u + 101$
c_3	$u^{21} + u^{20} + \cdots + 10u^2 + 1$
c_4	$u^{21} + 4u^{20} + \cdots + 2u - 1$
c_5	$u^{21} - 3u^{20} + \cdots - 8u - 1$
c_6	$u^{21} + 5u^{20} + \cdots + 5u + 1$
c_7, c_8	$u^{21} - 3u^{20} + \cdots + 2u + 1$
c_9	$u^{21} - u^{20} + \cdots + 3u^2 + 1$
c_{10}	$u^{21} + 3u^{19} + \cdots - u - 1$
c_{11}	$u^{21} + 3u^{20} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$y^{21} + 22y^{20} + \cdots + 246y^2 - 1$
c_2	$y^{21} + 9y^{20} + \cdots - 29185y - 10201$
c_3	$y^{21} + 19y^{20} + \cdots - 20y - 1$
c_5	$y^{21} + 7y^{20} + \cdots + 24y - 1$
c_6	$y^{21} - 5y^{20} + \cdots + 7y - 1$
c_7, c_8, c_{11}	$y^{21} - 29y^{20} + \cdots + 2y - 1$
c_9	$y^{21} - 3y^{20} + \cdots - 6y - 1$
c_{10}	$y^{21} + 6y^{20} + \cdots + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.217097 + 1.038910I$ $a = 0.526549 + 0.408110I$ $b = -0.765446 + 0.734361I$	$7.01896 - 4.67113I$	$5.09993 + 5.56442I$
$u = 0.217097 - 1.038910I$ $a = 0.526549 - 0.408110I$ $b = -0.765446 - 0.734361I$	$7.01896 + 4.67113I$	$5.09993 - 5.56442I$
$u = -0.845934 + 0.103696I$ $a = 0.19223 + 1.57655I$ $b = 0.501870 + 0.766898I$	$2.84913 + 1.70648I$	$1.37067 - 3.41020I$
$u = -0.845934 - 0.103696I$ $a = 0.19223 - 1.57655I$ $b = 0.501870 - 0.766898I$	$2.84913 - 1.70648I$	$1.37067 + 3.41020I$
$u = 0.893026 + 0.868131I$ $a = 0.056048 - 0.792790I$ $b = 0.866483 - 0.827101I$	$-0.03849 - 3.67784I$	$0.53413 + 6.14724I$
$u = 0.893026 - 0.868131I$ $a = 0.056048 + 0.792790I$ $b = 0.866483 + 0.827101I$	$-0.03849 + 3.67784I$	$0.53413 - 6.14724I$
$u = -0.828970 + 0.953040I$ $a = 0.070384 + 1.042450I$ $b = 0.657531 + 1.165410I$	$4.65865 + 5.65395I$	$7.41457 - 3.59853I$
$u = -0.828970 - 0.953040I$ $a = 0.070384 - 1.042450I$ $b = 0.657531 - 1.165410I$	$4.65865 - 5.65395I$	$7.41457 + 3.59853I$
$u = -0.005702 + 0.615576I$ $a = 1.35957 - 0.70191I$ $b = -0.18724 - 1.46454I$	$13.9156 + 7.6006I$	$8.83489 - 5.18023I$
$u = -0.005702 - 0.615576I$ $a = 1.35957 + 0.70191I$ $b = -0.18724 + 1.46454I$	$13.9156 - 7.6006I$	$8.83489 + 5.18023I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.495900 + 0.250523I$ $a = -0.52768 - 2.22684I$ $b = 0.387424 - 1.146780I$	$-0.59511 - 2.67028I$	$11.0401 + 18.5089I$
$u = 0.495900 - 0.250523I$ $a = -0.52768 + 2.22684I$ $b = 0.387424 + 1.146780I$	$-0.59511 + 2.67028I$	$11.0401 - 18.5089I$
$u = -1.45757$ $a = 0.449100$ $b = 1.49718$	7.06806	23.9240
$u = -1.51703 + 0.28428I$ $a = -0.309560 - 0.189109I$ $b = -1.44850 + 0.01568I$	$12.34630 - 1.07632I$	$3.62332 - 3.04442I$
$u = -1.51703 - 0.28428I$ $a = -0.309560 + 0.189109I$ $b = -1.44850 - 0.01568I$	$12.34630 + 1.07632I$	$3.62332 + 3.04442I$
$u = -0.320486 + 0.198100I$ $a = -1.21078 + 3.25585I$ $b = 0.17340 + 1.77373I$	$5.85337 + 3.37653I$	$10.71014 - 4.98015I$
$u = -0.320486 - 0.198100I$ $a = -1.21078 - 3.25585I$ $b = 0.17340 - 1.77373I$	$5.85337 - 3.37653I$	$10.71014 + 4.98015I$
$u = 1.26294 + 1.13268I$ $a = -0.205516 + 0.494927I$ $b = -0.827749 + 0.677186I$	$2.97274 - 4.26956I$	$4.13898 + 3.90072I$
$u = 1.26294 - 1.13268I$ $a = -0.205516 - 0.494927I$ $b = -0.827749 - 0.677186I$	$2.97274 + 4.26956I$	$4.13898 - 3.90072I$
$u = -1.12205 + 1.31034I$ $a = -0.175797 - 0.696424I$ $b = -0.606366 - 0.879367I$	$6.70244 + 6.36998I$	$4.27126 - 8.45281I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.12205 - 1.31034I$ $a = -0.175797 + 0.696424I$ $b = -0.606366 + 0.879367I$	$6.70244 - 6.36998I$	$4.27126 + 8.45281I$

III.

$$\boldsymbol{I^u_3 = \langle b,\ -u^5-4u^4-5u^3-2u^2+a-2u-3,\ u^6+3u^5+2u^4-u^3+u^2+2u-1\rangle}$$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^5+4u^4+5u^3+2u^2+2u+3 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^5+5u^4+7u^3+2u^2+u+4 \\ -u^5-2u^4-2u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 3u^5+10u^4+9u^3-u^2+2u+7 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 3u^5+10u^4+9u^3-u^2+2u+8 \\ u^2+u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^5+4u^4+5u^3+2u^2+2u+3 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 2u^2+3u \\ u^4+u^3-u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3u^5+10u^4+9u^3-u^2+2u+7 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5+3u^4+2u^3-u^2+u+4 \\ u^2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6u^5-26u^4-32u^3-4u^2+u-19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$(y^3 + 3y^2 + 2y - 1)^2$
c_2	y^6
c_3	$(y^3 - y^2 + 2y - 1)^2$
c_5, c_6	$y^6 - 5y^5 + 12y^4 - 11y^3 + y^2 - 6y + 1$
c_7, c_8, c_{11}	$(y-1)^6$
c_9, c_{10}	$y^6 - 8y^5 + 24y^4 - 35y^3 + 24y^2 - 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.462417 + 0.679093I$ $a = -0.55043 + 1.61386I$ $b = 0$	$4.66906 - 2.82812I$	$8.08358 + 4.54590I$
$u = 0.462417 - 0.679093I$ $a = -0.55043 - 1.61386I$ $b = 0$	$4.66906 + 2.82812I$	$8.08358 - 4.54590I$
$u = -1.40545$ $a = 0.382160$ $b = 0$	0.531480	-8.01270
$u = 0.405450$ $a = 4.59199$ $b = 0$	0.531480	-22.1530
$u = -1.46242 + 0.67909I$ $a = -0.436650 - 0.072982I$ $b = 0$	$4.66906 + 2.82812I$	$0.49944 - 1.38392I$
$u = -1.46242 - 0.67909I$ $a = -0.436650 + 0.072982I$ $b = 0$	$4.66906 - 2.82812I$	$0.49944 + 1.38392I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{12}	$((u^3 - u^2 + 2u - 1)^2)(u^{21} - 4u^{20} + \cdots + 2u + 1)$ $\cdot (u^{110} + 3u^{109} + \cdots - 62u + 7)$
c_2	$u^6(u^{21} - u^{20} + \cdots - 99u + 101)(u^{110} - 6u^{108} + \cdots - 1248u + 64)$
c_3	$((u^3 + u^2 - 1)^2)(u^{21} + u^{20} + \cdots + 10u^2 + 1)$ $\cdot (u^{110} + 18u^{108} + \cdots - 5982u + 511)$
c_4	$((u^3 + u^2 + 2u + 1)^2)(u^{21} + 4u^{20} + \cdots + 2u - 1)$ $\cdot (u^{110} + 3u^{109} + \cdots - 62u + 7)$
c_5	$(u^6 + 3u^5 + 2u^4 - u^3 + u^2 + 2u - 1)(u^{21} - 3u^{20} + \cdots - 8u - 1)$ $\cdot (u^{110} - u^{109} + \cdots + 127044378u + 11982227)$
c_6	$(u^6 + 3u^5 + 2u^4 - u^3 + u^2 + 2u - 1)(u^{21} + 5u^{20} + \cdots + 5u + 1)$ $\cdot (u^{110} - 3u^{109} + \cdots + 21u + 1)$
c_7, c_8	$((u + 1)^6)(u^{21} - 3u^{20} + \cdots + 2u + 1)(u^{110} - 4u^{109} + \cdots + 146u + 11)$
c_9	$(u^6 - 4u^4 + u^3 + 4u^2 - 1)(u^{21} - u^{20} + \cdots + 3u^2 + 1)$ $\cdot (u^{110} - 2u^{108} + \cdots - 434u + 115)$
c_{10}	$(u^6 - 4u^4 + u^3 + 4u^2 - 1)(u^{21} + 3u^{19} + \cdots - u - 1)$ $\cdot (u^{110} + u^{109} + \cdots + 4063u + 1795)$
c_{11}	$((u - 1)^6)(u^{21} + 3u^{20} + \cdots + 2u - 1)(u^{110} - 4u^{109} + \cdots + 146u + 11)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_{12}	$((y^3 + 3y^2 + 2y - 1)^2)(y^{21} + 22y^{20} + \cdots + 246y^2 - 1)$ $\cdot (y^{110} + 115y^{109} + \cdots - 694y + 49)$
c_2	$y^6(y^{21} + 9y^{20} + \cdots - 29185y - 10201)$ $\cdot (y^{110} - 12y^{109} + \cdots - 844800y + 4096)$
c_3	$((y^3 - y^2 + 2y - 1)^2)(y^{21} + 19y^{20} + \cdots - 20y - 1)$ $\cdot (y^{110} + 36y^{109} + \cdots - 9724346y + 261121)$
c_5	$(y^6 - 5y^5 + \cdots - 6y + 1)(y^{21} + 7y^{20} + \cdots + 24y - 1)$ $\cdot (y^{110} - 59y^{109} + \cdots - 8074941417464332y + 143573763879529)$
c_6	$(y^6 - 5y^5 + \cdots - 6y + 1)(y^{21} - 5y^{20} + \cdots + 7y - 1)$ $\cdot (y^{110} - 15y^{109} + \cdots - 183y + 1)$
c_7, c_8, c_{11}	$((y - 1)^6)(y^{21} - 29y^{20} + \cdots + 2y - 1)$ $\cdot (y^{110} - 128y^{109} + \cdots - 17642y + 121)$
c_9	$(y^6 - 8y^5 + \cdots - 8y + 1)(y^{21} - 3y^{20} + \cdots - 6y - 1)$ $\cdot (y^{110} - 4y^{109} + \cdots - 38396y + 13225)$
c_{10}	$(y^6 - 8y^5 + \cdots - 8y + 1)(y^{21} + 6y^{20} + \cdots + 3y - 1)$ $\cdot (y^{110} - 27y^{109} + \cdots - 181138189y + 3222025)$