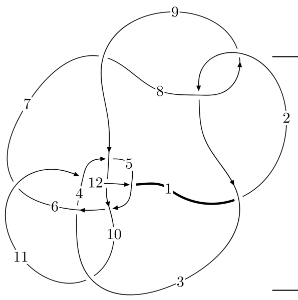
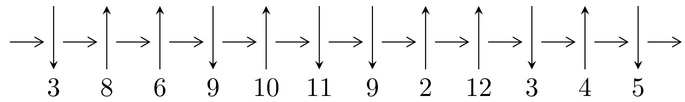
$12n_{0664}$ ($K12n_{0664}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

[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`).

$$I_1^u = \langle 74009148936u^{22} - 76652535715u^{21} + \cdots + 6050377775238b - 84815080599,$$
$$2192438106671u^{22} - 2107623026072u^{21} + \cdots + 605037775238a - 2052230519656,$$
$$u^{23} - u^{22} + \cdots - u + 1\rangle$$
$$I_2^u = \langle -1.45654 \times 10^{19}u^{19} + 6.73104 \times 10^{18}u^{18} + \cdots + 1.62289 \times 10^{20}b - 2.33528 \times 10^{19},$$
$$3.70637 \times 10^{20}u^{19} + 2.33528 \times 10^{19}u^{18} + \cdots + 1.62289 \times 10^{20}a + 1.58962 \times 10^{21},\ u^{20} - u^{18} + \cdots + 3u + 1\rangle$$
$$I_3^u = \langle 1.59937 \times 10^{20}u^{19} + 2.00847 \times 10^{20}u^{18} + \cdots + 2.29962 \times 10^{21}b + 5.16126 \times 10^{21},$$
$$191496437465195u^{19} + 59872033526663u^{18} + \cdots + 4748609612427635a + 5069797018706783,$$
$$u^{20} + u^{19} + \cdots - 30u + 25\rangle$$
$$I_4^u = \langle -4.98032 \times 10^{100}u^{39} + 3.96797 \times 10^{100}u^{38} + \cdots + 8.14259 \times 10^{103}b + 9.25727 \times 10^{103},$$
$$- 6.53696 \times 10^{86}u^{39} + 5.50591 \times 10^{86}u^{38} + \cdots + 6.14311 \times 10^{89}a + 9.18988 \times 10^{89},$$
$$u^{40} - u^{39} + \cdots - 2058u + 661\rangle$$
$$I_5^u = \langle -9.70252 \times 10^{33}u^{33} - 1.36400 \times 10^{34}u^{32} + \cdots + 2.93977 \times 10^{34}b + 1.13426 \times 10^{34},$$
$$3.22079 \times 10^{34}u^{33} + 2.08653 \times 10^{34}u^{32} + \cdots + 2.93977 \times 10^{34}a - 8.32299 \times 10^{34},\ u^{34} + u^{33} + \cdots - u + 1\rangle$$
$$I_6^u = \langle b - u,\ a,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$$
$$I_7^u = \langle 2405u^9 - 2260u^8 + \cdots + 7829b - 605,\ -u^9 + u^8 + 2u^7 + 2u^6 + 2u^5 - 12u^4 - 9u^3 - 9u^2 + a - 6u,$$
$$u^{10} - u^9 - 2u^8 - 2u^7 - 2u^6 + 12u^5 + 9u^4 + 9u^3 + 6u^2 - 1\rangle$$
$$I_8^u = \langle b + u - 1,\ a + u,\ u^2 - u + 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 154 representations.

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

I.

$\boldsymbol{I_1^u = \langle 7.40\times10^{10}u^{22} - 7.67\times10^{10}u^{21} + \cdots + 6.05\times10^{11}b - 8.48\times10^{10},\ 2.19\times10^{12}u^{22} - 2.11\times10^{12}u^{21} + \cdots + 6.05\times10^{11}a - 2.05\times10^{12},\ u^{23} - u^{22} + \cdots - u + 1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix}-3.62364u^{22} + 3.48346u^{21} + \cdots + 36.4991u + 3.39190\\-0.122322u^{22} + 0.126690u^{21} + \cdots + 4.48346u + 0.140181\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-8.75272u^{22} + 8.03309u^{21} + \cdots + 60.0017u + 7.21619\\-0.877678u^{22} + 0.873310u^{21} + \cdots + 12.5165u + 0.859819\end{pmatrix}$$

$$a_6 = \begin{pmatrix}2.39190u^{22} + 0.231734u^{21} + \cdots + 7.02051u - 22.8910\\0.140181u^{22} - 0.0178599u^{21} + \cdots + 0.231734u - 3.62364\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-3.62364u^{22} + 3.48346u^{21} + \cdots + 35.4991u + 3.39190\\-0.122322u^{22} + 0.126690u^{21} + \cdots + 4.48346u + 0.140181\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-3.96447u^{22} - 1.28694u^{21} + \cdots - 19.1702u + 31.9505\\-0.719637u^{22} - 0.0357199u^{21} + \cdots - 1.53653u + 8.75272\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-2.70321u^{22} + 3.47564u^{21} + \cdots + 3.10966u - 15.1028\\-5.51731u^{22} + 4.69612u^{21} + \cdots + 18.0155u + 1.76587\end{pmatrix}$$

$$a_8 = \begin{pmatrix}2.24735u^{22} + 0.226332u^{21} + \cdots + 6.77092u - 19.3897\\0.317416u^{22} - 0.0214925u^{21} + \cdots + 0.475926u - 5.97500\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-3.50132u^{22} + 3.35677u^{21} + \cdots + 32.0157u + 3.25172\\-0.122322u^{22} + 0.126690u^{21} + \cdots + 4.48346u + 0.140181\end{pmatrix}$$

$$a_7 = \begin{pmatrix}2.24735u^{22} + 0.226332u^{21} + \cdots + 6.77092u - 19.3897\\0.144550u^{22} + 0.00540143u^{21} + \cdots + 0.249594u - 3.50132\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{7925175549593}{302518887619}u^{22} - \frac{5141352911335}{302518887619}u^{21} + \cdots - \frac{24756789749065}{302518887619}u - \frac{8458236233113}{302518887619}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{23} + 10u^{22} + \cdots + 208u - 64$
c_2, c_8	$u^{23} + 6u^{22} + \cdots - 28u - 8$
c_3, c_9	$u^{23} + 11u^{22} + \cdots - 187u - 49$
c_4, c_6, c_{10} c_{12}	$u^{23} + u^{22} + \cdots - u - 1$
c_5, c_{11}	$u^{23} - 2u^{22} + \cdots - u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{23} + 6y^{22} + \cdots + 153856y - 4096$
c_2, c_8	$y^{23} + 10y^{22} + \cdots + 208y - 64$
c_3, c_9	$y^{23} - 11y^{22} + \cdots + 9979y - 2401$
c_4, c_6, c_{10} c_{12}	$y^{23} - 19y^{22} + \cdots + 35y - 1$
c_5, c_{11}	$y^{23} - 4y^{22} + \cdots + 81y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.070790 + 0.187276I$ $a = -0.742987 - 0.362569I$ $b = 0.390360 - 0.513715I$	$-2.83605 - 0.34568I$	$-1.92962 - 0.43168I$
$u = 1.070790 - 0.187276I$ $a = -0.742987 + 0.362569I$ $b = 0.390360 + 0.513715I$	$-2.83605 + 0.34568I$	$-1.92962 + 0.43168I$
$u = -1.072600 + 0.407037I$ $a = 0.766205 - 0.399094I$ $b = -0.666528 - 0.655018I$	$-5.89444 + 5.46645I$	$-3.61005 - 3.53353I$
$u = -1.072600 - 0.407037I$ $a = 0.766205 + 0.399094I$ $b = -0.666528 + 0.655018I$	$-5.89444 - 5.46645I$	$-3.61005 + 3.53353I$
$u = 1.110920 + 0.398545I$ $a = -0.834089 + 0.961871I$ $b = -0.637726 + 0.694268I$	$2.55401 - 3.06813I$	$-1.63871 + 4.65576I$
$u = 1.110920 - 0.398545I$ $a = -0.834089 - 0.961871I$ $b = -0.637726 - 0.694268I$	$2.55401 + 3.06813I$	$-1.63871 - 4.65576I$
$u = -1.135800 + 0.574185I$ $a = 0.605932 + 1.053290I$ $b = 0.819929 + 0.795383I$	$2.70586 + 9.35880I$	$0.02921 - 9.42828I$
$u = -1.135800 - 0.574185I$ $a = 0.605932 - 1.053290I$ $b = 0.819929 - 0.795383I$	$2.70586 - 9.35880I$	$0.02921 + 9.42828I$
$u = -1.338780 + 0.103629I$ $a = 0.734386 - 0.447547I$ $b = -0.154582 - 0.897495I$	$-7.50009 - 3.86771I$	$-5.29636 + 4.05215I$
$u = -1.338780 - 0.103629I$ $a = 0.734386 + 0.447547I$ $b = -0.154582 + 0.897495I$	$-7.50009 + 3.86771I$	$-5.29636 - 4.05215I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.559367 + 0.131643I$ $a = 0.475373 - 0.977519I$ $b = 0.843832 - 0.087265I$	$-0.89508 - 1.63405I$	$-5.04879 + 5.49945I$
$u = 0.559367 - 0.131643I$ $a = 0.475373 + 0.977519I$ $b = 0.843832 + 0.087265I$	$-0.89508 + 1.63405I$	$-5.04879 - 5.49945I$
$u = -0.497228$ $a = -1.49813$ $b = -0.867620$	1.46426	7.43570
$u = 0.407932 + 0.126673I$ $a = 1.76152 - 2.42535I$ $b = 0.923455 - 0.055957I$	$3.57163 - 6.00249I$	$1.32822 + 3.13711I$
$u = 0.407932 - 0.126673I$ $a = 1.76152 + 2.42535I$ $b = 0.923455 + 0.055957I$	$3.57163 + 6.00249I$	$1.32822 - 3.13711I$
$u = -0.410517 + 0.091700I$ $a = -2.27314 - 1.89786I$ $b = -0.917370 - 0.041035I$	$4.23594 + 0.53344I$	$5.35636 + 2.56439I$
$u = -0.410517 - 0.091700I$ $a = -2.27314 + 1.89786I$ $b = -0.917370 + 0.041035I$	$4.23594 - 0.53344I$	$5.35636 - 2.56439I$
$u = -1.35567 + 1.04234I$ $a = 0.196756 + 0.866889I$ $b = 1.24211 + 1.13763I$	$-1.33962 + 13.52040I$	$1.78577 - 7.19541I$
$u = -1.35567 - 1.04234I$ $a = 0.196756 - 0.866889I$ $b = 1.24211 - 1.13763I$	$-1.33962 - 13.52040I$	$1.78577 + 7.19541I$
$u = 1.51219 + 0.87780I$ $a = -0.303869 + 0.790076I$ $b = -1.04602 + 1.26900I$	$-6.64500 - 9.40579I$	$-3.02964 + 5.28602I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.51219 - 0.87780I$ $a = -0.303869 - 0.790076I$ $b = -1.04602 - 1.26900I$	$-6.64500 + 9.40579I$	$-3.02964 - 5.28602I$
$u = 1.40078 + 1.17174I$ $a = -0.137018 + 0.817530I$ $b = -1.36365 + 1.20364I$	$-4.3162 - 19.1491I$	$0. + 10.19089I$
$u = 1.40078 - 1.17174I$ $a = -0.137018 - 0.817530I$ $b = -1.36365 - 1.20364I$	$-4.3162 + 19.1491I$	$0. - 10.19089I$

II.
$\boldsymbol{I_2^u = \langle -1.46\times 10^{19}u^{19} + 6.73\times 10^{18}u^{18} + \cdots + 1.62\times 10^{20}b - 2.34\times 10^{19},\ 3.71\times 10^{20}u^{19} + 2.34\times 10^{19}u^{18} + \cdots + 1.62\times 10^{20}a + 1.59\times 10^{21},\ u^{20} - u^{18} + \cdots + 3u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-2.28382u^{19} - 0.143897u^{18} + \cdots - 130.160u - 9.79501\\0.0897498u^{19} - 0.0414758u^{18} + \cdots + 3.71551u + 0.143897\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-5.68826u^{19} - 0.375364u^{18} + \cdots - 327.025u - 30.6573\\0.223394u^{19} + 0.00551549u^{18} + \cdots + 10.5299u + 0.519260\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1.67369u^{19} - 0.373713u^{18} + \cdots + 65.0408u - 18.4882\\-0.0359603u^{19} + 0.0154898u^{18} + \cdots - 0.276275u + 0.686856\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-2.28382u^{19} - 0.143897u^{18} + \cdots - 131.160u - 9.79501\\0.0897498u^{19} - 0.0414758u^{18} + \cdots + 3.71551u + 0.143897\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1.26236u^{19} - 0.224579u^{18} + \cdots + 51.1721u - 12.1131\\-0.0559355u^{19} + 0.0231324u^{18} + \cdots - 0.437705u + 0.447973\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.511165u^{19} + 0.148405u^{18} + \cdots + 37.0146u + 8.25478\\-0.0237462u^{19} - 0.0172919u^{18} + \cdots - 2.38333u - 0.251387\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.560736u^{19} + 0.223549u^{18} + \cdots - 16.6614u + 9.88233\\-0.0109358u^{19} + 0.0198959u^{18} + \cdots - 0.260832u - 0.446943\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-2.37357u^{19} - 0.102421u^{18} + \cdots - 133.875u - 9.93890\\0.0897498u^{19} - 0.0414758u^{18} + \cdots + 3.71551u + 0.143897\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.560736u^{19} + 0.223549u^{18} + \cdots - 16.6614u + 9.88233\\0.00551549u^{19} + 0.0153350u^{18} + \cdots - 0.150922u - 0.223394\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{9435464481837247777466}{1622886063950930778 53}u^{19} - \frac{1739867048640280476 91}{1622886063950930778 53}u^{18} + \cdots + \frac{3970814300815163618 5168}{1622886063950930778 53}u - \frac{7084578997836399174558}{1622886063950930778 53}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^{10}+4u^9+10u^8+16u^7+19u^6+15u^5+8u^4+7u^3+21u^2+4u+16)^2$
c_2, c_8	$(u^{10}+4u^9+\cdots+10u+4)^2$
c_3, c_9	$u^{20}+8u^{19}+\cdots+830u+83$
c_4, c_6, c_{10} c_{12}	$u^{20}-u^{18}+\cdots-3u+1$
c_5, c_{11}	$(u^{10}+u^9+4u^8+2u^7+8u^6+3u^5+10u^4+u^3+6u^2+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{10} + 4y^9 + \cdots + 656y + 256)^2$
c_2, c_8	$(y^{10} + 4y^9 + 10y^8 + 16y^7 + 19y^6 + 15y^5 + 8y^4 + 7y^3 + 21y^2 + 4y + 16)^2$
c_3, c_9	$y^{20} - 8y^{19} + \cdots - 10292y + 6889$
c_4, c_6, c_{10} c_{12}	$y^{20} - 2y^{19} + \cdots + 93y + 1$
c_5, c_{11}	$(y^{10} + 7y^9 + \cdots + 12y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.878101 + 0.583301I$ $a = -1.39847 - 0.54079I$ $b = 0.829594 - 1.082270I$	$-5.26999 - 11.14310I$	$-1.80160 + 8.96902I$
$u = 0.878101 - 0.583301I$ $a = -1.39847 + 0.54079I$ $b = 0.829594 + 1.082270I$	$-5.26999 + 11.14310I$	$-1.80160 - 8.96902I$
$u = -0.830244 + 0.380260I$ $a = 1.42287 - 0.95520I$ $b = -0.658323 - 1.038470I$	$-2.57106 + 5.52159I$	$-0.74616 - 5.88586I$
$u = -0.830244 - 0.380260I$ $a = 1.42287 + 0.95520I$ $b = -0.658323 + 1.038470I$	$-2.57106 - 5.52159I$	$-0.74616 + 5.88586I$
$u = 0.754171 + 0.835150I$ $a = 0.078514 + 0.699849I$ $b = -0.137529 + 0.843982I$	$-0.34279 - 2.30596I$	$-2.18955 + 2.56038I$
$u = 0.754171 - 0.835150I$ $a = 0.078514 - 0.699849I$ $b = -0.137529 - 0.843982I$	$-0.34279 + 2.30596I$	$-2.18955 - 2.56038I$
$u = 1.138220 + 0.189654I$ $a = -0.822855 - 0.891283I$ $b = 0.486573 - 1.288230I$	$-7.88918 - 1.90048I$	$-5.69479 + 2.00128I$
$u = 1.138220 - 0.189654I$ $a = -0.822855 + 0.891283I$ $b = 0.486573 + 1.288230I$	$-7.88918 + 1.90048I$	$-5.69479 - 2.00128I$
$u = -0.566090 + 0.319060I$ $a = -0.53792 + 1.51199I$ $b = -0.137529 + 0.843982I$	$-0.34279 - 2.30596I$	$-2.18955 + 2.56038I$
$u = -0.566090 - 0.319060I$ $a = -0.53792 - 1.51199I$ $b = -0.137529 - 0.843982I$	$-0.34279 + 2.30596I$	$-2.18955 - 2.56038I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.39481 + 0.86900I$ $a = 0.167709 + 0.693744I$ $b = 0.486573 + 1.288230I$	$-7.88918 + 1.90048I$	$-5.69479 - 2.00128I$
$u = -1.39481 - 0.86900I$ $a = 0.167709 - 0.693744I$ $b = 0.486573 - 1.288230I$	$-7.88918 - 1.90048I$	$-5.69479 + 2.00128I$
$u = 1.26570 + 1.06716I$ $a = -0.128939 + 0.690121I$ $b = -0.658323 + 1.038470I$	$-2.57106 - 5.52159I$	$-0.74616 + 5.88586I$
$u = 1.26570 - 1.06716I$ $a = -0.128939 - 0.690121I$ $b = -0.658323 - 1.038470I$	$-2.57106 + 5.52159I$	$-0.74616 - 5.88586I$
$u = -1.32423 + 1.16531I$ $a = 0.114487 + 0.683193I$ $b = 0.829594 + 1.082270I$	$-5.26999 + 11.14310I$	$-1.80160 - 8.96902I$
$u = -1.32423 - 1.16531I$ $a = 0.114487 - 0.683193I$ $b = 0.829594 - 1.082270I$	$-5.26999 - 11.14310I$	$-1.80160 + 8.96902I$
$u = 0.09778 + 1.83437I$ $a = -0.007047 + 0.395117I$ $b = -0.020315 + 0.506084I$	$7.84835 - 3.21983I$	$-57.0679 + 32.9943I$
$u = 0.09778 - 1.83437I$ $a = -0.007047 - 0.395117I$ $b = -0.020315 - 0.506084I$	$7.84835 + 3.21983I$	$-57.0679 - 32.9943I$
$u = -0.0185866 + 0.1384080I$ $a = -4.8884 - 18.2085I$ $b = -0.020315 + 0.506084I$	$7.84835 - 3.21983I$	$-57.0679 + 32.9943I$
$u = -0.0185866 - 0.1384080I$ $a = -4.8884 + 18.2085I$ $b = -0.020315 - 0.506084I$	$7.84835 + 3.21983I$	$-57.0679 - 32.9943I$

III. $I_3^u =$
$\langle 1.60\times10^{20}u^{19}+2.01\times10^{20}u^{18}+\cdots+2.30\times10^{21}b+5.16\times10^{21},\ 1.91\times10^{14}u^{19}+5.99\times10^{13}u^{18}+\cdots+4.75\times10^{15}a+5.07\times10^{15},\ u^{20}+u^{19}+\cdots-30u+25\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.0403268u^{19}-0.0126083u^{18}+\cdots+3.57021u-1.06764\\-0.0695491u^{19}-0.0873389u^{18}+\cdots+2.47363u-2.24439\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.000326844u^{19}+0.0273917u^{18}+\cdots+2.21021u-2.26764\\0.00605246u^{19}-0.00966335u^{18}+\cdots-1.36550u-0.249654\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.0343387u^{19}+0.0363335u^{18}+\cdots-1.40311u-0.235985\\-0.0277185u^{19}+0.00805344u^{18}+\cdots+2.27744u-1.00817\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.00654973u^{19}+0.0303949u^{18}+\cdots+2.93631u+0.483791\\0.00444824u^{19}+0.0442556u^{18}+\cdots+1.90598u-2.47505\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.00998617u^{19}-0.0160386u^{18}+\cdots-0.204310u+1.66509\\0.0277185u^{19}-0.00805344u^{18}+\cdots-2.27744u+0.00817109\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.139853u^{19}-0.252295u^{18}+\cdots+0.487132u+3.71138\\0.101351u^{19}+0.234359u^{18}+\cdots+2.23784u-3.13571\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.0798470u^{19}+0.163485u^{18}+\cdots+0.650315u-0.966541\\0.0398807u^{19}+0.0318047u^{18}+\cdots-1.54045u-1.36040\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.0292222u^{19}+0.0747306u^{18}+\cdots+1.09658u+1.17675\\-0.0695491u^{19}-0.0873389u^{18}+\cdots+2.47363u-2.24439\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.0798470u^{19}+0.163485u^{18}+\cdots+0.650315u-0.966541\\-0.0455083u^{19}-0.127152u^{18}+\cdots-2.05342u+0.730556\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{63016511487834469996}{45992468456783361687 1}u^{19}+\frac{161406705757918679593 6}{22996234228391680843 55}u^{18}+\cdots+\frac{42480961559948402726608}{2299623422839168084355}u-\frac{87609601833026240609 10}{45992468456783361687 1}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^5+3u^4+4u^3+u^2-u-1)^4$
c_2, c_8	$(u^5-u^4+2u^3-u^2+u-1)^4$
c_3, c_9	$(u^2-u+1)^{10}$
c_4, c_6, c_{10} c_{12}	$u^{20}-u^{19}+\cdots+30u+25$
c_5, c_{11}	$u^{20}-3u^{19}+\cdots-12u+133$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^4$
c_2, c_8	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^4$
c_3, c_9	$(y^2 + y + 1)^{10}$
c_4, c_6, c_{10} c_{12}	$y^{20} - 5y^{19} + \cdots - 2600y + 625$
c_5, c_{11}	$y^{20} + 15y^{19} + \cdots + 154136y + 17689$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.008430 + 0.054549I$ $a = 0.448057 - 0.883026I$ $b = -0.97656 - 2.23888I$	$-5.87256 - 8.46060I$	$-6.74431 + 10.42679I$
$u = 1.008430 - 0.054549I$ $a = 0.448057 + 0.883026I$ $b = -0.97656 + 2.23888I$	$-5.87256 + 8.46060I$	$-6.74431 - 10.42679I$
$u = -0.706377 + 0.754086I$ $a = 0.280878 - 0.926161I$ $b = -0.62115 - 1.53213I$	$-0.32910 + 5.59035I$	$-2.51511 - 11.35885I$
$u = -0.706377 - 0.754086I$ $a = 0.280878 + 0.926161I$ $b = -0.62115 + 1.53213I$	$-0.32910 - 5.59035I$	$-2.51511 + 11.35885I$
$u = 0.627334 + 0.835733I$ $a = -0.375549 - 0.880179I$ $b = 1.04129 - 0.96771I$	$-0.32910 - 2.52919I$	$-2.51511 + 2.49755I$
$u = 0.627334 - 0.835733I$ $a = -0.375549 + 0.880179I$ $b = 1.04129 + 0.96771I$	$-0.32910 + 2.52919I$	$-2.51511 - 2.49755I$
$u = 0.003860 + 0.842294I$ $a = 1.030870 - 0.588893I$ $b = -0.100183 - 0.411243I$	$-0.32910 + 2.52919I$	$-2.51511 - 2.49755I$
$u = 0.003860 - 0.842294I$ $a = 1.030870 + 0.588893I$ $b = -0.100183 + 0.411243I$	$-0.32910 - 2.52919I$	$-2.51511 + 2.49755I$
$u = 0.754650 + 0.249290I$ $a = 0.939166 + 0.837342I$ $b = -1.49241 + 1.64802I$	$-5.87256 - 0.34107I$	$-6.74431 - 3.42962I$
$u = 0.754650 - 0.249290I$ $a = 0.939166 - 0.837342I$ $b = -1.49241 - 1.64802I$	$-5.87256 + 0.34107I$	$-6.74431 + 3.42962I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.750939+0.035102I$ $a=-0.610590-1.181800I$ $b=\ \ 0.95394-1.72247I$	$-2.40108+4.05977I$	$-3.48114-6.92820I$
$u=-0.750939-0.035102I$ $a=-0.610590+1.181800I$ $b=\ \ 0.95394+1.72247I$	$-2.40108-4.05977I$	$-3.48114+6.92820I$
$u=\ \ 0.385099+1.297440I$ $a=-0.508322-0.536253I$ $b=\ \ 0.609785-0.438873I$	$-0.32910-5.59035I$	$-2.51511+11.35885I$
$u=\ \ 0.385099-1.297440I$ $a=-0.508322+0.536253I$ $b=\ \ 0.609785+0.438873I$	$-0.32910+5.59035I$	$-2.51511-11.35885I$
$u=\ \ 1.35981+1.08969I$ $a=-0.086876-0.567255I$ $b=\ \ 0.872666-0.667883I$	$-2.40108-4.05977I$	$-3.48114+6.92820I$
$u=\ \ 1.35981-1.08969I$ $a=-0.086876+0.567255I$ $b=\ \ 0.872666+0.667883I$	$-2.40108+4.05977I$	$-3.48114-6.92820I$
$u=-1.65384+0.86983I$ $a=-0.021086-0.534734I$ $b=-0.825567-0.748066I$	$-5.87256-0.34107I$	$-6.74431-3.42962I$
$u=-1.65384-0.86983I$ $a=-0.021086+0.534734I$ $b=-0.825567+0.748066I$	$-5.87256+0.34107I$	$-6.74431+3.42962I$
$u=-1.52802+1.39283I$ $a=\ \ 0.103448-0.472469I$ $b=-0.961811-0.681432I$	$-5.87256+8.46060I$	$-6.74431-10.42679I$
$u=-1.52802-1.39283I$ $a=\ \ 0.103448+0.472469I$ $b=-0.961811+0.681432I$	$-5.87256-8.46060I$	$-6.74431+10.42679I$

IV. $\boldsymbol{I_4^u = \langle -4.98\times 10^{100}u^{39} + 3.97\times 10^{100}u^{38} + \cdots + 8.14\times 10^{103}b + 9.26\times 10^{103},\ -6.54\times 10^{86}u^{39} + 5.51\times 10^{86}u^{38} + \cdots + 6.14\times 10^{89}a + 9.19\times 10^{89},\ u^{40} - u^{39} + \cdots - 2058u + 661\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix}0.00106411u^{39} - 0.000896274u^{38} + \cdots + 4.19960u - 1.49596\\0.000611639u^{39} - 0.000487310u^{38} + \cdots - 0.146617u - 1.13690\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-0.000607927u^{39} + 0.000578380u^{38} + \cdots - 3.29473u + 0.728004\\-0.000592683u^{39} + 0.000499413u^{38} + \cdots + 0.927163u + 0.598919\end{pmatrix}$$

$$a_6 = \begin{pmatrix}0.000104535u^{39} - 0.0000685482u^{38} + \cdots + 3.44772u + 0.445244\\0.000455393u^{39} - 0.000513387u^{38} + \cdots + 3.63636u - 1.62677\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.000436418u^{39} - 0.000518640u^{38} + \cdots + 3.98825u - 0.470010\\0.000594930u^{39} - 0.000123584u^{38} + \cdots - 0.246336u - 0.971606\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.000646542u^{39} - 0.000900890u^{38} + \cdots - 2.25160u - 1.27770\\-0.000833117u^{39} + 0.00105792u^{38} + \cdots - 8.30405u + 1.36832\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.000367044u^{39} - 0.000242957u^{38} + \cdots + 8.59321u - 0.673734\\0.00187542u^{39} - 0.00168201u^{38} + \cdots + 3.68685u - 2.46681\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-0.000773486u^{39} + 0.000867048u^{38} + \cdots + 0.846502u + 2.07023\\0.000445917u^{39} - 0.000427270u^{38} + \cdots + 11.5103u - 1.29118\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0.000452474u^{39} - 0.000408964u^{38} + \cdots + 4.34621u - 0.359069\\0.000611639u^{39} - 0.000487310u^{38} + \cdots - 0.146617u - 1.13690\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-0.000773486u^{39} + 0.000867048u^{38} + \cdots + 0.846502u + 2.07023\\0.000462623u^{39} - 0.000503228u^{38} + \cdots + 10.8065u - 1.22934\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00369208u^{39} - 0.00356863u^{38} + \cdots + 25.2411u + 6.36746$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^5 + 3u^4 + 4u^3 + u^2 - u - 1)^8$
c_2, c_8	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)^8$
c_3, c_9	$(u^4 - u^3 + 2u + 1)^{10}$
c_4, c_6, c_{10} c_{12}	$u^{40} + u^{39} + \cdots + 2058u + 661$
c_5, c_{11}	$(u^{20} + u^{19} + \cdots + 8u + 7)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^8$
c_2, c_8	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^8$
c_3, c_9	$(y^4 - y^3 + 6y^2 - 4y + 1)^{10}$
c_4, c_6, c_{10} c_{12}	$y^{40} + 25y^{39} + \cdots + 1110804y + 436921$
c_5, c_{11}	$(y^{20} - 5y^{19} + \cdots + 832y + 49)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.637978 + 0.724823I$ $a = -0.05148 - 1.59323I$ $b = 0.413445 - 0.299501I$	$0.88879 - 4.05977I$	$8.51886 + 6.92820I$
$u = 0.637978 - 0.724823I$ $a = -0.05148 + 1.59323I$ $b = 0.413445 + 0.299501I$	$0.88879 + 4.05977I$	$8.51886 - 6.92820I$
$u = -0.242959 + 1.021930I$ $a = -0.036919 + 0.617393I$ $b = 1.31470 + 1.71034I$	$-2.58269 + 8.46060I$	$5.25569 - 10.42679I$
$u = -0.242959 - 1.021930I$ $a = -0.036919 - 0.617393I$ $b = 1.31470 - 1.71034I$	$-2.58269 - 8.46060I$	$5.25569 + 10.42679I$
$u = 0.404610 + 0.987240I$ $a = -0.058258 + 0.606127I$ $b = -1.02231 + 1.35409I$	$0.88879 - 4.05977I$	$8.51886 + 6.92820I$
$u = 0.404610 - 0.987240I$ $a = -0.058258 - 0.606127I$ $b = -1.02231 - 1.35409I$	$0.88879 + 4.05977I$	$8.51886 - 6.92820I$
$u = -0.288907 + 1.065080I$ $a = 0.655403 - 1.231190I$ $b = -1.138120 - 0.440255I$	$2.96077 + 2.52919I$	$9.48489 - 2.49755I$
$u = -0.288907 - 1.065080I$ $a = 0.655403 + 1.231190I$ $b = -1.138120 + 0.440255I$	$2.96077 - 2.52919I$	$9.48489 + 2.49755I$
$u = -1.066130 + 0.440454I$ $a = -0.550136 - 1.215670I$ $b = -1.02231 - 1.35409I$	$0.88879 + 4.05977I$	$8.51886 - 6.92820I$
$u = -1.066130 - 0.440454I$ $a = -0.550136 + 1.215670I$ $b = -1.02231 + 1.35409I$	$0.88879 - 4.05977I$	$8.51886 + 6.92820I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.164110 + 0.023151I$ $a = 0.981408 + 0.885684I$ $b = 0.56524 + 1.63789I$	$-2.58269 - 0.34107I$	$5.25569 - 3.42962I$
$u = 1.164110 - 0.023151I$ $a = 0.981408 - 0.885684I$ $b = 0.56524 - 1.63789I$	$-2.58269 + 0.34107I$	$5.25569 + 3.42962I$
$u = -0.716452 + 0.385226I$ $a = -0.60133 - 1.79412I$ $b = -0.045656 - 0.299605I$	$-2.58269 - 0.34107I$	$5.25569 - 3.42962I$
$u = -0.716452 - 0.385226I$ $a = -0.60133 + 1.79412I$ $b = -0.045656 + 0.299605I$	$-2.58269 + 0.34107I$	$5.25569 + 3.42962I$
$u = -0.407885 + 1.125790I$ $a = 0.029534 + 0.541768I$ $b = 0.56524 + 1.63789I$	$-2.58269 - 0.34107I$	$5.25569 - 3.42962I$
$u = -0.407885 - 1.125790I$ $a = 0.029534 - 0.541768I$ $b = 0.56524 - 1.63789I$	$-2.58269 + 0.34107I$	$5.25569 + 3.42962I$
$u = -0.896389 + 0.812519I$ $a = -0.102151 - 1.268150I$ $b = -0.415504 - 0.591215I$	$-2.58269 + 8.46060I$	$5.25569 - 10.42679I$
$u = -0.896389 - 0.812519I$ $a = -0.102151 + 1.268150I$ $b = -0.415504 + 0.591215I$	$-2.58269 - 8.46060I$	$5.25569 + 10.42679I$
$u = 0.434194 + 1.213710I$ $a = -0.476526 - 1.094890I$ $b = 1.094530 - 0.430480I$	$2.96077 - 5.59035I$	$9.4849 + 11.3589I$
$u = 0.434194 - 1.213710I$ $a = -0.476526 + 1.094890I$ $b = 1.094530 + 0.430480I$	$2.96077 + 5.59035I$	$9.4849 - 11.3589I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.308359 + 1.330800I$ $a = -0.566081 - 0.974243I$ $b = 1.45940 + 0.10309I$	$2.96077 - 2.52919I$	$9.48489 + 2.49755I$
$u = 0.308359 - 1.330800I$ $a = -0.566081 + 0.974243I$ $b = 1.45940 - 0.10309I$	$2.96077 + 2.52919I$	$9.48489 - 2.49755I$
$u = 1.42917 + 0.39610I$ $a = -0.370340 + 0.233998I$ $b = -1.138120 + 0.440255I$	$2.96077 - 2.52919I$	$9.48489 + 2.49755I$
$u = 1.42917 - 0.39610I$ $a = -0.370340 - 0.233998I$ $b = -1.138120 - 0.440255I$	$2.96077 + 2.52919I$	$9.48489 - 2.49755I$
$u = -0.67158 + 1.33468I$ $a = 0.292487 - 0.987795I$ $b = -1.72572 - 0.42392I$	$2.96077 + 5.59035I$	$9.4849 - 11.3589I$
$u = -0.67158 - 1.33468I$ $a = 0.292487 + 0.987795I$ $b = -1.72572 + 0.42392I$	$2.96077 - 5.59035I$	$9.4849 + 11.3589I$
$u = -0.174867 + 0.418319I$ $a = 0.91109 + 1.10596I$ $b = 1.45940 + 0.10309I$	$2.96077 - 2.52919I$	$9.48489 + 2.49755I$
$u = -0.174867 - 0.418319I$ $a = 0.91109 - 1.10596I$ $b = 1.45940 - 0.10309I$	$2.96077 + 2.52919I$	$9.48489 - 2.49755I$
$u = 1.44641 + 0.55826I$ $a = 0.430390 - 0.894647I$ $b = 1.31470 - 1.71034I$	$-2.58269 - 8.46060I$	$5.25569 + 10.42679I$
$u = 1.44641 - 0.55826I$ $a = 0.430390 + 0.894647I$ $b = 1.31470 + 1.71034I$	$-2.58269 + 8.46060I$	$5.25569 - 10.42679I$

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.56112 + 0.48621I$ $a = 0.397321 + 0.003491I$ $b = 1.094530 - 0.430480I$	$2.96077 - 5.59035I$	$9.4849 + 11.3589I$
$u = -1.56112 - 0.48621I$ $a = 0.397321 - 0.003491I$ $b = 1.094530 + 0.430480I$	$2.96077 + 5.59035I$	$9.4849 - 11.3589I$
$u = 0.214838 + 0.164995I$ $a = -1.39887 + 1.94815I$ $b = -1.72572 + 0.42392I$	$2.96077 - 5.59035I$	$9.4849 + 11.3589I$
$u = 0.214838 - 0.164995I$ $a = -1.39887 - 1.94815I$ $b = -1.72572 - 0.42392I$	$2.96077 + 5.59035I$	$9.4849 - 11.3589I$
$u = -0.58533 + 1.89216I$ $a = 0.183352 + 0.271987I$ $b = 0.413445 - 0.299501I$	$0.88879 - 4.05977I$	0
$u = -0.58533 - 1.89216I$ $a = 0.183352 - 0.271987I$ $b = 0.413445 + 0.299501I$	$0.88879 + 4.05977I$	0
$u = 0.10021 + 2.26152I$ $a = -0.095010 + 0.270810I$ $b = -0.045656 - 0.299605I$	$-2.58269 - 0.34107I$	0
$u = 0.10021 - 2.26152I$ $a = -0.095010 - 0.270810I$ $b = -0.045656 + 0.299605I$	$-2.58269 + 0.34107I$	0
$u = 0.97174 + 2.30033I$ $a = -0.166174 + 0.200183I$ $b = -0.415504 - 0.591215I$	$-2.58269 + 8.46060I$	0
$u = 0.97174 - 2.30033I$ $a = -0.166174 - 0.200183I$ $b = -0.415504 + 0.591215I$	$-2.58269 - 8.46060I$	0

V.

$\boldsymbol{I_5^u = \langle -9.70\times10^{33}u^{33} - 1.36\times10^{34}u^{32} + \cdots + 2.94\times10^{34}b + 1.13\times10^{34},\ 3.22\times10^{34}u^{33} + 2.09\times10^{34}u^{32} + \cdots + 2.94\times10^{34}a - 8.32\times10^{34},\ u^{34} + u^{33} + \cdots - u + 1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix}-1.09559u^{33} - 0.709759u^{32} + \cdots - 22.4459u + 2.83117\\0.330043u^{33} + 0.463983u^{32} + \cdots + 0.481423u - 0.385832\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-5.37913u^{33} - 5.58520u^{32} + \cdots - 48.2379u + 12.8517\\-0.215334u^{33} - 0.545172u^{32} + \cdots + 4.69165u + 0.591897\end{pmatrix}$$

$$a_6 = \begin{pmatrix}2.37063u^{33} + 3.63782u^{32} + \cdots + 15.1197u + 5.19638\\0.931915u^{33} + 1.27442u^{32} + \cdots - 1.53579u - 1.81257\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-1.09559u^{33} - 0.709759u^{32} + \cdots - 21.4459u + 2.83117\\0.330043u^{33} + 0.463983u^{32} + \cdots + 0.481423u - 0.385832\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-2.47525u^{33} - 3.46325u^{32} + \cdots - 9.88125u - 2.82033\\-2.29891u^{33} - 3.08203u^{32} + \cdots + 4.31129u + 2.74504\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-0.963759u^{33} - 1.57897u^{32} + \cdots + 7.48952u - 1.92757\\-1.04463u^{33} - 1.21170u^{32} + \cdots + 1.88300u + 0.541427\end{pmatrix}$$

$$a_8 = \begin{pmatrix}1.17761u^{33} + 1.37985u^{32} + \cdots - 8.32905u - 5.14271\\2.23540u^{33} + 3.07140u^{32} + \cdots - 3.79942u - 1.95927\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-1.42563u^{33} - 1.17374u^{32} + \cdots - 22.9273u + 3.21700\\0.330043u^{33} + 0.463983u^{32} + \cdots + 0.481423u - 0.385832\end{pmatrix}$$

$$a_7 = \begin{pmatrix}1.17761u^{33} + 1.37985u^{32} + \cdots - 8.32905u - 5.14271\\1.71683u^{33} + 2.33963u^{32} + \cdots - 2.82405u - 1.75703\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12.7757u^{33} + 19.8241u^{32} + \cdots + 79.8197u + 31.8684$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^{17} - 9u^{16} + \cdots + 10u - 3)^2$
c_2, c_8	$u^{34} + 9u^{32} + \cdots + 10u^2 + 3$
c_3, c_9	$u^{34} + 19u^{33} + \cdots + 8u + 1$
c_4, c_6, c_{10} c_{12}	$u^{34} + u^{33} + \cdots - u + 1$
c_5, c_{11}	$(u^{17} - u^{16} + \cdots + 4u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$(y^{17} + 7y^{16} + \cdots + 82y - 9)^2$
c_2, c_8	$(y^{17} + 9y^{16} + \cdots + 10y + 3)^2$
c_3, c_9	$y^{34} - 19y^{33} + \cdots - 8y + 1$
c_4, c_6, c_{10} c_{12}	$y^{34} + 19y^{33} + \cdots + 13y + 1$
c_5, c_{11}	$(y^{17} - 5y^{16} + \cdots + 6y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.976266+0.149592I$ $a=-0.81504-1.28743I$ $b=-0.158338-1.109770I$	$-3.36856-0.53554I$	$-6.70592-0.22374I$
$u=-0.976266-0.149592I$ $a=-0.81504+1.28743I$ $b=-0.158338+1.109770I$	$-3.36856+0.53554I$	$-6.70592+0.22374I$
$u=-0.384602+0.904554I$ $a=\ \ 0.58831-1.62135I$ $b=-1.137850-0.227099I$	$4.40354+7.01611I$	$7.72183-10.06852I$
$u=-0.384602-0.904554I$ $a=\ \ 0.58831+1.62135I$ $b=-1.137850+0.227099I$	$4.40354-7.01611I$	$7.72183+10.06852I$
$u=\ \ 0.247554+0.999868I$ $a=\ \ 0.453217-0.826367I$ $b=-0.263790$	1.88654	$2.67113+0.I$
$u=\ \ 0.247554-0.999868I$ $a=\ \ 0.453217+0.826367I$ $b=-0.263790$	1.88654	$2.67113+0.I$
$u=-0.918571+0.264502I$ $a=\ \ 0.518445+0.077778I$ $b=\ \ 1.35754-0.45624I$	$2.48881-5.22305I$	$-3.94000+1.19179I$
$u=-0.918571-0.264502I$ $a=\ \ 0.518445-0.077778I$ $b=\ \ 1.35754+0.45624I$	$2.48881+5.22305I$	$-3.94000-1.19179I$
$u=\ \ 0.518657+0.908593I$ $a=-0.26755-1.55368I$ $b=\ \ 1.094580-0.296082I$	$4.71928-1.93696I$	$8.82934+2.56871I$
$u=\ \ 0.518657-0.908593I$ $a=-0.26755+1.55368I$ $b=\ \ 1.094580+0.296082I$	$4.71928+1.93696I$	$8.82934-2.56871I$

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.768987 + 0.557589I$ $a = -0.016994 - 1.408560I$ $b = 0.434167 - 0.967172I$	$-0.19288 - 3.94620I$	$-0.68696 + 6.09510I$
$u = 0.768987 - 0.557589I$ $a = -0.016994 + 1.408560I$ $b = 0.434167 + 0.967172I$	$-0.19288 + 3.94620I$	$-0.68696 - 6.09510I$
$u = 0.921631 + 0.026383I$ $a = -0.501515 + 0.342023I$ $b = -1.363900 + 0.239505I$	$2.27186 - 2.61623I$	$-4.64736 + 4.07054I$
$u = 0.921631 - 0.026383I$ $a = -0.501515 - 0.342023I$ $b = -1.363900 - 0.239505I$	$2.27186 + 2.61623I$	$-4.64736 - 4.07054I$
$u = 0.310664 + 1.220730I$ $a = -0.335927 - 0.364757I$ $b = 0.434167 - 0.967172I$	$-0.19288 - 3.94620I$	$-0.68696 + 6.09510I$
$u = 0.310664 - 1.220730I$ $a = -0.335927 + 0.364757I$ $b = 0.434167 + 0.967172I$	$-0.19288 + 3.94620I$	$-0.68696 - 6.09510I$
$u = -0.296892 + 1.237950I$ $a = 0.633863 - 1.013850I$ $b = -1.363900 - 0.239505I$	$2.27186 + 2.61623I$	$-4.64736 - 4.07054I$
$u = -0.296892 - 1.237950I$ $a = 0.633863 + 1.013850I$ $b = -1.363900 + 0.239505I$	$2.27186 - 2.61623I$	$-4.64736 + 4.07054I$
$u = -1.172420 + 0.680700I$ $a = -0.216690 - 0.982712I$ $b = -0.593567 - 1.230290I$	$-3.54020 + 8.11632I$	$-4.12081 - 7.01955I$
$u = -1.172420 - 0.680700I$ $a = -0.216690 + 0.982712I$ $b = -0.593567 + 1.230290I$	$-3.54020 - 8.11632I$	$-4.12081 + 7.01955I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.077311 + 1.390950I$ $a = 0.273548 - 0.052796I$ $b = -0.593567 - 1.230290I$	$-3.54020 + 8.11632I$	$-4.12081 - 7.01955I$
$u = 0.077311 - 1.390950I$ $a = 0.273548 + 0.052796I$ $b = -0.593567 + 1.230290I$	$-3.54020 - 8.11632I$	$-4.12081 + 7.01955I$
$u = 0.555507 + 1.291860I$ $a = -0.358785 - 0.992839I$ $b = 1.35754 - 0.45624I$	$2.48881 - 5.22305I$	$-3.94000 + 0.I$
$u = 0.555507 - 1.291860I$ $a = -0.358785 + 0.992839I$ $b = 1.35754 + 0.45624I$	$2.48881 + 5.22305I$	$-3.94000 + 0.I$
$u = 0.589578 + 0.016869I$ $a = -1.53334 + 0.79026I$ $b = -1.137850 + 0.227099I$	$4.40354 - 7.01611I$	$7.72183 + 10.06852I$
$u = 0.589578 - 0.016869I$ $a = -1.53334 - 0.79026I$ $b = -1.137850 - 0.227099I$	$4.40354 + 7.01611I$	$7.72183 - 10.06852I$
$u = -0.552805 + 0.090382I$ $a = 1.84558 - 0.07153I$ $b = 1.094580 - 0.296082I$	$4.71928 - 1.93696I$	$8.82934 + 2.56871I$
$u = -0.552805 - 0.090382I$ $a = 1.84558 + 0.07153I$ $b = 1.094580 + 0.296082I$	$4.71928 + 1.93696I$	$8.82934 - 2.56871I$
$u = -0.35523 + 1.54438I$ $a = 0.108337 - 0.245021I$ $b = -0.158338 - 1.109770I$	$-3.36856 - 0.53554I$	0
$u = -0.35523 - 1.54438I$ $a = 0.108337 + 0.245021I$ $b = -0.158338 + 1.109770I$	$-3.36856 + 0.53554I$	0

Solutions to I^u_5	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.059071 + 0.276114I$ $a = 3.10812 - 8.72000I$ $b = -0.000733 + 0.459650I$	$7.90175 + 3.19247I$	$61.7143 + 27.7022I$
$u = 0.059071 - 0.276114I$ $a = 3.10812 + 8.72000I$ $b = -0.000733 - 0.459650I$	$7.90175 - 3.19247I$	$61.7143 - 27.7022I$
$u = 0.10782 + 1.81029I$ $a = 0.016417 - 0.411643I$ $b = -0.000733 - 0.459650I$	$7.90175 - 3.19247I$	0
$u = 0.10782 - 1.81029I$ $a = 0.016417 + 0.411643I$ $b = -0.000733 + 0.459650I$	$7.90175 + 3.19247I$	0

VI. $I_6^u = \langle b - u,\ a,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 + 8u - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 0$ $b = 1.21774$	-2.40108	-3.48110
$u = 0.309916 + 0.549911I$ $a = 0$ $b = 0.309916 + 0.549911I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = 0.309916 - 0.549911I$ $a = 0$ $b = 0.309916 - 0.549911I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = -1.41878 + 0.21917I$ $a = 0$ $b = -1.41878 + 0.21917I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = -1.41878 - 0.21917I$ $a = 0$ $b = -1.41878 - 0.21917I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$

VII. $\boldsymbol{I^u_7 = \langle 2405u^9 - 2260u^8 + \cdots + 7829b - 605,\ -u^9 + u^8 + \cdots + a - 6u,\ u^{10} - u^9 + \cdots + 6u^2 - 1\rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^9 - u^8 - 2u^7 - 2u^6 - 2u^5 + 12u^4 + 9u^3 + 9u^2 + 6u \\ -0.307191u^9 + 0.288670u^8 + \cdots - 3.06310u + 0.0772768 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^9 - u^8 - 2u^7 - 2u^6 - 2u^5 + 12u^4 + 9u^3 + 9u^2 + 6u \\ -0.307191u^9 + 0.288670u^8 + \cdots - 2.06310u + 0.0772768 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0772768u^9 + 0.384468u^8 + \cdots + 1.63278u + 4.06310 \\ -1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1.30719u^9 - 1.28867u^8 + \cdots + 10.0631u - 0.0772768 \\ -0.364287u^9 + 0.514881u^8 + \cdots - 2.75591u + 0.0957977 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0772768u^9 - 0.384468u^8 + \cdots - 1.63278u - 3.06310 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.17129u^9 - 1.67863u^8 + \cdots + 4.07843u - 0.0555627 \\ -0.478477u^9 + 0.967301u^8 + \cdots - 1.14153u + 0.132839 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0370418u^9 + 0.151233u^8 + \cdots + 0.154554u - 1.61438 \\ -0.301188u^9 + 0.374505u^8 + \cdots - 0.191595u + 0.728573 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.30719u^9 - 1.28867u^8 + \cdots + 9.06310u - 0.0772768 \\ -0.307191u^9 + 0.288670u^8 + \cdots - 3.06310u + 0.0772768 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0370418u^9 + 0.151233u^8 + \cdots + 0.154554u - 1.61438 \\ 0.0370418u^9 - 0.151233u^8 + \cdots - 0.154554u + 0.614382 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$\frac{13196}{7829}u^9 - \frac{23208}{7829}u^8 - \frac{12296}{7829}u^7 - \frac{7276}{7829}u^6 - \frac{18432}{7829}u^5 + \frac{163556}{7829}u^4 - \frac{7056}{7829}u^3 + \frac{77452}{7829}u^2 + \frac{45368}{7829}u + \frac{43394}{7829}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$(u^5+3u^4+4u^3+u^2-u-1)^2$
c_2, c_8	$(u^5-u^4+2u^3-u^2+u-1)^2$
c_3, c_9	$(u-1)^{10}$
c_4, c_6, c_{10} c_{12}	$u^{10}+u^9-2u^8+2u^7-2u^6-12u^5+9u^4-9u^3+6u^2-1$
c_5, c_{11}	$(u^5+u^4-2u^3-u^2+u-1)^2$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.032386 + 0.862164I$ $a = 0.043508 - 1.158240I$ $b = -0.309916 - 0.549911I$	$2.96077 - 1.53058I$	$9.48489 + 4.43065I$
$u = 0.032386 - 0.862164I$ $a = 0.043508 + 1.158240I$ $b = -0.309916 + 0.549911I$	$2.96077 + 1.53058I$	$9.48489 - 4.43065I$
$u = -0.536962 + 0.202275I$ $a = -1.63090 - 0.61436I$ $b = 1.41878 - 0.21917I$	$-2.58269 + 4.40083I$	$5.25569 - 3.49859I$
$u = -0.536962 - 0.202275I$ $a = -1.63090 + 0.61436I$ $b = 1.41878 + 0.21917I$	$-2.58269 - 4.40083I$	$5.25569 + 3.49859I$
$u = -0.34230 + 1.41207I$ $a = -0.162142 - 0.668873I$ $b = -0.309916 + 0.549911I$	$2.96077 + 1.53058I$	$9.48489 - 4.43065I$
$u = -0.34230 - 1.41207I$ $a = -0.162142 + 0.668873I$ $b = -0.309916 - 0.549911I$	$2.96077 - 1.53058I$	$9.48489 + 4.43065I$
$u = -1.53277$ $a = -0.652412$ $b = -1.21774$	0.888787	8.51890
$u = 0.315037$ $a = 3.17423$ $b = -1.21774$	0.888787	8.51890
$u = 1.95575 + 0.42144I$ $a = 0.488625 - 0.105293I$ $b = 1.41878 + 0.21917I$	$-2.58269 - 4.40083I$	$5.25569 + 3.49859I$
$u = 1.95575 - 0.42144I$ $a = 0.488625 + 0.105293I$ $b = 1.41878 - 0.21917I$	$-2.58269 + 4.40083I$	$5.25569 - 3.49859I$

VIII. $I_8^u = \langle b+u-1,\ a+u,\ u^2-u+1\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u-1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u-4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.500000 - 0.866025I$	$-4.05977I$	$0. + 6.92820I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.500000 + 0.866025I$	$4.05977I$	$0. - 6.92820I$

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^2(u^5+3u^4+4u^3+u^2-u-1)^{15}$ $\cdot(u^{10}+4u^9+10u^8+16u^7+19u^6+15u^5+8u^4+7u^3+21u^2+4u+16)^2$ $\cdot((u^{17}-9u^{16}+\cdots+10u-3)^2)(u^{23}+10u^{22}+\cdots+208u-64)$
c_2, c_8	$u^2(u^5-u^4+2u^3-u^2+u-1)^{14}(u^5+u^4+2u^3+u^2+u+1)$ $\cdot((u^{10}+4u^9+\cdots+10u+4)^2)(u^{23}+6u^{22}+\cdots-28u-8)$ $\cdot(u^{34}+9u^{32}+\cdots+10u^2+3)$
c_3, c_9	$u^5(u-1)^{10}(u^2-u+1)^{10}(u^2+u+1)(u^4-u^3+2u+1)^{10}$ $\cdot(u^{20}+8u^{19}+\cdots+830u+83)(u^{23}+11u^{22}+\cdots-187u-49)$ $\cdot(u^{34}+19u^{33}+\cdots+8u+1)$
c_4, c_6, c_{10} c_{12}	$(u^2-u+1)(u^5-u^4-2u^3+u^2+u+1)$ $\cdot(u^{10}+u^9-2u^8+2u^7-2u^6-12u^5+9u^4-9u^3+6u^2-1)$ $\cdot(u^{20}-u^{18}+\cdots-3u+1)(u^{20}-u^{19}+\cdots+30u+25)$ $\cdot(u^{23}+u^{22}+\cdots-u-1)(u^{34}+u^{33}+\cdots-u+1)$ $\cdot(u^{40}+u^{39}+\cdots+2058u+661)$
c_5, c_{11}	$(u^2+u+1)(u^5-u^4+\cdots+u+1)(u^5+u^4+\cdots+u-1)^2$ $\cdot(u^{10}+u^9+4u^8+2u^7+8u^6+3u^5+10u^4+u^3+6u^2+1)^2$ $\cdot((u^{17}-u^{16}+\cdots+4u-1)^2)(u^{20}-3u^{19}+\cdots-12u+133)$ $\cdot((u^{20}+u^{19}+\cdots+8u+7)^2)(u^{23}-2u^{22}+\cdots-u-4)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^2(y^5 - y^4 + \cdots + 3y - 1)^{15}(y^{10} + 4y^9 + \cdots + 656y + 256)^2$ $\cdot ((y^{17} + 7y^{16} + \cdots + 82y - 9)^2)(y^{23} + 6y^{22} + \cdots + 153856y - 4096)$
c_2, c_8	$y^2(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^{15}$ $\cdot (y^{10} + 4y^9 + 10y^8 + 16y^7 + 19y^6 + 15y^5 + 8y^4 + 7y^3 + 21y^2 + 4y + 16)^2$ $\cdot ((y^{17} + 9y^{16} + \cdots + 10y + 3)^2)(y^{23} + 10y^{22} + \cdots + 208y - 64)$
c_3, c_9	$y^5(y-1)^{10}(y^2 + y + 1)^{11}(y^4 - y^3 + 6y^2 - 4y + 1)^{10}$ $\cdot (y^{20} - 8y^{19} + \cdots - 10292y + 6889)$ $\cdot (y^{23} - 11y^{22} + \cdots + 9979y - 2401)(y^{34} - 19y^{33} + \cdots - 8y + 1)$
c_4, c_6, c_{10} c_{12}	$(y^2 + y + 1)(y^5 - 5y^4 + \cdots - y - 1)(y^{10} - 5y^9 + \cdots - 12y + 1)$ $\cdot (y^{20} - 5y^{19} + \cdots - 2600y + 625)(y^{20} - 2y^{19} + \cdots + 93y + 1)$ $\cdot (y^{23} - 19y^{22} + \cdots + 35y - 1)(y^{34} + 19y^{33} + \cdots + 13y + 1)$ $\cdot (y^{40} + 25y^{39} + \cdots + 1110804y + 436921)$
c_5, c_{11}	$(y^2 + y + 1)(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^3$ $\cdot ((y^{10} + 7y^9 + \cdots + 12y + 1)^2)(y^{17} - 5y^{16} + \cdots + 6y - 1)^2$ $\cdot (y^{20} - 5y^{19} + \cdots + 832y + 49)^2$ $\cdot (y^{20} + 15y^{19} + \cdots + 154136y + 17689)(y^{23} - 4y^{22} + \cdots + 81y - 16)$