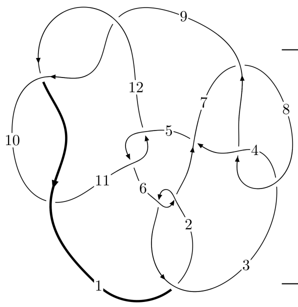
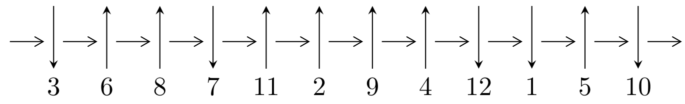
$12a_{0271}$ ($K12a_{0271}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.23243 \times 10^{129} u^{108} + 1.55838 \times 10^{130} u^{107} + \cdots + 3.15285 \times 10^{126} b + 9.10169 \times 10^{128}, \\
& 6.10588 \times 10^{129} u^{108} + 7.74537 \times 10^{130} u^{107} + \cdots + 6.30570 \times 10^{126} a + 4.64339 \times 10^{129}, \\
& u^{109} + 14u^{108} + \cdots + 7u + 1 \rangle \\
I_2^u = \langle & 23a^8 + 230a^7 + 849a^6 + 1550a^5 + 2020a^4 + 2255a^3 + 1022a^2 + 145b + 663a - 205, \\
& a^9 + 7a^8 + 17a^7 + 26a^6 + 42a^5 + 30a^4 + 34a^3 + 9a^2 + 8a - 1,\ u - 1 \rangle \\
I_3^u = \langle & -134a^3 u + 33a^3 - 58a^2 u - 279a^2 - 52au + 1310b - 476a + 52u - 834, \\
& a^4 + 2a^3 u + 4a^3 + 6a^2 u + 13a^2 + 14au + 22a + 30u + 52,\ u^2 + u - 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 126 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. $I_1^u = \langle 1.23 \times 10^{129} u^{108} + 1.56 \times 10^{130} u^{107} + \cdots + 3.15 \times 10^{126} b + 9.10 \times 10^{128},\ 6.11 \times 10^{129} u^{108} + 7.75 \times 10^{130} u^{107} + \cdots + 6.31 \times 10^{126} a + 4.64 \times 10^{129},\ u^{109} + 14u^{108} + \cdots + 7u + 1 \rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -968.311u^{108} - 12283.1u^{107} + \cdots - 4584.18u - 736.380 \\ -390.893u^{108} - 4942.78u^{107} + \cdots - 1804.94u - 288.681 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -929.018u^{108} - 11751.3u^{107} + \cdots - 4271.39u - 682.333 \\ -735.325u^{108} - 9383.18u^{107} + \cdots - 3627.78u - 583.409 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -244.974u^{108} - 3068.45u^{107} + \cdots - 1003.44u - 164.812 \\ 679.242u^{108} + 8687.50u^{107} + \cdots + 3444.28u + 556.251 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 328.541u^{108} + 4085.82u^{107} + \cdots + 1244.91u + 200.212 \\ 29.4565u^{108} + 399.793u^{107} + \cdots + 227.612u + 39.0444 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -193.693u^{108} - 2368.15u^{107} + \cdots - 643.610u - 98.9239 \\ -735.325u^{108} - 9383.18u^{107} + \cdots - 3627.78u - 583.409 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 763.605u^{108} + 9680.35u^{107} + \cdots + 3621.10u + 578.034 \\ -1957.98u^{108} - 24889.9u^{107} + \cdots - 9485.41u - 1525.65 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -13.8716u^{108} - 155.907u^{107} + \cdots + 8.72015u + 0.253671 \\ -1586.38u^{108} - 20163.0u^{107} + \cdots - 7667.22u - 1232.67 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1327.30u^{108} + 16843.2u^{107} + \cdots + 6329.93u + 1019.14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{109} + 56u^{108} + \cdots - 5688u - 1296$
c_2, c_6	$u^{109} - 2u^{108} + \cdots + 72u - 36$
c_3, c_8	$u^{109} - 2u^{108} + \cdots + 15u - 9$
c_4	$u^{109} - 6u^{108} + \cdots + 1068687u - 322299$
c_5, c_{11}	$u^{109} + u^{108} + \cdots - 6144u - 512$
c_7	$u^{109} - 52u^{108} + \cdots - 189u - 81$
c_9, c_{10}, c_{12}	$u^{109} - 14u^{108} + \cdots + 7u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{109} + 4y^{108} + \cdots + 86720544y - 1679616$
c_2, c_6	$y^{109} + 56y^{108} + \cdots - 5688y - 1296$
c_3, c_8	$y^{109} - 52y^{108} + \cdots - 189y - 81$
c_4	$y^{109} + 20y^{108} + \cdots - 3429890229501y - 103876645401$
c_5, c_{11}	$y^{109} + 69y^{108} + \cdots + 11272192y - 262144$
c_7	$y^{109} + 16y^{108} + \cdots + 363123y - 6561$
c_9, c_{10}, c_{12}	$y^{109} - 108y^{108} + \cdots + 63y - 1$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.016630+0.004269I$		
$a=$	$8.13325+5.59186I$	$-3.33980-2.03615I$	0
$b=$	$0.837596-0.489489I$		
$u=$	$1.016630-0.004269I$		
$a=$	$8.13325-5.59186I$	$-3.33980+2.03615I$	0
$b=$	$0.837596+0.489489I$		
$u=$	$0.404790+0.937368I$		
$a=$	$-0.90874-1.47581I$	$-0.76763-12.89190I$	0
$b=$	$1.124360-0.589303I$		
$u=$	$0.404790-0.937368I$		
$a=$	$-0.90874+1.47581I$	$-0.76763+12.89190I$	0
$b=$	$1.124360+0.589303I$		
$u=$	$0.411108+0.884965I$		
$a=$	$0.521196+0.355803I$	$-3.00544-7.70749I$	0
$b=$	$0.369946+0.793260I$		
$u=$	$0.411108-0.884965I$		
$a=$	$0.521196-0.355803I$	$-3.00544+7.70749I$	0
$b=$	$0.369946-0.793260I$		
$u=$	$1.016580+0.274813I$		
$a=$	$0.484768+0.857560I$	$-1.93065-0.92430I$	0
$b=$	$0.012958+0.405942I$		
$u=$	$1.016580-0.274813I$		
$a=$	$0.484768-0.857560I$	$-1.93065+0.92430I$	0
$b=$	$0.012958-0.405942I$		
$u=$	$0.786470+0.711560I$		
$a=$	$-0.139650-0.997227I$	$-4.16608+2.27907I$	0
$b=$	$0.385614-0.697857I$		
$u=$	$0.786470-0.711560I$		
$a=$	$-0.139650+0.997227I$	$-4.16608-2.27907I$	0
$b=$	$0.385614+0.697857I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.912194 + 0.564468I$ $a = 0.124511 - 0.334015I$ $b = -1.052250 - 0.499335I$	$0.05579 + 2.65712I$	0
$u = 0.912194 - 0.564468I$ $a = 0.124511 + 0.334015I$ $b = -1.052250 + 0.499335I$	$0.05579 - 2.65712I$	0
$u = 0.320133 + 0.851289I$ $a = 1.19396 + 1.23612I$ $b = -1.114450 + 0.552127I$	$1.84711 - 7.63939I$	0
$u = 0.320133 - 0.851289I$ $a = 1.19396 - 1.23612I$ $b = -1.114450 - 0.552127I$	$1.84711 + 7.63939I$	0
$u = 0.301149 + 0.854421I$ $a = 1.006620 + 0.099668I$ $b = -1.140280 - 0.181677I$	$1.90970 - 5.11227I$	0
$u = 0.301149 - 0.854421I$ $a = 1.006620 - 0.099668I$ $b = -1.140280 + 0.181677I$	$1.90970 + 5.11227I$	0
$u = 0.943762 + 0.586540I$ $a = 0.532799 + 1.247840I$ $b = -1.044820 + 0.255463I$	$-0.0247817 + 0.0796703I$	0
$u = 0.943762 - 0.586540I$ $a = 0.532799 - 1.247840I$ $b = -1.044820 - 0.255463I$	$-0.0247817 - 0.0796703I$	0
$u = 0.849998 + 0.764802I$ $a = -0.009634 + 0.635203I$ $b = 1.093690 + 0.562163I$	$-2.10039 + 7.13248I$	0
$u = 0.849998 - 0.764802I$ $a = -0.009634 - 0.635203I$ $b = 1.093690 - 0.562163I$	$-2.10039 - 7.13248I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.567153 + 0.640929I$ $a = 1.006030 - 0.275954I$ $b = 0.493383 + 0.632986I$	$-4.68801 + 0.41176I$	0
$u = 0.567153 - 0.640929I$ $a = 1.006030 + 0.275954I$ $b = 0.493383 - 0.632986I$	$-4.68801 - 0.41176I$	0
$u = 0.454957 + 0.721916I$ $a = 0.137567 - 0.733744I$ $b = 0.611030 - 0.716852I$	$-4.29347 - 5.01697I$	0
$u = 0.454957 - 0.721916I$ $a = 0.137567 + 0.733744I$ $b = 0.611030 + 0.716852I$	$-4.29347 + 5.01697I$	0
$u = 0.345213 + 0.752658I$ $a = -0.349887 - 0.087687I$ $b = -0.320749 - 0.709497I$	$-0.44649 - 2.81276I$	0
$u = 0.345213 - 0.752658I$ $a = -0.349887 + 0.087687I$ $b = -0.320749 + 0.709497I$	$-0.44649 + 2.81276I$	0
$u = 0.623603 + 0.494487I$ $a = 0.307659 + 0.731604I$ $b = -0.554457 + 0.508718I$	$-1.54674 - 1.43755I$	0
$u = 0.623603 - 0.494487I$ $a = 0.307659 - 0.731604I$ $b = -0.554457 - 0.508718I$	$-1.54674 + 1.43755I$	0
$u = 0.428746 + 0.651403I$ $a = -2.05459 - 1.82233I$ $b = 1.042280 - 0.549995I$	$-3.06677 - 4.24362I$	0
$u = 0.428746 - 0.651403I$ $a = -2.05459 + 1.82233I$ $b = 1.042280 + 0.549995I$	$-3.06677 + 4.24362I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.142100 + 0.435495I$ $a = -0.41213 - 1.72843I$ $b = 1.064570 - 0.391803I$	$0.71816 - 4.11005I$	0
$u = 1.142100 - 0.435495I$ $a = -0.41213 + 1.72843I$ $b = 1.064570 + 0.391803I$	$0.71816 + 4.11005I$	0
$u = 0.463780 + 0.617736I$ $a = -0.527069 + 1.057310I$ $b = 0.976057 + 0.625465I$	$-3.21393 + 0.11148I$	0
$u = 0.463780 - 0.617736I$ $a = -0.527069 - 1.057310I$ $b = 0.976057 - 0.625465I$	$-3.21393 - 0.11148I$	0
$u = -1.249550 + 0.003143I$ $a = -0.283939 + 0.688479I$ $b = 1.234130 + 0.398669I$	$1.78465 + 1.35351I$	0
$u = -1.249550 - 0.003143I$ $a = -0.283939 - 0.688479I$ $b = 1.234130 - 0.398669I$	$1.78465 - 1.35351I$	0
$u = 1.206400 + 0.327884I$ $a = -0.389297 + 0.143393I$ $b = -1.037800 - 0.324158I$	$0.50722 + 1.42907I$	0
$u = 1.206400 - 0.327884I$ $a = -0.389297 - 0.143393I$ $b = -1.037800 + 0.324158I$	$0.50722 - 1.42907I$	0
$u = 0.148361 + 0.734114I$ $a = -1.44030 + 0.28159I$ $b = 1.111060 + 0.271317I$	$3.73455 - 0.07956I$	0
$u = 0.148361 - 0.734114I$ $a = -1.44030 - 0.28159I$ $b = 1.111060 - 0.271317I$	$3.73455 + 0.07956I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.251330 + 0.110567I$ $a = \quad 0.310557 - 1.114140I$ $b = -1.219260 - 0.473681I$	$1.25854 + 7.78889I$	0
$u = -1.251330 - 0.110567I$ $a = \quad 0.310557 + 1.114140I$ $b = -1.219260 + 0.473681I$	$1.25854 - 7.78889I$	0
$u = -1.295240 + 0.056218I$ $a = -0.164026 + 0.829289I$ $b = -0.067094 + 0.861154I$	$-2.25141 + 3.00990I$	0
$u = -1.295240 - 0.056218I$ $a = -0.164026 - 0.829289I$ $b = -0.067094 - 0.861154I$	$-2.25141 - 3.00990I$	0
$u = -0.082194 + 0.675232I$ $a = \quad 0.899320 - 0.233825I$ $b = -1.134390 + 0.407127I$	$4.49085 - 5.11092I$	0
$u = -0.082194 - 0.675232I$ $a = \quad 0.899320 + 0.233825I$ $b = -1.134390 - 0.407127I$	$4.49085 + 5.11092I$	0
$u = \quad 1.325510 + 0.015098I$ $a = -0.68029 + 2.85029I$ $b = -1.011680 + 0.589449I$	$-5.19776 - 2.18585I$	0
$u = \quad 1.325510 - 0.015098I$ $a = -0.68029 - 2.85029I$ $b = -1.011680 - 0.589449I$	$-5.19776 + 2.18585I$	0
$u = \quad 1.329390 + 0.112204I$ $a = \quad 1.13368 + 1.20869I$ $b = \quad 0.402859 + 0.628401I$	$-3.01364 - 0.75193I$	0
$u = \quad 1.329390 - 0.112204I$ $a = \quad 1.13368 - 1.20869I$ $b = \quad 0.402859 - 0.628401I$	$-3.01364 + 0.75193I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.373420 + 0.042297I$ $a = -1.41682 + 1.56257I$ $b = -0.553024 + 0.689823I$	$-6.55401 - 2.75061I$	0
$u = 1.373420 - 0.042297I$ $a = -1.41682 - 1.56257I$ $b = -0.553024 - 0.689823I$	$-6.55401 + 2.75061I$	0
$u = -0.460518 + 0.401129I$ $a = 0.33891 - 2.30443I$ $b = -1.140320 - 0.523300I$	$2.81375 + 7.97265I$	$6.75785 - 7.76688I$
$u = -0.460518 - 0.401129I$ $a = 0.33891 + 2.30443I$ $b = -1.140320 + 0.523300I$	$2.81375 - 7.97265I$	$6.75785 + 7.76688I$
$u = 1.383490 + 0.198811I$ $a = 0.27751 - 2.31980I$ $b = 1.078330 - 0.543261I$	$-1.04938 - 5.38156I$	0
$u = 1.383490 - 0.198811I$ $a = 0.27751 + 2.31980I$ $b = 1.078330 + 0.543261I$	$-1.04938 + 5.38156I$	0
$u = 1.380860 + 0.221289I$ $a = 0.651853 - 0.050411I$ $b = 1.079270 + 0.187980I$	$-1.05843 - 2.88175I$	0
$u = 1.380860 - 0.221289I$ $a = 0.651853 + 0.050411I$ $b = 1.079270 - 0.187980I$	$-1.05843 + 2.88175I$	0
$u = -0.270752 + 0.530344I$ $a = -0.257115 + 0.691543I$ $b = 1.134540 - 0.317097I$	$4.20308 + 0.05931I$	$8.59381 + 0.I$
$u = -0.270752 - 0.530344I$ $a = -0.257115 - 0.691543I$ $b = 1.134540 + 0.317097I$	$4.20308 - 0.05931I$	$8.59381 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.380480+0.266205I$ $a=-0.080388+0.259982I$ $b=\ \ 1.200820-0.191115I$	$-1.15287+3.63290I$	0
$u=-1.380480-0.266205I$ $a=-0.080388-0.259982I$ $b=\ \ 1.200820+0.191115I$	$-1.15287-3.63290I$	0
$u=-0.267350+0.518380I$ $a=-1.09999+2.03371I$ $b=\ \ 1.126850+0.452815I$	$4.19677+2.70080I$	$8.69742-1.85620I$
$u=-0.267350-0.518380I$ $a=-1.09999-2.03371I$ $b=\ \ 1.126850-0.452815I$	$4.19677-2.70080I$	$8.69742+1.85620I$
$u=-1.42886+0.12570I$ $a=\ \ 0.624904-0.307615I$ $b=-1.108450+0.263345I$	$-7.14836-0.04349I$	0
$u=-1.42886-0.12570I$ $a=\ \ 0.624904+0.307615I$ $b=-1.108450-0.263345I$	$-7.14836+0.04349I$	0
$u=-1.45766+0.09362I$ $a=-0.66552+1.42703I$ $b=-0.918640+0.694553I$	$-7.56134-1.77744I$	0
$u=-1.45766-0.09362I$ $a=-0.66552-1.42703I$ $b=-0.918640-0.694553I$	$-7.56134+1.77744I$	0
$u=\ \ 1.45706+0.14043I$ $a=-0.99668-1.44033I$ $b=-0.389827-0.753821I$	$-5.72245-5.15147I$	0
$u=\ \ 1.45706-0.14043I$ $a=-0.99668+1.44033I$ $b=-0.389827+0.753821I$	$-5.72245+5.15147I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.47452+0.15767I$ $a=-0.49541-1.54608I$ $b=-0.693140-0.745975I$	$-8.21597+3.64315I$	0
$u=-1.47452-0.15767I$ $a=-0.49541+1.54608I$ $b=-0.693140+0.745975I$	$-8.21597-3.64315I$	0
$u=-1.44827+0.33097I$ $a=-0.053983-0.394503I$ $b=-1.207320+0.135353I$	$-3.69746+9.38157I$	0
$u=-1.44827-0.33097I$ $a=-0.053983+0.394503I$ $b=-1.207320-0.135353I$	$-3.69746-9.38157I$	0
$u=-1.45770+0.28932I$ $a=-0.893306+0.858668I$ $b=-0.342996+0.833291I$	$-6.25498+6.61355I$	0
$u=-1.45770-0.28932I$ $a=-0.893306-0.858668I$ $b=-0.342996-0.833291I$	$-6.25498-6.61355I$	0
$u=-1.47125+0.23991I$ $a=-0.61335+2.09178I$ $b=\ \ 1.115140+0.563775I$	$-9.20098+7.51308I$	0
$u=-1.47125-0.23991I$ $a=-0.61335-2.09178I$ $b=\ \ 1.115140-0.563775I$	$-9.20098-7.51308I$	0
$u=-1.47703+0.22116I$ $a=\ \ 0.73960-1.38654I$ $b=\ \ 1.001020-0.698022I$	$-9.48577+2.96099I$	0
$u=-1.47703-0.22116I$ $a=\ \ 0.73960+1.38654I$ $b=\ \ 1.001020+0.698022I$	$-9.48577-2.96099I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.45794 + 0.33062I$ $a = \quad 0.27434 - 2.04142I$ $b = -1.145410 - 0.593691I$	$-3.86036 + 11.90930I$	0
$u = -1.45794 - 0.33062I$ $a = \quad 0.27434 + 2.04142I$ $b = -1.145410 + 0.593691I$	$-3.86036 - 11.90930I$	0
$u = \quad 1.49360 + 0.16926I$ $a = -0.51766 + 2.19626I$ $b = -1.105820 + 0.581728I$	$-3.61148 - 10.21280I$	0
$u = \quad 1.49360 - 0.16926I$ $a = -0.51766 - 2.19626I$ $b = -1.105820 - 0.581728I$	$-3.61148 + 10.21280I$	0
$u = -0.078882 + 0.490309I$ $a = \quad 0.817776 - 0.190481I$ $b = \quad 0.033791 - 0.647762I$	$1.23015 - 1.32761I$	$4.63192 + 3.39563I$
$u = -0.078882 - 0.490309I$ $a = \quad 0.817776 + 0.190481I$ $b = \quad 0.033791 + 0.647762I$	$1.23015 + 1.32761I$	$4.63192 - 3.39563I$
$u = -0.345451 + 0.355207I$ $a = -1.20883 + 0.84661I$ $b = -0.235515 + 0.725816I$	$0.19256 + 3.25530I$	$3.54040 - 3.77477I$
$u = -0.345451 - 0.355207I$ $a = -1.20883 - 0.84661I$ $b = -0.235515 - 0.725816I$	$0.19256 - 3.25530I$	$3.54040 + 3.77477I$
$u = -1.48934 + 0.25765I$ $a = \quad 0.45244 + 1.60841I$ $b = \quad 0.630174 + 0.807266I$	$-10.59110 + 8.58055I$	0
$u = -1.48934 - 0.25765I$ $a = \quad 0.45244 - 1.60841I$ $b = \quad 0.630174 - 0.807266I$	$-10.59110 - 8.58055I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.50605+0.20053I$ $a=\ \ 0.971598-0.547193I$ $b=\ \ 0.346235-0.727850I$	$-11.44530+2.58672I$	0
$u=-1.50605-0.20053I$ $a=\ \ 0.971598+0.547193I$ $b=\ \ 0.346235+0.727850I$	$-11.44530-2.58672I$	0
$u=-1.50267+0.33676I$ $a=\ \ 0.998701-0.957933I$ $b=\ \ 0.389482-0.855808I$	$-9.1719+12.1476I$	0
$u=-1.50267-0.33676I$ $a=\ \ 0.998701+0.957933I$ $b=\ \ 0.389482+0.855808I$	$-9.1719-12.1476I$	0
$u=-1.50887+0.36177I$ $a=-0.15566+2.15597I$ $b=\ \ 1.139470+0.617419I$	$-6.9159+17.6040I$	0
$u=-1.50887-0.36177I$ $a=-0.15566-2.15597I$ $b=\ \ 1.139470-0.617419I$	$-6.9159-17.6040I$	0
$u=-1.61741+0.14592I$ $a=\ \ 0.36078+1.47913I$ $b=\ \ 0.539268+0.620370I$	$-12.38970+0.73229I$	0
$u=-1.61741-0.14592I$ $a=\ \ 0.36078-1.47913I$ $b=\ \ 0.539268-0.620370I$	$-12.38970-0.73229I$	0
$u=\ \ 0.213705+0.270030I$ $a=\ \ 5.47530+0.91762I$ $b=-0.938716-0.391710I$	$-1.65195+1.59364I$	$4.83512+0.49899I$
$u=\ \ 0.213705-0.270030I$ $a=\ \ 5.47530-0.91762I$ $b=-0.938716+0.391710I$	$-1.65195-1.59364I$	$4.83512-0.49899I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.67589+0.02232I$ $a=-0.507389-1.223280I$ $b=-0.914844-0.395620I$	$-9.62956+1.60028I$	0
$u=-1.67589-0.02232I$ $a=-0.507389+1.223280I$ $b=-0.914844+0.395620I$	$-9.62956-1.60028I$	0
$u=-1.67218+0.12795I$ $a=\quad 0.66697-1.25834I$ $b=\quad 1.020840-0.549982I$	$-10.95800-3.88953I$	0
$u=-1.67218-0.12795I$ $a=\quad 0.66697+1.25834I$ $b=\quad 1.020840+0.549982I$	$-10.95800+3.88953I$	0
$u=\quad 0.199122+0.115978I$ $a=\quad 1.28671-1.95913I$ $b=-0.834445+0.576923I$	$-1.68477-2.29240I$	$4.69113+5.69052I$
$u=\quad 0.199122-0.115978I$ $a=\quad 1.28671+1.95913I$ $b=-0.834445-0.576923I$	$-1.68477+2.29240I$	$4.69113-5.69052I$
$u=-0.164063$ $a=\quad 3.46287$ $b=\quad 0.724134$	0.959322	11.2500
$u=-0.0898438+0.0819134I$ $a=-2.63908-6.71038I$ $b=-0.731105-0.544483I$	$-1.85092+2.17150I$	$2.55964-3.90051I$
$u=-0.0898438-0.0819134I$ $a=-2.63908+6.71038I$ $b=-0.731105+0.544483I$	$-1.85092-2.17150I$	$2.55964+3.90051I$

II. $\boldsymbol{I_2^u = \langle 23a^8 + 145b + \cdots + 663a - 205,\ a^9 + 7a^8 + \cdots + 8a - 1,\ u - 1\rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -0.158621a^8 - 1.58621a^7 + \cdots - 4.57241a + 1.41379 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.475862a^8 - 3.15862a^7 + \cdots + 2.68276a + 0.841379 \\ -0.972414a^8 - 6.92414a^7 + \cdots - 2.04828a + 1.07586 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.275862a^8 + 1.55862a^7 + \cdots - 3.28276a - 0.441379 \\ 0.565517a^8 + 3.05517a^7 + \cdots - 7.48966a + 1.05517 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.275862a^8 + 1.55862a^7 + \cdots - 3.28276a - 0.441379 \\ -0.179310a^8 - 1.59310a^7 + \cdots - 3.58621a + 0.406897 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.496552a^8 + 3.76552a^7 + \cdots + 4.73103a - 0.234483 \\ -0.972414a^8 - 6.92414a^7 + \cdots - 2.04828a + 1.07586 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ -0.406897a^8 - 2.66897a^7 + \cdots + 3.26207a + 0.331034 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -0.406897a^8 - 2.66897a^7 + \cdots + 3.26207a + 0.331034 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{303}{145}a^8 - \frac{2247}{145}a^7 - \frac{5744}{145}a^6 - \frac{8116}{145}a^5 - \frac{2392}{29}a^4 - \frac{1889}{29}a^3 - \frac{6157}{145}a^2 - \frac{2841}{145}a + \frac{653}{145}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_2	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_3	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_5, c_{11}	u^9
c_6	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_7	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$
c_8	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_9, c_{10}	$(u-1)^9$
c_{12}	$(u+1)^9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_2, c_6	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_3, c_8	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_5, c_{11}	y^9
c_7	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_9, c_{10}, c_{12}	$(y-1)^9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.217279 + 0.962736I$ $b = -0.141484 + 0.739668I$	$-1.02799 + 2.45442I$	$-0.10038 - 1.90984I$
$u = 1.00000$ $a = -0.217279 - 0.962736I$ $b = -0.141484 - 0.739668I$	$-1.02799 - 2.45442I$	$-0.10038 + 1.90984I$
$u = 1.00000$ $a = 0.038112 + 1.195250I$ $b = -1.172470 + 0.500383I$	$1.95319 - 7.08493I$	$3.23178 + 2.93209I$
$u = 1.00000$ $a = 0.038112 - 1.195250I$ $b = -1.172470 - 0.500383I$	$1.95319 + 7.08493I$	$3.23178 - 2.93209I$
$u = 1.00000$ $a = -0.121911 + 0.782086I$ $b = 1.173910 + 0.391555I$	$2.72642 + 1.33617I$	$6.61905 - 0.64999I$
$u = 1.00000$ $a = -0.121911 - 0.782086I$ $b = 1.173910 - 0.391555I$	$2.72642 - 1.33617I$	$6.61905 + 0.64999I$
$u = 1.00000$ $a = 0.106533$ $b = 0.825933$	-0.446489	1.84400
$u = 1.00000$ $a = -3.25219 + 0.42284I$ $b = -0.772920 - 0.510351I$	$-3.42837 + 2.09337I$	$-12.6725 - 14.2088I$
$u = 1.00000$ $a = -3.25219 - 0.42284I$ $b = -0.772920 + 0.510351I$	$-3.42837 - 2.09337I$	$-12.6725 + 14.2088I$

III. $I_3^u =$
$\langle -134a^3u-58a^2u+\cdots-476a-834,\ 2a^3u+6a^2u+\cdots+22a+52,\ u^2+u-1\rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\-u+1\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u+1\end{pmatrix}$$
$$a_4 = \begin{pmatrix}a\\0.102290a^3u+0.0442748a^2u+\cdots+0.363359a+0.636641\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.109924a^3u-0.525191a^2u+\cdots-0.241221a-0.758779\\-0.112977a^3u-0.317557a^2u+\cdots-0.192366a+0.192366\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.0748092a^3u-0.0870229a^2u+\cdots-0.196947a-1.80305\\0.197710a^3u+0.0557252a^2u+\cdots-0.163359a+0.163359\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.0748092a^3u-0.0870229a^2u+\cdots-0.196947a-1.80305\\0.197710a^3u+0.0557252a^2u+\cdots-0.163359a+1.16336\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.00305344a^3u-0.207634a^2u+\cdots-0.0488550a-0.951145\\-0.112977a^3u-0.317557a^2u+\cdots-0.192366a+0.192366\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.0954198a^3u-0.0114504a^2u+\cdots+0.526718a+0.473282\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.145038a^3u+0.137405a^2u+\cdots-0.320611a+0.320611\\0.240458a^3u+0.148855a^2u+\cdots-0.847328a-0.152672\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{296}{655}a^3u-\frac{112}{655}a^3+\frac{832}{655}a^2u-\frac{244}{655}a^2+\frac{1288}{655}au+\frac{504}{655}a+\frac{1332}{655}u-\frac{3124}{655}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0.09224 + 2.45827I$ $b = -0.866025 + 0.500000I$	$-2.63189 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 0.618034$ $a = 0.09224 - 2.45827I$ $b = -0.866025 - 0.500000I$	$-2.63189 + 2.02988I$	$-6.00000 - 3.46410I$
$u = 0.618034$ $a = -2.71028 + 2.07630I$ $b = 0.866025 - 0.500000I$	$-2.63189 - 2.02988I$	$-6.00000 + 3.46410I$
$u = 0.618034$ $a = -2.71028 - 2.07630I$ $b = 0.866025 + 0.500000I$	$-2.63189 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.61803$ $a = 0.344250 + 0.978225I$ $b = 0.866025 + 0.500000I$	$-10.52760 + 2.02988I$	$-6.00000 - 3.46410I$
$u = -1.61803$ $a = 0.344250 - 0.978225I$ $b = 0.866025 - 0.500000I$	$-10.52760 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -1.61803$ $a = -0.72622 + 1.63981I$ $b = -0.866025 + 0.500000I$	$-10.52760 - 2.02988I$	$-6.00000 + 3.46410I$
$u = -1.61803$ $a = -0.72622 - 1.63981I$ $b = -0.866025 - 0.500000I$	$-10.52760 + 2.02988I$	$-6.00000 - 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^9-3u^8+\cdots+u+1)$ $\cdot(u^{109}+56u^{108}+\cdots-5688u-1296)$
c_2	$(u^2+1)^4(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{109}-2u^{108}+\cdots+72u-36)$
c_3	$(u^4-u^2+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{109}-2u^{108}+\cdots+15u-9)$
c_4	$(u^4-u^2+1)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{109}-6u^{108}+\cdots+1068687u-322299)$
c_5, c_{11}	$u^9(u^4+3u^2+1)^2(u^{109}+u^{108}+\cdots-6144u-512)$
c_6	$(u^2+1)^4(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{109}-2u^{108}+\cdots+72u-36)$
c_7	$((u^2+u+1)^4)(u^9+5u^8+\cdots+u+1)$ $\cdot(u^{109}-52u^{108}+\cdots-189u-81)$
c_8	$(u^4-u^2+1)^2(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{109}-2u^{108}+\cdots+15u-9)$
c_9, c_{10}	$((u-1)^9)(u^2+u-1)^4(u^{109}-14u^{108}+\cdots+7u-1)$
c_{12}	$((u+1)^9)(u^2-u-1)^4(u^{109}-14u^{108}+\cdots+7u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^8(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{109}+4y^{108}+\cdots+86720544y-1679616)$
c_2, c_6	$((y+1)^8)(y^9+3y^8+\cdots+y-1)$ $\cdot(y^{109}+56y^{108}+\cdots-5688y-1296)$
c_3, c_8	$((y^2-y+1)^4)(y^9-5y^8+\cdots+y-1)$ $\cdot(y^{109}-52y^{108}+\cdots-189y-81)$
c_4	$((y^2-y+1)^4)(y^9+7y^8+\cdots+13y-1)$ $\cdot(y^{109}+20y^{108}+\cdots-3429890229501y-103876645401)$
c_5, c_{11}	$y^9(y^2+3y+1)^4(y^{109}+69y^{108}+\cdots+1.12722\times10^7y-262144)$
c_7	$(y^2+y+1)^4(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{109}+16y^{108}+\cdots+363123y-6561)$
c_9, c_{10}, c_{12}	$((y-1)^9)(y^2-3y+1)^4(y^{109}-108y^{108}+\cdots+63y-1)$