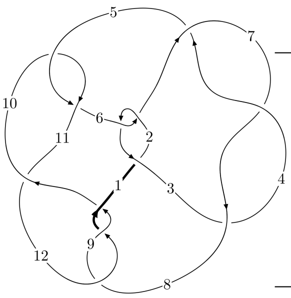
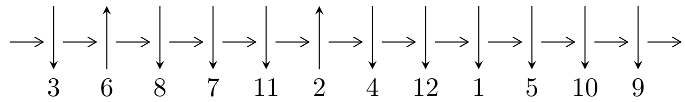
$12a_{0269}$ ($K12a_{0269}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -8.62713 \times 10^{15} u^{65} - 2.11985 \times 10^{16} u^{64} + \cdots + 2.49267 \times 10^{16} b - 1.13014 \times 10^{15},$$
$$4.31598 \times 10^{16} u^{65} + 1.40820 \times 10^{17} u^{64} + \cdots + 9.97068 \times 10^{16} a + 5.56705 \times 10^{17},\ u^{66} + 4u^{65} + \cdots + 35u +$$
$$I_2^u = \langle -83u^7a^2 - 105u^7a + \cdots - 2a + 166,\ -2u^7a^2 + 8u^7a + \cdots + 18a - 6,$$
$$u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1\rangle$$
$$I_3^u = \langle -u^4a + u^2a + u^3 - au + b + a - u + 1,\ u^4 - 2u^2a + u^3 + a^2 - 2au - 2u^2 + 2a + 3,$$
$$u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$$
$$I_4^u = \langle -2a^3 - a^2 + b - a,\ 2a^4 + 3a^3 + 4a^2 + 3a + 1,\ u - 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 104 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $\boldsymbol{I^u_1 = \langle -8.63\times 10^{15}u^{65} - 2.12\times 10^{16}u^{64} + \cdots + 2.49\times 10^{16}b - 1.13\times 10^{15},\ 4.32\times 10^{16}u^{65} + 1.41\times 10^{17}u^{64} + \cdots + 9.97\times 10^{16}a + 5.57\times 10^{17},\ u^{66} + 4u^{65} + \cdots + 35u + 4\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.432868u^{65} - 1.41234u^{64} + \cdots - 25.5775u - 5.58342\\0.346100u^{65} + 0.850432u^{64} + \cdots + 4.81724u + 0.0453386\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.0867675u^{65} - 0.561913u^{64} + \cdots - 20.7603u - 5.53808\\0.346100u^{65} + 0.850432u^{64} + \cdots + 4.81724u + 0.0453386\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.00547462u^{65} + 0.184155u^{64} + \cdots + 13.3969u + 1.98843\\-0.0754890u^{65} - 0.133427u^{64} + \cdots + 1.98495u + 0.305099\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.132128u^{65} - 0.450532u^{64} + \cdots - 13.0108u - 0.408261\\0.468288u^{65} + 1.18384u^{64} + \cdots + 9.40368u + 1.08447\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.410233u^{65} - 1.26602u^{64} + \cdots - 24.2954u - 3.94259\\0.275978u^{65} + 0.641853u^{64} + \cdots + 2.90510u - 0.110199\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.114697u^{65} - 0.539674u^{64} + \cdots - 18.9899u - 3.33232\\0.265315u^{65} + 0.589033u^{64} + \cdots + 2.64364u - 0.213478\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^5 - 2u^3 + u\\u^7 - 3u^5 + 2u^3 + u\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$$= -\frac{22848277210974797}{49853400611938144}u^{65} - \frac{33245267932303681}{49853400611938144}u^{64} + \cdots + \frac{1408726762689068359}{49853400611938144}u + \frac{18620167407452593}{12463350152984536}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{66} + 24u^{65} + \cdots + 5878u + 289$
c_2, c_6	$u^{66} - 2u^{65} + \cdots - 138u + 17$
c_3, c_4, c_7	$u^{66} - 2u^{65} + \cdots - 186u + 17$
c_5, c_{10}	$u^{66} - 2u^{65} + \cdots - 16u + 64$
c_8, c_9, c_{12}	$u^{66} - 4u^{65} + \cdots - 35u + 4$
c_{11}	$u^{66} + 24u^{65} + \cdots - 13056u + 4096$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{66} + 48y^{65} + \cdots + 10918642y + 83521$
c_2, c_6	$y^{66} + 24y^{65} + \cdots + 5878y + 289$
c_3, c_4, c_7	$y^{66} + 72y^{65} + \cdots - 9674y + 289$
c_5, c_{10}	$y^{66} - 24y^{65} + \cdots + 13056y + 4096$
c_8, c_9, c_{12}	$y^{66} - 56y^{65} + \cdots - 657y + 16$
c_{11}	$y^{66} + 28y^{65} + \cdots - 578879488y + 16777216$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.667544 + 0.679084I$ $a = 0.86928 - 1.38453I$ $b = 0.149820 + 1.369760I$	$1.68392 - 4.80194I$	$-8.00000 + 6.16806I$
$u = 0.667544 - 0.679084I$ $a = 0.86928 + 1.38453I$ $b = 0.149820 - 1.369760I$	$1.68392 + 4.80194I$	$-8.00000 - 6.16806I$
$u = 0.189066 + 0.903983I$ $a = 0.74953 - 2.41334I$ $b = 0.32275 + 1.48528I$	$6.85220 - 11.84780I$	$-4.90258 + 7.91039I$
$u = 0.189066 - 0.903983I$ $a = 0.74953 + 2.41334I$ $b = 0.32275 - 1.48528I$	$6.85220 + 11.84780I$	$-4.90258 - 7.91039I$
$u = 1.083740 + 0.168606I$ $a = 1.242980 + 0.094384I$ $b = 0.111698 + 0.687804I$	$-1.18380 - 0.83133I$	0
$u = 1.083740 - 0.168606I$ $a = 1.242980 - 0.094384I$ $b = 0.111698 - 0.687804I$	$-1.18380 + 0.83133I$	0
$u = 0.514125 + 0.739694I$ $a = -0.64446 + 1.40518I$ $b = 0.065420 - 1.343790I$	$2.12892 - 0.16897I$	$-6.25009 + 0.21372I$
$u = 0.514125 - 0.739694I$ $a = -0.64446 - 1.40518I$ $b = 0.065420 + 1.343790I$	$2.12892 + 0.16897I$	$-6.25009 - 0.21372I$
$u = 0.130215 + 0.881989I$ $a = -0.46791 + 2.65814I$ $b = -0.21538 - 1.51295I$	$8.94622 - 5.72427I$	$-2.18443 + 3.66030I$
$u = 0.130215 - 0.881989I$ $a = -0.46791 - 2.65814I$ $b = -0.21538 + 1.51295I$	$8.94622 + 5.72427I$	$-2.18443 - 3.66030I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.046270 + 0.417779I$ $a = -0.002021 - 0.327101I$ $b = 0.730735 - 0.378556I$	$-1.82882 + 3.10174I$	0
$u = 1.046270 - 0.417779I$ $a = -0.002021 + 0.327101I$ $b = 0.730735 + 0.378556I$	$-1.82882 - 3.10174I$	0
$u = 0.173783 + 0.831807I$ $a = -0.307675 - 0.785989I$ $b = 0.845661 + 0.377568I$	$0.84572 - 7.60212I$	$-7.64898 + 8.09357I$
$u = 0.173783 - 0.831807I$ $a = -0.307675 + 0.785989I$ $b = 0.845661 - 0.377568I$	$0.84572 + 7.60212I$	$-7.64898 - 8.09357I$
$u = -1.147790 + 0.229735I$ $a = 0.102586 + 1.241460I$ $b = -0.19773 - 1.58186I$	$5.40538 - 2.32156I$	0
$u = -1.147790 - 0.229735I$ $a = 0.102586 - 1.241460I$ $b = -0.19773 + 1.58186I$	$5.40538 + 2.32156I$	0
$u = 0.651446 + 0.470027I$ $a = 0.284563 + 0.188739I$ $b = 0.505053 + 0.174111I$	$-3.20898 - 2.48763I$	$-16.3622 + 5.4337I$
$u = 0.651446 - 0.470027I$ $a = 0.284563 - 0.188739I$ $b = 0.505053 - 0.174111I$	$-3.20898 + 2.48763I$	$-16.3622 - 5.4337I$
$u = 1.081520 + 0.529987I$ $a = -0.355349 + 1.221180I$ $b = 0.27716 - 1.46865I$	$4.13434 + 6.78830I$	0
$u = 1.081520 - 0.529987I$ $a = -0.355349 - 1.221180I$ $b = 0.27716 + 1.46865I$	$4.13434 - 6.78830I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.071965 + 0.786913I$ $a = 0.79882 + 2.76845I$ $b = 0.13150 - 1.53519I$	$9.78957 - 0.29681I$	$-0.83343 + 1.63973I$
$u = -0.071965 - 0.786913I$ $a = 0.79882 - 2.76845I$ $b = 0.13150 + 1.53519I$	$9.78957 + 0.29681I$	$-0.83343 - 1.63973I$
$u = 1.143660 + 0.471596I$ $a = 0.69893 - 1.38761I$ $b = -0.15146 + 1.48688I$	$5.84968 + 0.90599I$	0
$u = 1.143660 - 0.471596I$ $a = 0.69893 + 1.38761I$ $b = -0.15146 - 1.48688I$	$5.84968 - 0.90599I$	0
$u = -1.197360 + 0.317299I$ $a = -0.50038 - 1.39693I$ $b = 0.06232 + 1.59267I$	$6.36342 + 4.30106I$	0
$u = -1.197360 - 0.317299I$ $a = -0.50038 + 1.39693I$ $b = 0.06232 - 1.59267I$	$6.36342 - 4.30106I$	0
$u = -0.152582 + 0.737995I$ $a = -1.22497 - 2.53094I$ $b = -0.25990 + 1.50993I$	$8.27559 + 5.90450I$	$-2.31324 - 3.36207I$
$u = -0.152582 - 0.737995I$ $a = -1.22497 + 2.53094I$ $b = -0.25990 - 1.50993I$	$8.27559 - 5.90450I$	$-2.31324 + 3.36207I$
$u = 0.320231 + 0.651017I$ $a = -0.024784 - 0.974380I$ $b = 0.294810 - 0.021528I$	$-2.21379 - 1.44886I$	$-14.1875 + 3.2190I$
$u = 0.320231 - 0.651017I$ $a = -0.024784 + 0.974380I$ $b = 0.294810 + 0.021528I$	$-2.21379 + 1.44886I$	$-14.1875 - 3.2190I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.293670 + 0.097432I$ $a = -0.83619 + 1.14357I$ $b = -0.411001 + 0.084755I$	$-4.64203 + 0.39162I$	0
$u = 1.293670 - 0.097432I$ $a = -0.83619 - 1.14357I$ $b = -0.411001 - 0.084755I$	$-4.64203 - 0.39162I$	0
$u = -1.273160 + 0.262278I$ $a = -0.0679407 + 0.0552696I$ $b = -0.767866 - 0.639955I$	$-2.07313 + 1.16836I$	0
$u = -1.273160 - 0.262278I$ $a = -0.0679407 - 0.0552696I$ $b = -0.767866 + 0.639955I$	$-2.07313 - 1.16836I$	0
$u = -0.029929 + 0.683021I$ $a = 0.122246 - 1.180170I$ $b = -0.752881 + 0.483067I$	$1.78075 + 2.22287I$	$-4.94550 - 3.02923I$
$u = -0.029929 - 0.683021I$ $a = 0.122246 + 1.180170I$ $b = -0.752881 - 0.483067I$	$1.78075 - 2.22287I$	$-4.94550 + 3.02923I$
$u = 1.298880 + 0.280433I$ $a = -1.102570 + 0.814558I$ $b = -0.797418 - 0.354964I$	$-2.38438 - 5.71634I$	0
$u = 1.298880 - 0.280433I$ $a = -1.102570 - 0.814558I$ $b = -0.797418 + 0.354964I$	$-2.38438 + 5.71634I$	0
$u = -1.336040 + 0.139935I$ $a = -0.719400 - 0.528286I$ $b = -0.412382 + 1.037160I$	$-3.31894 + 4.09533I$	0
$u = -1.336040 - 0.139935I$ $a = -0.719400 + 0.528286I$ $b = -0.412382 - 1.037160I$	$-3.31894 - 4.09533I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.310840 + 0.346233I$ $a = 1.76278 - 1.08503I$ $b = 0.19081 + 1.48545I$	$5.46398 - 3.79450I$	0
$u = 1.310840 - 0.346233I$ $a = 1.76278 + 1.08503I$ $b = 0.19081 - 1.48545I$	$5.46398 + 3.79450I$	0
$u = 1.359560 + 0.312582I$ $a = -1.95538 + 0.79171I$ $b = -0.30460 - 1.46865I$	$3.49484 - 9.72291I$	0
$u = 1.359560 - 0.312582I$ $a = -1.95538 - 0.79171I$ $b = -0.30460 + 1.46865I$	$3.49484 + 9.72291I$	0
$u = 1.406180 + 0.050908I$ $a = 0.029210 + 0.760234I$ $b = -0.112046 + 1.346250I$	$-0.11958 + 2.24868I$	0
$u = 1.406180 - 0.050908I$ $a = 0.029210 - 0.760234I$ $b = -0.112046 - 1.346250I$	$-0.11958 - 2.24868I$	0
$u = -1.359320 + 0.386811I$ $a = -1.45863 - 1.35802I$ $b = -0.26962 + 1.52010I$	$4.25937 + 10.27340I$	0
$u = -1.359320 - 0.386811I$ $a = -1.45863 + 1.35802I$ $b = -0.26962 - 1.52010I$	$4.25937 - 10.27340I$	0
$u = -1.37498 + 0.35472I$ $a = 0.660231 + 0.823973I$ $b = 0.913737 - 0.350179I$	$-4.04528 + 11.87690I$	0
$u = -1.37498 - 0.35472I$ $a = 0.660231 - 0.823973I$ $b = 0.913737 + 0.350179I$	$-4.04528 - 11.87690I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.40590 + 0.25321I$ $a = 0.369639 + 0.895908I$ $b = 0.325622 - 0.180271I$	$-7.67732 + 4.73918I$	0
$u = -1.40590 - 0.25321I$ $a = 0.369639 - 0.895908I$ $b = 0.325622 + 0.180271I$	$-7.67732 - 4.73918I$	0
$u = -1.44306 + 0.07283I$ $a = 0.782868 - 0.235983I$ $b = 0.720079 - 0.061282I$	$-9.98582 + 3.99160I$	0
$u = -1.44306 - 0.07283I$ $a = 0.782868 + 0.235983I$ $b = 0.720079 + 0.061282I$	$-9.98582 - 3.99160I$	0
$u = -1.39679 + 0.38869I$ $a = 1.65483 + 1.20080I$ $b = 0.35968 - 1.48387I$	$1.8387 + 16.4870I$	0
$u = -1.39679 - 0.38869I$ $a = 1.65483 - 1.20080I$ $b = 0.35968 + 1.48387I$	$1.8387 - 16.4870I$	0
$u = 0.163945 + 0.521690I$ $a = 0.35960 + 1.64327I$ $b = -0.163625 - 0.872636I$	$1.42640 - 1.81968I$	$-0.93847 + 5.51231I$
$u = 0.163945 - 0.521690I$ $a = 0.35960 - 1.64327I$ $b = -0.163625 + 0.872636I$	$1.42640 + 1.81968I$	$-0.93847 - 5.51231I$
$u = -0.504824 + 0.128957I$ $a = 0.362986 - 0.060340I$ $b = -0.10469 - 1.49108I$	$5.85879 - 2.92426I$	$1.08545 + 1.98753I$
$u = -0.504824 - 0.128957I$ $a = 0.362986 + 0.060340I$ $b = -0.10469 + 1.49108I$	$5.85879 + 2.92426I$	$1.08545 - 1.98753I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.48027 + 0.22599I$ $a = -0.539486 - 0.091494I$ $b = \quad 0.035967 + 1.249290I$	$-4.37053 + 3.52253I$	0
$u = -1.48027 - 0.22599I$ $a = -0.539486 + 0.091494I$ $b = \quad 0.035967 - 1.249290I$	$-4.37053 - 3.52253I$	0
$u = -1.51108 + 0.12609I$ $a = \quad 0.789487 + 0.071213I$ $b = \quad 0.241287 - 1.319070I$	$-5.66868 + 7.39507I$	0
$u = -1.51108 - 0.12609I$ $a = \quad 0.789487 - 0.071213I$ $b = \quad 0.241287 + 1.319070I$	$-5.66868 - 7.39507I$	0
$u = -0.149615 + 0.078620I$ $a = -0.80843 - 3.04085I$ $b = -0.363511 - 0.421563I$	$-0.423006 - 1.307980I$	$-4.48461 + 4.94953I$
$u = -0.149615 - 0.078620I$ $a = -0.80843 + 3.04085I$ $b = -0.363511 + 0.421563I$	$-0.423006 + 1.307980I$	$-4.48461 - 4.94953I$

II. $\boldsymbol{I_2^u = \langle -83u^7a^2 - 105u^7a + \cdots - 2a + 166,\ -2u^7a^2 + 8u^7a + \cdots + 18a - 6,\ u^8 + u^7 - 3u^6 - 2u^5 + 3u^4 + 2u - 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ 0.167002a^2u^7 + 0.211268au^7 + \cdots + 0.00402414a - 0.334004 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.167002a^2u^7 + 0.211268au^7 + \cdots + 1.00402a - 0.334004 \\ 0.167002a^2u^7 + 0.211268au^7 + \cdots + 0.00402414a - 0.334004 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -a \\ -0.167002a^2u^7 - 0.211268au^7 + \cdots - 0.00402414a + 0.334004 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.513078a^2u^7 - 0.0965795au^7 + \cdots - 1.44266a + 1.31187 \\ 0.197183a^2u^7 + 0.0824950au^7 + \cdots + 0.651911a - 0.680080 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^3 + 2u \\ u^3 - u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^6 + 12u^4 - 4u^3 - 8u^2 + 8u - 14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{24}+16u^{23}+\cdots-4u+1$
c_2,c_3,c_4 c_6,c_7	$u^{24}+8u^{22}+\cdots+4u+1$
c_5,c_{10}	$(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)^3$
c_8,c_9,c_{12}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^3$
c_{11}	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{24} - 16y^{23} + \cdots - 76y + 1$
c_2, c_3, c_4 c_6, c_7	$y^{24} + 16y^{23} + \cdots - 4y + 1$
c_5, c_{10}	$(y^8 - 3y^7 + 7y^6 - 10y^5 + 11y^4 - 10y^3 + 6y^2 - 4y + 1)^3$
c_8, c_9, c_{12}	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^3$
c_{11}	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.180120 + 0.268597I$ $a = 1.129310 - 0.679881I$ $b = 0.526710 + 0.542383I$	$-1.04066 - 1.13123I$	$-7.41522 + 0.51079I$
$u = 1.180120 + 0.268597I$ $a = 0.218627 + 0.497328I$ $b = -0.474274 + 0.744643I$	$-1.04066 - 1.13123I$	$-7.41522 + 0.51079I$
$u = 1.180120 + 0.268597I$ $a = -1.91067 + 2.43966I$ $b = -0.052436 - 1.287030I$	$-1.04066 - 1.13123I$	$-7.41522 + 0.51079I$
$u = 1.180120 - 0.268597I$ $a = 1.129310 + 0.679881I$ $b = 0.526710 - 0.542383I$	$-1.04066 + 1.13123I$	$-7.41522 - 0.51079I$
$u = 1.180120 - 0.268597I$ $a = 0.218627 - 0.497328I$ $b = -0.474274 - 0.744643I$	$-1.04066 + 1.13123I$	$-7.41522 - 0.51079I$
$u = 1.180120 - 0.268597I$ $a = -1.91067 - 2.43966I$ $b = -0.052436 + 1.287030I$	$-1.04066 + 1.13123I$	$-7.41522 - 0.51079I$
$u = 0.108090 + 0.747508I$ $a = 0.393429 + 0.915822I$ $b = -0.659970 - 0.577105I$	$2.15941 - 2.57849I$	$-4.27708 + 3.56796I$
$u = 0.108090 + 0.747508I$ $a = -0.205881 + 1.226480I$ $b = 0.596595 - 0.782878I$	$2.15941 - 2.57849I$	$-4.27708 + 3.56796I$
$u = 0.108090 + 0.747508I$ $a = 0.22979 - 3.79270I$ $b = 0.063375 + 1.359980I$	$2.15941 - 2.57849I$	$-4.27708 + 3.56796I$
$u = 0.108090 - 0.747508I$ $a = 0.393429 - 0.915822I$ $b = -0.659970 + 0.577105I$	$2.15941 + 2.57849I$	$-4.27708 - 3.56796I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.108090 - 0.747508I$ $a = -0.205881 - 1.226480I$ $b = 0.596595 + 0.782878I$	$2.15941 + 2.57849I$	$-4.27708 - 3.56796I$
$u = 0.108090 - 0.747508I$ $a = 0.22979 + 3.79270I$ $b = 0.063375 - 1.359980I$	$2.15941 + 2.57849I$	$-4.27708 - 3.56796I$
$u = -1.37100$ $a = 1.122450 + 0.593787I$ $b = 0.381282 - 1.198390I$	-6.50273	-13.8640
$u = -1.37100$ $a = 1.122450 - 0.593787I$ $b = 0.381282 + 1.198390I$	-6.50273	-13.8640
$u = -1.37100$ $a = -0.586511$ $b = -0.762564$	-6.50273	-13.8640
$u = -1.334530 + 0.318930I$ $a = -0.635277 - 0.766647I$ $b = -0.788479 + 0.521654I$	$-2.37968 + 6.44354I$	$-9.42845 - 5.29417I$
$u = -1.334530 + 0.318930I$ $a = -0.1050070 - 0.0244005I$ $b = 0.661375 + 0.893964I$	$-2.37968 + 6.44354I$	$-9.42845 - 5.29417I$
$u = -1.334530 + 0.318930I$ $a = 1.30906 + 2.00264I$ $b = 0.12710 - 1.41562I$	$-2.37968 + 6.44354I$	$-9.42845 - 5.29417I$
$u = -1.334530 - 0.318930I$ $a = -0.635277 + 0.766647I$ $b = -0.788479 - 0.521654I$	$-2.37968 - 6.44354I$	$-9.42845 + 5.29417I$
$u = -1.334530 - 0.318930I$ $a = -0.1050070 + 0.0244005I$ $b = 0.661375 - 0.893964I$	$-2.37968 - 6.44354I$	$-9.42845 + 5.29417I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.334530 - 0.318930I$ $a = 1.30906 - 2.00264I$ $b = 0.12710 + 1.41562I$	$-2.37968 - 6.44354I$	$-9.42845 + 5.29417I$
$u = 0.463640$ $a = 0.450478$ $b = -0.328520$	-0.845036	-11.8940
$u = 0.463640$ $a = 2.52220 + 3.30247I$ $b = 0.164260 - 1.039680I$	-0.845036	-11.8940
$u = 0.463640$ $a = 2.52220 - 3.30247I$ $b = 0.164260 + 1.039680I$	-0.845036	-11.8940

III. $\boldsymbol{I_3^u = \langle -u^4a + u^2a + u^3 - au + b + a - u + 1,\ u^4 - 2u^2a + u^3 + a^2 - 2au - 2u^2 + 2a + 3,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^3 + 8u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 1.70062 + 1.07090I$ $b = 1.000000I$	-2.40108	-9.48110
$u = 1.21774$ $a = 1.70062 - 1.07090I$ $b = -1.000000I$	-2.40108	-9.48110
$u = 0.309916 + 0.549911I$ $a = -0.679539 - 0.876898I$ $b = 1.000000I$	$-0.32910 - 1.53058I$	$-8.51511 + 4.43065I$
$u = 0.309916 + 0.549911I$ $a = -1.11334 + 2.65842I$ $b = -1.000000I$	$-0.32910 - 1.53058I$	$-8.51511 + 4.43065I$
$u = 0.309916 - 0.549911I$ $a = -0.679539 + 0.876898I$ $b = -1.000000I$	$-0.32910 + 1.53058I$	$-8.51511 - 4.43065I$
$u = 0.309916 - 0.549911I$ $a = -1.11334 - 2.65842I$ $b = 1.000000I$	$-0.32910 + 1.53058I$	$-8.51511 - 4.43065I$
$u = -1.41878 + 0.21917I$ $a = -0.925786 - 0.670523I$ $b = 1.000000I$	$-5.87256 + 4.40083I$	$-12.74431 - 3.49859I$
$u = -1.41878 + 0.21917I$ $a = 0.0180453 - 0.1349390I$ $b = -1.000000I$	$-5.87256 + 4.40083I$	$-12.74431 - 3.49859I$
$u = -1.41878 - 0.21917I$ $a = -0.925786 + 0.670523I$ $b = -1.000000I$	$-5.87256 - 4.40083I$	$-12.74431 + 3.49859I$
$u = -1.41878 - 0.21917I$ $a = 0.0180453 + 0.1349390I$ $b = 1.000000I$	$-5.87256 - 4.40083I$	$-12.74431 + 3.49859I$

IV. $I_4^u = \langle -2a^3 - a^2 + b - a,\ 2a^4 + 3a^3 + 4a^2 + 3a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ 2a^3 + a^2 + a \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 2a^3 + a^2 + 2a \\ 2a^3 + a^2 + a \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2a^3 + a^2 + 2a \\ -2a^2 - a \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2a^3 + 3a^2 + 3a + 2 \\ -2a^2 - a \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ 2a + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ 2a + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -14a^3 - 12a^2 - 14a - 18$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -0.173850 + 1.069070I$ $b = -0.10488 - 1.55249I$	$5.14581 - 3.16396I$	$-10.48546 + 5.24252I$
$u = \quad 1.00000$ $a = -0.173850 - 1.069070I$ $b = -0.10488 + 1.55249I$	$5.14581 + 3.16396I$	$-10.48546 - 5.24252I$
$u = \quad 1.00000$ $a = -0.576150 + 0.307015I$ $b = -0.395123 + 0.506844I$	$-1.85594 + 1.41510I$	$-12.38954 - 3.92814I$
$u = \quad 1.00000$ $a = -0.576150 - 0.307015I$ $b = -0.395123 - 0.506844I$	$-1.85594 - 1.41510I$	$-12.38954 + 3.92814I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^4-u^3+3u^2-2u+1)(u^{24}+16u^{23}+\cdots-4u+1)$ $\cdot(u^{66}+24u^{65}+\cdots+5878u+289)$
c_2	$((u^2+1)^5)(u^4-u^3+u^2+1)(u^{24}+8u^{22}+\cdots+4u+1)$ $\cdot(u^{66}-2u^{65}+\cdots-138u+17)$
c_3, c_4	$((u^2+1)^5)(u^4-u^3+3u^2-2u+1)(u^{24}+8u^{22}+\cdots+4u+1)$ $\cdot(u^{66}-2u^{65}+\cdots-186u+17)$
c_5, c_{10}	$u^4(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)^3$ $\cdot(u^{10}-3u^8+4u^6-u^4-u^2+1)(u^{66}-2u^{65}+\cdots-16u+64)$
c_6	$((u^2+1)^5)(u^4+u^3+u^2+1)(u^{24}+8u^{22}+\cdots+4u+1)$ $\cdot(u^{66}-2u^{65}+\cdots-138u+17)$
c_7	$((u^2+1)^5)(u^4+u^3+3u^2+2u+1)(u^{24}+8u^{22}+\cdots+4u+1)$ $\cdot(u^{66}-2u^{65}+\cdots-186u+17)$
c_8, c_9	$(u-1)^4(u^5+u^4-2u^3-u^2+u-1)^2$ $\cdot((u^8-u^7-3u^6+2u^5+3u^4-2u-1)^3)(u^{66}-4u^{65}+\cdots-35u+4)$
c_{11}	$u^4(u^5+3u^4+4u^3+u^2-u-1)^2$ $\cdot(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^3$ $\cdot(u^{66}+24u^{65}+\cdots-13056u+4096)$
c_{12}	$(u+1)^4(u^5-u^4-2u^3+u^2+u+1)^2$ $\cdot((u^8-u^7-3u^6+2u^5+3u^4-2u-1)^3)(u^{66}-4u^{65}+\cdots-35u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^4+5y^3+\cdots+2y+1)(y^{24}-16y^{23}+\cdots-76y+1)$ $\cdot(y^{66}+48y^{65}+\cdots+10918642y+83521)$
c_2, c_6	$((y+1)^{10})(y^4+y^3+3y^2+2y+1)(y^{24}+16y^{23}+\cdots-4y+1)$ $\cdot(y^{66}+24y^{65}+\cdots+5878y+289)$
c_3, c_4, c_7	$((y+1)^{10})(y^4+5y^3+\cdots+2y+1)(y^{24}+16y^{23}+\cdots-4y+1)$ $\cdot(y^{66}+72y^{65}+\cdots-9674y+289)$
c_5, c_{10}	$y^4(y^5-3y^4+4y^3-y^2-y+1)^2$ $\cdot(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)^3$ $\cdot(y^{66}-24y^{65}+\cdots+13056y+4096)$
c_8, c_9, c_{12}	$(y-1)^4(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)^3$ $\cdot(y^{66}-56y^{65}+\cdots-657y+16)$
c_{11}	$y^4(y^5-y^4+8y^3-3y^2+3y-1)^2$ $\cdot(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)^3$ $\cdot(y^{66}+28y^{65}+\cdots-578879488y+16777216)$