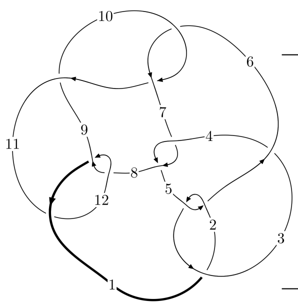
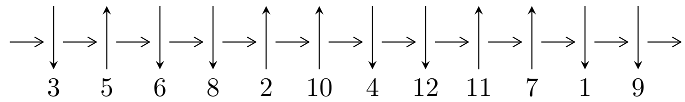
$12a_{0006}$ ($K12a_{0006}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -7.65110 \times 10^{246} u^{117} + 2.10342 \times 10^{247} u^{116} + \cdots + 7.39617 \times 10^{247} b - 4.75087 \times 10^{248}, \\
& -7.08530 \times 10^{247} u^{117} + 1.80151 \times 10^{248} u^{116} + \cdots + 4.43770 \times 10^{248} a - 1.26778 \times 10^{249}, \\
& u^{118} - 3u^{117} + \cdots - 32u + 32 \rangle \\
I_2^u = \langle & u^4 a - u^3 a + u^4 - u^3 + au + b - a + u - 1, \\
& -u^5 a + 2u^5 + 2u^3 a - 2u^4 - u^2 a - 3u^3 + a^2 - 2au + 4u^2 + 2a + 2u - 2,\ u^6 - u^5 - u^4 + 2u^3 - u + 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ -3v^4 + 4v^3 - 10v^2 + b - 21v - 7,\ v^5 - v^4 + 3v^3 + 8v^2 + 5v + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 135 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. $I_1^u = \langle -7.65 \times 10^{246} u^{117} + 2.10 \times 10^{247} u^{116} + \cdots + 7.40 \times 10^{247} b - 4.75 \times 10^{248},\ -7.09 \times 10^{247} u^{117} + 1.80 \times 10^{248} u^{116} + \cdots + 4.44 \times 10^{248} a - 1.27 \times 10^{249},\ u^{118} - 3u^{117} + \cdots - 32u + 32 \rangle$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.159661u^{117} - 0.405956u^{116} + \cdots - 50.6753u + 2.85683 \\ 0.103447u^{117} - 0.284393u^{116} + \cdots - 22.6938u + 6.42342 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.489272u^{117} - 1.92202u^{116} + \cdots - 100.177u + 40.5651 \\ 0.340316u^{117} - 1.27077u^{116} + \cdots - 47.3105u + 17.7814 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.758810u^{117} + 2.70567u^{116} + \cdots + 104.493u - 38.0247 \\ -0.704038u^{117} + 2.56247u^{116} + \cdots + 117.303u - 43.3608 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0547723u^{117} + 0.143196u^{116} + \cdots - 12.8108u + 5.33612 \\ -0.704038u^{117} + 2.56247u^{116} + \cdots + 117.303u - 43.3608 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.0350744u^{117} + 0.212518u^{116} + \cdots - 0.864347u - 4.50525 \\ 0.0107154u^{117} - 0.0648548u^{116} + \cdots - 13.9025u + 5.51561 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0588332u^{117} + 0.244742u^{116} + \cdots + 8.48235u - 6.58741 \\ -0.0237588u^{117} + 0.0322234u^{116} + \cdots + 9.34669u - 2.08216 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.0347330u^{117} + 0.229528u^{116} + \cdots + 10.9263u - 7.78172 \\ 0.0194075u^{117} - 0.0731735u^{116} + \cdots + 7.91588u - 1.10392 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.13497u^{117} - 4.19176u^{116} + \cdots - 276.130u + 125.354$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{118} + 60u^{117} + \cdots + 8u + 1$
c_2, c_5	$u^{118} + 8u^{117} + \cdots + 8u + 1$
c_3	$u^{118} - 8u^{117} + \cdots - 20012u + 337$
c_4, c_7	$u^{118} + 2u^{117} + \cdots - 8192u - 4096$
c_6, c_{10}	$u^{118} - 3u^{117} + \cdots - 32u + 32$
c_8, c_{12}	$u^{118} - 8u^{117} + \cdots - 2u - 1$
c_9	$u^{118} - 39u^{117} + \cdots - 22016u + 1024$
c_{11}	$u^{118} + 64u^{117} + \cdots + 46u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{118} + 4y^{117} + \cdots - 48y + 1$
c_2, c_5	$y^{118} + 60y^{117} + \cdots + 8y + 1$
c_3	$y^{118} - 52y^{117} + \cdots + 347123352y + 113569$
c_4, c_7	$y^{118} - 70y^{117} + \cdots - 285212672y + 16777216$
c_6, c_{10}	$y^{118} - 39y^{117} + \cdots - 22016y + 1024$
c_8, c_{12}	$y^{118} - 64y^{117} + \cdots - 46y + 1$
c_9	$y^{118} + 73y^{117} + \cdots - 33161216y + 1048576$
c_{11}	$y^{118} - 12y^{117} + \cdots + 1158y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.057111 + 0.994719I$ $a = 0.36450 - 1.63146I$ $b = -0.479763 - 1.116650I$	$-3.79426 + 5.91242I$	0
$u = -0.057111 - 0.994719I$ $a = 0.36450 + 1.63146I$ $b = -0.479763 + 1.116650I$	$-3.79426 - 5.91242I$	0
$u = -0.914029 + 0.393303I$ $a = 0.297266 - 1.272970I$ $b = -0.004632 - 0.992140I$	$-1.56812 - 4.24852I$	0
$u = -0.914029 - 0.393303I$ $a = 0.297266 + 1.272970I$ $b = -0.004632 + 0.992140I$	$-1.56812 + 4.24852I$	0
$u = -0.641087 + 0.760665I$ $a = 0.779065 - 0.477001I$ $b = 0.509907 - 0.068037I$	$-2.44908 + 1.22370I$	0
$u = -0.641087 - 0.760665I$ $a = 0.779065 + 0.477001I$ $b = 0.509907 + 0.068037I$	$-2.44908 - 1.22370I$	0
$u = -0.849815 + 0.541103I$ $a = -0.268387 - 0.139659I$ $b = 0.674649 + 0.872777I$	$0.565713 + 0.424578I$	0
$u = -0.849815 - 0.541103I$ $a = -0.268387 + 0.139659I$ $b = 0.674649 - 0.872777I$	$0.565713 - 0.424578I$	0
$u = -0.991085 + 0.050636I$ $a = -1.44835 + 0.47132I$ $b = 0.610150 + 0.985347I$	$2.32252 + 1.20341I$	0
$u = -0.991085 - 0.050636I$ $a = -1.44835 - 0.47132I$ $b = 0.610150 - 0.985347I$	$2.32252 - 1.20341I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.750948 + 0.648450I$ $a = 0.52003 - 2.23767I$ $b = 0.403810 - 1.096830I$	$-1.81430 - 1.19890I$	0
$u = 0.750948 - 0.648450I$ $a = 0.52003 + 2.23767I$ $b = 0.403810 + 1.096830I$	$-1.81430 + 1.19890I$	0
$u = 0.704841 + 0.728643I$ $a = -1.42404 + 1.25197I$ $b = 0.687054 + 0.817693I$	$-3.03391 + 1.35788I$	0
$u = 0.704841 - 0.728643I$ $a = -1.42404 - 1.25197I$ $b = 0.687054 - 0.817693I$	$-3.03391 - 1.35788I$	0
$u = -0.595125 + 0.821259I$ $a = -0.192234 + 0.242458I$ $b = -0.804532 + 0.208505I$	$-3.00739 + 1.82099I$	0
$u = -0.595125 - 0.821259I$ $a = -0.192234 - 0.242458I$ $b = -0.804532 - 0.208505I$	$-3.00739 - 1.82099I$	0
$u = -0.242106 + 0.999487I$ $a = 0.49124 + 1.66110I$ $b = -0.423992 + 1.099160I$	$-4.22546 - 1.56777I$	0
$u = -0.242106 - 0.999487I$ $a = 0.49124 - 1.66110I$ $b = -0.423992 - 1.099160I$	$-4.22546 + 1.56777I$	0
$u = 0.761083 + 0.704310I$ $a = 0.18432 + 1.73897I$ $b = -0.534333 + 1.210310I$	$-9.66639 - 3.23714I$	0
$u = 0.761083 - 0.704310I$ $a = 0.18432 - 1.73897I$ $b = -0.534333 - 1.210310I$	$-9.66639 + 3.23714I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.026530 + 0.206251I$ $a = -1.70974 + 1.21108I$ $b = 0.573243 + 1.038280I$	$1.95085 + 5.61000I$	0
$u = 1.026530 - 0.206251I$ $a = -1.70974 - 1.21108I$ $b = 0.573243 - 1.038280I$	$1.95085 - 5.61000I$	0
$u = 0.667456 + 0.812256I$ $a = 0.291954 + 0.052077I$ $b = 0.700820 - 0.783953I$	$-2.93079 - 3.91418I$	0
$u = 0.667456 - 0.812256I$ $a = 0.291954 - 0.052077I$ $b = 0.700820 + 0.783953I$	$-2.93079 + 3.91418I$	0
$u = -0.441663 + 0.835178I$ $a = 0.448495 - 0.613915I$ $b = -0.185637 - 0.547949I$	$-2.01865 + 1.48429I$	0
$u = -0.441663 - 0.835178I$ $a = 0.448495 + 0.613915I$ $b = -0.185637 + 0.547949I$	$-2.01865 - 1.48429I$	0
$u = 1.054750 + 0.101458I$ $a = -0.158985 + 0.740344I$ $b = 0.645223 - 0.470242I$	$3.58808 + 0.84208I$	0
$u = 1.054750 - 0.101458I$ $a = -0.158985 - 0.740344I$ $b = 0.645223 + 0.470242I$	$3.58808 - 0.84208I$	0
$u = -1.056930 + 0.134697I$ $a = -0.653037 + 0.468905I$ $b = 0.679183 - 0.575083I$	$3.51464 - 3.77326I$	0
$u = -1.056930 - 0.134697I$ $a = -0.653037 - 0.468905I$ $b = 0.679183 + 0.575083I$	$3.51464 + 3.77326I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.574725 + 0.902696I$ $a = 0.21041 - 1.67524I$ $b = -0.538247 - 1.172420I$	$-5.84550 + 6.78193I$	0
$u = -0.574725 - 0.902696I$ $a = 0.21041 + 1.67524I$ $b = -0.538247 + 1.172420I$	$-5.84550 - 6.78193I$	0
$u = 0.926136 + 0.543311I$ $a = 0.583704 + 0.628251I$ $b = 0.581906 - 0.193380I$	$1.35120 + 2.05184I$	0
$u = 0.926136 - 0.543311I$ $a = 0.583704 - 0.628251I$ $b = 0.581906 + 0.193380I$	$1.35120 - 2.05184I$	0
$u = 0.817393 + 0.699752I$ $a = -0.274441 - 0.202673I$ $b = -0.874488 - 0.173434I$	$-6.53571 + 1.89043I$	0
$u = 0.817393 - 0.699752I$ $a = -0.274441 + 0.202673I$ $b = -0.874488 + 0.173434I$	$-6.53571 - 1.89043I$	0
$u = -0.918223 + 0.103095I$ $a = 0.860492 + 1.120820I$ $b = -0.448856 - 1.120990I$	$-5.56593 + 3.83415I$	0
$u = -0.918223 - 0.103095I$ $a = 0.860492 - 1.120820I$ $b = -0.448856 + 1.120990I$	$-5.56593 - 3.83415I$	0
$u = -0.790275 + 0.740752I$ $a = -1.51469 - 2.91008I$ $b = 0.439874 - 1.114530I$	$-5.31904 - 2.44166I$	0
$u = -0.790275 - 0.740752I$ $a = -1.51469 + 2.91008I$ $b = 0.439874 + 1.114530I$	$-5.31904 + 2.44166I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.938249 + 0.587408I$ $a = -1.164570 - 0.579553I$ $b = 0.718691 - 0.741494I$	$0.95583 - 4.87112I$	0
$u = -0.938249 - 0.587408I$ $a = -1.164570 + 0.579553I$ $b = 0.718691 + 0.741494I$	$0.95583 + 4.87112I$	0
$u = -0.712579 + 0.849832I$ $a = 0.51391 + 2.00089I$ $b = -0.315907 + 1.207150I$	$-7.37780 - 1.81999I$	0
$u = -0.712579 - 0.849832I$ $a = 0.51391 - 2.00089I$ $b = -0.315907 - 1.207150I$	$-7.37780 + 1.81999I$	0
$u = -0.713912 + 0.864317I$ $a = 0.38520 + 2.30740I$ $b = 0.460796 + 1.118670I$	$-5.16425 + 5.15948I$	0
$u = -0.713912 - 0.864317I$ $a = 0.38520 - 2.30740I$ $b = 0.460796 - 1.118670I$	$-5.16425 - 5.15948I$	0
$u = 0.903754 + 0.685135I$ $a = -0.229534 - 1.073390I$ $b = -0.834503 + 0.236031I$	$-6.26654 + 3.43511I$	0
$u = 0.903754 - 0.685135I$ $a = -0.229534 + 1.073390I$ $b = -0.834503 - 0.236031I$	$-6.26654 - 3.43511I$	0
$u = -0.092158 + 0.857430I$ $a = 0.093803 + 0.222170I$ $b = -0.555039 + 0.193650I$	$-1.24389 + 1.74559I$	0
$u = -0.092158 - 0.857430I$ $a = 0.093803 - 0.222170I$ $b = -0.555039 - 0.193650I$	$-1.24389 - 1.74559I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.843744 + 0.765170I$ $a = 0.42452 - 2.02910I$ $b = -0.333480 - 1.250080I$	$-11.06080 + 5.93333I$	0
$u = 0.843744 - 0.765170I$ $a = 0.42452 + 2.02910I$ $b = -0.333480 + 1.250080I$	$-11.06080 - 5.93333I$	0
$u = 1.072050 + 0.405478I$ $a = 1.268290 - 0.321054I$ $b = -0.356382 - 0.560236I$	$2.19895 + 1.79255I$	0
$u = 1.072050 - 0.405478I$ $a = 1.268290 + 0.321054I$ $b = -0.356382 + 0.560236I$	$2.19895 - 1.79255I$	0
$u = 0.949358 + 0.655602I$ $a = -1.50109 + 2.42720I$ $b = 0.487936 + 1.117660I$	$-1.19730 + 6.30191I$	0
$u = 0.949358 - 0.655602I$ $a = -1.50109 - 2.42720I$ $b = 0.487936 - 1.117660I$	$-1.19730 - 6.30191I$	0
$u = 1.154880 + 0.081470I$ $a = 0.850435 - 0.258649I$ $b = -0.594989 + 0.390000I$	$3.41320 + 0.71117I$	0
$u = 1.154880 - 0.081470I$ $a = 0.850435 + 0.258649I$ $b = -0.594989 - 0.390000I$	$3.41320 - 0.71117I$	0
$u = 0.952170 + 0.675540I$ $a = 2.08030 - 1.86808I$ $b = -0.554021 - 1.178320I$	$-9.07220 + 8.55233I$	0
$u = 0.952170 - 0.675540I$ $a = 2.08030 + 1.86808I$ $b = -0.554021 + 1.178320I$	$-9.07220 - 8.55233I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.933711 + 0.711611I$ $a = 0.42213 + 2.16878I$ $b = 0.395467 + 1.151170I$	$-4.87773 - 3.09159I$	0
$u = -0.933711 - 0.711611I$ $a = 0.42213 - 2.16878I$ $b = 0.395467 - 1.151170I$	$-4.87773 + 3.09159I$	0
$u = 0.906410 + 0.760816I$ $a = -1.12132 + 1.34343I$ $b = -0.292550 + 1.220230I$	$-10.87470 - 0.17205I$	0
$u = 0.906410 - 0.760816I$ $a = -1.12132 - 1.34343I$ $b = -0.292550 - 1.220230I$	$-10.87470 + 0.17205I$	0
$u = 0.703346 + 0.968542I$ $a = -0.234705 - 0.299671I$ $b = -0.841845 - 0.256862I$	$-5.90980 - 6.28332I$	0
$u = 0.703346 - 0.968542I$ $a = -0.234705 + 0.299671I$ $b = -0.841845 + 0.256862I$	$-5.90980 + 6.28332I$	0
$u = 0.981963 + 0.689993I$ $a = -0.119645 - 0.167424I$ $b = 0.727220 - 0.874257I$	$-2.20059 + 4.08134I$	0
$u = 0.981963 - 0.689993I$ $a = -0.119645 + 0.167424I$ $b = 0.727220 + 0.874257I$	$-2.20059 - 4.08134I$	0
$u = -1.174600 + 0.288507I$ $a = 0.551612 + 0.463296I$ $b = -0.695913 - 0.362854I$	$2.63779 - 5.83888I$	0
$u = -1.174600 - 0.288507I$ $a = 0.551612 - 0.463296I$ $b = -0.695913 + 0.362854I$	$2.63779 + 5.83888I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.766573 + 0.949834I$ $a = 0.54077 - 2.08818I$ $b = -0.275600 - 1.221680I$	$-10.63780 - 2.75551I$	0
$u = 0.766573 - 0.949834I$ $a = 0.54077 + 2.08818I$ $b = -0.275600 + 1.221680I$	$-10.63780 + 2.75551I$	0
$u = 0.776994 + 0.041855I$ $a = 0.66142 - 1.68179I$ $b = 0.218885 - 1.009740I$	$-0.490861 - 0.714549I$	$-2.00000 - 0.48683I$
$u = 0.776994 - 0.041855I$ $a = 0.66142 + 1.68179I$ $b = 0.218885 + 1.009740I$	$-0.490861 + 0.714549I$	$-2.00000 + 0.48683I$
$u = -1.012390 + 0.692789I$ $a = 0.584170 - 0.489883I$ $b = 0.672262 + 0.132528I$	$-1.36149 - 6.75234I$	0
$u = -1.012390 - 0.692789I$ $a = 0.584170 + 0.489883I$ $b = 0.672262 - 0.132528I$	$-1.36149 + 6.75234I$	0
$u = -0.628903 + 0.449098I$ $a = 2.54132 - 0.00188I$ $b = 0.020939 + 0.603233I$	$-2.54168 + 0.64755I$	$-6.08336 + 1.44392I$
$u = -0.628903 - 0.449098I$ $a = 2.54132 + 0.00188I$ $b = 0.020939 - 0.603233I$	$-2.54168 - 0.64755I$	$-6.08336 - 1.44392I$
$u = 0.706770 + 1.008380I$ $a = 0.16558 + 1.66086I$ $b = -0.563795 + 1.176200I$	$-8.6542 - 11.4670I$	0
$u = 0.706770 - 1.008380I$ $a = 0.16558 - 1.66086I$ $b = -0.563795 - 1.176200I$	$-8.6542 + 11.4670I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.199720 + 0.314561I$ $a = 0.370854 + 0.093116I$ $b = -0.424562 + 1.045720I$	$0.62638 - 1.63995I$	0
$u = 1.199720 - 0.314561I$ $a = 0.370854 - 0.093116I$ $b = -0.424562 - 1.045720I$	$0.62638 + 1.63995I$	0
$u = 1.019770 + 0.714724I$ $a = -0.901138 + 0.757961I$ $b = 0.760109 + 0.761507I$	$-1.86733 + 9.65076I$	0
$u = 1.019770 - 0.714724I$ $a = -0.901138 - 0.757961I$ $b = 0.760109 - 0.761507I$	$-1.86733 - 9.65076I$	0
$u = -1.001870 + 0.750136I$ $a = -0.82058 - 1.37636I$ $b = -0.252783 - 1.215880I$	$-6.49755 - 4.12996I$	0
$u = -1.001870 - 0.750136I$ $a = -0.82058 + 1.37636I$ $b = -0.252783 + 1.215880I$	$-6.49755 + 4.12996I$	0
$u = 1.246440 + 0.134432I$ $a = 1.263590 - 0.327615I$ $b = -0.513444 - 1.082540I$	$1.38319 + 5.13395I$	0
$u = 1.246440 - 0.134432I$ $a = 1.263590 + 0.327615I$ $b = -0.513444 + 1.082540I$	$1.38319 - 5.13395I$	0
$u = -0.739637$ $a = 2.08237$ $b = -0.538572$	-2.71088	-0.754640
$u = -1.050650 + 0.696469I$ $a = -0.151310 + 0.784583I$ $b = -0.842658 - 0.284149I$	$-1.65144 - 7.50770I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.050650 - 0.696469I$ $a = -0.151310 - 0.784583I$ $b = -0.842658 + 0.284149I$	$-1.65144 + 7.50770I$	0
$u = -1.021640 + 0.750308I$ $a = -1.24048 - 2.43396I$ $b = 0.490690 - 1.148020I$	$-4.20666 - 11.16730I$	0
$u = -1.021640 - 0.750308I$ $a = -1.24048 + 2.43396I$ $b = 0.490690 + 1.148020I$	$-4.20666 + 11.16730I$	0
$u = -1.115320 + 0.606056I$ $a = 1.230240 + 0.596883I$ $b = -0.351425 + 0.666628I$	$0.06726 - 6.85727I$	0
$u = -1.115320 - 0.606056I$ $a = 1.230240 - 0.596883I$ $b = -0.351425 - 0.666628I$	$0.06726 + 6.85727I$	0
$u = -1.178770 + 0.503879I$ $a = 0.134512 - 0.367275I$ $b = -0.373896 - 1.016460I$	$-1.02731 - 3.71542I$	0
$u = -1.178770 - 0.503879I$ $a = 0.134512 + 0.367275I$ $b = -0.373896 + 1.016460I$	$-1.02731 + 3.71542I$	0
$u = -1.244210 + 0.324599I$ $a = 1.48321 + 0.70609I$ $b = -0.542963 + 1.102660I$	$0.46596 - 10.60320I$	0
$u = -1.244210 - 0.324599I$ $a = 1.48321 - 0.70609I$ $b = -0.542963 - 1.102660I$	$0.46596 + 10.60320I$	0
$u = -1.085240 + 0.716483I$ $a = 1.69229 + 1.72293I$ $b = -0.574228 + 1.169280I$	$-4.29675 - 12.74330I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.085240 - 0.716483I$ $a = 1.69229 - 1.72293I$ $b = -0.574228 - 1.169280I$	$-4.29675 + 12.74330I$	0
$u = 1.038110 + 0.809700I$ $a = -0.78762 + 1.55153I$ $b = -0.242507 + 1.244090I$	$-9.75711 + 9.21690I$	0
$u = 1.038110 - 0.809700I$ $a = -0.78762 - 1.55153I$ $b = -0.242507 - 1.244090I$	$-9.75711 - 9.21690I$	0
$u = 1.076560 + 0.786701I$ $a = -0.280801 - 0.696971I$ $b = -0.872930 + 0.288064I$	$-4.71420 + 12.71440I$	0
$u = 1.076560 - 0.786701I$ $a = -0.280801 + 0.696971I$ $b = -0.872930 - 0.288064I$	$-4.71420 - 12.71440I$	0
$u = 1.095540 + 0.803347I$ $a = 1.53896 - 1.87042I$ $b = -0.584656 - 1.179320I$	$-7.3958 + 18.0717I$	0
$u = 1.095540 - 0.803347I$ $a = 1.53896 + 1.87042I$ $b = -0.584656 + 1.179320I$	$-7.3958 - 18.0717I$	0
$u = 0.000311 + 0.619720I$ $a = 1.179420 + 0.284191I$ $b = 0.461261 + 0.641991I$	$-0.273430 + 1.372910I$	$-0.92246 - 4.39657I$
$u = 0.000311 - 0.619720I$ $a = 1.179420 - 0.284191I$ $b = 0.461261 - 0.641991I$	$-0.273430 - 1.372910I$	$-0.92246 + 4.39657I$
$u = 0.107100 + 0.609744I$ $a = 0.34928 - 3.67096I$ $b = 0.513118 - 0.944398I$	$-1.17462 - 2.74263I$	$-1.96021 - 1.22948I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.107100 - 0.609744I$ $a = 0.34928 + 3.67096I$ $b = 0.513118 + 0.944398I$	$-1.17462 + 2.74263I$	$-1.96021 + 1.22948I$
$u = -0.558444$ $a = -0.222379$ $b = -0.828891$	-3.44166	4.59440
$u = -0.514322 + 0.057744I$ $a = 0.29748 + 1.83788I$ $b = -0.452092 + 1.222260I$	$-7.09844 - 4.55536I$	$3.30166 + 6.83611I$
$u = -0.514322 - 0.057744I$ $a = 0.29748 - 1.83788I$ $b = -0.452092 - 1.222260I$	$-7.09844 + 4.55536I$	$3.30166 - 6.83611I$
$u = 0.105677 + 0.401308I$ $a = 1.34221 + 0.72343I$ $b = 0.349596 + 0.719198I$	$-0.21143 + 1.41432I$	$-1.77271 - 4.99852I$
$u = 0.105677 - 0.401308I$ $a = 1.34221 - 0.72343I$ $b = 0.349596 - 0.719198I$	$-0.21143 - 1.41432I$	$-1.77271 + 4.99852I$
$u = 0.323334 + 0.183829I$ $a = -11.23030 + 0.98495I$ $b = 0.437589 + 0.866044I$	$-1.91740 + 1.80747I$	$15.1049 - 30.5244I$
$u = 0.323334 - 0.183829I$ $a = -11.23030 - 0.98495I$ $b = 0.437589 - 0.866044I$	$-1.91740 - 1.80747I$	$15.1049 + 30.5244I$

II. $\boldsymbol{I_2^u = \langle u^4a - u^3a + u^4 - u^3 + au + b - a + u - 1,\ -u^5a + 2u^5 + \cdots + 2a - 2,\ u^6 - u^5 - u^4 + 2u^3 - u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^5a + 5u^4a - u^5 - 2u^3a - 2u^3 + 2au + 4u^2 - 2a - 2u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.002190 + 0.295542I$ $a = -1.315130 - 0.448204I$ $b = 0.500000 - 0.866025I$	$1.89061 - 2.95419I$	$-0.30406 + 4.29351I$
$u = -1.002190 + 0.295542I$ $a = -0.454280 - 0.048806I$ $b = 0.500000 + 0.866025I$	$1.89061 + 1.10558I$	$2.90246 - 2.38339I$
$u = -1.002190 - 0.295542I$ $a = -1.315130 + 0.448204I$ $b = 0.500000 + 0.866025I$	$1.89061 + 2.95419I$	$-0.30406 - 4.29351I$
$u = -1.002190 - 0.295542I$ $a = -0.454280 + 0.048806I$ $b = 0.500000 - 0.866025I$	$1.89061 - 1.10558I$	$2.90246 + 2.38339I$
$u = 0.428243 + 0.664531I$ $a = 1.092390 - 0.709952I$ $b = 0.500000 - 0.866025I$	$-1.89061 - 2.95419I$	$-6.66783 + 2.20469I$
$u = 0.428243 + 0.664531I$ $a = -1.43136 + 2.16703I$ $b = 0.500000 + 0.866025I$	$-1.89061 + 1.10558I$	$-2.82220 - 2.24866I$
$u = 0.428243 - 0.664531I$ $a = 1.092390 + 0.709952I$ $b = 0.500000 + 0.866025I$	$-1.89061 + 2.95419I$	$-6.66783 - 2.20469I$
$u = 0.428243 - 0.664531I$ $a = -1.43136 - 2.16703I$ $b = 0.500000 - 0.866025I$	$-1.89061 - 1.10558I$	$-2.82220 + 2.24866I$
$u = 1.073950 + 0.558752I$ $a = -1.17970 + 0.80625I$ $b = 0.500000 + 0.866025I$	$7.72290I$	$-3.68173 - 10.26242I$
$u = 1.073950 + 0.558752I$ $a = -0.211918 - 0.247495I$ $b = 0.500000 - 0.866025I$	$3.66314I$	$0.57335 - 2.34011I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.073950 - 0.558752I$ $a = -1.17970 - 0.80625I$ $b = 0.500000 - 0.866025I$	$-7.72290I$	$-3.68173 + 10.26242I$
$u = 1.073950 - 0.558752I$ $a = -0.211918 + 0.247495I$ $b = 0.500000 + 0.866025I$	$-3.66314I$	$0.57335 + 2.34011I$

III. $\boldsymbol{I_1^v = \langle a,\ -3v^4 + 4v^3 - 10v^2 + b - 21v - 7,\ v^5 - v^4 + 3v^3 + 8v^2 + 5v + 1\rangle}$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ 3v^4 - 4v^3 + 10v^2 + 21v + 7 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ -v^3 + 2v^2 - 5v - 4 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 3v^4 - 4v^3 + 10v^2 + 21v + 7 \\ -4v^4 + 7v^3 - 17v^2 - 20v - 4 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 7v^4 - 11v^3 + 27v^2 + 41v + 11 \\ -4v^4 + 7v^3 - 17v^2 - 20v - 4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 7v^4 - 11v^3 + 27v^2 + 41v + 11 \\ v^4 - v^3 + 3v^2 + 8v + 5 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -7v^4 + 11v^3 - 27v^2 - 41v - 11 \\ -v^4 + v^3 - 3v^2 - 8v - 5 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -7v^4 + 11v^3 - 27v^2 - 40v - 11 \\ -v^4 + v^3 - 3v^2 - 8v - 5 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 11v^4 - 18v^3 + 43v^2 + 63v + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.674363$ $a = 0$ $b = -0.766826$	-4.04602	-10.1350
$v = -0.462589 + 0.146410I$ $a = 0$ $b = -0.455697 + 1.200150I$	$-7.51750 - 4.40083I$	$-14.4110 + 1.1901I$
$v = -0.462589 - 0.146410I$ $a = 0$ $b = -0.455697 - 1.200150I$	$-7.51750 + 4.40083I$	$-14.4110 - 1.1901I$
$v = 1.29977 + 2.14694I$ $a = 0$ $b = 0.339110 - 0.822375I$	$-1.97403 - 1.53058I$	$-3.52158 - 1.00973I$
$v = 1.29977 - 2.14694I$ $a = 0$ $b = 0.339110 + 0.822375I$	$-1.97403 + 1.53058I$	$-3.52158 + 1.00973I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^6)(u^5-3u^4+\cdots-u+1)(u^{118}+60u^{117}+\cdots+8u+1)$
c_2	$((u^2+u+1)^6)(u^5-u^4+\cdots+u-1)(u^{118}+8u^{117}+\cdots+8u+1)$
c_3	$(u^2-u+1)^6(u^5+u^4-2u^3-u^2+u-1)$ $\cdot(u^{118}-8u^{117}+\cdots-20012u+337)$
c_4	$u^{12}(u^5+u^4+\cdots+u-1)(u^{118}+2u^{117}+\cdots-8192u-4096)$
c_5	$((u^2-u+1)^6)(u^5+u^4+\cdots+u+1)(u^{118}+8u^{117}+\cdots+8u+1)$
c_6	$u^5(u^6-u^5+\cdots-u+1)^2(u^{118}-3u^{117}+\cdots-32u+32)$
c_7	$u^{12}(u^5-u^4+\cdots+u+1)(u^{118}+2u^{117}+\cdots-8192u-4096)$
c_8	$((u-1)^5)(u^6+u^5+\cdots+u+1)^2(u^{118}-8u^{117}+\cdots-2u-1)$
c_9	$u^5(u^6+3u^5+5u^4+4u^3+2u^2+u+1)^2$ $\cdot(u^{118}-39u^{117}+\cdots-22016u+1024)$
c_{10}	$u^5(u^6+u^5+\cdots+u+1)^2(u^{118}-3u^{117}+\cdots-32u+32)$
c_{11}	$(u-1)^5(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{118}+64u^{117}+\cdots+46u+1)$
c_{12}	$((u+1)^5)(u^6-u^5+\cdots-u+1)^2(u^{118}-8u^{117}+\cdots-2u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^5-y^4+\cdots+3y-1)(y^{118}+4y^{117}+\cdots-48y+1)$
c_2, c_5	$((y^2+y+1)^6)(y^5+3y^4+\cdots-y-1)(y^{118}+60y^{117}+\cdots+8y+1)$
c_3	$(y^2+y+1)^6(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{118}-52y^{117}+\cdots+347123352y+113569)$
c_4, c_7	$y^{12}(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{118}-70y^{117}+\cdots-285212672y+16777216)$
c_6, c_{10}	$y^5(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{118}-39y^{117}+\cdots-22016y+1024)$
c_8, c_{12}	$(y-1)^5(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{118}-64y^{117}+\cdots-46y+1)$
c_9	$y^5(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{118}+73y^{117}+\cdots-33161216y+1048576)$
c_{11}	$(y-1)^5(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{118}-12y^{117}+\cdots+1158y+1)$