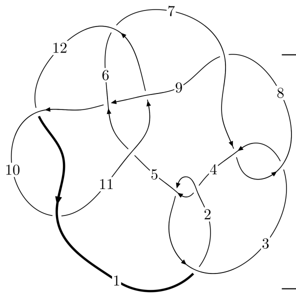
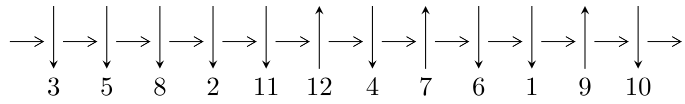
$12a_{0111}$ ($K12a_{0111}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.82793 \times 10^{271} u^{117} + 1.79494 \times 10^{271} u^{116} + \cdots + 1.57559 \times 10^{272} b - 2.36204 \times 10^{273}, \\
& -6.75801 \times 10^{271} u^{117} - 1.31065 \times 10^{272} u^{116} + \cdots + 1.57559 \times 10^{272} a - 1.75047 \times 10^{273}, \\
& u^{118} + 2u^{117} + \cdots + 160u + 32 \rangle \\
I_2^u = \langle & 2u^2 + b + u + 3,\ 7u^2 + a + 3u + 12,\ u^3 + u^2 + 2u + 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ 16v^4 + 47v^3 + 36v^2 + 29b + 104v - 5,\ v^5 + 3v^4 + 3v^3 + 8v^2 + v + 1 \rangle$$

* 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. $\boldsymbol{I_1^u = \langle 1.83 \times 10^{271} u^{117} + 1.79 \times 10^{271} u^{116} + \cdots + 1.58 \times 10^{272} b - 2.36 \times 10^{273},\ -6.76 \times 10^{271} u^{117} - 1.31 \times 10^{272} u^{116} + \cdots + 1.58 \times 10^{272} a - 1.75 \times 10^{273},\ u^{118} + 2u^{117} + \cdots + 160u + 32 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.428919u^{117} + 0.831847u^{116} + \cdots + 72.9363u + 11.1100 \\ -0.116015u^{117} - 0.113922u^{116} + \cdots + 53.2325u + 14.9914 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.151804u^{117} + 0.549454u^{116} + \cdots + 138.561u + 28.8762 \\ -0.0972105u^{117} - 0.128968u^{116} + \cdots + 27.0148u + 5.98614 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.446880u^{117} + 0.822605u^{116} + \cdots + 2.30703u - 6.05829 \\ 0.0819943u^{117} + 0.0874611u^{116} + \cdots - 60.6561u - 13.0649 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.381325u^{117} + 0.734164u^{116} + \cdots + 16.2430u - 2.30564 \\ 0.0732515u^{117} + 0.0465062u^{116} + \cdots - 69.4204u - 15.1813 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.410377u^{117} + 0.747830u^{116} + \cdots + 32.7496u + 1.84294 \\ -0.0763814u^{117} - 0.0467982u^{116} + \cdots + 60.6601u + 16.1046 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.161618u^{117} + 0.417138u^{116} + \cdots + 78.0186u + 13.7872 \\ -0.219707u^{117} - 0.317027u^{116} + \cdots + 61.7756u + 16.0928 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.305156u^{117} - 0.565775u^{116} + \cdots + 3.95305u + 5.31050 \\ -0.0281133u^{117} + 0.0595301u^{116} + \cdots + 84.6108u + 17.6725 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.287760u^{117} - 0.227055u^{116} + \cdots + 36.3944u + 24.9413$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{118} + 65u^{117} + \cdots + 172u + 1$
c_2, c_4	$u^{118} - 7u^{117} + \cdots - 2u + 1$
c_3, c_7	$u^{118} + 2u^{117} + \cdots + 160u + 32$
c_5	$u^{118} + 4u^{117} + \cdots + 8634757u + 591517$
c_6	$u^{118} + 67u^{116} + \cdots + 196401u + 29189$
c_8	$u^{118} - 36u^{117} + \cdots - 20992u + 1024$
c_9	$u^{118} - 9u^{117} + \cdots + 2u - 1$
c_{10}, c_{12}	$u^{118} - 5u^{117} + \cdots + 143u - 1$
c_{11}	$u^{118} + 20u^{117} + \cdots + 156u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{118} - 17y^{117} + \cdots - 21024y + 1$
c_2, c_4	$y^{118} - 65y^{117} + \cdots - 172y + 1$
c_3, c_7	$y^{118} + 36y^{117} + \cdots + 20992y + 1024$
c_5	$y^{118} + 46y^{117} + \cdots - 9372454336793y + 349892361289$
c_6	$y^{118} + 134y^{117} + \cdots + 56845137931y + 851997721$
c_8	$y^{118} + 84y^{117} + \cdots - 237633536y + 1048576$
c_9	$y^{118} - 25y^{117} + \cdots - 26y + 1$
c_{10}, c_{12}	$y^{118} - 91y^{117} + \cdots - 21455y + 1$
c_{11}	$y^{118} + 24y^{117} + \cdots - 6288y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.728017 + 0.694463I$ $a = -0.225898 - 1.018600I$ $b = -0.669014 - 0.910213I$	$-1.43969 + 2.21556I$	0
$u = 0.728017 - 0.694463I$ $a = -0.225898 + 1.018600I$ $b = -0.669014 + 0.910213I$	$-1.43969 - 2.21556I$	0
$u = -0.619537 + 0.765048I$ $a = 1.032480 - 0.585042I$ $b = 0.571954 - 1.180190I$	$-1.23232 + 1.59626I$	0
$u = -0.619537 - 0.765048I$ $a = 1.032480 + 0.585042I$ $b = 0.571954 + 1.180190I$	$-1.23232 - 1.59626I$	0
$u = 0.298455 + 0.934841I$ $a = 0.22167 + 1.86730I$ $b = -0.263742 + 0.980521I$	$-1.47083 - 5.17351I$	0
$u = 0.298455 - 0.934841I$ $a = 0.22167 - 1.86730I$ $b = -0.263742 - 0.980521I$	$-1.47083 + 5.17351I$	0
$u = -0.198124 + 0.953787I$ $a = -1.251020 + 0.555836I$ $b = -0.12920 + 2.72726I$	$0.04031 + 2.55048I$	0
$u = -0.198124 - 0.953787I$ $a = -1.251020 - 0.555836I$ $b = -0.12920 - 2.72726I$	$0.04031 - 2.55048I$	0
$u = 0.068591 + 0.971611I$ $a = 0.927780 - 0.730731I$ $b = -0.679586 + 0.939233I$	$-5.08436 - 4.73741I$	0
$u = 0.068591 - 0.971611I$ $a = 0.927780 + 0.730731I$ $b = -0.679586 - 0.939233I$	$-5.08436 + 4.73741I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.031110 + 0.197972I$ $a = 0.876376 + 1.073180I$ $b = 0.785779 + 0.981729I$	$-3.61891 + 7.05319I$	0
$u = 1.031110 - 0.197972I$ $a = 0.876376 - 1.073180I$ $b = 0.785779 - 0.981729I$	$-3.61891 - 7.05319I$	0
$u = -1.050710 + 0.063861I$ $a = 0.714156 + 0.906732I$ $b = 0.625408 + 0.821210I$	$-3.31472 + 2.51883I$	0
$u = -1.050710 - 0.063861I$ $a = 0.714156 - 0.906732I$ $b = 0.625408 - 0.821210I$	$-3.31472 - 2.51883I$	0
$u = 0.272135 + 1.025000I$ $a = -0.382449 - 0.790293I$ $b = 0.514576 + 0.246566I$	$3.78308 - 0.01802I$	0
$u = 0.272135 - 1.025000I$ $a = -0.382449 + 0.790293I$ $b = 0.514576 - 0.246566I$	$3.78308 + 0.01802I$	0
$u = 0.735517 + 0.778817I$ $a = 0.67775 + 1.79166I$ $b = -0.779920 + 1.015750I$	$-4.73869 + 0.40842I$	0
$u = 0.735517 - 0.778817I$ $a = 0.67775 - 1.79166I$ $b = -0.779920 - 1.015750I$	$-4.73869 - 0.40842I$	0
$u = -0.107153 + 1.069730I$ $a = -1.032680 - 0.179779I$ $b = 0.710939 + 0.496865I$	$4.36870 + 2.02817I$	0
$u = -0.107153 - 1.069730I$ $a = -1.032680 + 0.179779I$ $b = 0.710939 - 0.496865I$	$4.36870 - 2.02817I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.781234 + 0.740647I$ $a = 0.169668 - 1.117780I$ $b = 0.084047 - 1.022770I$	$-10.10770 - 4.91047I$	0
$u = 0.781234 - 0.740647I$ $a = 0.169668 + 1.117780I$ $b = 0.084047 + 1.022770I$	$-10.10770 + 4.91047I$	0
$u = -0.073380 + 0.920134I$ $a = 0.155874 - 0.282788I$ $b = -0.05895 - 2.14310I$	$0.35506 + 1.51453I$	0
$u = -0.073380 - 0.920134I$ $a = 0.155874 + 0.282788I$ $b = -0.05895 + 2.14310I$	$0.35506 - 1.51453I$	0
$u = -0.149078 + 1.079460I$ $a = 0.258697 - 0.239907I$ $b = -0.901395 - 0.136742I$	$2.39623 + 2.35738I$	0
$u = -0.149078 - 1.079460I$ $a = 0.258697 + 0.239907I$ $b = -0.901395 + 0.136742I$	$2.39623 - 2.35738I$	0
$u = -0.774685 + 0.781985I$ $a = 0.84572 - 1.50885I$ $b = 0.76174 - 1.41524I$	$-10.59630 - 3.65695I$	0
$u = -0.774685 - 0.781985I$ $a = 0.84572 + 1.50885I$ $b = 0.76174 + 1.41524I$	$-10.59630 + 3.65695I$	0
$u = -0.671146 + 0.874204I$ $a = -2.62474 + 2.99523I$ $b = -0.00887 + 3.26729I$	$-2.69730 + 2.59523I$	0
$u = -0.671146 - 0.874204I$ $a = -2.62474 - 2.99523I$ $b = -0.00887 - 3.26729I$	$-2.69730 - 2.59523I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.733283 + 0.829346I$ $a = 1.52905 + 1.73070I$ $b = -0.037826 + 0.672568I$	$-5.24563 - 0.71971I$	0
$u = 0.733283 - 0.829346I$ $a = 1.52905 - 1.73070I$ $b = -0.037826 - 0.672568I$	$-5.24563 + 0.71971I$	0
$u = 0.860621 + 0.704440I$ $a = 1.234330 + 0.491055I$ $b = 0.871934 + 0.917474I$	$-4.58238 + 2.28560I$	0
$u = 0.860621 - 0.704440I$ $a = 1.234330 - 0.491055I$ $b = 0.871934 - 0.917474I$	$-4.58238 - 2.28560I$	0
$u = 0.813787 + 0.761771I$ $a = -2.63907 - 3.89564I$ $b = 0.00134 - 3.29415I$	$-6.47446 + 1.37228I$	0
$u = 0.813787 - 0.761771I$ $a = -2.63907 + 3.89564I$ $b = 0.00134 + 3.29415I$	$-6.47446 - 1.37228I$	0
$u = -0.735658 + 0.847408I$ $a = -1.26954 + 1.97061I$ $b = 0.736755 + 0.913449I$	$-4.87783 + 3.64446I$	0
$u = -0.735658 - 0.847408I$ $a = -1.26954 - 1.97061I$ $b = 0.736755 - 0.913449I$	$-4.87783 - 3.64446I$	0
$u = 0.916744 + 0.664952I$ $a = 0.92856 + 1.42190I$ $b = 0.84338 + 1.32703I$	$-6.64707 + 7.57494I$	0
$u = 0.916744 - 0.664952I$ $a = 0.92856 - 1.42190I$ $b = 0.84338 - 1.32703I$	$-6.64707 - 7.57494I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.303072 + 1.095470I$ $a = -1.114940 - 0.401261I$ $b = 0.787439 - 0.614349I$	$3.47785 - 6.81881I$	0
$u = 0.303072 - 1.095470I$ $a = -1.114940 + 0.401261I$ $b = 0.787439 + 0.614349I$	$3.47785 + 6.81881I$	0
$u = -0.810779 + 0.816732I$ $a = -0.29853 - 1.80929I$ $b = 0.041662 - 0.742708I$	$-8.95504 + 0.66716I$	0
$u = -0.810779 - 0.816732I$ $a = -0.29853 + 1.80929I$ $b = 0.041662 + 0.742708I$	$-8.95504 - 0.66716I$	0
$u = -0.644423 + 0.956924I$ $a = 0.322850 - 1.317380I$ $b = -0.963527 - 0.777985I$	$-0.60803 + 3.39602I$	0
$u = -0.644423 - 0.956924I$ $a = 0.322850 + 1.317380I$ $b = -0.963527 + 0.777985I$	$-0.60803 - 3.39602I$	0
$u = 0.198711 + 0.822369I$ $a = 2.17685 + 0.54412I$ $b = 0.054593 + 0.191928I$	$-2.78527 - 1.67495I$	$-10.83994 + 4.29836I$
$u = 0.198711 - 0.822369I$ $a = 2.17685 - 0.54412I$ $b = 0.054593 - 0.191928I$	$-2.78527 + 1.67495I$	$-10.83994 - 4.29836I$
$u = -0.727212 + 0.897879I$ $a = -0.286605 + 1.174070I$ $b = -0.694174 + 1.013200I$	$-4.72140 + 1.92715I$	0
$u = -0.727212 - 0.897879I$ $a = -0.286605 - 1.174070I$ $b = -0.694174 - 1.013200I$	$-4.72140 - 1.92715I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.724796 + 0.910439I$ $a = -0.15404 + 1.86380I$ $b = -0.000985 + 0.833561I$	$-4.99704 - 4.83893I$	0
$u = 0.724796 - 0.910439I$ $a = -0.15404 - 1.86380I$ $b = -0.000985 - 0.833561I$	$-4.99704 + 4.83893I$	0
$u = -0.862419 + 0.782346I$ $a = 1.37781 - 1.98487I$ $b = -0.030325 - 0.784160I$	$-8.89092 - 3.50469I$	0
$u = -0.862419 - 0.782346I$ $a = 1.37781 + 1.98487I$ $b = -0.030325 + 0.784160I$	$-8.89092 + 3.50469I$	0
$u = -0.472880 + 1.066790I$ $a = -0.168184 + 0.711747I$ $b = 0.434418 - 0.055480I$	$2.15836 + 4.75591I$	0
$u = -0.472880 - 1.066790I$ $a = -0.168184 - 0.711747I$ $b = 0.434418 + 0.055480I$	$2.15836 - 4.75591I$	0
$u = -0.912938 + 0.730651I$ $a = -0.381024 + 0.994006I$ $b = -0.771448 + 0.900895I$	$-4.65732 - 6.45566I$	0
$u = -0.912938 - 0.730651I$ $a = -0.381024 - 0.994006I$ $b = -0.771448 - 0.900895I$	$-4.65732 + 6.45566I$	0
$u = -0.985084 + 0.643042I$ $a = 0.185249 + 0.910435I$ $b = 0.106274 + 0.813085I$	$-5.92496 + 1.10467I$	0
$u = -0.985084 - 0.643042I$ $a = 0.185249 - 0.910435I$ $b = 0.106274 - 0.813085I$	$-5.92496 - 1.10467I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.776224 + 0.271739I$ $a = 0.098468 - 0.120546I$ $b = -0.334303 - 0.392446I$	$-0.309232 - 0.257103I$	$-3.98318 + 1.23273I$
$u = -0.776224 - 0.271739I$ $a = 0.098468 + 0.120546I$ $b = -0.334303 + 0.392446I$	$-0.309232 + 0.257103I$	$-3.98318 - 1.23273I$
$u = 0.711606 + 0.943046I$ $a = 1.135190 + 0.743815I$ $b = 0.85115 + 1.35114I$	$-4.23917 - 5.93059I$	0
$u = 0.711606 - 0.943046I$ $a = 1.135190 - 0.743815I$ $b = 0.85115 - 1.35114I$	$-4.23917 + 5.93059I$	0
$u = 0.794840 + 0.119506I$ $a = -0.093241 - 0.520824I$ $b = -0.552884 - 0.607003I$	$0.07573 + 2.96723I$	$-4.49491 - 6.86660I$
$u = 0.794840 - 0.119506I$ $a = -0.093241 + 0.520824I$ $b = -0.552884 + 0.607003I$	$0.07573 - 2.96723I$	$-4.49491 + 6.86660I$
$u = -0.733804 + 0.958544I$ $a = 1.16548 - 2.13975I$ $b = -0.87960 - 1.36956I$	$-10.05150 + 9.36822I$	0
$u = -0.733804 - 0.958544I$ $a = 1.16548 + 2.13975I$ $b = -0.87960 + 1.36956I$	$-10.05150 - 9.36822I$	0
$u = 0.699988 + 0.988293I$ $a = -1.05524 - 1.59575I$ $b = 0.808742 - 0.871999I$	$-0.57207 - 7.69896I$	0
$u = 0.699988 - 0.988293I$ $a = -1.05524 + 1.59575I$ $b = 0.808742 + 0.871999I$	$-0.57207 + 7.69896I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.768945+0.945881I$ $a=\quad 1.30420-1.61502I$ $b=-0.138008-0.677989I$	$-8.55225+5.26015I$	0
$u=-0.768945-0.945881I$ $a=\quad 1.30420+1.61502I$ $b=-0.138008+0.677989I$	$-8.55225-5.26015I$	0
$u=-0.012968+0.778903I$ $a=\quad 0.37988-1.44811I$ $b=-0.391327-1.002260I$	$-0.57888+1.37786I$	$-5.42870-3.04988I$
$u=-0.012968-0.778903I$ $a=\quad 0.37988+1.44811I$ $b=-0.391327+1.002260I$	$-0.57888-1.37786I$	$-5.42870+3.04988I$
$u=\quad 0.750545+0.978963I$ $a=-2.07453-3.15776I$ $b=\quad 0.03855-3.28250I$	$-5.80691-7.24580I$	0
$u=\quad 0.750545-0.978963I$ $a=-2.07453+3.15776I$ $b=\quad 0.03855+3.28250I$	$-5.80691+7.24580I$	0
$u=-0.263851+1.206760I$ $a=\quad 0.605867-0.435813I$ $b=-0.953748-0.946236I$	$1.35608+6.83479I$	0
$u=-0.263851-1.206760I$ $a=\quad 0.605867+0.435813I$ $b=-0.953748+0.946236I$	$1.35608-6.83479I$	0
$u=\quad 0.731217+1.003590I$ $a=-1.093900-0.586790I$ $b=-0.005942-0.817235I$	$-9.30286-0.82367I$	0
$u=\quad 0.731217-1.003590I$ $a=-1.093900+0.586790I$ $b=-0.005942+0.817235I$	$-9.30286+0.82367I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.001560 + 0.754879I$ $a = 0.99623 - 1.47644I$ $b = 0.91201 - 1.38050I$	$-9.7168 - 12.3498I$	0
$u = -1.001560 - 0.754879I$ $a = 0.99623 + 1.47644I$ $b = 0.91201 + 1.38050I$	$-9.7168 + 12.3498I$	0
$u = -0.782873 + 0.988188I$ $a = -0.11239 - 1.78523I$ $b = 0.058740 - 0.876478I$	$-8.24534 + 9.62498I$	0
$u = -0.782873 - 0.988188I$ $a = -0.11239 + 1.78523I$ $b = 0.058740 + 0.876478I$	$-8.24534 - 9.62498I$	0
$u = 0.748734 + 1.026430I$ $a = 0.05295 + 1.47708I$ $b = -1.11652 + 0.86908I$	$-3.58852 - 8.27941I$	0
$u = 0.748734 - 1.026430I$ $a = 0.05295 - 1.47708I$ $b = -1.11652 - 0.86908I$	$-3.58852 + 8.27941I$	0
$u = 0.417041 + 1.205090I$ $a = 0.697849 + 0.900322I$ $b = -1.00864 + 1.08129I$	$-0.01476 - 12.20380I$	0
$u = 0.417041 - 1.205090I$ $a = 0.697849 - 0.900322I$ $b = -1.00864 - 1.08129I$	$-0.01476 + 12.20380I$	0
$u = 1.038270 + 0.766425I$ $a = 0.031214 - 0.895863I$ $b = -0.050931 - 0.790657I$	$-8.92357 + 3.87422I$	0
$u = 1.038270 - 0.766425I$ $a = 0.031214 + 0.895863I$ $b = -0.050931 + 0.790657I$	$-8.92357 - 3.87422I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.781779 + 1.035930I$ $a = -0.82707 + 1.67434I$ $b = 0.848359 + 0.911738I$	$-3.69576 + 12.71000I$	0
$u = -0.781779 - 1.035930I$ $a = -0.82707 - 1.67434I$ $b = 0.848359 - 0.911738I$	$-3.69576 - 12.71000I$	0
$u = 0.097281 + 1.296230I$ $a = -0.072148 + 0.145914I$ $b = -0.710978 - 0.546472I$	$2.08823 + 3.26218I$	0
$u = 0.097281 - 1.296230I$ $a = -0.072148 - 0.145914I$ $b = -0.710978 + 0.546472I$	$2.08823 - 3.26218I$	0
$u = 0.758282 + 1.060240I$ $a = 0.85871 + 2.01440I$ $b = -0.95522 + 1.37774I$	$-5.4260 - 13.7420I$	0
$u = 0.758282 - 1.060240I$ $a = 0.85871 - 2.01440I$ $b = -0.95522 - 1.37774I$	$-5.4260 + 13.7420I$	0
$u = 0.618650 + 0.289740I$ $a = 3.00042 + 3.23542I$ $b = 0.470090 + 0.832220I$	$-3.65232 + 1.86079I$	$-14.7972 - 4.0060I$
$u = 0.618650 - 0.289740I$ $a = 3.00042 - 3.23542I$ $b = 0.470090 - 0.832220I$	$-3.65232 - 1.86079I$	$-14.7972 + 4.0060I$
$u = -0.788712 + 1.087860I$ $a = -0.784033 + 0.707205I$ $b = 0.109225 + 0.734333I$	$-4.55475 + 5.33983I$	0
$u = -0.788712 - 1.087860I$ $a = -0.784033 - 0.707205I$ $b = 0.109225 - 0.734333I$	$-4.55475 - 5.33983I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.826836 + 1.074140I$ $a = \quad 0.71895 - 2.14852I$ $b = -0.97071 - 1.42794I$	$-8.6750 + 19.0243I$	0
$u = -0.826836 - 1.074140I$ $a = \quad 0.71895 + 2.14852I$ $b = -0.97071 + 1.42794I$	$-8.6750 - 19.0243I$	0
$u = -0.069434 + 0.626267I$ $a = -1.37279 + 2.93741I$ $b = \quad 0.383474 - 0.599280I$	$-1.32642 - 1.43233I$	$0.36847 + 1.82515I$
$u = -0.069434 - 0.626267I$ $a = -1.37279 - 2.93741I$ $b = \quad 0.383474 + 0.599280I$	$-1.32642 + 1.43233I$	$0.36847 - 1.82515I$
$u = \quad 0.847758 + 1.083770I$ $a = -0.757329 - 0.892513I$ $b = \quad 0.189209 - 0.788907I$	$-7.87653 - 10.72040I$	0
$u = \quad 0.847758 - 1.083770I$ $a = -0.757329 + 0.892513I$ $b = \quad 0.189209 + 0.788907I$	$-7.87653 + 10.72040I$	0
$u = -0.315350 + 1.371310I$ $a = -0.305158 - 0.089656I$ $b = -0.437376 + 0.435733I$	$1.32897 + 2.54365I$	0
$u = -0.315350 - 1.371310I$ $a = -0.305158 + 0.089656I$ $b = -0.437376 - 0.435733I$	$1.32897 - 2.54365I$	0
$u = -0.560432$ $a = \quad 1.03456$ $b = \quad 0.310159$	-1.12206	-9.21340
$u = -0.551319 + 0.060131I$ $a = \quad 5.68240 + 10.93550I$ $b = \quad 1.80179 + 2.16150I$	$-2.75296 - 0.06291I$	$-75.7664 + 36.6206I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.551319 - 0.060131I$ $a = 5.68240 - 10.93550I$ $b = 1.80179 - 2.16150I$	$-2.75296 + 0.06291I$	$-75.7664 - 36.6206I$
$u = -0.092826 + 0.524249I$ $a = 0.651210 - 1.004270I$ $b = -0.333802 - 0.973972I$	$-0.66149 + 1.45734I$	$-4.35229 - 4.44056I$
$u = -0.092826 - 0.524249I$ $a = 0.651210 + 1.004270I$ $b = -0.333802 + 0.973972I$	$-0.66149 - 1.45734I$	$-4.35229 + 4.44056I$
$u = 0.283170 + 0.423021I$ $a = 1.75968 + 5.23956I$ $b = -0.659894 + 0.543547I$	$-4.15362 - 0.40167I$	$-9.52783 + 9.14652I$
$u = 0.283170 - 0.423021I$ $a = 1.75968 - 5.23956I$ $b = -0.659894 - 0.543547I$	$-4.15362 + 0.40167I$	$-9.52783 - 9.14652I$
$u = 0.022040 + 0.452263I$ $a = 0.51540 + 1.35269I$ $b = 0.429943 + 1.261700I$	$-7.21260 + 4.35579I$	$4.39844 - 1.29194I$
$u = 0.022040 - 0.452263I$ $a = 0.51540 - 1.35269I$ $b = 0.429943 - 1.261700I$	$-7.21260 - 4.35579I$	$4.39844 + 1.29194I$
$u = -0.287194$ $a = 5.64059$ $b = 1.00048$	-2.30286	-1.96350

II. $I_2^u = \langle 2u^2 + b + u + 3,\ 7u^2 + a + 3u + 12,\ u^3 + u^2 + 2u + 1 \rangle$

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ -u^2 - u - 1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -7u^2 - 3u - 12 \\ -2u^2 - u - 3 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 21u^2 + 9u + 38 \\ 5u^2 + 2u + 9 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -7u^2 - 3u - 11 \\ -u^2 - u - 3 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ -u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -7u^2 - 3u - 12 \\ -2u^2 - u - 3 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^2 - 1 \\ -u^2 - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -53u^2 - 32u - 104$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = \ \ 0.281752 + 0.014533I$ $b = \ \ 0.539798 - 0.182582I$	$1.37919 + 2.82812I$	$-9.0124 - 12.0277I$
$u = -0.215080 - 1.307140I$ $a = \ \ 0.281752 - 0.014533I$ $b = \ \ 0.539798 + 0.182582I$	$1.37919 - 2.82812I$	$-9.0124 + 12.0277I$
$u = -0.569840$ $a = -12.5635$ $b = -3.07960$	-2.75839	-102.980

III.

$$\boldsymbol{I^v_1 = \langle a,\ 16v^4+47v^3+36v^2+29b+104v-5,\ v^5+3v^4+3v^3+8v^2+v+1\rangle}$$

(i) Arc colorings

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

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

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

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -0.551724v^4 - 1.62069v^3 + \cdots - 3.58621v + 0.172414 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -0.344828v^4 - 1.13793v^3 + \cdots - 3.24138v - 1.51724 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.344828v^4 - 1.13793v^3 + \cdots - 3.24138v - 0.517241 \\ v^4 + 3v^3 + 3v^2 + 8v + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.655172v^4 - 1.86207v^3 + \cdots - 4.75862v - 0.482759 \\ v^4 + 3v^3 + 3v^2 + 8v + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.551724v^4 + 1.62069v^3 + \cdots + 3.58621v - 0.172414 \\ -0.551724v^4 - 1.62069v^3 + \cdots - 3.58621v + 0.172414 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.655172v^4 + 1.86207v^3 + \cdots + 4.75862v + 0.482759 \\ -v^4 - 3v^3 - 3v^2 - 8v - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.655172v^4 - 1.86207v^3 + \cdots - 3.75862v - 0.482759 \\ v^4 + 3v^3 + 3v^2 + 8v + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{65}{29}v^4 + \frac{142}{29}v^3 + \frac{81}{29}v^2 + \frac{437}{29}v - \frac{613}{29}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^5$
c_3, c_7, c_8	u^5
c_4	$(u+1)^5$
c_5, c_{10}	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
c_6	$u^5 - u^4 + 2u^3 - u^2 + u - 1$
c_9	$u^5 + 3u^4 + 4u^3 + u^2 - u - 1$
c_{11}	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
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_2, c_4	$(y-1)^5$
c_3, c_7, c_8	y^5
c_5, c_{10}, c_{12}	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_6, c_{11}	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_9	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.01014 + 1.59703I$ $a = 0$ $b = -0.339110 + 0.822375I$	$-1.97403 - 1.53058I$	$-13.4575 + 4.4032I$
$v = -0.01014 - 1.59703I$ $a = 0$ $b = -0.339110 - 0.822375I$	$-1.97403 + 1.53058I$	$-13.4575 - 4.4032I$
$v = -0.043806 + 0.365575I$ $a = 0$ $b = 0.455697 - 1.200150I$	$-7.51750 - 4.40083I$	$-22.0438 + 5.2094I$
$v = -0.043806 - 0.365575I$ $a = 0$ $b = 0.455697 + 1.200150I$	$-7.51750 + 4.40083I$	$-22.0438 - 5.2094I$
$v = -2.89210$ $a = 0$ $b = 0.766826$	-4.04602	-2.99730

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^5)(u^3-u^2+2u-1)(u^{118}+65u^{117}+\cdots+172u+1)$
c_2	$((u-1)^5)(u^3+u^2-1)(u^{118}-7u^{117}+\cdots-2u+1)$
c_3	$u^5(u^3-u^2+2u-1)(u^{118}+2u^{117}+\cdots+160u+32)$
c_4	$((u+1)^5)(u^3-u^2+1)(u^{118}-7u^{117}+\cdots-2u+1)$
c_5	$(u^3+2u^2-3u+1)(u^5+u^4-2u^3-u^2+u-1)$ $\cdot\,(u^{118}+4u^{117}+\cdots+8634757u+591517)$
c_6	$(u^3+2u^2-3u+1)(u^5-u^4+2u^3-u^2+u-1)$ $\cdot\,(u^{118}+67u^{116}+\cdots+196401u+29189)$
c_7	$u^5(u^3+u^2+2u+1)(u^{118}+2u^{117}+\cdots+160u+32)$
c_8	$u^5(u^3-3u^2+2u+1)(u^{118}-36u^{117}+\cdots-20992u+1024)$
c_9	$(u^3-3u^2+2u+1)(u^5+3u^4+4u^3+u^2-u-1)$ $\cdot\,(u^{118}-9u^{117}+\cdots+2u-1)$
c_{10}	$((u-1)^3)(u^5+u^4+\cdots+u-1)(u^{118}-5u^{117}+\cdots+143u-1)$
c_{11}	$u^3(u^5+u^4+\cdots+u+1)(u^{118}+20u^{117}+\cdots+156u+8)$
c_{12}	$((u+1)^3)(u^5-u^4+\cdots+u+1)(u^{118}-5u^{117}+\cdots+143u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^5)(y^3+3y^2+2y-1)(y^{118}-17y^{117}+\cdots-21024y+1)$
c_2, c_4	$((y-1)^5)(y^3-y^2+2y-1)(y^{118}-65y^{117}+\cdots-172y+1)$
c_3, c_7	$y^5(y^3+3y^2+2y-1)(y^{118}+36y^{117}+\cdots+20992y+1024)$
c_5	$(y^3-10y^2+5y-1)(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{118}+46y^{117}+\cdots-9372454336793y+349892361289)$
c_6	$(y^3-10y^2+5y-1)(y^5+3y^4+4y^3+y^2-y-1)$ $\cdot(y^{118}+134y^{117}+\cdots+56845137931y+851997721)$
c_8	$y^5(y^3-5y^2+10y-1)(y^{118}+84y^{117}+\cdots-2.37634\times10^8y+1048576)$
c_9	$(y^3-5y^2+10y-1)(y^5-y^4+8y^3-3y^2+3y-1)$ $\cdot(y^{118}-25y^{117}+\cdots-26y+1)$
c_{10}, c_{12}	$(y-1)^3(y^5-5y^4+8y^3-3y^2-y-1)$ $\cdot(y^{118}-91y^{117}+\cdots-21455y+1)$
c_{11}	$y^3(y^5+3y^4+\cdots-y-1)(y^{118}+24y^{117}+\cdots-6288y+64)$