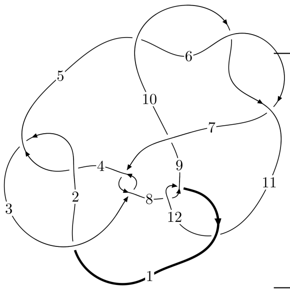
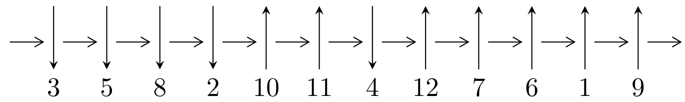
$12a_{0092}$ ($K12a_{0092}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -1.29904 \times 10^{129} u^{111} + 2.66514 \times 10^{129} u^{110} + \cdots + 3.21272 \times 10^{129} b + 1.30058 \times 10^{129}, \\
& 5.52996 \times 10^{129} u^{111} - 1.09032 \times 10^{130} u^{110} + \cdots + 6.42545 \times 10^{129} a - 1.03393 \times 10^{130}, \\
& u^{112} - 2u^{111} + \cdots + 24u + 8 \rangle \\
I_2^u = \langle & b + 1,\ 2u^7 - u^6 - 5u^5 + 2u^4 + 3u^3 + a + 2u - 1,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1 \rangle \\
I_3^u = \langle & 32a^2u + 14a^2 + 6au + 463b + 292a + 118u - 122,\ 4a^3 + 6a^2u - 4a^2 + 8au + 3u - 20,\ u^2 - 2 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ -v^2 + b + 3v + 1,\ v^3 - 2v^2 - 3v - 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 129 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. $\boldsymbol{I_1^u = \langle -1.30\times 10^{129}u^{111} + 2.67\times 10^{129}u^{110} + \cdots + 3.21\times 10^{129}b + 1.30\times 10^{129},\ 5.53\times 10^{129}u^{111} - 1.09\times 10^{130}u^{110} + \cdots + 6.43\times 10^{129}a - 1.03\times 10^{130},\ u^{112} - 2u^{111} + \cdots + 24u + 8\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.860634u^{111} + 1.69688u^{110} + \cdots + 1.28833u + 1.60912\\0.404343u^{111} - 0.829559u^{110} + \cdots - 2.02982u - 0.404820\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.456291u^{111} + 0.867320u^{110} + \cdots - 0.741493u + 1.20430\\0.404343u^{111} - 0.829559u^{110} + \cdots - 2.02982u - 0.404820\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0400195u^{111} - 0.574902u^{110} + \cdots + 6.54098u + 2.08781\\-0.0638486u^{111} + 0.551541u^{110} + \cdots - 3.22913u - 1.01041\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0.278988u^{111} - 0.807051u^{110} + \cdots + 0.947750u + 3.03165\\-0.597516u^{111} + 1.47686u^{110} + \cdots + 0.793252u - 1.62436\end{pmatrix}$$
$$a_8 = \begin{pmatrix}0.0413526u^{111} - 0.529064u^{110} + \cdots + 4.64588u + 1.51965\\0.183846u^{111} + 0.260857u^{110} + \cdots - 9.04776u - 3.12862\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-u^5+2u^3-u\\u^7-3u^5+2u^3+u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.0392866u^{111} - 0.413970u^{110} + \cdots + 9.42044u + 2.69703\\-0.101407u^{111} + 0.424993u^{110} + \cdots - 2.32534u - 0.770762\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 1.31338u^{111} - 3.41480u^{110} + \cdots + 22.4635u + 1.55814$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{112} + 52u^{111} + \cdots + 2998u + 1$
c_2, c_4	$u^{112} - 12u^{111} + \cdots + 54u + 1$
c_3, c_7	$u^{112} + 2u^{111} + \cdots + 2688u - 256$
c_5, c_6, c_{10}	$u^{112} - 2u^{111} + \cdots + 24u + 8$
c_8, c_{12}	$u^{112} - 5u^{111} + \cdots - 113u + 7$
c_9	$u^{112} + 6u^{111} + \cdots + 84024u + 12200$
c_{11}	$u^{112} - 57u^{111} + \cdots - 4733u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{112} + 28y^{111} + \cdots - 8620798y + 1$
c_2, c_4	$y^{112} - 52y^{111} + \cdots - 2998y + 1$
c_3, c_7	$y^{112} + 60y^{111} + \cdots - 3850240y + 65536$
c_5, c_6, c_{10}	$y^{112} - 104y^{111} + \cdots - 960y + 64$
c_8, c_{12}	$y^{112} - 57y^{111} + \cdots - 4733y + 49$
c_9	$y^{112} - 8y^{111} + \cdots - 4167168576y + 148840000$
c_{11}	$y^{112} + 7y^{111} + \cdots - 16407805y + 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.018720 + 0.149036I$ $a = 0.076859 - 0.861231I$ $b = -1.158720 + 0.319869I$	$-1.29796 - 1.03206I$	0
$u = -1.018720 - 0.149036I$ $a = 0.076859 + 0.861231I$ $b = -1.158720 - 0.319869I$	$-1.29796 + 1.03206I$	0
$u = 0.814215 + 0.446584I$ $a = -0.037466 - 0.261223I$ $b = 1.067950 + 0.549015I$	$0.00125 - 3.68506I$	0
$u = 0.814215 - 0.446584I$ $a = -0.037466 + 0.261223I$ $b = 1.067950 - 0.549015I$	$0.00125 + 3.68506I$	0
$u = -0.711966 + 0.574552I$ $a = -0.174449 + 0.367324I$ $b = 1.131830 - 0.614451I$	$1.90412 + 8.94633I$	0
$u = -0.711966 - 0.574552I$ $a = -0.174449 - 0.367324I$ $b = 1.131830 + 0.614451I$	$1.90412 - 8.94633I$	0
$u = 1.036270 + 0.398425I$ $a = 0.447897 + 0.876758I$ $b = 0.979382 - 0.404050I$	$-0.78854 + 2.81223I$	0
$u = 1.036270 - 0.398425I$ $a = 0.447897 - 0.876758I$ $b = 0.979382 + 0.404050I$	$-0.78854 - 2.81223I$	0
$u = 1.116570 + 0.051427I$ $a = 0.657850 - 0.997380I$ $b = -0.177665 + 0.553771I$	$1.74796 + 0.16171I$	0
$u = 1.116570 - 0.051427I$ $a = 0.657850 + 0.997380I$ $b = -0.177665 - 0.553771I$	$1.74796 - 0.16171I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.110930 + 0.219371I$ $a = -0.14481 - 1.71768I$ $b = -1.153040 + 0.367430I$	$-1.22070 + 3.54389I$	0
$u = 1.110930 - 0.219371I$ $a = -0.14481 + 1.71768I$ $b = -1.153040 - 0.367430I$	$-1.22070 - 3.54389I$	0
$u = -0.355833 + 0.788222I$ $a = 1.05625 - 1.50575I$ $b = 1.170610 + 0.637818I$	$0.72546 - 13.62000I$	$0. + 9.98825I$
$u = -0.355833 - 0.788222I$ $a = 1.05625 + 1.50575I$ $b = 1.170610 - 0.637818I$	$0.72546 + 13.62000I$	$0. - 9.98825I$
$u = 0.146754 + 0.822078I$ $a = 0.893745 + 0.277347I$ $b = 0.911228 + 0.313596I$	$-3.54227 + 1.59081I$	$1.56582 + 2.52489I$
$u = 0.146754 - 0.822078I$ $a = 0.893745 - 0.277347I$ $b = 0.911228 - 0.313596I$	$-3.54227 - 1.59081I$	$1.56582 - 2.52489I$
$u = -1.167790 + 0.097848I$ $a = 0.725202 - 0.286646I$ $b = 0.881268 - 0.521081I$	$6.34503 + 2.09810I$	0
$u = -1.167790 - 0.097848I$ $a = 0.725202 + 0.286646I$ $b = 0.881268 + 0.521081I$	$6.34503 - 2.09810I$	0
$u = -0.624872 + 0.541441I$ $a = 0.485440 - 1.097800I$ $b = 0.392106 + 0.829105I$	$4.11190 + 3.56494I$	$7.21254 - 1.29951I$
$u = -0.624872 - 0.541441I$ $a = 0.485440 + 1.097800I$ $b = 0.392106 - 0.829105I$	$4.11190 - 3.56494I$	$7.21254 + 1.29951I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.274658 + 0.777797I$ $a = 1.28184 + 1.22191I$ $b = 1.134650 - 0.590961I$	$-1.75122 + 8.04540I$	$-0.69722 - 6.48181I$
$u = 0.274658 - 0.777797I$ $a = 1.28184 - 1.22191I$ $b = 1.134650 + 0.590961I$	$-1.75122 - 8.04540I$	$-0.69722 + 6.48181I$
$u = -0.011399 + 0.820861I$ $a = 1.141370 + 0.028393I$ $b = 1.003200 - 0.397478I$	$-4.15841 + 4.21135I$	$-1.12819 - 7.26950I$
$u = -0.011399 - 0.820861I$ $a = 1.141370 - 0.028393I$ $b = 1.003200 + 0.397478I$	$-4.15841 - 4.21135I$	$-1.12819 + 7.26950I$
$u = -0.358023 + 0.736800I$ $a = -0.605113 + 0.240449I$ $b = 0.369589 - 0.924331I$	$3.15487 - 7.91029I$	$5.30872 + 6.56414I$
$u = -0.358023 - 0.736800I$ $a = -0.605113 - 0.240449I$ $b = 0.369589 + 0.924331I$	$3.15487 + 7.91029I$	$5.30872 - 6.56414I$
$u = 0.303360 + 0.725677I$ $a = -0.65527 - 1.79904I$ $b = -1.015110 + 0.566452I$	$-1.69797 + 7.17522I$	$0.68379 - 7.57915I$
$u = 0.303360 - 0.725677I$ $a = -0.65527 + 1.79904I$ $b = -1.015110 - 0.566452I$	$-1.69797 - 7.17522I$	$0.68379 + 7.57915I$
$u = 0.652565 + 0.422024I$ $a = 0.774209 + 0.886160I$ $b = -0.995831 - 0.466362I$	$-0.38831 - 3.14093I$	$2.48859 + 2.59563I$
$u = 0.652565 - 0.422024I$ $a = 0.774209 - 0.886160I$ $b = -0.995831 + 0.466362I$	$-0.38831 + 3.14093I$	$2.48859 - 2.59563I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.217770 + 0.231362I$ $a = 0.066728 + 0.949450I$ $b = 0.002019 - 0.679432I$	$2.29898 - 4.70132I$	0
$u = -1.217770 - 0.231362I$ $a = 0.066728 - 0.949450I$ $b = 0.002019 + 0.679432I$	$2.29898 + 4.70132I$	0
$u = -0.263923 + 0.703760I$ $a = -0.978990 + 0.422628I$ $b = -1.309070 + 0.166176I$	$-2.65149 - 4.51648I$	$1.07409 + 6.59561I$
$u = -0.263923 - 0.703760I$ $a = -0.978990 - 0.422628I$ $b = -1.309070 - 0.166176I$	$-2.65149 + 4.51648I$	$1.07409 - 6.59561I$
$u = 0.294109 + 0.686488I$ $a = -0.364849 + 0.009699I$ $b = 0.339982 + 0.789548I$	$0.57903 + 2.86162I$	$2.21640 - 3.05288I$
$u = 0.294109 - 0.686488I$ $a = -0.364849 - 0.009699I$ $b = 0.339982 - 0.789548I$	$0.57903 - 2.86162I$	$2.21640 + 3.05288I$
$u = -1.196320 + 0.379749I$ $a = 0.446586 - 1.195840I$ $b = 1.071020 + 0.461092I$	$-0.50009 - 8.52415I$	0
$u = -1.196320 - 0.379749I$ $a = 0.446586 + 1.195840I$ $b = 1.071020 - 0.461092I$	$-0.50009 + 8.52415I$	0
$u = 0.584146 + 0.424260I$ $a = 0.495792 + 0.880233I$ $b = 0.508203 - 0.602695I$	$1.72036 + 0.90594I$	$4.78781 - 4.00969I$
$u = 0.584146 - 0.424260I$ $a = 0.495792 - 0.880233I$ $b = 0.508203 + 0.602695I$	$1.72036 - 0.90594I$	$4.78781 + 4.00969I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.229960 + 0.360736I$ $a = 0.037108 + 0.251367I$ $b = 0.915433 + 0.334717I$	$-0.329456 + 0.040199I$	0
$u = 1.229960 - 0.360736I$ $a = 0.037108 - 0.251367I$ $b = 0.915433 - 0.334717I$	$-0.329456 - 0.040199I$	0
$u = -0.654491 + 0.272544I$ $a = 0.04579 + 1.78125I$ $b = -1.182700 - 0.184351I$	$-1.085270 + 0.846553I$	$3.79032 - 3.13132I$
$u = -0.654491 - 0.272544I$ $a = 0.04579 - 1.78125I$ $b = -1.182700 + 0.184351I$	$-1.085270 - 0.846553I$	$3.79032 + 3.13132I$
$u = -0.188194 + 0.675147I$ $a = -1.11851 + 1.65238I$ $b = -1.051720 - 0.452819I$	$-3.69167 - 2.26136I$	$-3.60384 + 2.58351I$
$u = -0.188194 - 0.675147I$ $a = -1.11851 - 1.65238I$ $b = -1.051720 + 0.452819I$	$-3.69167 + 2.26136I$	$-3.60384 - 2.58351I$
$u = 0.240940 + 0.637061I$ $a = 0.719669 + 0.632063I$ $b = -0.562579 - 0.604506I$	$-0.34785 + 2.50804I$	$1.82220 - 3.40193I$
$u = 0.240940 - 0.637061I$ $a = 0.719669 - 0.632063I$ $b = -0.562579 + 0.604506I$	$-0.34785 - 2.50804I$	$1.82220 + 3.40193I$
$u = 0.112061 + 0.664682I$ $a = -1.48275 + 0.14053I$ $b = -1.214020 - 0.246890I$	$-4.20929 - 0.20936I$	$-3.46102 - 1.21494I$
$u = 0.112061 - 0.664682I$ $a = -1.48275 - 0.14053I$ $b = -1.214020 + 0.246890I$	$-4.20929 + 0.20936I$	$-3.46102 + 1.21494I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.327970+0.003111I$ $a=-0.87431+1.66645I$ $b=0.894917-0.825816I$	$8.09882+3.06301I$	0
$u=-1.327970-0.003111I$ $a=-0.87431-1.66645I$ $b=0.894917+0.825816I$	$8.09882-3.06301I$	0
$u=1.324830+0.184519I$ $a=1.29142+1.08887I$ $b=-0.530536-0.575105I$	$2.68371+1.14617I$	0
$u=1.324830-0.184519I$ $a=1.29142-1.08887I$ $b=-0.530536+0.575105I$	$2.68371-1.14617I$	0
$u=-0.332085+0.570168I$ $a=-0.823871-0.740483I$ $b=0.570546-0.745691I$	$5.19659+0.52268I$	$7.07371+1.25938I$
$u=-0.332085-0.570168I$ $a=-0.823871+0.740483I$ $b=0.570546+0.745691I$	$5.19659-0.52268I$	$7.07371-1.25938I$
$u=-0.213775+0.619265I$ $a=2.33602-1.25730I$ $b=1.026980+0.623990I$	$3.82789-4.68728I$	$3.46609+6.29400I$
$u=-0.213775-0.619265I$ $a=2.33602+1.25730I$ $b=1.026980-0.623990I$	$3.82789+4.68728I$	$3.46609-6.29400I$
$u=-1.339170+0.244598I$ $a=0.128580+0.409997I$ $b=-1.292610+0.172501I$	$0.35822-3.05224I$	0
$u=-1.339170-0.244598I$ $a=0.128580-0.409997I$ $b=-1.292610-0.172501I$	$0.35822+3.05224I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.003632 + 0.612874I$ $a = 0.533006 - 0.318247I$ $b = -0.213424 + 0.523869I$	$-1.41839 + 1.56464I$	$-0.45093 - 4.40997I$
$u = -0.003632 - 0.612874I$ $a = 0.533006 + 0.318247I$ $b = -0.213424 - 0.523869I$	$-1.41839 - 1.56464I$	$-0.45093 + 4.40997I$
$u = -1.38959$ $a = 0.908732$ $b = -0.0184563$	6.53354	0
$u = -1.346640 + 0.354641I$ $a = -0.027424 - 0.336567I$ $b = 0.849993 - 0.240388I$	$1.14529 - 5.82695I$	0
$u = -1.346640 - 0.354641I$ $a = -0.027424 + 0.336567I$ $b = 0.849993 + 0.240388I$	$1.14529 + 5.82695I$	0
$u = 1.372090 + 0.263367I$ $a = 0.10678 - 2.41007I$ $b = -1.015250 + 0.548202I$	$1.26200 + 5.66357I$	0
$u = 1.372090 - 0.263367I$ $a = 0.10678 + 2.41007I$ $b = -1.015250 - 0.548202I$	$1.26200 - 5.66357I$	0
$u = 1.389480 + 0.176832I$ $a = -1.12892 - 1.39935I$ $b = 1.035730 + 0.807448I$	$9.96290 + 0.00502I$	0
$u = 1.389480 - 0.176832I$ $a = -1.12892 + 1.39935I$ $b = 1.035730 - 0.807448I$	$9.96290 - 0.00502I$	0
$u = -0.333286 + 0.497276I$ $a = 0.205344 - 0.950156I$ $b = 0.722048 + 0.843897I$	$5.42986 - 3.71507I$	$6.56090 + 8.40821I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.333286-0.497276I$ $a=\ \ 0.205344+0.950156I$ $b=\ \ 0.722048-0.843897I$	$5.42986+3.71507I$	$6.56090-8.40821I$
$u=\ \ 1.398300+0.107009I$ $a=-0.59433-1.65394I$ $b=-1.165440-0.052793I$	$5.03887+0.33340I$	0
$u=\ \ 1.398300-0.107009I$ $a=-0.59433+1.65394I$ $b=-1.165440+0.052793I$	$5.03887-0.33340I$	0
$u=-1.394040+0.168090I$ $a=-0.05486+2.88093I$ $b=-0.899734-0.466308I$	$6.09712-2.33253I$	0
$u=-1.394040-0.168090I$ $a=-0.05486-2.88093I$ $b=-0.899734+0.466308I$	$6.09712+2.33253I$	0
$u=\ \ 1.386180+0.248074I$ $a=\ \ 0.67456+2.27430I$ $b=\ \ 1.098480-0.642310I$	$8.93573+7.87318I$	0
$u=\ \ 1.386180-0.248074I$ $a=\ \ 0.67456-2.27430I$ $b=\ \ 1.098480+0.642310I$	$8.93573-7.87318I$	0
$u=-1.39563+0.25220I$ $a=\ \ 1.35096-1.26835I$ $b=-0.652912+0.690244I$	$4.87673-5.76508I$	0
$u=-1.39563-0.25220I$ $a=\ \ 1.35096+1.26835I$ $b=-0.652912-0.690244I$	$4.87673+5.76508I$	0
$u=\ \ 1.41403+0.20520I$ $a=-0.39049+1.93565I$ $b=\ \ 0.695558-0.941026I$	$10.99240+6.37614I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41403 - 0.20520I$ $a = -0.39049 - 1.93565I$ $b = 0.695558 + 0.941026I$	$10.99240 - 6.37614I$	0
$u = 1.43186$ $a = 7.47358$ $b = -0.970695$	4.97680	0
$u = 1.40615 + 0.27781I$ $a = 0.451286 - 0.581959I$ $b = -1.358830 - 0.131787I$	$2.67390 + 8.08693I$	0
$u = 1.40615 - 0.27781I$ $a = 0.451286 + 0.581959I$ $b = -1.358830 + 0.131787I$	$2.67390 - 8.08693I$	0
$u = 1.42100 + 0.21744I$ $a = -1.228290 - 0.553828I$ $b = 0.474203 + 0.831698I$	$10.80900 + 2.37680I$	0
$u = 1.42100 - 0.21744I$ $a = -1.228290 + 0.553828I$ $b = 0.474203 - 0.831698I$	$10.80900 - 2.37680I$	0
$u = -1.41572 + 0.27049I$ $a = -0.978454 + 0.922450I$ $b = 0.368700 - 0.903629I$	$6.03543 - 6.35471I$	0
$u = -1.41572 - 0.27049I$ $a = -0.978454 - 0.922450I$ $b = 0.368700 + 0.903629I$	$6.03543 + 6.35471I$	0
$u = -1.44321 + 0.10269I$ $a = -0.43536 - 1.61858I$ $b = 0.716567 + 0.769054I$	$8.22583 - 2.63796I$	0
$u = -1.44321 - 0.10269I$ $a = -0.43536 + 1.61858I$ $b = 0.716567 - 0.769054I$	$8.22583 + 2.63796I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.41705 + 0.31061I$ $a = 0.23451 - 2.12729I$ $b = 1.162710 + 0.631820I$	$3.63940 - 11.98600I$	0
$u = -1.41705 - 0.31061I$ $a = 0.23451 + 2.12729I$ $b = 1.162710 - 0.631820I$	$3.63940 + 11.98600I$	0
$u = -1.42523 + 0.28547I$ $a = 0.28388 + 2.43754I$ $b = -0.995964 - 0.623300I$	$3.82611 - 10.85450I$	0
$u = -1.42523 - 0.28547I$ $a = 0.28388 - 2.43754I$ $b = -0.995964 + 0.623300I$	$3.82611 + 10.85450I$	0
$u = -1.46859 + 0.11194I$ $a = 1.69922 - 1.26036I$ $b = -0.841564 + 0.435407I$	$6.34093 + 1.39160I$	0
$u = -1.46859 - 0.11194I$ $a = 1.69922 + 1.26036I$ $b = -0.841564 - 0.435407I$	$6.34093 - 1.39160I$	0
$u = 1.45063 + 0.28488I$ $a = -1.11139 - 1.11493I$ $b = 0.397230 + 0.978223I$	$8.9567 + 11.6332I$	0
$u = 1.45063 - 0.28488I$ $a = -1.11139 + 1.11493I$ $b = 0.397230 - 0.978223I$	$8.9567 - 11.6332I$	0
$u = 1.45761 + 0.30717I$ $a = 0.05506 + 2.27142I$ $b = 1.184370 - 0.665894I$	$6.5408 + 17.6016I$	0
$u = 1.45761 - 0.30717I$ $a = 0.05506 - 2.27142I$ $b = 1.184370 + 0.665894I$	$6.5408 - 17.6016I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.50703 + 0.02402I$ $a = -0.74209 + 1.21258I$ $b = 0.927314 - 0.617513I$	$7.63433 + 2.61707I$	0
$u = -1.50703 - 0.02402I$ $a = -0.74209 - 1.21258I$ $b = 0.927314 + 0.617513I$	$7.63433 - 2.61707I$	0
$u = 1.50704 + 0.14911I$ $a = -0.10240 + 1.73413I$ $b = 0.513892 - 0.813284I$	$11.06290 - 1.16602I$	0
$u = 1.50704 - 0.14911I$ $a = -0.10240 - 1.73413I$ $b = 0.513892 + 0.813284I$	$11.06290 + 1.16602I$	0
$u = -0.237025 + 0.395062I$ $a = 0.003829 + 0.713299I$ $b = 0.958789 - 0.771571I$	$4.74030 + 2.24272I$	$3.61623 + 6.16785I$
$u = -0.237025 - 0.395062I$ $a = 0.003829 - 0.713299I$ $b = 0.958789 + 0.771571I$	$4.74030 - 2.24272I$	$3.61623 - 6.16785I$
$u = 1.53699 + 0.12427I$ $a = -0.99596 - 1.13045I$ $b = 1.073900 + 0.645562I$	$9.38113 - 6.62724I$	0
$u = 1.53699 - 0.12427I$ $a = -0.99596 + 1.13045I$ $b = 1.073900 - 0.645562I$	$9.38113 + 6.62724I$	0
$u = 0.276680 + 0.321195I$ $a = -0.57913 - 4.82110I$ $b = -0.757806 + 0.273988I$	$0.771024 + 0.267712I$	$2.70998 - 9.56080I$
$u = 0.276680 - 0.321195I$ $a = -0.57913 + 4.82110I$ $b = -0.757806 - 0.273988I$	$0.771024 - 0.267712I$	$2.70998 + 9.56080I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.417834$ $a = 1.69611$ $b = -0.141393$	0.992954	11.5370
$u = -0.236458$ $a = 2.76698$ $b = -0.881202$	-1.26916	-9.80040

II. $I_2^u =$
$\langle b+1,\ 2u^7-u^6-5u^5+2u^4+3u^3+a+2u-1,\ u^8-u^7-3u^6+2u^5+3u^4-2u-1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -2u^7+u^6+5u^5-2u^4-3u^3-2u+1 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2u^7+u^6+5u^5-2u^4-3u^3-2u \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -2u^7+u^6+5u^5-2u^4-3u^3-2u+1 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^2+1 \\ u^4-2u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^5+2u^3-u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -u^3+2u \\ -u^3+u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^7+9u^6-10u^5-27u^4-2u^3+18u^2+20u+17$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.180120+0.268597I$ $a=-0.085690+0.514779I$ $b=-1.00000$	$-0.604279-1.131230I$	$1.38132+1.25921I$
$u=-1.180120-0.268597I$ $a=-0.085690-0.514779I$ $b=-1.00000$	$-0.604279+1.131230I$	$1.38132-1.25921I$
$u=-0.108090+0.747508I$ $a=-1.036110+0.260696I$ $b=-1.00000$	$-3.80435-2.57849I$	$-1.74277+4.63100I$
$u=-0.108090-0.747508I$ $a=-1.036110-0.260696I$ $b=-1.00000$	$-3.80435+2.57849I$	$-1.74277-4.63100I$
$u=\ \ 1.37100$ $a=-3.88842$ $b=-1.00000$	4.85780	25.4550
$u=\ \ 1.334530+0.318930I$ $a=\ \ 0.043072-0.634428I$ $b=-1.00000$	$0.73474+6.44354I$	$1.71699-7.87618I$
$u=\ \ 1.334530-0.318930I$ $a=\ \ 0.043072+0.634428I$ $b=-1.00000$	$0.73474-6.44354I$	$1.71699+7.87618I$
$u=-0.463640$ $a=\ \ 2.04588$ $b=-1.00000$	-0.799899	10.8330

III.

$\boldsymbol{I_3^u = \langle 32a^2u+6au+\cdots+292a-122,\ 4a^3+6a^2u-4a^2+8au+3u-20,\ u^2-2\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix}1\\-2\end{pmatrix}$$

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

$$a_3 = \begin{pmatrix}a\\-0.0691145a^2u-0.0129590au+\cdots-0.630670a+0.263499\end{pmatrix}$$

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

$$a_2 = \begin{pmatrix}-0.0691145a^2u-0.0129590au+\cdots+0.369330a+0.263499\\-0.0691145a^2u-0.0129590au+\cdots-0.630670a+0.263499\end{pmatrix}$$

$$a_1 = \begin{pmatrix}0.0604752a^2u+0.261339au+\cdots+0.0518359a-0.980562\\-0.0604752a^2u-0.261339au+\cdots-0.0518359a+0.980562\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.0453564a^2u-0.0539957au+\cdots+0.0388769a+0.764579\\0.00863931a^2u-0.248380au+\cdots+0.578834a-0.282937\end{pmatrix}$$

$$a_8 = \begin{pmatrix}0.0604752a^2u+0.261339au+\cdots+0.0518359a-0.980562\\-0.0604752a^2u-0.261339au+\cdots-0.0518359a+0.980562\end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix}0.0604752a^2u+0.261339au+\cdots+0.0518359a-0.980562\\-0.0604752a^2u-0.261339au+\cdots-0.0518359a+0.980562\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{128}{463}a^2u-\frac{56}{463}a^2-\frac{24}{463}au-\frac{1168}{463}a-\frac{472}{463}u+\frac{4192}{463}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = 0.865932$ $b = -0.754878$	5.46628	4.98050
$u = 1.41421$ $a = -0.99363 + 1.88732I$ $b = 0.877439 - 0.744862I$	$9.60386 + 2.82812I$	$11.50976 - 2.97945I$
$u = 1.41421$ $a = -0.99363 - 1.88732I$ $b = 0.877439 + 0.744862I$	$9.60386 - 2.82812I$	$11.50976 + 2.97945I$
$u = -1.41421$ $a = -0.516129 + 1.092130I$ $b = 0.877439 - 0.744862I$	$9.60386 + 2.82812I$	$11.50976 - 2.97945I$
$u = -1.41421$ $a = -0.516129 - 1.092130I$ $b = 0.877439 + 0.744862I$	$9.60386 - 2.82812I$	$11.50976 + 2.97945I$
$u = -1.41421$ $a = 4.15358$ $b = -0.754878$	5.46628	4.98050

IV. $I_1^v = \langle a,\ -v^2 + b + 3v + 1,\ v^3 - 2v^2 - 3v - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8v^2 - 26v - 14$

(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, c_9 c_{10}	u^3
c_7	$u^3 + u^2 + 2u + 1$
c_8, c_{11}	$(u+1)^3$
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, c_9 c_{10}	y^3
c_8, c_{11}, c_{12}	$(y-1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.539798 + 0.182582I$ $a = 0$ $b = 0.877439 - 0.744862I$	$4.66906 + 2.82812I$	$2.09911 - 6.32406I$
$v = -0.539798 - 0.182582I$ $a = 0$ $b = 0.877439 + 0.744862I$	$4.66906 - 2.82812I$	$2.09911 + 6.32406I$
$v = 3.07960$ $a = 0$ $b = -0.754878$	0.531480	−18.1980

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^8)(u^3-u^2+2u-1)^3(u^{112}+52u^{111}+\cdots+2998u+1)$
c_2	$((u-1)^8)(u^3+u^2-1)^3(u^{112}-12u^{111}+\cdots+54u+1)$
c_3	$u^8(u^3-u^2+2u-1)(u^3+u^2+2u+1)^2$ $\cdot(u^{112}+2u^{111}+\cdots+2688u-256)$
c_4	$((u+1)^8)(u^3-u^2+1)^3(u^{112}-12u^{111}+\cdots+54u+1)$
c_5, c_6	$u^3(u^2-2)^3(u^8-u^7-3u^6+2u^5+3u^4-2u-1)$ $\cdot(u^{112}-2u^{111}+\cdots+24u+8)$
c_7	$u^8(u^3-u^2+2u-1)^2(u^3+u^2+2u+1)$ $\cdot(u^{112}+2u^{111}+\cdots+2688u-256)$
c_8	$(u-1)^6(u+1)^3(u^8+u^7-u^6-2u^5+u^4+2u^3-2u-1)$ $\cdot(u^{112}-5u^{111}+\cdots-113u+7)$
c_9	$u^3(u^2-2)^3(u^8-3u^7+7u^6-10u^5+11u^4-10u^3+6u^2-4u+1)$ $\cdot(u^{112}+6u^{111}+\cdots+84024u+12200)$
c_{10}	$u^3(u^2-2)^3(u^8+u^7-3u^6-2u^5+3u^4+2u-1)$ $\cdot(u^{112}-2u^{111}+\cdots+24u+8)$
c_{11}	$(u+1)^9(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)$ $\cdot(u^{112}-57u^{111}+\cdots-4733u+49)$
c_{12}	$(u-1)^3(u+1)^6(u^8-u^7-u^6+2u^5+u^4-2u^3+2u-1)$ $\cdot(u^{112}-5u^{111}+\cdots-113u+7)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^8)(y^3+3y^2+2y-1)^3(y^{112}+28y^{111}+\cdots-8620798y+1)$
c_2, c_4	$((y-1)^8)(y^3-y^2+2y-1)^3(y^{112}-52y^{111}+\cdots-2998y+1)$
c_3, c_7	$y^8(y^3+3y^2+2y-1)^3(y^{112}+60y^{111}+\cdots-3850240y+65536)$
c_5, c_6, c_{10}	$y^3(y-2)^6(y^8-7y^7+19y^6-22y^5+3y^4+14y^3-6y^2-4y+1)$ $\cdot(y^{112}-104y^{111}+\cdots-960y+64)$
c_8, c_{12}	$(y-1)^9(y^8-3y^7+7y^6-10y^5+11y^4-10y^3+6y^2-4y+1)$ $\cdot(y^{112}-57y^{111}+\cdots-4733y+49)$
c_9	$y^3(y-2)^6(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{112}-8y^{111}+\cdots-4167168576y+148840000)$
c_{11}	$(y-1)^9(y^8+5y^7+11y^6+6y^5-17y^4-34y^3-22y^2-4y+1)$ $\cdot(y^{112}+7y^{111}+\cdots-16407805y+2401)$