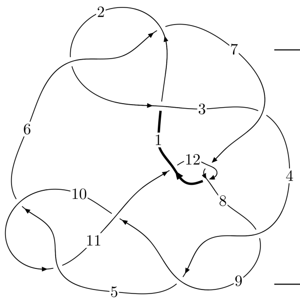
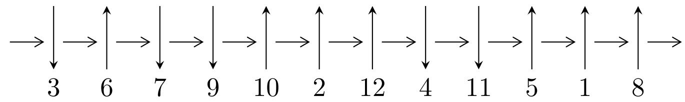
$12a_{0217}$ $(K12a_{0217})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.70721 \times 10^{195} u^{111} + 1.47324 \times 10^{196} u^{110} + \cdots + 3.10521 \times 10^{195} b + 1.11699 \times 10^{197}, \\
& -2.13027 \times 10^{197} u^{111} - 6.51014 \times 10^{197} u^{110} + \cdots + 8.07355 \times 10^{196} a - 3.95389 \times 10^{198}, \\
& u^{112} + 3u^{111} + \cdots - 15u + 13 \rangle \\
I_2^u = \langle & 76a^7 + 266a^6 + 388a^5 + 305a^4 + 824a^3 + 1064a^2 + 1105b + 204a - 624, \\
& a^8 + 4a^7 + 6a^6 + 4a^5 + 9a^4 + 16a^3 - 4a^2 - 12a + 13,\ u - 1 \rangle \\
I_3^u = \langle & 2a^5 - 5a^4 + 10a^3 - 10a^2 + 3b + 10a - 2,\ a^6 - 3a^5 + 6a^4 - 7a^3 + 6a^2 - 3a + 1,\ u + 1 \rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 126 representations.

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

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

I. $\boldsymbol{I_1^u = \langle 3.71 \times 10^{195} u^{111} + 1.47 \times 10^{196} u^{110} + \cdots + 3.11 \times 10^{195} b + 1.12 \times 10^{197},\ -2.13 \times 10^{197} u^{111} - 6.51 \times 10^{197} u^{110} + \cdots + 8.07 \times 10^{196} a - 3.95 \times 10^{198},\ u^{112} + 3u^{111} + \cdots - 15u + 13 \rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} 2.63857u^{111} + 8.06354u^{110} + \cdots - 122.697u + 48.9733 \\ -1.19387u^{111} - 4.74441u^{110} + \cdots + 90.6056u - 35.9714 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -2.99707u^{111} - 6.01775u^{110} + \cdots + 45.9311u - 22.1710 \\ 2.77255u^{111} + 5.99213u^{110} + \cdots - 52.3866u + 32.6865 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.435309u^{111} + 0.367120u^{110} + \cdots + 24.5090u - 6.98519 \\ -0.0312273u^{111} - 1.16652u^{110} + \cdots + 26.8632u - 5.19030 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1.44470u^{111} + 3.31913u^{110} + \cdots - 32.0910u + 13.0019 \\ -1.19387u^{111} - 4.74441u^{110} + \cdots + 90.6056u - 35.9714 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 1.04869u^{111} + 2.45896u^{110} + \cdots - 15.8751u + 5.26265 \\ 0.166715u^{111} - 1.01686u^{110} + \cdots + 45.7581u - 16.0720 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1.75205u^{111} + 4.39266u^{110} + \cdots - 71.5032u + 30.3190 \\ -0.327588u^{111} - 2.29232u^{110} + \cdots + 70.4015u - 30.0065 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.172592u^{111} + 1.01161u^{110} + \cdots - 22.2733u + 16.4299 \\ 3.14906u^{111} + 6.75817u^{110} + \cdots - 57.4630u + 36.9248 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.990034u^{111} - 3.77498u^{110} + \cdots + 48.5280u - 1.50406$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{112} + 56u^{111} + \cdots + 8u + 1$
c_2, c_6	$u^{112} - 2u^{111} + \cdots - 2u + 1$
c_3	$u^{112} + 2u^{111} + \cdots - 328230u + 69121$
c_4, c_8	$u^{112} - u^{111} + \cdots + 3468u + 548$
c_5, c_{10}	$u^{112} + u^{111} + \cdots + 4u + 4$
c_7, c_{12}	$u^{112} - 3u^{111} + \cdots + 15u + 13$
c_9	$u^{112} + 61u^{111} + \cdots + 80u + 16$
c_{11}	$u^{112} - 53u^{111} + \cdots - 1577u + 169$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{112} + 8y^{111} + \cdots + 56y + 1$
c_2, c_6	$y^{112} + 56y^{111} + \cdots + 8y + 1$
c_3	$y^{112} - 40y^{111} + \cdots - 53022343592y + 4777712641$
c_4, c_8	$y^{112} - 91y^{111} + \cdots + 5715024y + 300304$
c_5, c_{10}	$y^{112} + 61y^{111} + \cdots + 80y + 16$
c_7, c_{12}	$y^{112} - 53y^{111} + \cdots - 1577y + 169$
c_9	$y^{112} - 15y^{111} + \cdots - 5888y + 256$
c_{11}	$y^{112} + 27y^{111} + \cdots + 1838795y + 28561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.450808 + 0.886061I$ $a = 0.385754 - 0.040786I$ $b = -1.27595 + 0.62290I$	$-6.67919 + 6.50991I$	0
$u = -0.450808 - 0.886061I$ $a = 0.385754 + 0.040786I$ $b = -1.27595 - 0.62290I$	$-6.67919 - 6.50991I$	0
$u = -0.857146 + 0.529607I$ $a = 1.30120 - 1.40188I$ $b = -0.70030 + 1.48450I$	$-2.77096 - 3.67618I$	0
$u = -0.857146 - 0.529607I$ $a = 1.30120 + 1.40188I$ $b = -0.70030 - 1.48450I$	$-2.77096 + 3.67618I$	0
$u = 0.982487 + 0.247895I$ $a = 1.327630 + 0.482226I$ $b = 0.239739 - 0.493297I$	$-0.50416 - 3.69973I$	0
$u = 0.982487 - 0.247895I$ $a = 1.327630 - 0.482226I$ $b = 0.239739 + 0.493297I$	$-0.50416 + 3.69973I$	0
$u = -0.542277 + 0.856250I$ $a = 0.410024 + 0.164661I$ $b = -1.317720 + 0.427134I$	$-7.27631 - 2.43835I$	0
$u = -0.542277 - 0.856250I$ $a = 0.410024 - 0.164661I$ $b = -1.317720 - 0.427134I$	$-7.27631 + 2.43835I$	0
$u = -0.859585 + 0.537868I$ $a = -0.62765 + 1.81967I$ $b = -0.16337 - 1.53346I$	$-2.75459 - 0.62134I$	0
$u = -0.859585 - 0.537868I$ $a = -0.62765 - 1.81967I$ $b = -0.16337 + 1.53346I$	$-2.75459 + 0.62134I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.924121 + 0.335108I$ $a = -0.886266 + 0.776763I$ $b = -0.493959 - 0.455629I$	$1.76222 - 0.70527I$	0
$u = -0.924121 - 0.335108I$ $a = -0.886266 - 0.776763I$ $b = -0.493959 + 0.455629I$	$1.76222 + 0.70527I$	0
$u = 0.827119 + 0.592053I$ $a = 0.084030 + 0.863952I$ $b = 1.010450 - 0.284902I$	$-2.31541 + 2.35649I$	0
$u = 0.827119 - 0.592053I$ $a = 0.084030 - 0.863952I$ $b = 1.010450 + 0.284902I$	$-2.31541 - 2.35649I$	0
$u = 0.716957 + 0.742374I$ $a = -0.111903 - 1.026480I$ $b = -1.094290 - 0.151911I$	$-5.89050 - 1.33250I$	0
$u = 0.716957 - 0.742374I$ $a = -0.111903 + 1.026480I$ $b = -1.094290 + 0.151911I$	$-5.89050 + 1.33250I$	0
$u = 0.432380 + 0.943489I$ $a = 0.070653 - 0.187610I$ $b = -1.49402 - 0.53409I$	$-6.28686 - 6.63610I$	0
$u = 0.432380 - 0.943489I$ $a = 0.070653 + 0.187610I$ $b = -1.49402 + 0.53409I$	$-6.28686 + 6.63610I$	0
$u = 0.825612 + 0.491984I$ $a = -1.32726 - 0.52908I$ $b = -0.998165 + 0.528922I$	$-2.45947 + 0.05845I$	0
$u = 0.825612 - 0.491984I$ $a = -1.32726 + 0.52908I$ $b = -0.998165 - 0.528922I$	$-2.45947 - 0.05845I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.473978 + 0.832935I$ $a = -0.307480 + 0.052481I$ $b = 1.207370 + 0.525705I$	$-3.39240 - 1.77371I$	0
$u = 0.473978 - 0.832935I$ $a = -0.307480 - 0.052481I$ $b = 1.207370 - 0.525705I$	$-3.39240 + 1.77371I$	0
$u = -0.902487 + 0.542851I$ $a = 0.983035 - 0.938609I$ $b = 1.122520 + 0.558603I$	$-0.48475 - 4.79014I$	0
$u = -0.902487 - 0.542851I$ $a = 0.983035 + 0.938609I$ $b = 1.122520 - 0.558603I$	$-0.48475 + 4.79014I$	0
$u = -0.787367 + 0.518126I$ $a = 0.28509 - 1.47521I$ $b = 0.749352 - 0.222493I$	$-0.866759 + 0.474494I$	0
$u = -0.787367 - 0.518126I$ $a = 0.28509 + 1.47521I$ $b = 0.749352 + 0.222493I$	$-0.866759 - 0.474494I$	0
$u = 0.916095 + 0.534423I$ $a = -0.05813 - 1.46802I$ $b = -0.638335 - 0.051172I$	$-2.10127 + 4.07115I$	0
$u = 0.916095 - 0.534423I$ $a = -0.05813 + 1.46802I$ $b = -0.638335 + 0.051172I$	$-2.10127 - 4.07115I$	0
$u = -0.408830 + 0.981568I$ $a = -0.152996 - 0.099204I$ $b = 1.55730 - 0.57237I$	$-9.5603 + 11.5301I$	0
$u = -0.408830 - 0.981568I$ $a = -0.152996 + 0.099204I$ $b = 1.55730 + 0.57237I$	$-9.5603 - 11.5301I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.940382 + 0.501312I$ $a = 0.71959 + 1.70667I$ $b = 0.02383 - 1.47836I$	$0.90883 + 4.57646I$	0
$u = 0.940382 - 0.501312I$ $a = 0.71959 - 1.70667I$ $b = 0.02383 + 1.47836I$	$0.90883 - 4.57646I$	0
$u = 0.817130 + 0.443293I$ $a = -1.22803 - 1.37489I$ $b = 0.63907 + 1.37754I$	$0.390538 - 0.715302I$	0
$u = 0.817130 - 0.443293I$ $a = -1.22803 + 1.37489I$ $b = 0.63907 - 1.37754I$	$0.390538 + 0.715302I$	0
$u = -0.486952 + 0.964165I$ $a = -0.163677 - 0.311624I$ $b = 1.52422 - 0.44200I$	$-10.37660 + 2.41346I$	0
$u = -0.486952 - 0.964165I$ $a = -0.163677 + 0.311624I$ $b = 1.52422 + 0.44200I$	$-10.37660 - 2.41346I$	0
$u = 0.628444 + 0.885268I$ $a = 0.095945 + 0.286157I$ $b = -1.066020 - 0.133992I$	$-7.62067 + 1.92280I$	0
$u = 0.628444 - 0.885268I$ $a = 0.095945 - 0.286157I$ $b = -1.066020 + 0.133992I$	$-7.62067 - 1.92280I$	0
$u = 1.068720 + 0.200240I$ $a = 0.771960 - 0.227365I$ $b = 0.007372 - 0.383032I$	$-1.16926 + 3.61056I$	0
$u = 1.068720 - 0.200240I$ $a = 0.771960 + 0.227365I$ $b = 0.007372 + 0.383032I$	$-1.16926 - 3.61056I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.058450 + 0.308302I$ $a = -1.24886 - 0.99979I$ $b = 0.880552 + 1.104800I$	$2.38675 - 0.29739I$	0
$u = 1.058450 - 0.308302I$ $a = -1.24886 + 0.99979I$ $b = 0.880552 - 1.104800I$	$2.38675 + 0.29739I$	0
$u = -0.595632 + 0.930937I$ $a = -0.176599 + 0.385479I$ $b = 1.043590 - 0.232052I$	$-11.13740 + 2.81193I$	0
$u = -0.595632 - 0.930937I$ $a = -0.176599 - 0.385479I$ $b = 1.043590 + 0.232052I$	$-11.13740 - 2.81193I$	0
$u = -0.964229 + 0.556788I$ $a = -0.79637 + 1.78638I$ $b = 0.01568 - 1.58229I$	$-2.19982 - 9.15039I$	0
$u = -0.964229 - 0.556788I$ $a = -0.79637 - 1.78638I$ $b = 0.01568 + 1.58229I$	$-2.19982 + 9.15039I$	0
$u = -0.710133 + 0.516149I$ $a = 1.22205 - 1.44142I$ $b = -0.51058 + 1.46382I$	$-3.04021 + 4.76122I$	0
$u = -0.710133 - 0.516149I$ $a = 1.22205 + 1.44142I$ $b = -0.51058 - 1.46382I$	$-3.04021 - 4.76122I$	0
$u = -1.026700 + 0.466594I$ $a = -0.61616 + 1.41099I$ $b = -0.760345 - 0.729067I$	$2.85365 - 2.10734I$	0
$u = -1.026700 - 0.466594I$ $a = -0.61616 - 1.41099I$ $b = -0.760345 + 0.729067I$	$2.85365 + 2.10734I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.683523 + 0.911532I$ $a = -0.196028 + 0.173729I$ $b = 1.175360 - 0.135200I$	$-11.47110 - 6.39364I$	0
$u = -0.683523 - 0.911532I$ $a = -0.196028 - 0.173729I$ $b = 1.175360 + 0.135200I$	$-11.47110 + 6.39364I$	0
$u = -1.128500 + 0.163734I$ $a = -0.975074 + 0.371373I$ $b = 0.244105 - 0.495902I$	$2.03981 - 0.28607I$	0
$u = -1.128500 - 0.163734I$ $a = -0.975074 - 0.371373I$ $b = 0.244105 + 0.495902I$	$2.03981 + 0.28607I$	0
$u = 1.077690 + 0.373170I$ $a = 0.89327 + 1.29029I$ $b = -0.224378 - 1.187290I$	$3.45292 + 4.61019I$	0
$u = 1.077690 - 0.373170I$ $a = 0.89327 - 1.29029I$ $b = -0.224378 + 1.187290I$	$3.45292 - 4.61019I$	0
$u = 0.935018 + 0.685604I$ $a = -0.261151 - 0.878476I$ $b = -1.319890 + 0.435228I$	$-5.24025 + 6.75819I$	0
$u = 0.935018 - 0.685604I$ $a = -0.261151 + 0.878476I$ $b = -1.319890 - 0.435228I$	$-5.24025 - 6.75819I$	0
$u = -1.124260 + 0.296257I$ $a = -0.957803 + 0.993983I$ $b = 0.299323 - 0.964655I$	$3.69288 - 0.58388I$	0
$u = -1.124260 - 0.296257I$ $a = -0.957803 - 0.993983I$ $b = 0.299323 + 0.964655I$	$3.69288 + 0.58388I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.159940+0.082093I$ $a=0.428704+0.164622I$ $b=-0.485355-0.495379I$	$0.70822-1.44061I$	0
$u=-1.159940-0.082093I$ $a=0.428704-0.164622I$ $b=-0.485355+0.495379I$	$0.70822+1.44061I$	0
$u=-1.034010+0.566715I$ $a=0.57827-1.57727I$ $b=1.28455+0.69444I$	$0.58248-6.77944I$	0
$u=-1.034010-0.566715I$ $a=0.57827+1.57727I$ $b=1.28455-0.69444I$	$0.58248+6.77944I$	0
$u=1.070670+0.522453I$ $a=0.41055+1.62106I$ $b=0.896892-0.834838I$	$2.17056+6.67494I$	0
$u=1.070670-0.522453I$ $a=0.41055-1.62106I$ $b=0.896892+0.834838I$	$2.17056-6.67494I$	0
$u=-1.172020+0.235636I$ $a=1.27232-0.71187I$ $b=-0.972807+0.902220I$	$2.30017+4.00091I$	0
$u=-1.172020-0.235636I$ $a=1.27232+0.71187I$ $b=-0.972807-0.902220I$	$2.30017-4.00091I$	0
$u=1.201560+0.102438I$ $a=1.293600+0.269876I$ $b=-0.508248-0.311304I$	$-0.78446-3.96097I$	0
$u=1.201560-0.102438I$ $a=1.293600-0.269876I$ $b=-0.508248+0.311304I$	$-0.78446+3.96097I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.381817 + 0.676898I$ $a = -0.724158 - 0.310670I$ $b = -1.116330 - 0.623866I$	$-2.13751 - 6.65846I$	$-1.74684 + 7.19781I$
$u = 0.381817 - 0.676898I$ $a = -0.724158 + 0.310670I$ $b = -1.116330 + 0.623866I$	$-2.13751 + 6.65846I$	$-1.74684 - 7.19781I$
$u = -0.530576 + 0.552072I$ $a = 0.821404 - 0.960181I$ $b = 0.941080 - 0.479178I$	$-0.90996 + 2.19304I$	$-60.10 - 0.954685I$
$u = -0.530576 - 0.552072I$ $a = 0.821404 + 0.960181I$ $b = 0.941080 + 0.479178I$	$-0.90996 - 2.19304I$	$-60.10 + 0.954685I$
$u = 1.087630 + 0.588067I$ $a = -0.32008 - 1.75702I$ $b = -1.37091 + 0.74625I$	$-0.15222 + 11.58350I$	0
$u = 1.087630 - 0.588067I$ $a = -0.32008 + 1.75702I$ $b = -1.37091 - 0.74625I$	$-0.15222 - 11.58350I$	0
$u = 1.036770 + 0.726840I$ $a = 0.06854 - 1.43617I$ $b = -0.799763 + 0.348331I$	$-6.37547 + 4.01493I$	0
$u = 1.036770 - 0.726840I$ $a = 0.06854 + 1.43617I$ $b = -0.799763 - 0.348331I$	$-6.37547 - 4.01493I$	0
$u = -1.013590 + 0.772413I$ $a = -0.11678 - 1.41252I$ $b = 0.904586 + 0.355156I$	$-10.46070 + 0.23425I$	0
$u = -1.013590 - 0.772413I$ $a = -0.11678 + 1.41252I$ $b = 0.904586 - 0.355156I$	$-10.46070 - 0.23425I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.081080+0.678298I$ $a=\ \ 0.16557+1.64529I$ $b=-1.28240-0.82694I$	$-5.64478-3.26168I$	0
$u=-1.081080-0.678298I$ $a=\ \ 0.16557-1.64529I$ $b=-1.28240+0.82694I$	$-5.64478+3.26168I$	0
$u=\ \ 1.106860+0.643894I$ $a=-0.05335+1.74699I$ $b=\ \ 1.20472-0.90179I$	$-1.48775+7.29013I$	0
$u=\ \ 1.106860-0.643894I$ $a=-0.05335-1.74699I$ $b=\ \ 1.20472+0.90179I$	$-1.48775-7.29013I$	0
$u=\ \ 0.703712+0.100809I$ $a=-0.29810+1.73880I$ $b=\ \ 0.412036-1.130510I$	$0.64540+2.34760I$	$-3.30070-5.06400I$
$u=\ \ 0.703712-0.100809I$ $a=-0.29810-1.73880I$ $b=\ \ 0.412036+1.130510I$	$0.64540-2.34760I$	$-3.30070+5.06400I$
$u=-1.074640+0.737016I$ $a=-0.07256-1.47431I$ $b=\ \ 0.775909+0.426799I$	$-9.67145-8.90991I$	0
$u=-1.074640-0.737016I$ $a=-0.07256+1.47431I$ $b=\ \ 0.775909-0.426799I$	$-9.67145+8.90991I$	0
$u=-1.133230+0.656462I$ $a=\ \ 0.10862+1.83683I$ $b=-1.24411-0.96475I$	$-4.61274-12.20790I$	0
$u=-1.133230-0.656462I$ $a=\ \ 0.10862-1.83683I$ $b=-1.24411+0.96475I$	$-4.61274+12.20790I$	0

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.320560 + 0.108558I$ $a = \quad 1.293560 - 0.189033I$ $b = -1.047620 + 0.519491I$	$-0.01600 + 3.48973I$	0
$u = -1.320560 - 0.108558I$ $a = \quad 1.293560 + 0.189033I$ $b = -1.047620 - 0.519491I$	$-0.01600 - 3.48973I$	0
$u = \quad 1.158700 + 0.671263I$ $a = \quad 0.21640 - 1.77484I$ $b = -1.57741 + 0.75572I$	$-4.07231 + 12.53520I$	0
$u = \quad 1.158700 - 0.671263I$ $a = \quad 0.21640 + 1.77484I$ $b = -1.57741 - 0.75572I$	$-4.07231 - 12.53520I$	0
$u = -1.143650 + 0.704530I$ $a = -0.28766 - 1.62742I$ $b = \quad 1.60927 + 0.69063I$	$-8.36778 - 8.49053I$	0
$u = -1.143650 - 0.704530I$ $a = -0.28766 + 1.62742I$ $b = \quad 1.60927 - 0.69063I$	$-8.36778 + 8.49053I$	0
$u = \quad 1.356570 + 0.058794I$ $a = -1.273020 - 0.006187I$ $b = \quad 1.036810 + 0.381627I$	$-3.58530 + 0.61655I$	0
$u = \quad 1.356570 - 0.058794I$ $a = -1.273020 + 0.006187I$ $b = \quad 1.036810 - 0.381627I$	$-3.58530 - 0.61655I$	0
$u = -1.182990 + 0.675532I$ $a = -0.30380 - 1.84456I$ $b = \quad 1.61431 + 0.78845I$	$-7.1880 - 17.5468I$	0
$u = -1.182990 - 0.675532I$ $a = -0.30380 + 1.84456I$ $b = \quad 1.61431 - 0.78845I$	$-7.1880 + 17.5468I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.225025 + 0.596399I$ $a = 0.286234 - 0.057094I$ $b = 0.578271 + 0.650812I$	$-0.04328 - 2.34631I$	$1.81701 + 3.47116I$
$u = 0.225025 - 0.596399I$ $a = 0.286234 + 0.057094I$ $b = 0.578271 - 0.650812I$	$-0.04328 + 2.34631I$	$1.81701 - 3.47116I$
$u = 0.221549 + 0.591679I$ $a = -0.140575 + 1.066260I$ $b = -0.340236 + 0.151538I$	$-3.63686 - 0.52707I$	$-7.64565 + 0.08563I$
$u = 0.221549 - 0.591679I$ $a = -0.140575 - 1.066260I$ $b = -0.340236 - 0.151538I$	$-3.63686 + 0.52707I$	$-7.64565 - 0.08563I$
$u = 1.363180 + 0.136144I$ $a = -1.43861 - 0.16525I$ $b = 1.159640 + 0.507977I$	$-3.22973 - 7.98182I$	0
$u = 1.363180 - 0.136144I$ $a = -1.43861 + 0.16525I$ $b = 1.159640 - 0.507977I$	$-3.22973 + 7.98182I$	0
$u = -0.048150 + 0.456195I$ $a = -0.826428 + 0.180873I$ $b = -0.134291 + 0.725341I$	$0.61726 - 1.41846I$	$3.09666 + 4.67925I$
$u = -0.048150 - 0.456195I$ $a = -0.826428 - 0.180873I$ $b = -0.134291 - 0.725341I$	$0.61726 + 1.41846I$	$3.09666 - 4.67925I$
$u = 0.396967 + 0.201628I$ $a = -1.33484 + 2.21073I$ $b = -0.567097 + 0.562797I$	$-2.48400 + 6.00879I$	$-4.68112 - 8.65446I$
$u = 0.396967 - 0.201628I$ $a = -1.33484 - 2.21073I$ $b = -0.567097 - 0.562797I$	$-2.48400 - 6.00879I$	$-4.68112 + 8.65446I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.164490 + 0.292346I$ $a = -0.48184 + 2.19627I$ $b = 0.345986 + 0.586919I$	$-0.32189 - 1.84668I$	$-0.17990 + 4.47002I$
$u = -0.164490 - 0.292346I$ $a = -0.48184 - 2.19627I$ $b = 0.345986 - 0.586919I$	$-0.32189 + 1.84668I$	$-0.17990 - 4.47002I$

II. $\boldsymbol{I_2^u = \langle 76a^7 + 1105b + \cdots + 204a - 624,\ a^8 + 4a^7 + \cdots - 12a + 13,\ u - 1\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} a \\ -0.0687783a^7 - 0.240724a^6 + \cdots - 0.184615a + 0.564706 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} 0.0343891a^7 + 0.0615385a^6 + \cdots - 0.260633a + 1.89412 \\ -0.0343891a^7 - 0.179186a^6 + \cdots - 0.445249a - 0.541176 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.186425a^7 + 0.593665a^6 + \cdots - 1.16833a - 0.564706 \\ -0.130317a^7 - 0.397285a^6 + \cdots + 1.84525a + 0.788235 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -0.0687783a^7 - 0.240724a^6 + \cdots + 0.815385a + 0.564706 \\ -0.0687783a^7 - 0.240724a^6 + \cdots - 0.184615a + 0.564706 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0343891a^7 - 0.179186a^6 + \cdots - 0.445249a + 1.45882 \\ -0.0687783a^7 - 0.240724a^6 + \cdots - 0.184615a - 0.435294 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -a \\ 0.0687783a^7 + 0.240724a^6 + \cdots + 0.184615a - 0.564706 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 0.0343891a^7 + 0.179186a^6 + \cdots + 0.445249a + 0.541176 \\ -0.0343891a^7 - 0.296833a^6 + \cdots - 1.15113a + 0.811765 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{304}{1105}a^7 - \frac{1584}{1105}a^6 - \frac{3112}{1105}a^5 - \frac{712}{221}a^4 - \frac{5376}{1105}a^3 - \frac{8156}{1105}a^2 - \frac{3936}{1105}a + \frac{312}{85}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.598684 + 0.410936I$ $b = 0.500000 - 0.866025I$	$-0.82247 + 5.69375I$	$2.00000 - 7.46410I$
$u = 1.00000$ $a = 0.598684 - 0.410936I$ $b = 0.500000 + 0.866025I$	$-0.82247 - 5.69375I$	$2.00000 + 7.46410I$
$u = 1.00000$ $a = 0.59868 + 1.32112I$ $b = 0.500000 - 0.866025I$	$-0.82247 - 1.63398I$	$2.00000 + 0.53590I$
$u = 1.00000$ $a = 0.59868 - 1.32112I$ $b = 0.500000 + 0.866025I$	$-0.82247 + 1.63398I$	$2.00000 - 0.53590I$
$u = 1.00000$ $a = -1.59868 + 0.41094I$ $b = 0.500000 - 0.866025I$	$-0.82247 - 1.63398I$	$2.00000 + 0.53590I$
$u = 1.00000$ $a = -1.59868 - 0.41094I$ $b = 0.500000 + 0.866025I$	$-0.82247 + 1.63398I$	$2.00000 - 0.53590I$
$u = 1.00000$ $a = -1.59868 + 1.32112I$ $b = 0.500000 - 0.866025I$	$-0.82247 + 5.69375I$	$2.00000 - 7.46410I$
$u = 1.00000$ $a = -1.59868 - 1.32112I$ $b = 0.500000 + 0.866025I$	$-0.82247 - 5.69375I$	$2.00000 + 7.46410I$

III. $I^u_3 =$
$\langle 2a^5-5a^4+10a^3-10a^2+3b+10a-2,\ a^6-3a^5+6a^4-7a^3+6a^2-3a+1,\ u+1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ -\frac{2}{3}a^5 + \frac{5}{3}a^4 + \cdots - \frac{10}{3}a + \frac{2}{3} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{3}a^5 + \frac{2}{3}a^4 + \cdots - \frac{4}{3}a + \frac{5}{3} \\ \frac{1}{3}a^5 - a^4 + 2a^3 - \frac{8}{3}a^2 + 2a - 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a^5 - \frac{7}{3}a^4 + \cdots + \frac{11}{3}a - \frac{2}{3} \\ -\frac{5}{3}a^5 + 4a^4 + \cdots - 6a + \frac{4}{3} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{2}{3}a^5 + \frac{5}{3}a^4 + \cdots - \frac{7}{3}a + \frac{2}{3} \\ -\frac{2}{3}a^5 + \frac{5}{3}a^4 + \cdots - \frac{10}{3}a + \frac{2}{3} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{3}a^5 + a^4 - 2a^3 + \frac{8}{3}a^2 - 2a \\ -\frac{2}{3}a^5 + \frac{5}{3}a^4 + \cdots - \frac{10}{3}a + \frac{5}{3} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ -\frac{2}{3}a^5 + \frac{5}{3}a^4 + \cdots - \frac{10}{3}a + \frac{2}{3} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{3}a^5 + a^4 - 2a^3 + \frac{8}{3}a^2 - 2a + 2 \\ \frac{1}{3}a^5 - \frac{4}{3}a^4 + \cdots + \frac{8}{3}a - \frac{7}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{8}{3}a^5 - 6a^4 + 12a^3 - \frac{34}{3}a^2 + 12a + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6	$(y^2+y+1)^3$
c_4, c_5, c_8 c_9, c_{10}	y^6
c_7, 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
$u = -1.00000$ $a = \quad 0.500000 + 0.866025I$ $b = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 + 0.866025I$ $b = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 + 0.866025I$ $b = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 - 0.866025I$ $b = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 - 0.866025I$ $b = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = \quad 0.500000 - 0.866025I$ $b = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$6.00000 - 3.46410I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^7)(u^{112}+56u^{111}+\cdots+8u+1)$
c_2	$((u^2-u+1)^4)(u^2+u+1)^3(u^{112}-2u^{111}+\cdots-2u+1)$
c_3	$((u^2-u+1)^3)(u^2+u+1)^4(u^{112}+2u^{111}+\cdots-328230u+69121)$
c_4, c_8	$u^6(u^4-2u^2+2)^2(u^{112}-u^{111}+\cdots+3468u+548)$
c_5, c_{10}	$u^6(u^4+2u^2+2)^2(u^{112}+u^{111}+\cdots+4u+4)$
c_6	$((u^2-u+1)^3)(u^2+u+1)^4(u^{112}-2u^{111}+\cdots-2u+1)$
c_7	$((u-1)^8)(u+1)^6(u^{112}-3u^{111}+\cdots+15u+13)$
c_9	$u^6(u^2-2u+2)^4(u^{112}+61u^{111}+\cdots+80u+16)$
c_{11}	$((u+1)^{14})(u^{112}-53u^{111}+\cdots-1577u+169)$
c_{12}	$((u-1)^6)(u+1)^8(u^{112}-3u^{111}+\cdots+15u+13)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^7)(y^{112}+8y^{111}+\cdots+56y+1)$
c_2, c_6	$((y^2+y+1)^7)(y^{112}+56y^{111}+\cdots+8y+1)$
c_3	$((y^2+y+1)^7)(y^{112}-40y^{111}+\cdots-5.30223\times10^{10}y+4.77771\times10^9)$
c_4, c_8	$y^6(y^2-2y+2)^4(y^{112}-91y^{111}+\cdots+5715024y+300304)$
c_5, c_{10}	$y^6(y^2+2y+2)^4(y^{112}+61y^{111}+\cdots+80y+16)$
c_7, c_{12}	$((y-1)^{14})(y^{112}-53y^{111}+\cdots-1577y+169)$
c_9	$y^6(y^2+4)^4(y^{112}-15y^{111}+\cdots-5888y+256)$
c_{11}	$((y-1)^{14})(y^{112}+27y^{111}+\cdots+1838795y+28561)$