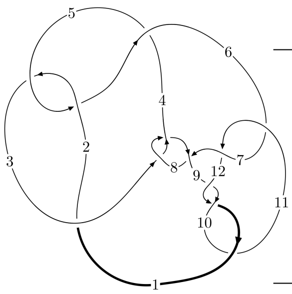
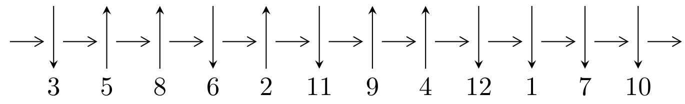
$12a_{0129}$ $(K12a_{0129})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & -4.61547\times 10^{58}u^{89} - 4.83832\times 10^{59}u^{88} + \cdots + 1.64419\times 10^{56}b + 2.98980\times 10^{58},\\
& -6.46398\times 10^{59}u^{89} - 6.85486\times 10^{60}u^{88} + \cdots + 1.64419\times 10^{56}a + 4.63218\times 10^{59},\\
& u^{90} + 12u^{89} + \cdots - 6u - 1\rangle\\
I_2^u = \langle & 3a^8 + 31a^7 + 13a^6 + 178a^5 + 16a^4 + 212a^3 - 28a^2 + 61b + 39a - 18,\\
& a^9 + 6a^7 + a^6 + 9a^5 + 2a^4 + 6a^3 + a^2 + 2a + 1,\ u - 1\rangle\\
I_3^u = \langle & b,\ a^2 + au + 2a + 3u + 5,\ u^2 + u - 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 103 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. $I^u_1 = \langle -4.62\times10^{58}u^{89} - 4.84\times10^{59}u^{88} + \cdots + 1.64\times10^{56}b + 2.99\times10^{58},\ -6.46\times10^{59}u^{89} - 6.85\times10^{60}u^{88} + \cdots + 1.64\times10^{56}a + 4.63\times10^{59},\ u^{90} + 12u^{89} + \cdots - 6u - 1\rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}3931.41u^{89} + 41691.5u^{88} + \cdots - 14878.3u - 2817.31\\280.715u^{89} + 2942.68u^{88} + \cdots - 973.725u - 181.840\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-2618.93u^{89} - 27889.5u^{88} + \cdots + 10177.0u + 1934.72\\-5355.91u^{89} - 57017.6u^{88} + \cdots + 20797.5u + 3951.82\end{pmatrix}$$
$$a_3 = \begin{pmatrix}6611.43u^{89} + 70073.2u^{88} + \cdots - 24950.5u - 4721.38\\7255.63u^{89} + 76897.0u^{88} + \cdots - 27351.2u - 5173.98\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-5522.62u^{89} - 58631.2u^{88} + \cdots + 21058.6u + 3993.67\\-8007.18u^{89} - 85082.8u^{88} + \cdots + 30711.5u + 5824.77\end{pmatrix}$$
$$a_7 = \begin{pmatrix}2736.97u^{89} + 29128.0u^{88} + \cdots - 10620.5u - 2017.09\\-5355.91u^{89} - 57017.6u^{88} + \cdots + 20797.5u + 3951.82\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-414.169u^{89} - 4382.73u^{88} + \cdots + 1550.44u + 294.488\\-4375.24u^{89} - 46535.3u^{88} + \cdots + 16888.5u + 3206.23\end{pmatrix}$$
$$a_5 = \begin{pmatrix}5357.29u^{89} + 56777.6u^{88} + \cdots - 20209.9u - 3823.63\\5572.68u^{89} + 59009.0u^{88} + \cdots - 20877.5u - 3945.62\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -11889.9u^{89} - 126101.u^{88} + \cdots + 45065.9u + 8536.51$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{90} + 32u^{89} + \cdots - 34u + 1$
c_2, c_5	$u^{90} + 4u^{89} + \cdots - 10u + 1$
c_3, c_8	$u^{90} - 2u^{89} + \cdots - 80u - 16$
c_6, c_{11}	$u^{90} + 3u^{89} + \cdots + 1024u + 512$
c_7	$u^{90} - 30u^{89} + \cdots - 3712u + 256$
c_9, c_{10}, c_{12}	$u^{90} - 12u^{89} + \cdots + 6u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{90} + 56y^{89} + \cdots - 3090y + 1$
c_2, c_5	$y^{90} + 32y^{89} + \cdots - 34y + 1$
c_3, c_8	$y^{90} - 30y^{89} + \cdots - 3712y + 256$
c_6, c_{11}	$y^{90} - 63y^{89} + \cdots - 4194304y + 262144$
c_7	$y^{90} + 54y^{89} + \cdots - 4923392y + 65536$
c_9, c_{10}, c_{12}	$y^{90} - 92y^{89} + \cdots + 22y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.636017 + 0.771523I$ $a = 0.189507 + 0.291046I$ $b = 0.809550 + 0.779235I$	$-6.14252 + 0.17816I$	0
$u = 0.636017 - 0.771523I$ $a = 0.189507 - 0.291046I$ $b = 0.809550 - 0.779235I$	$-6.14252 - 0.17816I$	0
$u = 0.432828 + 0.882468I$ $a = 0.666021 + 0.933229I$ $b = -1.044510 + 0.696314I$	$0.35982 - 6.42463I$	0
$u = 0.432828 - 0.882468I$ $a = 0.666021 - 0.933229I$ $b = -1.044510 - 0.696314I$	$0.35982 + 6.42463I$	0
$u = 0.518572 + 0.830971I$ $a = -0.817139 - 1.151630I$ $b = 0.929384 - 0.742004I$	$-5.77013 - 5.56186I$	0
$u = 0.518572 - 0.830971I$ $a = -0.817139 + 1.151630I$ $b = 0.929384 + 0.742004I$	$-5.77013 + 5.56186I$	0
$u = 0.456988 + 0.912736I$ $a = -0.595801 - 1.004760I$ $b = 1.056730 - 0.742766I$	$-0.93673 - 12.04190I$	0
$u = 0.456988 - 0.912736I$ $a = -0.595801 + 1.004760I$ $b = 1.056730 + 0.742766I$	$-0.93673 + 12.04190I$	0
$u = 0.780880 + 0.714283I$ $a = -0.311800 - 0.057546I$ $b = -0.901778 - 0.603260I$	$-0.709182 + 0.976820I$	0
$u = 0.780880 - 0.714283I$ $a = -0.311800 + 0.057546I$ $b = -0.901778 + 0.603260I$	$-0.709182 - 0.976820I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.936431 + 0.058571I$ $a = 0.16332 + 3.81110I$ $b = 0.031091 + 0.410222I$	$-1.33868 - 2.18003I$	0
$u = 0.936431 - 0.058571I$ $a = 0.16332 - 3.81110I$ $b = 0.031091 - 0.410222I$	$-1.33868 + 2.18003I$	0
$u = 0.481476 + 0.768915I$ $a = -0.015198 + 0.457099I$ $b = 0.658845 + 0.897569I$	$-2.16958 - 5.97918I$	0
$u = 0.481476 - 0.768915I$ $a = -0.015198 - 0.457099I$ $b = 0.658845 - 0.897569I$	$-2.16958 + 5.97918I$	0
$u = 0.776384 + 0.779070I$ $a = 0.378854 + 0.145892I$ $b = 0.952795 + 0.670266I$	$-1.90172 + 6.33365I$	0
$u = 0.776384 - 0.779070I$ $a = 0.378854 - 0.145892I$ $b = 0.952795 - 0.670266I$	$-1.90172 - 6.33365I$	0
$u = 0.569713 + 0.687366I$ $a = -1.21121 - 1.33527I$ $b = 0.752169 - 0.679210I$	$-2.52210 + 1.10076I$	0
$u = 0.569713 - 0.687366I$ $a = -1.21121 + 1.33527I$ $b = 0.752169 + 0.679210I$	$-2.52210 - 1.10076I$	0
$u = 0.457951 + 0.718324I$ $a = 1.14669 + 0.97490I$ $b = -0.867324 + 0.598381I$	$-0.83297 - 3.71434I$	0
$u = 0.457951 - 0.718324I$ $a = 1.14669 - 0.97490I$ $b = -0.867324 - 0.598381I$	$-0.83297 + 3.71434I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.478612 + 0.682084I$ $a = 0.114604 - 0.343684I$ $b = -0.590308 - 0.817882I$	$-0.975354 - 0.759900I$	0
$u = 0.478612 - 0.682084I$ $a = 0.114604 + 0.343684I$ $b = -0.590308 + 0.817882I$	$-0.975354 + 0.759900I$	0
$u = 1.167340 + 0.055219I$ $a = -0.02349 - 1.86427I$ $b = 0.552125 - 0.411305I$	$-2.59551 - 1.48754I$	0
$u = 1.167340 - 0.055219I$ $a = -0.02349 + 1.86427I$ $b = 0.552125 + 0.411305I$	$-2.59551 + 1.48754I$	0
$u = 0.812411$ $a = 0.583852$ $b = -0.370124$	-1.14251	0
$u = 1.150390 + 0.427470I$ $a = -0.448720 + 0.822247I$ $b = -0.981187 + 0.022086I$	$1.90684 + 1.30777I$	0
$u = 1.150390 - 0.427470I$ $a = -0.448720 - 0.822247I$ $b = -0.981187 - 0.022086I$	$1.90684 - 1.30777I$	0
$u = 1.210720 + 0.384439I$ $a = 0.497494 - 0.983806I$ $b = 0.994018 - 0.128923I$	$1.77070 - 4.06940I$	0
$u = 1.210720 - 0.384439I$ $a = 0.497494 + 0.983806I$ $b = 0.994018 + 0.128923I$	$1.77070 + 4.06940I$	0
$u = 0.627749 + 0.338276I$ $a = 0.222976 + 0.197509I$ $b = -0.443744 - 0.400104I$	$-1.312090 - 0.131479I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.627749 - 0.338276I$ $a = 0.222976 - 0.197509I$ $b = -0.443744 + 0.400104I$	$-1.312090 + 0.131479I$	0
$u = 0.039569 + 0.707808I$ $a = 0.731279 - 0.369311I$ $b = -1.145530 + 0.197235I$	$5.27989 - 5.41644I$	0
$u = 0.039569 - 0.707808I$ $a = 0.731279 + 0.369311I$ $b = -1.145530 - 0.197235I$	$5.27989 + 5.41644I$	0
$u = -1.309680 + 0.123579I$ $a = 0.148842 + 0.660725I$ $b = 1.359750 + 0.299237I$	$1.74727 + 2.35227I$	0
$u = -1.309680 - 0.123579I$ $a = 0.148842 - 0.660725I$ $b = 1.359750 - 0.299237I$	$1.74727 - 2.35227I$	0
$u = -1.318240 + 0.160862I$ $a = -0.150230 - 0.834225I$ $b = -1.342450 - 0.377499I$	$1.19065 + 8.38160I$	0
$u = -1.318240 - 0.160862I$ $a = -0.150230 + 0.834225I$ $b = -1.342450 + 0.377499I$	$1.19065 - 8.38160I$	0
$u = -0.022892 + 0.662971I$ $a = -0.708352 + 0.630114I$ $b = 1.142870 - 0.109683I$	$5.54649 + 0.24155I$	0
$u = -0.022892 - 0.662971I$ $a = -0.708352 - 0.630114I$ $b = 1.142870 + 0.109683I$	$5.54649 - 0.24155I$	0
$u = 1.361180 + 0.016200I$ $a = 0.56140 - 1.93721I$ $b = 0.729297 - 0.692212I$	$-3.02957 - 1.47276I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.361180 - 0.016200I$ $a = 0.56140 + 1.93721I$ $b = 0.729297 + 0.692212I$	$-3.02957 + 1.47276I$	0
$u = -1.37333$ $a = -0.302841$ $b = 1.19993$	-2.68158	0
$u = -1.384800 + 0.020701I$ $a = -0.063713 + 1.329510I$ $b = -0.054613 + 1.170500I$	$-3.46864 + 2.84931I$	0
$u = -1.384800 - 0.020701I$ $a = -0.063713 - 1.329510I$ $b = -0.054613 - 1.170500I$	$-3.46864 - 2.84931I$	0
$u = 1.405530 + 0.038821I$ $a = -0.65664 - 2.03643I$ $b = -0.717356 - 0.805436I$	$-4.45636 - 3.56107I$	0
$u = 1.405530 - 0.038821I$ $a = -0.65664 + 2.03643I$ $b = -0.717356 + 0.805436I$	$-4.45636 + 3.56107I$	0
$u = -1.42282 + 0.05396I$ $a = 0.609449 - 0.428016I$ $b = -1.074280 - 0.149541I$	$-6.16448 + 3.67884I$	0
$u = -1.42282 - 0.05396I$ $a = 0.609449 + 0.428016I$ $b = -1.074280 + 0.149541I$	$-6.16448 - 3.67884I$	0
$u = -0.456940 + 0.289558I$ $a = -0.41458 - 1.96666I$ $b = -1.103730 - 0.551418I$	$2.86793 + 7.68098I$	$3.42570 - 7.43251I$
$u = -0.456940 - 0.289558I$ $a = -0.41458 + 1.96666I$ $b = -1.103730 + 0.551418I$	$2.86793 - 7.68098I$	$3.42570 + 7.43251I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.46262 + 0.04473I$ $a = -0.76060 + 1.88639I$ $b = -0.876276 + 0.775532I$	$-8.11311 - 2.91724I$	0
$u = 1.46262 - 0.04473I$ $a = -0.76060 - 1.88639I$ $b = -0.876276 - 0.775532I$	$-8.11311 + 2.91724I$	0
$u = 1.45972 + 0.12783I$ $a = 0.78050 - 1.73048I$ $b = 0.967085 - 0.679705I$	$-2.30309 - 3.84007I$	0
$u = 1.45972 - 0.12783I$ $a = 0.78050 + 1.73048I$ $b = 0.967085 + 0.679705I$	$-2.30309 + 3.84007I$	0
$u = -0.397677 + 0.331683I$ $a = 0.22116 + 1.95582I$ $b = 1.090830 + 0.464271I$	$3.76775 + 2.05143I$	$5.07107 - 2.09109I$
$u = -0.397677 - 0.331683I$ $a = 0.22116 - 1.95582I$ $b = 1.090830 - 0.464271I$	$3.76775 - 2.05143I$	$5.07107 + 2.09109I$
$u = 1.49439 + 0.12104I$ $a = -0.84201 + 1.75757I$ $b = -0.997834 + 0.726352I$	$-3.59781 - 9.32602I$	0
$u = 1.49439 - 0.12104I$ $a = -0.84201 - 1.75757I$ $b = -0.997834 - 0.726352I$	$-3.59781 + 9.32602I$	0
$u = -1.50631 + 0.24795I$ $a = -0.763900 + 1.159780I$ $b = -0.658885 + 1.041560I$	$-7.43859 + 4.20013I$	0
$u = -1.50631 - 0.24795I$ $a = -0.763900 - 1.159780I$ $b = -0.658885 - 1.041560I$	$-7.43859 - 4.20013I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.50477+0.26124I$ $a=\ \ 0.15880-1.64618I$ $b=-1.059620-0.679288I$	$-7.22418+7.32000I$	0
$u=-1.50477-0.26124I$ $a=\ \ 0.15880+1.64618I$ $b=-1.059620+0.679288I$	$-7.22418-7.32000I$	0
$u=-1.51753+0.27447I$ $a=\ \ 0.82963-1.17068I$ $b=\ \ 0.715559-1.054950I$	$-8.67818+9.80003I$	0
$u=-1.51753-0.27447I$ $a=\ \ 0.82963+1.17068I$ $b=\ \ 0.715559+1.054950I$	$-8.67818-9.80003I$	0
$u=-1.52668+0.23160I$ $a=-0.31043+1.69173I$ $b=\ \ 0.985773+0.655534I$	$-9.35302+2.24987I$	0
$u=-1.52668-0.23160I$ $a=-0.31043-1.69173I$ $b=\ \ 0.985773-0.655534I$	$-9.35302-2.24987I$	0
$u=-1.51633+0.32829I$ $a=-0.04771-1.76240I$ $b=-1.120900-0.791345I$	$-5.94645+10.83320I$	0
$u=-1.51633-0.32829I$ $a=-0.04771+1.76240I$ $b=-1.120900+0.791345I$	$-5.94645-10.83320I$	0
$u=-1.56018+0.14316I$ $a=-0.594280+0.875331I$ $b=-0.521495+0.785186I$	$-8.74184+1.79743I$	0
$u=-1.56018-0.14316I$ $a=-0.594280-0.875331I$ $b=-0.521495-0.785186I$	$-8.74184-1.79743I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.53144 + 0.33920I$ $a = 0.06718 + 1.81504I$ $b = 1.114490 + 0.823559I$	$-7.3686 + 16.6080I$	0
$u = -1.53144 - 0.33920I$ $a = 0.06718 - 1.81504I$ $b = 1.114490 - 0.823559I$	$-7.3686 - 16.6080I$	0
$u = -1.54183 + 0.29103I$ $a = -0.09261 + 1.81241I$ $b = 1.039290 + 0.771323I$	$-12.4924 + 9.6696I$	0
$u = -1.54183 - 0.29103I$ $a = -0.09261 - 1.81241I$ $b = 1.039290 - 0.771323I$	$-12.4924 - 9.6696I$	0
$u = 0.292842 + 0.291043I$ $a = 3.26689 - 0.01628I$ $b = -0.622223 + 0.156782I$	$-0.74124 - 2.59423I$	$0.65910 + 9.56095I$
$u = 0.292842 - 0.291043I$ $a = 3.26689 + 0.01628I$ $b = -0.622223 - 0.156782I$	$-0.74124 + 2.59423I$	$0.65910 - 9.56095I$
$u = -1.57556 + 0.23138I$ $a = 0.830363 - 0.994905I$ $b = 0.725959 - 0.899964I$	$-13.48150 + 3.47756I$	0
$u = -1.57556 - 0.23138I$ $a = 0.830363 + 0.994905I$ $b = 0.725959 + 0.899964I$	$-13.48150 - 3.47756I$	0
$u = -1.62299 + 0.05733I$ $a = -0.477773 + 0.438407I$ $b = -0.425937 + 0.393962I$	$-8.93658 + 1.58876I$	0
$u = -1.62299 - 0.05733I$ $a = -0.477773 - 0.438407I$ $b = -0.425937 - 0.393962I$	$-8.93658 - 1.58876I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.63443 + 0.16459I$ $a = 0.809541 - 0.736226I$ $b = 0.717569 - 0.667754I$	$-10.19210 - 2.91349I$	0
$u = -1.63443 - 0.16459I$ $a = 0.809541 + 0.736226I$ $b = 0.717569 + 0.667754I$	$-10.19210 + 2.91349I$	0
$u = -0.317233 + 0.111582I$ $a = -0.65770 - 2.68652I$ $b = -0.806542 - 0.579007I$	$-2.19525 + 2.29896I$	$-2.08179 - 3.93173I$
$u = -0.317233 - 0.111582I$ $a = -0.65770 + 2.68652I$ $b = -0.806542 + 0.579007I$	$-2.19525 - 2.29896I$	$-2.08179 + 3.93173I$
$u = -0.092318 + 0.290712I$ $a = -1.25011 + 2.47409I$ $b = 0.825039 + 0.190540I$	$1.36073 + 0.44955I$	$6.22502 - 0.98499I$
$u = -0.092318 - 0.290712I$ $a = -1.25011 - 2.47409I$ $b = 0.825039 - 0.190540I$	$1.36073 - 0.44955I$	$6.22502 + 0.98499I$
$u = -0.007194 + 0.281747I$ $a = 1.96025 - 0.54137I$ $b = 0.105461 - 0.766955I$	$0.95724 - 2.17639I$	$1.30907 + 4.71471I$
$u = -0.007194 - 0.281747I$ $a = 1.96025 + 0.54137I$ $b = 0.105461 + 0.766955I$	$0.95724 + 2.17639I$	$1.30907 - 4.71471I$
$u = -0.149583 + 0.201726I$ $a = -2.28125 + 1.62624I$ $b = -0.314053 + 0.763311I$	$0.57927 + 2.77981I$	$0.86843 - 2.18416I$
$u = -0.149583 - 0.201726I$ $a = -2.28125 - 1.62624I$ $b = -0.314053 - 0.763311I$	$0.57927 - 2.77981I$	$0.86843 + 2.18416I$

II.

$\boldsymbol{I_2^u = \langle 3a^8+61b+\cdots+39a-18,\ a^9+6a^7+a^6+9a^5+2a^4+6a^3+a^2+2a+1,\ u-1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_4 = \begin{pmatrix} a \\ -0.0491803a^8 - 0.508197a^7 + \cdots - 0.639344a + 0.295082 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.508197a^8 + 0.0819672a^7 + \cdots + 0.393443a + 1.04918 \\ -0.508197a^8 + 0.0819672a^7 + \cdots + 0.393443a + 1.04918 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0327869a^8 + 0.327869a^7 + \cdots - 0.426230a - 0.803279 \\ -0.0819672a^8 - 0.180328a^7 + \cdots - 2.06557a - 0.508197 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.114754a^8 - 0.147541a^7 + \cdots - 0.508197a - 0.688525 \\ -0.393443a^8 - 0.0655738a^7 + \cdots - 0.114754a + 0.360656 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ -0.508197a^8 + 0.0819672a^7 + \cdots + 0.393443a + 1.04918 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -0.508197a^8 + 0.0819672a^7 + \cdots + 0.393443a + 1.04918 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ 0.311475a^8 - 0.114754a^7 + \cdots + 2.04918a + 1.13115 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{160}{61}a^8 - \frac{136}{61}a^7 + \frac{856}{61}a^6 - \frac{592}{61}a^5 + \frac{833}{61}a^4 - \frac{568}{61}a^3 + \frac{540}{61}a^2 - \frac{116}{61}a + \frac{16}{61}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$
c_2	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_3	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_5	$u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1$
c_6, c_{11}	u^9
c_7	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$
c_8	$u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1$
c_9, c_{10}	$(u - 1)^9$
c_{12}	$(u + 1)^9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_2, c_5	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_3, c_8	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_6, c_{11}	y^9
c_7	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_9, c_{10}, c_{12}	$(y-1)^9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.450985 + 0.808297I$ $b = -1.172470 + 0.500383I$	$1.95319 - 7.08493I$	$-2.55209 + 3.65320I$
$u = 1.00000$ $a = -0.450985 - 0.808297I$ $b = -1.172470 - 0.500383I$	$1.95319 + 7.08493I$	$-2.55209 - 3.65320I$
$u = 1.00000$ $a = 0.128062 + 1.105260I$ $b = -0.772920 + 0.510351I$	$-3.42837 - 2.09337I$	$-9.96342 + 4.61282I$
$u = 1.00000$ $a = 0.128062 - 1.105260I$ $b = -0.772920 - 0.510351I$	$-3.42837 + 2.09337I$	$-9.96342 - 4.61282I$
$u = 1.00000$ $a = 0.407341 + 0.647242I$ $b = 1.173910 + 0.391555I$	$2.72642 + 1.33617I$	$0.058077 + 1.140630I$
$u = 1.00000$ $a = 0.407341 - 0.647242I$ $b = 1.173910 - 0.391555I$	$2.72642 - 1.33617I$	$0.058077 - 1.140630I$
$u = 1.00000$ $a = -0.384820$ $b = 0.825933$	-0.446489	3.26660
$u = 1.00000$ $a = 0.10799 + 2.04391I$ $b = -0.141484 + 0.739668I$	$-1.02799 + 2.45442I$	$-3.17587 - 4.82524I$
$u = 1.00000$ $a = 0.10799 - 2.04391I$ $b = -0.141484 - 0.739668I$	$-1.02799 - 2.45442I$	$-3.17587 + 4.82524I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 13au - 7a + 3u - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -1.30902 + 2.26728I$ $b = 0$	$-0.98696 + 2.02988I$	$-4.50000 + 2.34537I$
$u = 0.618034$ $a = -1.30902 - 2.26728I$ $b = 0$	$-0.98696 - 2.02988I$	$-4.50000 - 2.34537I$
$u = -1.61803$ $a = -0.190983 + 0.330792I$ $b = 0$	$-8.88264 + 2.02988I$	$-4.50000 - 9.27358I$
$u = -1.61803$ $a = -0.190983 - 0.330792I$ $b = 0$	$-8.88264 - 2.02988I$	$-4.50000 + 9.27358I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^2-u+1)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{90}+32u^{89}+\cdots-34u+1)$
c_2	$(u^2+u+1)^2(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{90}+4u^{89}+\cdots-10u+1)$
c_3	$u^4(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{90}-2u^{89}+\cdots-80u-16)$
c_5	$(u^2-u+1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{90}+4u^{89}+\cdots-10u+1)$
c_6	$u^9(u^2+u-1)^2(u^{90}+3u^{89}+\cdots+1024u+512)$
c_7	$u^4(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{90}-30u^{89}+\cdots-3712u+256)$
c_8	$u^4(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{90}-2u^{89}+\cdots-80u-16)$
c_9, c_{10}	$((u-1)^9)(u^2+u-1)^2(u^{90}-12u^{89}+\cdots+6u-1)$
c_{11}	$u^9(u^2-u-1)^2(u^{90}+3u^{89}+\cdots+1024u+512)$
c_{12}	$((u+1)^9)(u^2-u-1)^2(u^{90}-12u^{89}+\cdots+6u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$((y^2+y+1)^2)(y^9+7y^8+\cdots+13y-1)$ $\cdot\,(y^{90}+56y^{89}+\cdots-3090y+1)$
c_2, c_5	$(y^2+y+1)^2$ $\cdot\,(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot\,(y^{90}+32y^{89}+\cdots-34y+1)$
c_3, c_8	$y^4(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot\,(y^{90}-30y^{89}+\cdots-3712y+256)$
c_6, c_{11}	$y^9(y^2-3y+1)^2(y^{90}-63y^{89}+\cdots-4194304y+262144)$
c_7	$y^4(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot\,(y^{90}+54y^{89}+\cdots-4923392y+65536)$
c_9, c_{10}, c_{12}	$((y-1)^9)(y^2-3y+1)^2(y^{90}-92y^{89}+\cdots+22y+1)$