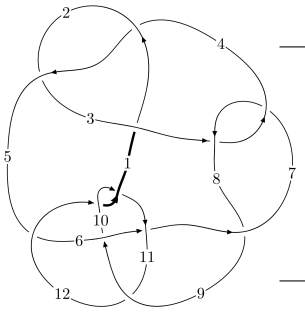
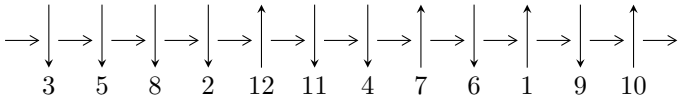
$12a_{0120}$ $(K12a_{0120})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -1.75706 \times 10^{313} u^{125} + 2.01574 \times 10^{313} u^{124} + \cdots + 4.16145 \times 10^{314} b + 9.40803 \times 10^{315},$$
$$-1.92978 \times 10^{314} u^{125} - 2.84524 \times 10^{314} u^{124} + \cdots + 1.66458 \times 10^{315} a + 4.14260 \times 10^{316},$$
$$u^{126} + 2u^{125} + \cdots + 192u + 64 \rangle$$
$$I_2^u = \langle -2u^2 + b - u - 3,\ -7u^2 + a - 3u - 12,\ u^3 + u^2 + 2u + 1 \rangle$$

$$I_1^v = \langle a,\ -5v^5 + 46v^4 - 122v^3 + 163v^2 + 69b + 27v + 86,\ v^6 - 3v^5 + 6v^4 + 5v^2 - v + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 135 representations.

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

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

I. $\boldsymbol{I_1^u = \langle -1.76 \times 10^{313} u^{125} + 2.02 \times 10^{313} u^{124} + \cdots + 4.16 \times 10^{314} b + 9.41 \times 10^{315},\ -1.93 \times 10^{314} u^{125} - 2.85 \times 10^{314} u^{124} + \cdots + 1.66 \times 10^{315} a + 4.14 \times 10^{316},\ u^{126} + 2u^{125} + \cdots + 192u + 64 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} 0.115932u^{125} + 0.170928u^{124} + \cdots - 21.4968u - 24.8867 \\ 0.0422222u^{125} - 0.0484384u^{124} + \cdots - 57.8079u - 22.6075 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0835374u^{125} + 0.170647u^{124} + \cdots + 7.57394u - 11.3645 \\ 0.0603937u^{125} - 0.0175989u^{124} + \cdots - 68.0136u - 27.0882 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.0131721u^{125} + 0.160291u^{124} + \cdots + 31.9622u + 2.52399 \\ -0.0309936u^{125} - 0.0501114u^{124} + \cdots + 21.4480u + 2.89453 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.135778u^{125} + 0.231184u^{124} + \cdots - 24.6169u - 20.6261 \\ -0.0157486u^{125} - 0.0505249u^{124} + \cdots - 45.0908u - 12.3200 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.134423u^{125} + 0.249675u^{124} + \cdots - 15.7540u - 12.1955 \\ -0.0161903u^{125} - 0.0611574u^{124} + \cdots - 50.9747u - 14.3007 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0842320u^{125} + 0.177889u^{124} + \cdots + 30.2985u + 3.33220 \\ -0.0501911u^{125} - 0.0717859u^{124} + \cdots + 46.0525u + 15.5277 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.116123u^{125} - 0.204715u^{124} + \cdots + 22.9544u + 12.7987 \\ 0.0366348u^{125} + 0.0898334u^{124} + \cdots + 55.3988u + 14.3689 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.597782u^{125} - 0.910341u^{124} + \cdots - 72.2510u + 19.0666$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{126} + 68u^{125} + \cdots - 17u + 1$
c_2, c_4	$u^{126} - 8u^{125} + \cdots - 9u + 1$
c_3, c_7	$u^{126} + 2u^{125} + \cdots + 192u + 64$
c_5	$u^{126} + 4u^{125} + \cdots - 1174u - 44$
c_6	$u^{126} - 65u^{124} + \cdots + 4405u - 191$
c_8	$u^{126} - 42u^{125} + \cdots - 118784u + 4096$
c_9	$u^{126} - 9u^{125} + \cdots + 2u - 1$
c_{10}, c_{12}	$u^{126} + 5u^{125} + \cdots - 43u - 1$
c_{11}	$u^{126} - 20u^{125} + \cdots + 124u + 8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{126} - 12y^{125} + \cdots - 363y + 1$
c_2, c_4	$y^{126} - 68y^{125} + \cdots + 17y + 1$
c_3, c_7	$y^{126} + 42y^{125} + \cdots + 118784y + 4096$
c_5	$y^{126} - 122y^{125} + \cdots - 141964y + 1936$
c_6	$y^{126} - 130y^{125} + \cdots - 3185069y + 36481$
c_8	$y^{126} + 74y^{125} + \cdots - 125829120y + 16777216$
c_9	$y^{126} + 15y^{125} + \cdots - 14y + 1$
c_{10}, c_{12}	$y^{126} - 75y^{125} + \cdots - 971y + 1$
c_{11}	$y^{126} - 24y^{125} + \cdots - 8848y + 64$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.583149+0.813259I$ $a=-2.27053-2.09717I$ $b=-2.12049+0.36398I$	$0.84437+1.77385I$	0
$u=-0.583149-0.813259I$ $a=-2.27053+2.09717I$ $b=-2.12049-0.36398I$	$0.84437-1.77385I$	0
$u=0.759752+0.658456I$ $a=0.990273-0.425417I$ $b=0.968883-0.742231I$	$-3.19646+2.28892I$	0
$u=0.759752-0.658456I$ $a=0.990273+0.425417I$ $b=0.968883+0.742231I$	$-3.19646-2.28892I$	0
$u=-0.664545+0.755167I$ $a=-1.91116+0.31023I$ $b=-0.266100+0.222908I$	$-1.33049+2.05219I$	0
$u=-0.664545-0.755167I$ $a=-1.91116-0.31023I$ $b=-0.266100-0.222908I$	$-1.33049-2.05219I$	0
$u=0.638089+0.779199I$ $a=1.331460-0.202093I$ $b=1.222590-0.051065I$	$-5.12052-2.76244I$	0
$u=0.638089-0.779199I$ $a=1.331460+0.202093I$ $b=1.222590+0.051065I$	$-5.12052+2.76244I$	0
$u=1.008890+0.070007I$ $a=-0.673317+1.017130I$ $b=-0.770780+0.916567I$	$2.18854+7.22641I$	0
$u=1.008890-0.070007I$ $a=-0.673317-1.017130I$ $b=-0.770780-0.916567I$	$2.18854-7.22641I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.134506+1.012070I$ $a=\ \ 0.668124+0.853058I$ $b=\ \ 3.48596-0.00064I$	$3.77115+2.20092I$	0
$u=-0.134506-1.012070I$ $a=\ \ 0.668124-0.853058I$ $b=\ \ 3.48596+0.00064I$	$3.77115-2.20092I$	0
$u=-0.236806+0.993858I$ $a=\ \ 0.318381+0.206135I$ $b=-0.459228-0.816560I$	$1.90248+2.83956I$	0
$u=-0.236806-0.993858I$ $a=\ \ 0.318381-0.206135I$ $b=-0.459228+0.816560I$	$1.90248-2.83956I$	0
$u=-0.077039+1.019420I$ $a=\ \ 0.301952-1.244190I$ $b=-0.416347+0.577211I$	$2.60094+2.12761I$	0
$u=-0.077039-1.019420I$ $a=\ \ 0.301952+1.244190I$ $b=-0.416347-0.577211I$	$2.60094-2.12761I$	0
$u=-0.870239+0.437016I$ $a=\ \ 1.087070+0.208479I$ $b=\ \ 0.941206+0.100996I$	$-1.62685-0.40405I$	0
$u=-0.870239-0.437016I$ $a=\ \ 1.087070-0.208479I$ $b=\ \ 0.941206-0.100996I$	$-1.62685+0.40405I$	0
$u=-0.750514+0.607886I$ $a=\ \ 1.46168+0.08062I$ $b=\ \ 0.039045-1.191420I$	$0.258302-1.180800I$	0
$u=-0.750514-0.607886I$ $a=\ \ 1.46168-0.08062I$ $b=\ \ 0.039045+1.191420I$	$0.258302+1.180800I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.701966+0.759826I$ $a=-1.24534-0.98866I$ $b=-1.35863-0.90605I$	$-3.74921-4.56977I$	0
$u=-0.701966-0.759826I$ $a=-1.24534+0.98866I$ $b=-1.35863+0.90605I$	$-3.74921+4.56977I$	0
$u=0.745954+0.737217I$ $a=2.68359-2.36502I$ $b=2.49265-0.33125I$	$-2.73974+0.70736I$	0
$u=0.745954-0.737217I$ $a=2.68359+2.36502I$ $b=2.49265+0.33125I$	$-2.73974-0.70736I$	0
$u=-0.089485+0.946069I$ $a=-1.249160-0.515417I$ $b=0.704137+0.779201I$	$0.43085-5.09047I$	0
$u=-0.089485-0.946069I$ $a=-1.249160+0.515417I$ $b=0.704137-0.779201I$	$0.43085+5.09047I$	0
$u=-0.026963+0.943464I$ $a=-0.023574-0.809845I$ $b=-0.891412+0.637060I$	$2.41442+1.40190I$	0
$u=-0.026963-0.943464I$ $a=-0.023574+0.809845I$ $b=-0.891412-0.637060I$	$2.41442-1.40190I$	0
$u=-1.036680+0.220066I$ $a=-0.464905+0.853859I$ $b=-0.555634+0.740553I$	$1.84155+2.77321I$	0
$u=-1.036680-0.220066I$ $a=-0.464905-0.853859I$ $b=-0.555634-0.740553I$	$1.84155-2.77321I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.902790 + 0.575810I$ $a = -1.07620 + 1.11597I$ $b = -1.18235 + 1.02995I$	$0.07212 + 8.10921I$	0
$u = 0.902790 - 0.575810I$ $a = -1.07620 - 1.11597I$ $b = -1.18235 - 1.02995I$	$0.07212 - 8.10921I$	0
$u = 0.515649 + 0.940162I$ $a = 0.384039 - 0.553428I$ $b = -0.142785 + 1.192870I$	$4.07539 - 1.91046I$	0
$u = 0.515649 - 0.940162I$ $a = 0.384039 + 0.553428I$ $b = -0.142785 - 1.192870I$	$4.07539 + 1.91046I$	0
$u = 0.821210 + 0.696105I$ $a = -3.79082 + 2.12632I$ $b = -2.69384 - 0.31365I$	$-2.64594 + 1.92186I$	0
$u = 0.821210 - 0.696105I$ $a = -3.79082 - 2.12632I$ $b = -2.69384 + 0.31365I$	$-2.64594 - 1.92186I$	0
$u = 0.066247 + 1.075380I$ $a = -0.977182 - 0.775036I$ $b = -0.333226 + 0.939079I$	$6.12098 - 0.47562I$	0
$u = 0.066247 - 1.075380I$ $a = -0.977182 + 0.775036I$ $b = -0.333226 - 0.939079I$	$6.12098 + 0.47562I$	0
$u = -0.866742 + 0.650126I$ $a = 1.59684 + 0.84010I$ $b = 0.366133 + 0.274926I$	$-1.08056 - 4.64409I$	0
$u = -0.866742 - 0.650126I$ $a = 1.59684 - 0.84010I$ $b = 0.366133 - 0.274926I$	$-1.08056 + 4.64409I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.164623 + 1.090970I$ $a = -1.48823 + 0.56829I$ $b = -0.408591 - 0.765828I$	$5.90160 - 4.26455I$	0
$u = \quad 0.164623 - 1.090970I$ $a = -1.48823 - 0.56829I$ $b = -0.408591 + 0.765828I$	$5.90160 + 4.26455I$	0
$u = -0.612029 + 0.921384I$ $a = \quad 2.22856 + 2.25864I$ $b = \quad 2.93767 + 0.27662I$	$1.22072 + 2.96447I$	0
$u = -0.612029 - 0.921384I$ $a = \quad 2.22856 - 2.25864I$ $b = \quad 2.93767 - 0.27662I$	$1.22072 - 2.96447I$	0
$u = \quad 0.608068 + 0.939760I$ $a = -0.77684 + 1.29711I$ $b = -1.017590 - 0.210549I$	$-4.61530 - 2.13294I$	0
$u = \quad 0.608068 - 0.939760I$ $a = -0.77684 - 1.29711I$ $b = -1.017590 + 0.210549I$	$-4.61530 + 2.13294I$	0
$u = -0.715251 + 0.862634I$ $a = -1.98026 - 1.22824I$ $b = -0.960920 + 0.834792I$	$-6.56601 + 3.77378I$	0
$u = -0.715251 - 0.862634I$ $a = -1.98026 + 1.22824I$ $b = -0.960920 - 0.834792I$	$-6.56601 - 3.77378I$	0
$u = -0.712315 + 0.865143I$ $a = \quad 1.135870 + 0.516782I$ $b = \quad 1.122660 + 0.794419I$	$-6.55718 + 1.68165I$	0
$u = -0.712315 - 0.865143I$ $a = \quad 1.135870 - 0.516782I$ $b = \quad 1.122660 - 0.794419I$	$-6.55718 - 1.68165I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.283809 + 1.084470I$ $a = -0.307008 + 1.170970I$ $b = -0.539369 - 0.764055I$	$1.79448 - 6.78921I$	0
$u = 0.283809 - 1.084470I$ $a = -0.307008 - 1.170970I$ $b = -0.539369 + 0.764055I$	$1.79448 + 6.78921I$	0
$u = -0.837606 + 0.789777I$ $a = -0.275211 + 0.022470I$ $b = -0.465135 - 0.192347I$	$-1.93800 + 2.88339I$	0
$u = -0.837606 - 0.789777I$ $a = -0.275211 - 0.022470I$ $b = -0.465135 + 0.192347I$	$-1.93800 - 2.88339I$	0
$u = -0.654600 + 0.951229I$ $a = 1.32579 + 0.75494I$ $b = 0.278284 - 0.095007I$	$-0.71690 + 3.08171I$	0
$u = -0.654600 - 0.951229I$ $a = 1.32579 - 0.75494I$ $b = 0.278284 + 0.095007I$	$-0.71690 - 3.08171I$	0
$u = 0.604520 + 0.985901I$ $a = -1.82381 + 0.04022I$ $b = -0.458706 - 0.357924I$	$2.96423 - 5.62025I$	0
$u = 0.604520 - 0.985901I$ $a = -1.82381 - 0.04022I$ $b = -0.458706 + 0.357924I$	$2.96423 + 5.62025I$	0
$u = -0.675660 + 0.951102I$ $a = 2.05437 + 1.09047I$ $b = 1.25164 - 1.09110I$	$-3.15580 + 9.87799I$	0
$u = -0.675660 - 0.951102I$ $a = 2.05437 - 1.09047I$ $b = 1.25164 + 1.09110I$	$-3.15580 - 9.87799I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.778808 + 0.875358I$ $a = -0.572900 + 0.148261I$ $b = -0.778626 + 0.292904I$	$-5.56540 - 7.22095I$	0
$u = 0.778808 - 0.875358I$ $a = -0.572900 - 0.148261I$ $b = -0.778626 - 0.292904I$	$-5.56540 + 7.22095I$	0
$u = -0.927777 + 0.716525I$ $a = 0.915372 + 0.564965I$ $b = 0.932781 + 0.880195I$	$-6.29832 - 6.58519I$	0
$u = -0.927777 - 0.716525I$ $a = 0.915372 - 0.564965I$ $b = 0.932781 - 0.880195I$	$-6.29832 + 6.58519I$	0
$u = 0.804790 + 0.868133I$ $a = 0.695000 - 0.451647I$ $b = 0.419235 + 0.407307I$	$-5.59394 + 1.30207I$	0
$u = 0.804790 - 0.868133I$ $a = 0.695000 + 0.451647I$ $b = 0.419235 - 0.407307I$	$-5.59394 - 1.30207I$	0
$u = -0.728276 + 0.935353I$ $a = 0.717051 + 0.100206I$ $b = 0.251817 - 0.678471I$	$-1.50108 + 2.95525I$	0
$u = -0.728276 - 0.935353I$ $a = 0.717051 - 0.100206I$ $b = 0.251817 + 0.678471I$	$-1.50108 - 2.95525I$	0
$u = 0.896738 + 0.785992I$ $a = -0.048661 + 0.320511I$ $b = -0.358535 + 0.534392I$	$-5.47055 + 1.59927I$	0
$u = 0.896738 - 0.785992I$ $a = -0.048661 - 0.320511I$ $b = -0.358535 - 0.534392I$	$-5.47055 - 1.59927I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.399196 + 0.700132I$ $a = 1.30026 - 1.13581I$ $b = -0.0886921 - 0.0654109I$	$1.88586 + 1.07699I$	$1.62389 - 3.53502I$
$u = 0.399196 - 0.700132I$ $a = 1.30026 + 1.13581I$ $b = -0.0886921 + 0.0654109I$	$1.88586 - 1.07699I$	$1.62389 + 3.53502I$
$u = 0.700027 + 0.968567I$ $a = -2.65238 + 1.24312I$ $b = -2.28063 - 0.74089I$	$-2.03372 - 6.21937I$	0
$u = 0.700027 - 0.968567I$ $a = -2.65238 - 1.24312I$ $b = -2.28063 + 0.74089I$	$-2.03372 + 6.21937I$	0
$u = 0.781482 + 0.172967I$ $a = 0.808853 + 0.018479I$ $b = 0.670001 - 0.475989I$	$-1.45891 + 3.00718I$	$-6.53766 - 7.29173I$
$u = 0.781482 - 0.172967I$ $a = 0.808853 - 0.018479I$ $b = 0.670001 + 0.475989I$	$-1.45891 - 3.00718I$	$-6.53766 + 7.29173I$
$u = 1.016950 + 0.656632I$ $a = 1.127170 - 0.394461I$ $b = 1.018790 - 0.286886I$	$-4.10359 + 4.97237I$	0
$u = 1.016950 - 0.656632I$ $a = 1.127170 + 0.394461I$ $b = 1.018790 + 0.286886I$	$-4.10359 - 4.97237I$	0
$u = 0.690126 + 1.005750I$ $a = -1.57769 + 0.94724I$ $b = -0.878384 - 0.923292I$	$-2.16358 - 7.80144I$	0
$u = 0.690126 - 1.005750I$ $a = -1.57769 - 0.94724I$ $b = -0.878384 + 0.923292I$	$-2.16358 + 7.80144I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.678688+1.020830I$ $a=\ \ 0.439176+0.089131I$ $b=-0.135909-1.297310I$	$1.45595+6.62892I$	0
$u=-0.678688-1.020830I$ $a=\ \ 0.439176-0.089131I$ $b=-0.135909+1.297310I$	$1.45595-6.62892I$	0
$u=-1.006940+0.706541I$ $a=-1.16108-1.22610I$ $b=-1.26556-1.14457I$	$-2.73943-12.79060I$	0
$u=-1.006940-0.706541I$ $a=-1.16108+1.22610I$ $b=-1.26556+1.14457I$	$-2.73943+12.79060I$	0
$u=\ \ 0.724342+1.011870I$ $a=\ \ 2.42566-2.06794I$ $b=\ \ 2.97434-0.51864I$	$-1.67836-7.71869I$	0
$u=\ \ 0.724342-1.011870I$ $a=\ \ 2.42566+2.06794I$ $b=\ \ 2.97434+0.51864I$	$-1.67836+7.71869I$	0
$u=-0.153007+1.240150I$ $a=\ \ 0.092403+0.405281I$ $b=\ \ 0.712066-1.144450I$	$7.35610+6.53099I$	0
$u=-0.153007-1.240150I$ $a=\ \ 0.092403-0.405281I$ $b=\ \ 0.712066+1.144450I$	$7.35610-6.53099I$	0
$u=-0.724716+1.045350I$ $a=-1.72340-0.01075I$ $b=-0.555674+0.271956I$	$0.13511+10.55390I$	0
$u=-0.724716-1.045350I$ $a=-1.72340+0.01075I$ $b=-0.555674-0.271956I$	$0.13511-10.55390I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.269690 + 1.247800I$ $a = -0.552188 - 0.177434I$ $b = 0.337114 - 0.856607I$	$6.88746 + 2.92032I$	0
$u = 0.269690 - 1.247800I$ $a = -0.552188 + 0.177434I$ $b = 0.337114 + 0.856607I$	$6.88746 - 2.92032I$	0
$u = 0.332493 + 1.237100I$ $a = 0.606989 - 0.510422I$ $b = 0.87160 + 1.22545I$	$6.38584 - 11.97810I$	0
$u = 0.332493 - 1.237100I$ $a = 0.606989 + 0.510422I$ $b = 0.87160 - 1.22545I$	$6.38584 + 11.97810I$	0
$u = 0.787834 + 1.012220I$ $a = 0.891993 - 0.032374I$ $b = 0.404575 + 0.814507I$	$-4.72827 - 7.84683I$	0
$u = 0.787834 - 1.012220I$ $a = 0.891993 + 0.032374I$ $b = 0.404575 - 0.814507I$	$-4.72827 + 7.84683I$	0
$u = 0.715508 + 1.083340I$ $a = 1.89202 - 0.64242I$ $b = 1.25623 + 1.21274I$	$1.6137 - 14.0645I$	0
$u = 0.715508 - 1.083340I$ $a = 1.89202 + 0.64242I$ $b = 1.25623 - 1.21274I$	$1.6137 + 14.0645I$	0
$u = -0.776257 + 1.050290I$ $a = -1.67633 - 0.68364I$ $b = -0.920719 + 0.994953I$	$-5.23670 + 12.86370I$	0
$u = -0.776257 - 1.050290I$ $a = -1.67633 + 0.68364I$ $b = -0.920719 - 0.994953I$	$-5.23670 - 12.86370I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.681519+1.116400I$ $a=-0.953613-0.750387I$ $b=-0.988872+0.378489I$	$0.33688+6.13842I$	0
$u=-0.681519-1.116400I$ $a=-0.953613+0.750387I$ $b=-0.988872-0.378489I$	$0.33688-6.13842I$	0
$u=-0.671958+0.032843I$ $a=1.134640+0.025913I$ $b=0.609434-0.177023I$	$-1.094370+0.027147I$	$-7.58274+0.49956I$
$u=-0.671958-0.032843I$ $a=1.134640-0.025913I$ $b=0.609434+0.177023I$	$-1.094370-0.027147I$	$-7.58274-0.49956I$
$u=0.670945+0.001703I$ $a=2.03081-0.90267I$ $b=0.027865-0.807747I$	$2.03745+1.42816I$	$2.53417-4.60053I$
$u=0.670945-0.001703I$ $a=2.03081+0.90267I$ $b=0.027865+0.807747I$	$2.03745-1.42816I$	$2.53417+4.60053I$
$u=0.092281+0.648619I$ $a=1.88480+2.55860I$ $b=-0.746614-0.345912I$	$-2.61100-1.34807I$	$-3.48651+4.76024I$
$u=0.092281-0.648619I$ $a=1.88480-2.55860I$ $b=-0.746614+0.345912I$	$-2.61100+1.34807I$	$-3.48651-4.76024I$
$u=-0.455105+1.272310I$ $a=-0.513941+0.327642I$ $b=0.159968+0.682133I$	$5.46522+2.67251I$	0
$u=-0.455105-1.272310I$ $a=-0.513941-0.327642I$ $b=0.159968-0.682133I$	$5.46522-2.67251I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.802002+1.094610I$ $a=\ \ 2.07806+0.46476I$ $b=\ \ 1.33080-1.24162I$	$-1.4825+19.3861I$	0
$u=-0.802002-1.094610I$ $a=\ \ 2.07806-0.46476I$ $b=\ \ 1.33080+1.24162I$	$-1.4825-19.3861I$	0
$u=\ \ 0.786293+1.115480I$ $a=-1.219080+0.712549I$ $b=-1.082880-0.429394I$	$-2.63820-11.52950I$	0
$u=\ \ 0.786293-1.115480I$ $a=-1.219080-0.712549I$ $b=-1.082880+0.429394I$	$-2.63820+11.52950I$	0
$u=-0.162781+1.386730I$ $a=-0.120667-0.112289I$ $b=-0.572165+0.101717I$	$4.49508+2.99438I$	0
$u=-0.162781-1.386730I$ $a=-0.120667+0.112289I$ $b=-0.572165-0.101717I$	$4.49508-2.99438I$	0
$u=-0.595624$ $a=\ \ 1.09335$ $b=\ \ 0.418065$	-1.09586	-8.62110
$u=\ \ 0.049191+0.593330I$ $a=\ \ 1.255130-0.115065I$ $b=\ \ 1.148540-0.348624I$	$-2.83015+0.66433I$	$-0.80758+1.62533I$
$u=\ \ 0.049191-0.593330I$ $a=\ \ 1.255130+0.115065I$ $b=\ \ 1.148540+0.348624I$	$-2.83015-0.66433I$	$-0.80758-1.62533I$
$u=-0.547594$ $a=-20.8987$ $b=-4.73364$	0.509050	-323.410

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.070102+0.510627I$ $a=-1.029320+0.564029I$ $b=-1.158460+0.464443I$	$-1.24958+5.86869I$	$5.67430-9.68755I$
$u=-0.070102-0.510627I$ $a=-1.029320-0.564029I$ $b=-1.158460-0.464443I$	$-1.24958-5.86869I$	$5.67430+9.68755I$
$u=\ 0.299663+0.400210I$ $a=\ 1.60395-1.42858I$ $b=-0.261831-0.384133I$	$1.85257+1.11176I$	$2.15039-2.20620I$
$u=\ 0.299663-0.400210I$ $a=\ 1.60395+1.42858I$ $b=-0.261831+0.384133I$	$1.85257-1.11176I$	$2.15039+2.20620I$
$u=-0.259122+0.378593I$ $a=\ 5.32016+5.38456I$ $b=\ 0.336456-1.106180I$	$0.359329-0.612109I$	$-2.0314-16.2217I$
$u=-0.259122-0.378593I$ $a=\ 5.32016-5.38456I$ $b=\ 0.336456+1.106180I$	$0.359329+0.612109I$	$-2.0314+16.2217I$

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

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

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

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

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

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

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

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

$$a_6 = \begin{pmatrix} -21u^2 - 9u - 36 \\ -5u^2 - 2u - 9 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 7u^2 + 3u + 13 \\ 3u^2 + u + 3 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 45u^2 + 24u + 84$

(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
$u=-0.215080+1.307140I$ $a=-0.281752-0.014533I$ $b=-0.539798+0.182582I$	$4.66906+2.82812I$	$4.03193+6.06881I$
$u=-0.215080-1.307140I$ $a=-0.281752+0.014533I$ $b=-0.539798-0.182582I$	$4.66906-2.82812I$	$4.03193-6.06881I$
$u=-0.569840$ $a=\quad 12.5635$ $b=\quad 3.07960$	0.531480	84.9360

III. $\boldsymbol{I_1^v = \langle a,\ -5v^5 + 46v^4 + \cdots + 69b + 86,\ v^6 - 3v^5 + 6v^4 + 5v^2 - v + 1 \rangle}$

(i) Arc colorings

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

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ \frac{5}{69}v^5 - \frac{2}{3}v^4 + \cdots - \frac{9}{23}v - \frac{86}{69} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -\frac{5}{69}v^5 + \frac{2}{3}v^4 + \cdots + \frac{9}{23}v + \frac{86}{69} \\ \frac{5}{69}v^5 - \frac{2}{3}v^4 + \cdots - \frac{9}{23}v - \frac{86}{69} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ -0.492754v^5 + 1.33333v^4 + \cdots - 2.73913v - 0.724638 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.492754v^5 + 1.33333v^4 + \cdots - 2.73913v + 0.275362 \\ v^5 - 3v^4 + 6v^3 + 5v - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.507246v^5 + 1.66667v^4 + \cdots - 2.26087v + 0.724638 \\ v^5 - 3v^4 + 6v^3 + 5v - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} \frac{35}{69}v^5 - \frac{5}{3}v^4 + \cdots + \frac{52}{23}v - \frac{50}{69} \\ -v^5 + 3v^4 - 6v^3 - 5v + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.507246v^5 + 1.66667v^4 + \cdots - 1.26087v + 0.724638 \\ v^5 - 3v^4 + 6v^3 + 5v - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{17}{23}v^5 - 2v^4 + \frac{79}{23}v^3 + \frac{53}{23}v^2 + \frac{129}{23}v - \frac{274}{23}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.344968+0.764807I$ $a=0$ $b=1.002190+0.295542I$	$-3.53554-0.92430I$	$-13.12292+1.33143I$
$v=-0.344968-0.764807I$ $a=0$ $b=1.002190-0.295542I$	$-3.53554+0.92430I$	$-13.12292-1.33143I$
$v=0.158836+0.437639I$ $a=0$ $b=-1.073950-0.558752I$	$-1.64493-5.69302I$	$-11.70582+2.69056I$
$v=0.158836-0.437639I$ $a=0$ $b=-1.073950+0.558752I$	$-1.64493+5.69302I$	$-11.70582-2.69056I$
$v=1.68613+1.92635I$ $a=0$ $b=-0.428243+0.664531I$	$0.245672-0.924305I$	$-5.17126+7.13914I$
$v=1.68613-1.92635I$ $a=0$ $b=-0.428243-0.664531I$	$0.245672+0.924305I$	$-5.17126-7.13914I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^3-u^2+2u-1)(u^{126}+68u^{125}+\cdots-17u+1)$
c_2	$((u-1)^6)(u^3+u^2-1)(u^{126}-8u^{125}+\cdots-9u+1)$
c_3	$u^6(u^3-u^2+2u-1)(u^{126}+2u^{125}+\cdots+192u+64)$
c_4	$((u+1)^6)(u^3-u^2+1)(u^{126}-8u^{125}+\cdots-9u+1)$
c_5	$(u^3-2u^2-3u-1)(u^6+3u^5+5u^4+4u^3+2u^2+u+1)$ $\cdot(u^{126}+4u^{125}+\cdots-1174u-44)$
c_6	$(u^3-2u^2-3u-1)(u^6+u^5-u^4-2u^3+u+1)$ $\cdot(u^{126}-65u^{124}+\cdots+4405u-191)$
c_7	$u^6(u^3+u^2+2u+1)(u^{126}+2u^{125}+\cdots+192u+64)$
c_8	$u^6(u^3-3u^2+2u+1)(u^{126}-42u^{125}+\cdots-118784u+4096)$
c_9	$(u^3-3u^2+2u+1)(u^6+3u^5+5u^4+4u^3+2u^2+u+1)$ $\cdot(u^{126}-9u^{125}+\cdots+2u-1)$
c_{10}	$((u+1)^3)(u^6-u^5+\cdots-u+1)(u^{126}+5u^{125}+\cdots-43u-1)$
c_{11}	$u^3(u^6-u^5+\cdots-u+1)(u^{126}-20u^{125}+\cdots+124u+8)$
c_{12}	$((u-1)^3)(u^6+u^5+\cdots+u+1)(u^{126}+5u^{125}+\cdots-43u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^3+3y^2+2y-1)(y^{126}-12y^{125}+\cdots-363y+1)$
c_2, c_4	$((y-1)^6)(y^3-y^2+2y-1)(y^{126}-68y^{125}+\cdots+17y+1)$
c_3, c_7	$y^6(y^3+3y^2+2y-1)(y^{126}+42y^{125}+\cdots+118784y+4096)$
c_5	$(y^3-10y^2+5y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $\cdot(y^{126}-122y^{125}+\cdots-141964y+1936)$
c_6	$(y^3-10y^2+5y-1)(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{126}-130y^{125}+\cdots-3185069y+36481)$
c_8	$y^6(y^3-5y^2+10y-1)(y^{126}+74y^{125}+\cdots-1.25829\times10^8y+1.67772\times10^7)$
c_9	$(y^3-5y^2+10y-1)(y^6+y^5+5y^4+6y^2+3y+1)$ $\cdot(y^{126}+15y^{125}+\cdots-14y+1)$
c_{10}, c_{12}	$(y-1)^3(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{126}-75y^{125}+\cdots-971y+1)$
c_{11}	$y^3(y^6-3y^5+\cdots-y+1)(y^{126}-24y^{125}+\cdots-8848y+64)$