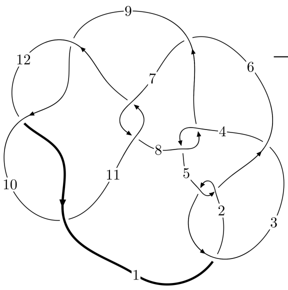
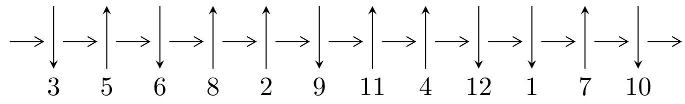
$12a_{0002}$ ($K12a_{0002}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$$7{,}12 \xrightarrow[c_{11}]{} 11 \xrightarrow[c_{7}]{} 4{,}8 \xrightarrow[c_{4}]{} 5 \xrightarrow[c_{8}]{} 9 \xrightarrow[c_{9}]{} 10 \xrightarrow[c_{12}]{} 1 \xrightarrow[c_{6}]{} 6 \xrightarrow[c_{3}]{} 3 \xrightarrow[c_{2}]{} 2 \twoheadrightarrow c_1, c_5, c_{10}$$

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

$$\begin{aligned}
I^u_1 = \langle & 2.87313\times 10^{334}u^{104} - 9.21887\times 10^{334}u^{103} + \cdots + 1.15405\times 10^{337}b + 3.50101\times 10^{336},\\
& -2.56029\times 10^{334}u^{104} + 5.49406\times 10^{334}u^{103} + \cdots + 6.59460\times 10^{336}a - 2.98633\times 10^{337},\\
& u^{105} - 3u^{104} + \cdots + 2048u + 1024\rangle\\
I^u_2 = \langle & -u^2a + b - a,\ u^4a + u^3a + u^4 + 2u^2a + a^2 + au + u^2 + a - u,\ u^5 + u^4 + 2u^3 + u^2 + u + 1\rangle
\end{aligned}$$

$$\begin{aligned}
I^v_1 &= \langle a,\ v^3 + 2v^2 + b + 2v,\ v^4 + 2v^3 + 3v^2 + v + 1\rangle\\
I^v_2 &= \langle a,\ -v^3 - v^2 + b + 1,\ v^6 + 3v^5 + 4v^4 + 2v^3 + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 125 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. $I_1^u = \langle 2.87\times10^{334}u^{104} - 9.22\times10^{334}u^{103} + \cdots + 1.15\times10^{337}b + 3.50\times10^{336},\ -2.56\times10^{334}u^{104} + 5.49\times10^{334}u^{103} + \cdots + 6.59\times10^{336}a - 2.99\times10^{337},\ u^{105} - 3u^{104} + \cdots + 2048u + 1024\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.00388240u^{104} - 0.00833116u^{103} + \cdots + 11.4924u + 4.52845 \\ -0.00248959u^{104} + 0.00798824u^{103} + \cdots - 4.48147u - 0.303366 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.00498777u^{104} - 0.0112515u^{103} + \cdots + 14.7026u + 5.39070 \\ -0.00215259u^{104} + 0.00751970u^{103} + \cdots - 3.21368u + 0.153629 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.000519769u^{104} + 0.00481996u^{103} + \cdots + 4.67049u + 3.48978 \\ -0.00119259u^{104} + 0.00216389u^{103} + \cdots - 4.22800u - 2.41288 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.000672817u^{104} + 0.00265608u^{103} + \cdots + 8.89849u + 5.90266 \\ -0.00119259u^{104} + 0.00216389u^{103} + \cdots - 4.22800u - 2.41288 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.000672817u^{104} + 0.00265608u^{103} + \cdots + 8.89849u + 5.90266 \\ -0.00129632u^{104} + 0.00157290u^{103} + \cdots - 6.03440u - 2.37383 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.00489883u^{104} + 0.0141883u^{103} + \cdots - 8.53327u - 2.46195 \\ 0.00235848u^{104} - 0.00763297u^{103} + \cdots + 4.80576u + 0.638462 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.00606696u^{104} + 0.0253348u^{103} + \cdots + 2.81502u + 4.85586 \\ 0.00220680u^{104} - 0.0101609u^{103} + \cdots - 3.08436u - 1.82736 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.00434510u^{104} + 0.0185156u^{103} + \cdots - 0.931222u + 2.88768 \\ -0.000320191u^{104} - 0.00175592u^{103} + \cdots - 9.30691u - 3.74997 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.00265333u^{104} + 0.00375222u^{103} + \cdots - 32.4877u - 13.5243$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{105} + 53u^{104} + \cdots - 7u - 1$
c_2, c_5	$u^{105} + 7u^{104} + \cdots - 7u - 1$
c_3	$u^{105} - 7u^{104} + \cdots - 40152u - 14308$
c_4, c_8	$u^{105} - 2u^{104} + \cdots - 2048u - 1024$
c_6	$u^{105} - 4u^{104} + \cdots - 66488u - 52489$
c_7, c_{11}	$u^{105} - 3u^{104} + \cdots + 2048u + 1024$
c_9, c_{10}, c_{12}	$u^{105} - 13u^{104} + \cdots - 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{105} + 5y^{104} + \cdots + 33y - 1$
c_2, c_5	$y^{105} + 53y^{104} + \cdots - 7y - 1$
c_3	$y^{105} - 43y^{104} + \cdots + 5145658168y - 204718864$
c_4, c_8	$y^{105} + 60y^{104} + \cdots - 16777216y - 1048576$
c_6	$y^{105} - 62y^{104} + \cdots - 163409354104y - 2755095121$
c_7, c_{11}	$y^{105} + 69y^{104} + \cdots - 9961472y - 1048576$
c_9, c_{10}, c_{12}	$y^{105} - 105y^{104} + \cdots - 33y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.268285 + 0.949256I$ $a = 0.872590 + 0.818513I$ $b = -0.525404 - 0.588907I$	$-5.18965 - 8.64562I$	0
$u = -0.268285 - 0.949256I$ $a = 0.872590 - 0.818513I$ $b = -0.525404 + 0.588907I$	$-5.18965 + 8.64562I$	0
$u = 0.445627 + 0.931879I$ $a = 0.200127 + 0.084474I$ $b = -0.298515 - 0.395878I$	$-0.21716 + 2.22153I$	0
$u = 0.445627 - 0.931879I$ $a = 0.200127 - 0.084474I$ $b = -0.298515 + 0.395878I$	$-0.21716 - 2.22153I$	0
$u = -0.198192 + 1.018210I$ $a = -0.605963 - 1.018640I$ $b = 0.512264 + 0.694594I$	$-3.26753 - 3.83052I$	0
$u = -0.198192 - 1.018210I$ $a = -0.605963 + 1.018640I$ $b = 0.512264 - 0.694594I$	$-3.26753 + 3.83052I$	0
$u = -0.627731 + 0.833901I$ $a = -0.281088 - 0.037619I$ $b = -0.96977 + 1.12758I$	$-5.08057 + 5.13162I$	0
$u = -0.627731 - 0.833901I$ $a = -0.281088 + 0.037619I$ $b = -0.96977 - 1.12758I$	$-5.08057 - 5.13162I$	0
$u = 0.705026 + 0.644209I$ $a = -0.425448 - 0.094462I$ $b = 0.635657 + 0.076444I$	$-1.48237 + 6.07517I$	0
$u = 0.705026 - 0.644209I$ $a = -0.425448 + 0.094462I$ $b = 0.635657 - 0.076444I$	$-1.48237 - 6.07517I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.634957 + 0.835508I$ $a = -0.302189 - 0.088053I$ $b = 0.575178 + 0.266330I$	$-2.06078 - 1.03844I$	0
$u = 0.634957 - 0.835508I$ $a = -0.302189 + 0.088053I$ $b = 0.575178 - 0.266330I$	$-2.06078 + 1.03844I$	0
$u = -0.808540 + 0.675363I$ $a = -0.251435 + 0.002877I$ $b = -1.08572 + 1.01249I$	$-5.33745 - 2.51054I$	0
$u = -0.808540 - 0.675363I$ $a = -0.251435 - 0.002877I$ $b = -1.08572 - 1.01249I$	$-5.33745 + 2.51054I$	0
$u = -1.06632$ $a = 0.163913$ $b = 1.12178$	-2.99893	0
$u = -0.205855 + 1.066340I$ $a = 2.19332 + 0.21215I$ $b = 0.710064 - 1.124110I$	$-1.54671 + 0.30676I$	0
$u = -0.205855 - 1.066340I$ $a = 2.19332 - 0.21215I$ $b = 0.710064 + 1.124110I$	$-1.54671 - 0.30676I$	0
$u = -0.877564 + 0.252033I$ $a = 0.177938 - 0.052301I$ $b = 0.901469 - 0.560381I$	$-2.76612 + 0.46150I$	0
$u = -0.877564 - 0.252033I$ $a = 0.177938 + 0.052301I$ $b = 0.901469 + 0.560381I$	$-2.76612 - 0.46150I$	0
$u = 0.280688 + 1.057980I$ $a = 0.186025 + 0.149043I$ $b = -0.059742 - 0.689656I$	$-0.86784 + 2.21470I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.280688 - 1.057980I$ $a = 0.186025 - 0.149043I$ $b = -0.059742 + 0.689656I$	$-0.86784 - 2.21470I$	0
$u = -0.016037 + 1.111550I$ $a = -0.12718 - 1.49148I$ $b = 0.684949 + 1.038480I$	$-2.96866 - 1.50877I$	0
$u = -0.016037 - 1.111550I$ $a = -0.12718 + 1.49148I$ $b = 0.684949 - 1.038480I$	$-2.96866 + 1.50877I$	0
$u = 1.123720 + 0.056254I$ $a = -0.18963 - 2.18372I$ $b = -0.21888 - 4.11381I$	$-3.53447 - 2.64383I$	0
$u = 1.123720 - 0.056254I$ $a = -0.18963 + 2.18372I$ $b = -0.21888 + 4.11381I$	$-3.53447 + 2.64383I$	0
$u = -0.293441 + 1.107970I$ $a = -2.16101 + 0.16158I$ $b = -0.45521 + 1.39470I$	$-1.30226 - 4.97324I$	0
$u = -0.293441 - 1.107970I$ $a = -2.16101 - 0.16158I$ $b = -0.45521 - 1.39470I$	$-1.30226 + 4.97324I$	0
$u = -0.555516 + 0.642632I$ $a = 0.321795 - 0.007589I$ $b = 0.947740 - 1.036810I$	$-2.35481 + 1.07727I$	$-4.10629 + 0.I$
$u = -0.555516 - 0.642632I$ $a = 0.321795 + 0.007589I$ $b = 0.947740 + 1.036810I$	$-2.35481 - 1.07727I$	$-4.10629 + 0.I$
$u = 0.068982 + 1.152660I$ $a = -0.13772 + 1.68779I$ $b = -0.84014 - 1.26733I$	$-4.49778 + 3.58279I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.068982 - 1.152660I$ $a = -0.13772 - 1.68779I$ $b = -0.84014 + 1.26733I$	$-4.49778 - 3.58279I$	0
$u = 0.133289 + 1.147960I$ $a = -0.207378 - 0.161416I$ $b = -0.094944 + 0.926840I$	$-3.87382 - 1.25509I$	0
$u = 0.133289 - 1.147960I$ $a = -0.207378 + 0.161416I$ $b = -0.094944 - 0.926840I$	$-3.87382 + 1.25509I$	0
$u = 0.577291 + 0.590200I$ $a = 0.455697 - 0.020258I$ $b = -0.542949 - 0.042937I$	$0.76544 + 1.83227I$	$2.97063 - 4.30547I$
$u = 0.577291 - 0.590200I$ $a = 0.455697 + 0.020258I$ $b = -0.542949 + 0.042937I$	$0.76544 - 1.83227I$	$2.97063 + 4.30547I$
$u = -0.486058 + 1.084780I$ $a = 0.530495 + 0.114300I$ $b = -0.451814 - 0.304162I$	$-6.71480 - 2.28994I$	0
$u = -0.486058 - 1.084780I$ $a = 0.530495 - 0.114300I$ $b = -0.451814 + 0.304162I$	$-6.71480 + 2.28994I$	0
$u = 0.019738 + 1.215440I$ $a = 1.58587 + 0.35008I$ $b = 0.264532 - 0.433564I$	$-4.96141 + 2.10767I$	0
$u = 0.019738 - 1.215440I$ $a = 1.58587 - 0.35008I$ $b = 0.264532 + 0.433564I$	$-4.96141 - 2.10767I$	0
$u = -1.212520 + 0.089544I$ $a = -0.175810 + 0.003726I$ $b = -1.378360 + 0.143579I$	$-5.80757 + 3.81804I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.212520-0.089544I$ $a=-0.175810-0.003726I$ $b=-1.378360-0.143579I$	$-5.80757-3.81804I$	0
$u=0.299648+1.178790I$ $a=-0.201498-0.148660I$ $b=0.162017+0.863030I$	$-3.49667+6.31468I$	0
$u=0.299648-1.178790I$ $a=-0.201498+0.148660I$ $b=0.162017-0.863030I$	$-3.49667-6.31468I$	0
$u=-0.020338+0.774375I$ $a=0.307442+0.318165I$ $b=0.688910-0.608860I$	$-1.50574+1.45150I$	$-6.88231-3.91032I$
$u=-0.020338-0.774375I$ $a=0.307442-0.318165I$ $b=0.688910+0.608860I$	$-1.50574-1.45150I$	$-6.88231+3.91032I$
$u=0.070255+1.259590I$ $a=-1.50047-0.35184I$ $b=-0.147458+0.318912I$	$-7.80115+7.15839I$	0
$u=0.070255-1.259590I$ $a=-1.50047+0.35184I$ $b=-0.147458-0.318912I$	$-7.80115-7.15839I$	0
$u=-0.053874+1.280380I$ $a=-1.58471-0.21128I$ $b=-0.108135+0.620275I$	$-9.46339-1.53906I$	0
$u=-0.053874-1.280380I$ $a=-1.58471+0.21128I$ $b=-0.108135-0.620275I$	$-9.46339+1.53906I$	0
$u=-0.697952+0.137916I$ $a=0.03495+2.03419I$ $b=0.003394+1.178190I$	$-3.25405+8.33976I$	$0.04715-7.24075I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.697952 - 0.137916I$ $a = 0.03495 - 2.03419I$ $b = 0.003394 - 1.178190I$	$-3.25405 - 8.33976I$	$0.04715 + 7.24075I$
$u = 1.278710 + 0.215842I$ $a = -0.39628 - 1.68073I$ $b = -0.31459 - 3.54098I$	$-6.66508 - 4.90614I$	0
$u = 1.278710 - 0.215842I$ $a = -0.39628 + 1.68073I$ $b = -0.31459 + 3.54098I$	$-6.66508 + 4.90614I$	0
$u = -0.395632 + 1.237840I$ $a = -1.74409 + 0.40492I$ $b = 0.00591 + 1.44676I$	$-4.09455 - 7.49095I$	0
$u = -0.395632 - 1.237840I$ $a = -1.74409 - 0.40492I$ $b = 0.00591 - 1.44676I$	$-4.09455 + 7.49095I$	0
$u = -0.166036 + 1.294570I$ $a = -0.159030 + 0.898530I$ $b = -0.095823 - 1.086560I$	$-8.00836 - 2.78848I$	0
$u = -0.166036 - 1.294570I$ $a = -0.159030 - 0.898530I$ $b = -0.095823 + 1.086560I$	$-8.00836 + 2.78848I$	0
$u = -0.533755 + 1.206200I$ $a = -0.347377 + 0.158220I$ $b = 0.477048 - 0.032193I$	$-5.70848 - 5.64417I$	0
$u = -0.533755 - 1.206200I$ $a = -0.347377 - 0.158220I$ $b = 0.477048 + 0.032193I$	$-5.70848 + 5.64417I$	0
$u = -0.336147 + 1.282090I$ $a = 1.68636 - 0.25958I$ $b = -0.030211 - 1.283740I$	$-8.88944 - 4.03584I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.336147 - 1.282090I$ $a = 1.68636 + 0.25958I$ $b = -0.030211 + 1.283740I$	$-8.88944 + 4.03584I$	0
$u = -0.428396 + 1.265900I$ $a = 1.66072 - 0.44565I$ $b = -0.09249 - 1.47226I$	$-6.7884 - 12.7058I$	0
$u = -0.428396 - 1.265900I$ $a = 1.66072 + 0.44565I$ $b = -0.09249 + 1.47226I$	$-6.7884 + 12.7058I$	0
$u = -0.644479 + 0.156070I$ $a = 0.01947 - 2.09237I$ $b = -0.064347 - 1.144410I$	$-0.72998 + 3.43108I$	$3.23111 - 3.53029I$
$u = -0.644479 - 0.156070I$ $a = 0.01947 + 2.09237I$ $b = -0.064347 + 1.144410I$	$-0.72998 - 3.43108I$	$3.23111 + 3.53029I$
$u = 1.314130 + 0.258446I$ $a = 0.42118 + 1.59065I$ $b = 0.29191 + 3.44936I$	$-9.44734 - 10.06730I$	0
$u = 1.314130 - 0.258446I$ $a = 0.42118 - 1.59065I$ $b = 0.29191 - 3.44936I$	$-9.44734 + 10.06730I$	0
$u = 1.334250 + 0.147531I$ $a = 0.24745 + 1.64891I$ $b = 0.17768 + 3.57162I$	$-11.34640 - 1.32441I$	0
$u = 1.334250 - 0.147531I$ $a = 0.24745 - 1.64891I$ $b = 0.17768 - 3.57162I$	$-11.34640 + 1.32441I$	0
$u = -0.622293 + 0.071084I$ $a = 0.05136 + 2.18813I$ $b = 0.009203 + 1.059750I$	$-5.03370 + 0.34144I$	$-2.24738 - 0.66837I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.622293 - 0.071084I$ $a = 0.05136 - 2.18813I$ $b = 0.009203 - 1.059750I$	$-5.03370 - 0.34144I$	$-2.24738 + 0.66837I$
$u = 0.457823 + 0.346017I$ $a = 0.781432 - 0.194359I$ $b = -0.485789 + 0.019245I$	$1.18816 + 0.97679I$	$5.99668 - 2.87740I$
$u = 0.457823 - 0.346017I$ $a = 0.781432 + 0.194359I$ $b = -0.485789 - 0.019245I$	$1.18816 - 0.97679I$	$5.99668 + 2.87740I$
$u = -0.317562 + 0.458650I$ $a = -0.08848 + 2.24799I$ $b = 0.812978 + 0.897740I$	$0.26703 - 2.76145I$	$2.39627 + 0.24825I$
$u = -0.317562 - 0.458650I$ $a = -0.08848 - 2.24799I$ $b = 0.812978 - 0.897740I$	$0.26703 + 2.76145I$	$2.39627 - 0.24825I$
$u = -0.451679 + 0.297070I$ $a = 0.18981 - 2.20906I$ $b = -0.382918 - 1.024900I$	$1.09706 + 1.79646I$	$4.50707 - 4.72051I$
$u = -0.451679 - 0.297070I$ $a = 0.18981 + 2.20906I$ $b = -0.382918 + 1.024900I$	$1.09706 - 1.79646I$	$4.50707 + 4.72051I$
$u = 0.075882 + 0.532508I$ $a = 1.165090 + 0.438248I$ $b = 1.61513 - 0.31149I$	$-1.30443 + 1.41880I$	$-9.48971 - 7.96647I$
$u = 0.075882 - 0.532508I$ $a = 1.165090 - 0.438248I$ $b = 1.61513 + 0.31149I$	$-1.30443 - 1.41880I$	$-9.48971 + 7.96647I$
$u = -0.53134 + 1.37400I$ $a = -0.342719 + 0.387464I$ $b = 0.675891 - 0.459262I$	$-7.27145 - 5.73841I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.53134 - 1.37400I$ $a = -0.342719 - 0.387464I$ $b = 0.675891 + 0.459262I$	$-7.27145 + 5.73841I$	0
$u = 0.50261 + 1.39495I$ $a = -2.21661 + 0.24791I$ $b = 0.46456 - 3.43991I$	$-8.15890 + 3.07952I$	0
$u = 0.50261 - 1.39495I$ $a = -2.21661 - 0.24791I$ $b = 0.46456 + 3.43991I$	$-8.15890 - 3.07952I$	0
$u = 0.487122 + 0.146522I$ $a = -1.089400 + 0.057239I$ $b = 0.417296 - 0.034703I$	$-0.44889 - 3.10218I$	$2.70006 + 3.61407I$
$u = 0.487122 - 0.146522I$ $a = -1.089400 - 0.057239I$ $b = 0.417296 + 0.034703I$	$-0.44889 + 3.10218I$	$2.70006 - 3.61407I$
$u = 0.55448 + 1.38660I$ $a = 2.18485 + 0.09212I$ $b = -0.71711 + 3.38390I$	$-7.75540 + 8.66586I$	0
$u = 0.55448 - 1.38660I$ $a = 2.18485 - 0.09212I$ $b = -0.71711 - 3.38390I$	$-7.75540 - 8.66586I$	0
$u = -0.47683 + 1.45135I$ $a = 0.353718 - 0.458048I$ $b = -0.702962 + 0.689832I$	$-10.89430 - 2.15329I$	0
$u = -0.47683 - 1.45135I$ $a = 0.353718 + 0.458048I$ $b = -0.702962 - 0.689832I$	$-10.89430 + 2.15329I$	0
$u = -0.58357 + 1.41607I$ $a = 0.387162 - 0.398248I$ $b = -0.835172 + 0.462307I$	$-10.0756 - 10.2328I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.58357 - 1.41607I$ $a = 0.387162 + 0.398248I$ $b = -0.835172 - 0.462307I$	$-10.0756 + 10.2328I$	0
$u = 0.66226 + 1.40562I$ $a = 1.78137 + 0.44979I$ $b = -0.87217 + 3.06337I$	$-10.4930 + 11.8093I$	0
$u = 0.66226 - 1.40562I$ $a = 1.78137 - 0.44979I$ $b = -0.87217 - 3.06337I$	$-10.4930 - 11.8093I$	0
$u = 0.69338 + 1.40653I$ $a = -1.68629 - 0.51434I$ $b = 0.88007 - 2.99623I$	$-13.1444 + 17.1838I$	0
$u = 0.69338 - 1.40653I$ $a = -1.68629 + 0.51434I$ $b = 0.88007 + 2.99623I$	$-13.1444 - 17.1838I$	0
$u = 0.334255 + 0.268885I$ $a = -2.00226 - 0.37579I$ $b = -2.98510 - 0.26969I$	$-1.88065 - 2.35835I$	$10.0083 - 15.2059I$
$u = 0.334255 - 0.268885I$ $a = -2.00226 + 0.37579I$ $b = -2.98510 + 0.26969I$	$-1.88065 + 2.35835I$	$10.0083 + 15.2059I$
$u = 0.37185 + 1.53450I$ $a = -1.43684 + 0.60839I$ $b = 0.24963 - 2.78944I$	$-12.72110 + 1.04025I$	0
$u = 0.37185 - 1.53450I$ $a = -1.43684 - 0.60839I$ $b = 0.24963 + 2.78944I$	$-12.72110 - 1.04025I$	0
$u = 0.64364 + 1.45743I$ $a = -1.69453 - 0.26926I$ $b = 0.76095 - 3.05481I$	$-15.5796 + 8.3556I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.64364 - 1.45743I$ $a = -1.69453 + 0.26926I$ $b = 0.76095 + 3.05481I$	$-15.5796 - 8.3556I$	0
$u = 0.33215 + 1.58221I$ $a = 1.271400 - 0.600285I$ $b = -0.31232 + 2.64286I$	$-15.9138 - 4.0187I$	0
$u = 0.33215 - 1.58221I$ $a = 1.271400 + 0.600285I$ $b = -0.31232 - 2.64286I$	$-15.9138 + 4.0187I$	0
$u = 0.44101 + 1.56678I$ $a = 1.45585 - 0.39191I$ $b = -0.41727 + 2.86735I$	$-17.1532 + 5.1373I$	0
$u = 0.44101 - 1.56678I$ $a = 1.45585 + 0.39191I$ $b = -0.41727 - 2.86735I$	$-17.1532 - 5.1373I$	0

II. $\boldsymbol{I_2^u = \langle -u^2a + b - a,\ u^4a + u^3a + u^4 + 2u^2a + a^2 + au + u^2 + a - u,\ u^5 + u^4 + 2u^3 + u^2 + u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -u^4a - 3u^3a + u^4 - u^2a - 3u^3 + 2au - u^2 - 3u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.339110 + 0.822375I$ $a = 1.114310 - 0.148503I$ $b = 0.571671 + 0.556363I$	$-0.32910 + 3.56046I$	$-2.43337 - 7.40396I$
$u = 0.339110 + 0.822375I$ $a = -0.685764 - 0.890773I$ $b = 0.195989 - 0.773263I$	$-0.329100 - 0.499304I$	$1.41726 - 0.48644I$
$u = 0.339110 - 0.822375I$ $a = 1.114310 + 0.148503I$ $b = 0.571671 - 0.556363I$	$-0.32910 - 3.56046I$	$-2.43337 + 7.40396I$
$u = 0.339110 - 0.822375I$ $a = -0.685764 + 0.890773I$ $b = 0.195989 + 0.773263I$	$-0.329100 + 0.499304I$	$1.41726 + 0.48644I$
$u = -0.766826$ $a = -0.652039 + 1.129360I$ $b = -1.03545 + 1.79345I$	$-2.40108 + 2.02988I$	$0.137791 - 1.258916I$
$u = -0.766826$ $a = -0.652039 - 1.129360I$ $b = -1.03545 - 1.79345I$	$-2.40108 - 2.02988I$	$0.137791 + 1.258916I$
$u = -0.455697 + 1.200150I$ $a = 0.492416 - 0.603584I$ $b = -0.774795 - 0.398153I$	$-5.87256 - 6.43072I$	$-7.21285 + 8.37016I$
$u = -0.455697 + 1.200150I$ $a = -0.768927 - 0.124653I$ $b = 0.042587 + 0.870069I$	$-5.87256 - 2.37095I$	$-1.90884 + 0.95814I$
$u = -0.455697 - 1.200150I$ $a = 0.492416 + 0.603584I$ $b = -0.774795 + 0.398153I$	$-5.87256 + 6.43072I$	$-7.21285 - 8.37016I$
$u = -0.455697 - 1.200150I$ $a = -0.768927 + 0.124653I$ $b = 0.042587 - 0.870069I$	$-5.87256 + 2.37095I$	$-1.90884 - 0.95814I$

III. $\boldsymbol{I_1^v = \langle a,\ v^3+2v^2+b+2v,\ v^4+2v^3+3v^2+v+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5v^3-6v^2-9v$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.043315 + 0.641200I$ $a = 0$ $b = 0.851808 - 0.911292I$	$-0.66484 + 1.39709I$	$2.57868 - 4.13745I$
$v = -0.043315 - 0.641200I$ $a = 0$ $b = 0.851808 + 0.911292I$	$-0.66484 - 1.39709I$	$2.57868 + 4.13745I$
$v = -0.95668 + 1.22719I$ $a = 0$ $b = -0.351808 + 0.720342I$	$-4.26996 + 7.64338I$	$-5.07868 - 4.56334I$
$v = -0.95668 - 1.22719I$ $a = 0$ $b = -0.351808 - 0.720342I$	$-4.26996 - 7.64338I$	$-5.07868 + 4.56334I$

IV. $I_2^v = \langle a,\ -v^3 - v^2 + b + 1,\ v^6 + 3v^5 + 4v^4 + 2v^3 + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v^5 - 7v^4 - v^3 + 7v^2 + 6v - 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.753774 + 0.998963I$ $a = 0$ $b = 0.398606 - 0.800120I$	$-1.91067 + 2.82812I$	$-1.88527 - 2.08748I$
$v = -0.753774 - 0.998963I$ $a = 0$ $b = 0.398606 + 0.800120I$	$-1.91067 - 2.82812I$	$-1.88527 + 2.08748I$
$v = -1.162360 + 0.635452I$ $a = 0$ $b = -0.215080 + 0.841795I$	-6.04826	$-10.27439 + 0.99756I$
$v = -1.162360 - 0.635452I$ $a = 0$ $b = -0.215080 - 0.841795I$	-6.04826	$-10.27439 - 0.99756I$
$v = 0.416133 + 0.436684I$ $a = 0$ $b = -1.183530 + 0.507021I$	$-1.91067 - 2.82812I$	$-2.34034 + 5.36114I$
$v = 0.416133 - 0.436684I$ $a = 0$ $b = -1.183530 - 0.507021I$	$-1.91067 + 2.82812I$	$-2.34034 - 5.36114I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^5(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^{105}+53u^{104}+\cdots-7u-1)$
c_2	$(u^2+u+1)^5(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{105}+7u^{104}+\cdots-7u-1)$
c_3	$(u^2-u+1)^5(u^3-u^2+1)^2(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{105}-7u^{104}+\cdots-40152u-14308)$
c_4	$u^{10}(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{105}-2u^{104}+\cdots-2048u-1024)$
c_5	$(u^2-u+1)^5(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{105}+7u^{104}+\cdots-7u-1)$
c_6	$(u^4-2u^3+3u^2-u+1)(u^5-3u^4+4u^3-u^2-u+1)^2$ $\cdot(u^6-3u^5+4u^4-2u^3+1)(u^{105}-4u^{104}+\cdots-66488u-52489)$
c_7	$u^{10}(u^5-u^4+\cdots+u-1)^2(u^{105}-3u^{104}+\cdots+2048u+1024)$
c_8	$u^{10}(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{105}-2u^{104}+\cdots-2048u-1024)$
c_9, c_{10}	$((u-1)^{10})(u^5+u^4+\cdots+u-1)^2(u^{105}-13u^{104}+\cdots-7u+1)$
c_{11}	$u^{10}(u^5+u^4+\cdots+u+1)^2(u^{105}-3u^{104}+\cdots+2048u+1024)$
c_{12}	$((u+1)^{10})(u^5-u^4+\cdots+u+1)^2(u^{105}-13u^{104}+\cdots-7u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^5)(y^4+2y^3+\cdots+5y+1)(y^6-y^5+\cdots+8y^2+1)$ $\cdot(y^{105}+5y^{104}+\cdots+33y-1)$
c_2, c_5	$(y^2+y+1)^5(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{105}+53y^{104}+\cdots-7y-1)$
c_3	$(y^2+y+1)^5(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot(y^{105}-43y^{104}+\cdots+5145658168y-204718864)$
c_4, c_8	$y^{10}(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{105}+60y^{104}+\cdots-16777216y-1048576)$
c_6	$(y^4+2y^3+7y^2+5y+1)(y^5-y^4+8y^3-3y^2+3y-1)^2$ $\cdot(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{105}-62y^{104}+\cdots-163409354104y-2755095121)$
c_7, c_{11}	$y^{10}(y^5+3y^4+4y^3+y^2-y-1)^2$ $\cdot(y^{105}+69y^{104}+\cdots-9961472y-1048576)$
c_9, c_{10}, c_{12}	$(y-1)^{10}(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^{105}-105y^{104}+\cdots-33y-1)$