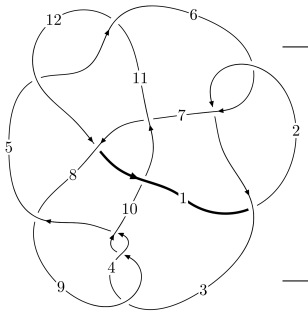
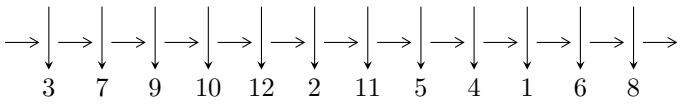
$12a_{0586}$ $(K12a_{0586})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.31307 \times 10^{165} u^{121} + 5.38073 \times 10^{164} u^{120} + \cdots + 4.90444 \times 10^{165} b - 6.70880 \times 10^{165},$$
$$- 3.23704 \times 10^{165} u^{121} - 2.41638 \times 10^{165} u^{120} + \cdots + 4.90444 \times 10^{165} a + 1.05285 \times 10^{166},$$
$$u^{122} - u^{121} + \cdots + 14u - 1 \rangle$$
$$I_2^u = \langle u^{20} - 8u^{18} + \cdots + b - 1,\ 2u^{20} - u^{19} + \cdots + a - 7,\ u^{21} - 10u^{19} + \cdots - 7u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 143 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. $\boldsymbol{I_1^u = \langle 2.31 \times 10^{165} u^{121} + 5.38 \times 10^{164} u^{120} + \cdots + 4.90 \times 10^{165} b - 6.71 \times 10^{165},\ -3.24 \times 10^{165} u^{121} - 2.42 \times 10^{165} u^{120} + \cdots + 4.90 \times 10^{165} a + 1.05 \times 10^{166},\ u^{122} - u^{121} + \cdots + 14u - 1 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.660022u^{121} + 0.492694u^{120} + \cdots - 53.1593u - 2.14673 \\ -0.471629u^{121} - 0.109712u^{120} + \cdots - 3.50950u + 1.36790 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.743016u^{121} - 0.880764u^{120} + \cdots + 5.83100u + 8.73557 \\ 0.0920455u^{121} + 0.774925u^{120} + \cdots + 13.2435u - 1.69094 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.650971u^{121} - 0.105839u^{120} + \cdots + 19.0745u + 7.04462 \\ 0.0920455u^{121} + 0.774925u^{120} + \cdots + 13.2435u - 1.69094 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2.30111u^{121} + 0.0727856u^{120} + \cdots - 140.337u + 6.38639 \\ -0.887005u^{121} + 0.100156u^{120} + \cdots + 24.1947u - 0.623252 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.308103u^{121} - 0.0346067u^{120} + \cdots - 134.651u + 11.8650 \\ -0.749272u^{121} + 1.31527u^{120} + \cdots + 18.1101u - 0.0215096 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^5 - 2u^3 + u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.05192u^{121} - 0.921213u^{120} + \cdots + 24.4218u + 6.68467 \\ 0.194588u^{121} + 0.843786u^{120} + \cdots + 12.8019u - 1.63077 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.935769u^{121} - 0.911728u^{120} + \cdots - 17.5892u - 7.15303$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{122} + 46u^{121} + \cdots + 56468u + 841$
c_2, c_6	$u^{122} - 2u^{121} + \cdots + 18u + 29$
c_3, c_4, c_9	$u^{122} - u^{121} + \cdots + 14u - 1$
c_5, c_{11}	$u^{122} - u^{121} + \cdots + 35u - 1$
c_7	$u^{122} + 8u^{121} + \cdots - 298520u - 40207$
c_8	$u^{122} + 3u^{121} + \cdots - 10052u + 949$
c_{10}	$u^{122} - 20u^{121} + \cdots - 18800u + 1457$
c_{12}	$u^{122} - 2u^{121} + \cdots - 1232502u - 100871$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{122} + 70y^{121} + \cdots - 130799392y + 707281$
c_2, c_6	$y^{122} - 46y^{121} + \cdots - 56468y + 841$
c_3, c_4, c_9	$y^{122} - 105y^{121} + \cdots + 116y + 1$
c_5, c_{11}	$y^{122} + 99y^{121} + \cdots + 173y + 1$
c_7	$y^{122} + 34y^{121} + \cdots + 9443298764y + 1616602849$
c_8	$y^{122} + 59y^{121} + \cdots + 89191938y + 900601$
c_{10}	$y^{122} + 18y^{121} + \cdots - 67920452y + 2122849$
c_{12}	$y^{122} + 30y^{121} + \cdots + 188566629184y + 10174958641$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.234555+0.988031I$ $a=\ \ 0.92156+1.12342I$ $b=-0.872223-0.630867I$	$5.72527-1.28507I$	0
$u=-0.234555-0.988031I$ $a=\ \ 0.92156-1.12342I$ $b=-0.872223+0.630867I$	$5.72527+1.28507I$	0
$u=\ \ 0.760590+0.674896I$ $a=-0.316027+0.926892I$ $b=\ \ 0.686502-0.641692I$	$4.42128-1.94594I$	0
$u=\ \ 0.760590-0.674896I$ $a=-0.316027-0.926892I$ $b=\ \ 0.686502+0.641692I$	$4.42128+1.94594I$	0
$u=\ \ 0.322630+0.970146I$ $a=\ \ 0.10806+1.82890I$ $b=-0.828609-0.630177I$	$5.86251-3.65151I$	0
$u=\ \ 0.322630-0.970146I$ $a=\ \ 0.10806-1.82890I$ $b=-0.828609+0.630177I$	$5.86251+3.65151I$	0
$u=-0.214504+0.861105I$ $a=\ \ 0.44544-2.29325I$ $b=-1.099800+0.728566I$	$6.9239+14.0853I$	0
$u=-0.214504-0.861105I$ $a=\ \ 0.44544+2.29325I$ $b=-1.099800-0.728566I$	$6.9239-14.0853I$	0
$u=-1.001190+0.502220I$ $a=-0.467524-0.781643I$ $b=\ \ 1.068540+0.711550I$	$4.50697-9.26659I$	0
$u=-1.001190-0.502220I$ $a=-0.467524+0.781643I$ $b=\ \ 1.068540-0.711550I$	$4.50697+9.26659I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.030580 + 0.445182I$ $a = 0.13785 - 1.45127I$ $b = 0.610203 + 0.880621I$	$5.91876 + 3.36739I$	0
$u = 1.030580 - 0.445182I$ $a = 0.13785 + 1.45127I$ $b = 0.610203 - 0.880621I$	$5.91876 - 3.36739I$	0
$u = -1.107230 + 0.202197I$ $a = 0.353996 - 0.891172I$ $b = -0.690022 + 0.709843I$	$0.251889 + 0.777032I$	0
$u = -1.107230 - 0.202197I$ $a = 0.353996 + 0.891172I$ $b = -0.690022 - 0.709843I$	$0.251889 - 0.777032I$	0
$u = -0.915379 + 0.675967I$ $a = 0.02342 + 1.50127I$ $b = 0.959430 - 0.636264I$	$3.60956 + 6.96571I$	0
$u = -0.915379 - 0.675967I$ $a = 0.02342 - 1.50127I$ $b = 0.959430 + 0.636264I$	$3.60956 - 6.96571I$	0
$u = 0.186110 + 0.839501I$ $a = 1.18588 - 1.51108I$ $b = -0.588144 + 0.942203I$	$8.51107 - 7.96464I$	0
$u = 0.186110 - 0.839501I$ $a = 1.18588 + 1.51108I$ $b = -0.588144 - 0.942203I$	$8.51107 + 7.96464I$	0
$u = 1.137060 + 0.083755I$ $a = -0.340810 - 1.362340I$ $b = -0.970198 + 0.697036I$	$-0.52167 + 4.61172I$	0
$u = 1.137060 - 0.083755I$ $a = -0.340810 + 1.362340I$ $b = -0.970198 - 0.697036I$	$-0.52167 - 4.61172I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.113200+0.350252I$ $a=\ \ 0.316835+0.134474I$ $b=-0.792717+0.032554I$	$-0.01080+2.42638I$	0
$u=-1.113200-0.350252I$ $a=\ \ 0.316835-0.134474I$ $b=-0.792717-0.032554I$	$-0.01080-2.42638I$	0
$u=\ \ 1.153350+0.243735I$ $a=-0.366981+1.183590I$ $b=-0.801289-0.738462I$	$-0.16714-4.78859I$	0
$u=\ \ 1.153350-0.243735I$ $a=-0.366981-1.183590I$ $b=-0.801289+0.738462I$	$-0.16714+4.78859I$	0
$u=-0.099249+0.797317I$ $a=-0.716625+0.713497I$ $b=\ \ 0.620262-0.047717I$	$3.11143+1.77129I$	$-12.00000-3.74305I$
$u=-0.099249-0.797317I$ $a=-0.716625-0.713497I$ $b=\ \ 0.620262+0.047717I$	$3.11143-1.77129I$	$-12.00000+3.74305I$
$u=-0.724566+0.333200I$ $a=\ \ 0.084913-0.920619I$ $b=-1.117180-0.110982I$	$-0.93866-2.49661I$	$-12.00000+2.74029I$
$u=-0.724566-0.333200I$ $a=\ \ 0.084913+0.920619I$ $b=-1.117180+0.110982I$	$-0.93866+2.49661I$	$-12.00000-2.74029I$
$u=-1.218930+0.045329I$ $a=\ \ 0.380004+0.484744I$ $b=-0.786560-0.829293I$	$-0.047384-0.970006I$	0
$u=-1.218930-0.045329I$ $a=\ \ 0.380004-0.484744I$ $b=-0.786560+0.829293I$	$-0.047384+0.970006I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.744074 + 0.182009I$ $a = -0.429229 - 0.732669I$ $b = -0.947133 + 0.634087I$	$-0.40422 + 4.44938I$	$-14.0673 - 4.9668I$
$u = 0.744074 - 0.182009I$ $a = -0.429229 + 0.732669I$ $b = -0.947133 - 0.634087I$	$-0.40422 - 4.44938I$	$-14.0673 + 4.9668I$
$u = 0.189284 + 0.736058I$ $a = 0.04393 - 2.54745I$ $b = 1.023300 + 0.644874I$	$1.77068 - 8.04690I$	$-9.57286 + 9.37019I$
$u = 0.189284 - 0.736058I$ $a = 0.04393 + 2.54745I$ $b = 1.023300 - 0.644874I$	$1.77068 + 8.04690I$	$-9.57286 - 9.37019I$
$u = -0.221698 + 0.720542I$ $a = -0.770295 + 0.907435I$ $b = 1.281360 - 0.189413I$	$0.84791 + 6.25400I$	$-11.2890 - 8.6710I$
$u = -0.221698 - 0.720542I$ $a = -0.770295 - 0.907435I$ $b = 1.281360 + 0.189413I$	$0.84791 - 6.25400I$	$-11.2890 + 8.6710I$
$u = -0.140582 + 0.739623I$ $a = -1.39916 - 0.87483I$ $b = 0.574494 + 0.702034I$	$3.07037 + 2.84110I$	$-7.29913 - 4.46443I$
$u = -0.140582 - 0.739623I$ $a = -1.39916 + 0.87483I$ $b = 0.574494 - 0.702034I$	$3.07037 - 2.84110I$	$-7.29913 + 4.46443I$
$u = -1.243150 + 0.100960I$ $a = -0.738286 - 0.774980I$ $b = -1.204120 - 0.528067I$	$-1.17292 - 3.59071I$	0
$u = -1.243150 - 0.100960I$ $a = -0.738286 + 0.774980I$ $b = -1.204120 + 0.528067I$	$-1.17292 + 3.59071I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.074658 + 0.742254I$ $a = -0.81283 + 1.26950I$ $b = 0.587696 - 0.654971I$	$3.04979 + 1.07688I$	$-7.24896 - 3.00156I$
$u = 0.074658 - 0.742254I$ $a = -0.81283 - 1.26950I$ $b = 0.587696 + 0.654971I$	$3.04979 - 1.07688I$	$-7.24896 + 3.00156I$
$u = -0.228245 + 0.709352I$ $a = -0.37252 + 2.01880I$ $b = 1.003610 - 0.619740I$	$1.85617 + 3.92199I$	$-9.76878 - 2.82515I$
$u = -0.228245 - 0.709352I$ $a = -0.37252 - 2.01880I$ $b = 1.003610 + 0.619740I$	$1.85617 - 3.92199I$	$-9.76878 + 2.82515I$
$u = 1.226380 + 0.265835I$ $a = -1.177270 + 0.321168I$ $b = 0.321693 - 1.143740I$	$3.59136 - 1.45213I$	0
$u = 1.226380 - 0.265835I$ $a = -1.177270 - 0.321168I$ $b = 0.321693 + 1.143740I$	$3.59136 + 1.45213I$	0
$u = 1.249820 + 0.142486I$ $a = -2.82499 + 0.56538I$ $b = -0.755633 + 0.350064I$	$0.762504 - 0.559043I$	0
$u = 1.249820 - 0.142486I$ $a = -2.82499 - 0.56538I$ $b = -0.755633 - 0.350064I$	$0.762504 + 0.559043I$	0
$u = -0.017426 + 0.740999I$ $a = 2.34826 - 1.92460I$ $b = -0.869803 + 0.657397I$	$6.22351 + 4.56633I$	$-3.73730 - 6.98496I$
$u = -0.017426 - 0.740999I$ $a = 2.34826 + 1.92460I$ $b = -0.869803 - 0.657397I$	$6.22351 - 4.56633I$	$-3.73730 + 6.98496I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.26617$ $a = 1.31692$ $b = -0.525476$	-6.18263	0
$u = 0.058524 + 0.715391I$ $a = 0.75668 + 2.16588I$ $b = -0.464647 - 1.129910I$	$7.14471 - 2.10096I$	$1.17722 + 2.65730I$
$u = 0.058524 - 0.715391I$ $a = 0.75668 - 2.16588I$ $b = -0.464647 + 1.129910I$	$7.14471 + 2.10096I$	$1.17722 - 2.65730I$
$u = -1.251400 + 0.304571I$ $a = -1.85642 - 0.08555I$ $b = 0.843838 + 0.614687I$	$2.41412 - 0.78698I$	0
$u = -1.251400 - 0.304571I$ $a = -1.85642 + 0.08555I$ $b = 0.843838 - 0.614687I$	$2.41412 + 0.78698I$	0
$u = 1.260920 + 0.268599I$ $a = -0.645813 + 0.337662I$ $b = 1.12107 - 0.86570I$	$1.21395 + 1.35004I$	0
$u = 1.260920 - 0.268599I$ $a = -0.645813 - 0.337662I$ $b = 1.12107 + 0.86570I$	$1.21395 - 1.35004I$	0
$u = -1.274760 + 0.275843I$ $a = -0.89496 - 1.60223I$ $b = 0.828740 + 0.712699I$	$2.37321 + 2.95488I$	0
$u = -1.274760 - 0.275843I$ $a = -0.89496 + 1.60223I$ $b = 0.828740 - 0.712699I$	$2.37321 - 2.95488I$	0
$u = 0.024434 + 0.693745I$ $a = 1.18639 + 2.36959I$ $b = -1.17157 - 0.81956I$	$5.03237 - 4.82256I$	$-4.82716 + 7.18113I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.024434 - 0.693745I$ $a = 1.18639 - 2.36959I$ $b = -1.17157 + 0.81956I$	$5.03237 + 4.82256I$	$-4.82716 - 7.18113I$
$u = -0.001317 + 0.691952I$ $a = 0.85529 - 3.52300I$ $b = -0.835681 + 0.659362I$	$6.32991 + 0.54399I$	$-3.29943 - 0.17721I$
$u = -0.001317 - 0.691952I$ $a = 0.85529 + 3.52300I$ $b = -0.835681 - 0.659362I$	$6.32991 - 0.54399I$	$-3.29943 + 0.17721I$
$u = 1.280480 + 0.271970I$ $a = 1.44341 - 3.07056I$ $b = 0.866416 + 0.606863I$	$2.34431 - 4.02005I$	0
$u = 1.280480 - 0.271970I$ $a = 1.44341 + 3.07056I$ $b = 0.866416 - 0.606863I$	$2.34431 + 4.02005I$	0
$u = 1.278930 + 0.304729I$ $a = -0.58243 - 2.07900I$ $b = 0.885814 + 0.693929I$	$2.19424 - 8.34091I$	0
$u = 1.278930 - 0.304729I$ $a = -0.58243 + 2.07900I$ $b = 0.885814 - 0.693929I$	$2.19424 + 8.34091I$	0
$u = -1.291330 + 0.278909I$ $a = 1.05610 + 2.01348I$ $b = 1.22927 - 0.79308I$	$0.92503 + 8.33903I$	0
$u = -1.291330 - 0.278909I$ $a = 1.05610 - 2.01348I$ $b = 1.22927 + 0.79308I$	$0.92503 - 8.33903I$	0
$u = -0.642168 + 0.198301I$ $a = 0.265917 + 0.199592I$ $b = -0.798044 - 0.574498I$	$0.088768 - 0.449411I$	$-13.05283 - 1.45306I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.642168-0.198301I$ $a=\ \ 0.265917-0.199592I$ $b=-0.798044+0.574498I$	$0.088768+0.449411I$	$-13.05283+1.45306I$
$u=\ \ 1.327070+0.137247I$ $a=\ \ 0.857852-0.085963I$ $b=\ \ 1.006020-0.206204I$	$-5.49406-0.39217I$	0
$u=\ \ 1.327070-0.137247I$ $a=\ \ 0.857852+0.085963I$ $b=\ \ 1.006020+0.206204I$	$-5.49406+0.39217I$	0
$u=-1.304730+0.295079I$ $a=\ \ 0.591703+1.234260I$ $b=\ \ 0.566057-1.150080I$	$2.87894+5.75928I$	0
$u=-1.304730-0.295079I$ $a=\ \ 0.591703-1.234260I$ $b=\ \ 0.566057+1.150080I$	$2.87894-5.75928I$	0
$u=-1.307990+0.288818I$ $a=\ \ 0.545872+0.387828I$ $b=-0.375293-0.698799I$	$-1.24382+2.63179I$	0
$u=-1.307990-0.288818I$ $a=\ \ 0.545872-0.387828I$ $b=-0.375293+0.698799I$	$-1.24382-2.63179I$	0
$u=\ \ 0.293912+0.579535I$ $a=\ \ 0.55904+1.34017I$ $b=\ \ 0.431291-0.009036I$	$3.65162-1.53173I$	$-11.67260+4.52649I$
$u=\ \ 0.293912-0.579535I$ $a=\ \ 0.55904-1.34017I$ $b=\ \ 0.431291+0.009036I$	$3.65162+1.53173I$	$-11.67260-4.52649I$
$u=\ \ 1.356340+0.002377I$ $a=\ \ 0.509631-0.034649I$ $b=\ \ 0.453652-0.267196I$	$-5.69404-0.04855I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.356340 - 0.002377I$ $a = 0.509631 + 0.034649I$ $b = 0.453652 + 0.267196I$	$-5.69404 + 0.04855I$	0
$u = -1.345300 + 0.250381I$ $a = 1.28141 + 0.84426I$ $b = 1.143410 + 0.068518I$	$-6.80581 + 4.92030I$	0
$u = -1.345300 - 0.250381I$ $a = 1.28141 - 0.84426I$ $b = 1.143410 - 0.068518I$	$-6.80581 - 4.92030I$	0
$u = 1.328260 + 0.336809I$ $a = -0.030301 + 0.823161I$ $b = -0.522814 - 0.039632I$	$-1.36278 - 5.84823I$	0
$u = 1.328260 - 0.336809I$ $a = -0.030301 - 0.823161I$ $b = -0.522814 + 0.039632I$	$-1.36278 + 5.84823I$	0
$u = -1.372790 + 0.115216I$ $a = -1.61595 - 1.42202I$ $b = -1.029850 + 0.272400I$	$-8.54849 + 2.02896I$	0
$u = -1.372790 - 0.115216I$ $a = -1.61595 + 1.42202I$ $b = -1.029850 - 0.272400I$	$-8.54849 - 2.02896I$	0
$u = 1.346710 + 0.311323I$ $a = 0.917348 + 0.125384I$ $b = -0.508217 + 0.711957I$	$-1.61438 - 6.65221I$	0
$u = 1.346710 - 0.311323I$ $a = 0.917348 - 0.125384I$ $b = -0.508217 - 0.711957I$	$-1.61438 + 6.65221I$	0
$u = 0.145021 + 0.596292I$ $a = 0.025912 + 0.660063I$ $b = -1.070710 + 0.023694I$	$-2.09996 - 1.78711I$	$-13.9383 + 4.1525I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.145021 - 0.596292I$ $a = 0.025912 - 0.660063I$ $b = -1.070710 - 0.023694I$	$-2.09996 + 1.78711I$	$-13.9383 - 4.1525I$
$u = -1.371500 + 0.308022I$ $a = -1.38865 - 2.05729I$ $b = -1.050460 + 0.634451I$	$-3.16511 + 11.84220I$	0
$u = -1.371500 - 0.308022I$ $a = -1.38865 + 2.05729I$ $b = -1.050460 - 0.634451I$	$-3.16511 - 11.84220I$	0
$u = 1.381950 + 0.299040I$ $a = -0.710667 + 1.131330I$ $b = -1.360690 - 0.155764I$	$-4.22593 - 9.96730I$	0
$u = 1.381950 - 0.299040I$ $a = -0.710667 - 1.131330I$ $b = -1.360690 + 0.155764I$	$-4.22593 + 9.96730I$	0
$u = 1.39228 + 0.29608I$ $a = -0.89421 + 1.57092I$ $b = -1.099160 - 0.591306I$	$-3.29441 - 7.59371I$	0
$u = 1.39228 - 0.29608I$ $a = -0.89421 - 1.57092I$ $b = -1.099160 + 0.591306I$	$-3.29441 + 7.59371I$	0
$u = -1.38185 + 0.35584I$ $a = -1.005500 - 0.339688I$ $b = 0.563730 + 0.977366I$	$3.55514 + 12.26880I$	0
$u = -1.38185 - 0.35584I$ $a = -1.005500 + 0.339688I$ $b = 0.563730 - 0.977366I$	$3.55514 - 12.26880I$	0
$u = -1.43060 + 0.02201I$ $a = 1.40350 - 0.29695I$ $b = 0.985570 + 0.523302I$	$-7.03783 - 3.96216I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.43060-0.02201I$ $a=\ 1.40350+0.29695I$ $b=\ 0.985570-0.523302I$	$-7.03783+3.96216I$	0
$u=-1.44252+0.09911I$ $a=-0.082026+0.409806I$ $b=-0.360433-0.752094I$	$-2.63233+4.20108I$	0
$u=-1.44252-0.09911I$ $a=-0.082026-0.409806I$ $b=-0.360433+0.752094I$	$-2.63233-4.20108I$	0
$u=\ 1.39976+0.36294I$ $a=\ 0.89232-1.99894I$ $b=\ 1.123360+0.731271I$	$1.8123-18.4914I$	0
$u=\ 1.39976-0.36294I$ $a=\ 0.89232+1.99894I$ $b=\ 1.123360-0.731271I$	$1.8123+18.4914I$	0
$u=-1.42261+0.28681I$ $a=-0.818667+0.275420I$ $b=-0.746956-0.211530I$	$-1.90761+4.85839I$	0
$u=-1.42261-0.28681I$ $a=-0.818667-0.275420I$ $b=-0.746956+0.211530I$	$-1.90761-4.85839I$	0
$u=\ 1.45228+0.03095I$ $a=\ 1.099700-0.475549I$ $b=\ 1.213130+0.103574I$	$-7.86483+1.62494I$	0
$u=\ 1.45228-0.03095I$ $a=\ 1.099700+0.475549I$ $b=\ 1.213130-0.103574I$	$-7.86483-1.62494I$	0
$u=\ 1.39101+0.43159I$ $a=-0.595123+0.422615I$ $b=\ 0.803163-0.619507I$	$0.66548-3.77716I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.39101 - 0.43159I$ $a = -0.595123 - 0.422615I$ $b = 0.803163 + 0.619507I$	$0.66548 + 3.77716I$	0
$u = -1.43437 + 0.41491I$ $a = 0.67591 + 1.70892I$ $b = 0.897264 - 0.617532I$	$0.36776 + 8.63967I$	0
$u = -1.43437 - 0.41491I$ $a = 0.67591 - 1.70892I$ $b = 0.897264 + 0.617532I$	$0.36776 - 8.63967I$	0
$u = 1.52152 + 0.09850I$ $a = -0.897523 + 0.800823I$ $b = -1.079230 - 0.601792I$	$-4.63290 - 9.25180I$	0
$u = 1.52152 - 0.09850I$ $a = -0.897523 - 0.800823I$ $b = -1.079230 + 0.601792I$	$-4.63290 + 9.25180I$	0
$u = 0.292100 + 0.301100I$ $a = 0.91369 - 3.13908I$ $b = 0.910526 + 0.155742I$	$-3.27320 - 0.42810I$	$-16.9385 + 10.2974I$
$u = 0.292100 - 0.301100I$ $a = 0.91369 + 3.13908I$ $b = 0.910526 - 0.155742I$	$-3.27320 + 0.42810I$	$-16.9385 - 10.2974I$
$u = -0.326047$ $a = -0.389959$ $b = -0.301962$	-0.523873	-18.7970
$u = 0.145999 + 0.108528I$ $a = -4.58215 + 1.75339I$ $b = 0.564240 + 0.697745I$	$3.91036 - 0.86023I$	$-7.46457 + 3.39085I$
$u = 0.145999 - 0.108528I$ $a = -4.58215 - 1.75339I$ $b = 0.564240 - 0.697745I$	$3.91036 + 0.86023I$	$-7.46457 - 3.39085I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.0330393 + 0.1023890I$		
$a = -6.81838 - 1.90836I$	$2.54221 + 4.42210I$	$-9.57210 - 0.19279I$
$b = 1.037250 - 0.662214I$		
$u = 0.0330393 - 0.1023890I$		
$a = -6.81838 + 1.90836I$	$2.54221 - 4.42210I$	$-9.57210 + 0.19279I$
$b = 1.037250 + 0.662214I$		

II.

$\boldsymbol{I_2^u = \langle u^{20}-8u^{18}+\cdots+b-1,\ 2u^{20}-u^{19}+\cdots+a-7,\ u^{21}-10u^{19}+\cdots-7u+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u^3+u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^2+1 \\ -u^4+2u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -2u^{20}+u^{19}+\cdots+8u+7 \\ -u^{20}+8u^{18}+\cdots-u+1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^{20}+u^{19}+\cdots+7u-7 \\ -2u^{19}+18u^{17}+\cdots-12u+1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^{20}-u^{19}+\cdots-5u-6 \\ -2u^{19}+18u^{17}+\cdots-12u+1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{20}-u^{19}+\cdots-3u-7 \\ -2u^{20}+17u^{18}+\cdots+4u-1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^{20}+9u^{18}+\cdots-2u^2+3 \\ -2u^{20}-u^{19}+\cdots-5u+1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^5-2u^3+u \\ u^7-3u^5+2u^3+u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{20}-u^{19}+\cdots-4u-6 \\ -2u^{19}+18u^{17}+\cdots-11u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$= -6u^{20}-u^{19}+49u^{18}+7u^{17}-161u^{16}-26u^{15}+245u^{14}+65u^{13}-108u^{12}-103u^{11}-144u^{10}+76u^9+146u^8+14u^7+28u^6-48u^5-35u^4+6u^3-23u^2+8u-9$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} - 9u^{20} + \cdots + 9u - 1$
c_2	$u^{21} - u^{20} + \cdots + u - 1$
c_3, c_4	$u^{21} - 10u^{19} + \cdots - 7u + 1$
c_5	$u^{21} + 12u^{19} + \cdots - 12u - 1$
c_6	$u^{21} + u^{20} + \cdots + u + 1$
c_7	$u^{21} - u^{20} + \cdots + u - 1$
c_8	$u^{21} + 6u^{19} + \cdots - 7u - 1$
c_9	$u^{21} - 10u^{19} + \cdots - 7u - 1$
c_{10}	$u^{21} + 3u^{20} + \cdots - 3u - 1$
c_{11}	$u^{21} + 12u^{19} + \cdots - 12u + 1$
c_{12}	$u^{21} + u^{20} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} + 15y^{20} + \cdots - 11y - 1$
c_2, c_6	$y^{21} - 9y^{20} + \cdots + 9y - 1$
c_3, c_4, c_9	$y^{21} - 20y^{20} + \cdots + 45y - 1$
c_5, c_{11}	$y^{21} + 24y^{20} + \cdots + 108y - 1$
c_7	$y^{21} + 3y^{20} + \cdots - 3y - 1$
c_8	$y^{21} + 12y^{20} + \cdots + 43y - 1$
c_{10}	$y^{21} - y^{20} + \cdots - 3y - 1$
c_{12}	$y^{21} + 3y^{20} + \cdots - 3y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.080158+0.819281I$ $a=-0.92417+2.10251I$ $b=\ \ 0.801730-0.694815I$	$5.43744+2.72021I$	$-5.85258-2.88441I$
$u=-0.080158-0.819281I$ $a=-0.92417-2.10251I$ $b=\ \ 0.801730+0.694815I$	$5.43744-2.72021I$	$-5.85258+2.88441I$
$u=-1.197940+0.191741I$ $a=\ \ 0.444872-0.624696I$ $b=\ \ 0.550977-0.566678I$	$1.68891+2.22060I$	$-8.80097-2.83222I$
$u=-1.197940-0.191741I$ $a=\ \ 0.444872+0.624696I$ $b=\ \ 0.550977+0.566678I$	$1.68891-2.22060I$	$-8.80097+2.83222I$
$u=-1.203790+0.258090I$ $a=\ \ 1.52634+0.84019I$ $b=-0.655629-0.718143I$	$2.22236+1.09039I$	$-9.47843-0.52625I$
$u=-1.203790-0.258090I$ $a=\ \ 1.52634-0.84019I$ $b=-0.655629+0.718143I$	$2.22236-1.09039I$	$-9.47843+0.52625I$
$u=-0.279520+0.716124I$ $a=\ \ 0.004567+0.470314I$ $b=-0.649928-0.490023I$	$4.33403+0.74871I$	$-4.95333+0.72657I$
$u=-0.279520-0.716124I$ $a=\ \ 0.004567-0.470314I$ $b=-0.649928+0.490023I$	$4.33403-0.74871I$	$-4.95333-0.72657I$
$u=\ \ 1.236490+0.151582I$ $a=\ \ 0.489421+0.175918I$ $b=\ \ 1.117210-0.719710I$	$-0.23287+3.04198I$	$-10.09826-2.24720I$
$u=\ \ 1.236490-0.151582I$ $a=\ \ 0.489421-0.175918I$ $b=\ \ 1.117210+0.719710I$	$-0.23287-3.04198I$	$-10.09826+2.24720I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.28646$ $a = 0.642931$ $b = -0.717013$	-6.73511	-26.5190
$u = 1.257160 + 0.319824I$ $a = -0.30625 + 1.91883I$ $b = -0.919180 - 0.765143I$	$1.41444 - 6.86561I$	$-10.38570 + 5.84031I$
$u = 1.257160 - 0.319824I$ $a = -0.30625 - 1.91883I$ $b = -0.919180 + 0.765143I$	$1.41444 + 6.86561I$	$-10.38570 - 5.84031I$
$u = 0.277781 + 0.545491I$ $a = 0.27455 + 1.66102I$ $b = -1.082610 - 0.621058I$	$2.75769 - 5.29661I$	$-7.07327 + 8.30022I$
$u = 0.277781 - 0.545491I$ $a = 0.27455 - 1.66102I$ $b = -1.082610 + 0.621058I$	$2.75769 + 5.29661I$	$-7.07327 - 8.30022I$
$u = -1.39075$ $a = -1.76615$ $b = -1.05019$	-8.18419	-19.7740
$u = 1.39046 + 0.35637I$ $a = 0.0576196 - 0.0650527I$ $b = 0.659728 - 0.374097I$	$-0.94531 - 4.82332I$	$-10.09113 + 2.96370I$
$u = 1.39046 - 0.35637I$ $a = 0.0576196 + 0.0650527I$ $b = 0.659728 + 0.374097I$	$-0.94531 + 4.82332I$	$-10.09113 - 2.96370I$
$u = -1.42215 + 0.28172I$ $a = 0.91029 + 1.24044I$ $b = 1.130400 - 0.517462I$	$-2.78320 + 8.55534I$	$-11.4594 - 8.6819I$
$u = -1.42215 - 0.28172I$ $a = 0.91029 - 1.24044I$ $b = 1.130400 + 0.517462I$	$-2.78320 - 8.55534I$	$-11.4594 + 8.6819I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u =$ 0.147630		
$a =$ 8.16872	-2.99807	-8.32060
$b =$ 0.861806		

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^{21}-9u^{20}+\cdots+9u-1)(u^{122}+46u^{121}+\cdots+56468u+841)$
c_2	$(u^{21}-u^{20}+\cdots+u-1)(u^{122}-2u^{121}+\cdots+18u+29)$
c_3, c_4	$(u^{21}-10u^{19}+\cdots-7u+1)(u^{122}-u^{121}+\cdots+14u-1)$
c_5	$(u^{21}+12u^{19}+\cdots-12u-1)(u^{122}-u^{121}+\cdots+35u-1)$
c_6	$(u^{21}+u^{20}+\cdots+u+1)(u^{122}-2u^{121}+\cdots+18u+29)$
c_7	$(u^{21}-u^{20}+\cdots+u-1)(u^{122}+8u^{121}+\cdots-298520u-40207)$
c_8	$(u^{21}+6u^{19}+\cdots-7u-1)(u^{122}+3u^{121}+\cdots-10052u+949)$
c_9	$(u^{21}-10u^{19}+\cdots-7u-1)(u^{122}-u^{121}+\cdots+14u-1)$
c_{10}	$(u^{21}+3u^{20}+\cdots-3u-1)(u^{122}-20u^{121}+\cdots-18800u+1457)$
c_{11}	$(u^{21}+12u^{19}+\cdots-12u+1)(u^{122}-u^{121}+\cdots+35u-1)$
c_{12}	$(u^{21}+u^{20}+\cdots+u+1)(u^{122}-2u^{121}+\cdots-1232502u-100871)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^{21}+15y^{20}+\cdots-11y-1)$ $\cdot(y^{122}+70y^{121}+\cdots-130799392y+707281)$
c_2, c_6	$(y^{21}-9y^{20}+\cdots+9y-1)(y^{122}-46y^{121}+\cdots-56468y+841)$
c_3, c_4, c_9	$(y^{21}-20y^{20}+\cdots+45y-1)(y^{122}-105y^{121}+\cdots+116y+1)$
c_5, c_{11}	$(y^{21}+24y^{20}+\cdots+108y-1)(y^{122}+99y^{121}+\cdots+173y+1)$
c_7	$(y^{21}+3y^{20}+\cdots-3y-1)$ $\cdot(y^{122}+34y^{121}+\cdots+9443298764y+1616602849)$
c_8	$(y^{21}+12y^{20}+\cdots+43y-1)$ $\cdot(y^{122}+59y^{121}+\cdots+89191938y+900601)$
c_{10}	$(y^{21}-y^{20}+\cdots-3y-1)$ $\cdot(y^{122}+18y^{121}+\cdots-67920452y+2122849)$
c_{12}	$(y^{21}+3y^{20}+\cdots-3y-1)$ $\cdot(y^{122}+30y^{121}+\cdots+188566629184y+10174958641)$