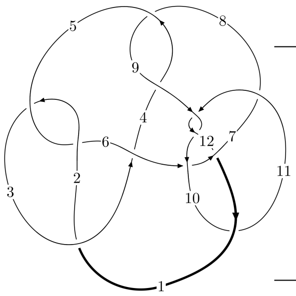
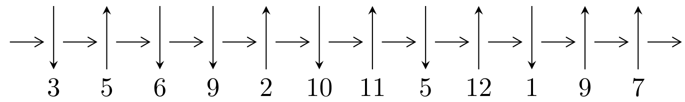
$12n_{0022}$ ($K12n_{0022}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.22558 \times 10^{224} u^{83} + 1.62605 \times 10^{225} u^{82} + \cdots + 2.32318 \times 10^{225} b + 2.05431 \times 10^{225},$$
$$1.34240 \times 10^{225} u^{83} + 9.14747 \times 10^{225} u^{82} + \cdots + 2.32318 \times 10^{225} a + 1.22489 \times 10^{225},\ u^{84} + 7u^{83} + \cdots + 19u$$
$$I_2^u = \langle -u^4 b - u^3 b + 2u^4 + u^2 b + 4u^3 + b^2 - b - u + 2,\ a,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$$
$$I_3^u = \langle -2a^3 + b - 5a - 1,\ a^4 - a^3 + 3a^2 - 2a + 1,\ u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 98 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. $\boldsymbol{I_1^u = \langle 2.23 \times 10^{224} u^{83} + 1.63 \times 10^{225} u^{82} + \cdots + 2.32 \times 10^{225} b + 2.05 \times 10^{225},\ 1.34 \times 10^{225} u^{83} + 9.15 \times 10^{225} u^{82} + \cdots + 2.32 \times 10^{225} a + 1.22 \times 10^{225},\ u^{84} + 7u^{83} + \cdots + 19u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.577827u^{83} - 3.93748u^{82} + \cdots - 101.647u - 0.527248 \\ -0.0957989u^{83} - 0.699925u^{82} + \cdots - 13.0229u - 0.884264 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.577827u^{83} - 3.93748u^{82} + \cdots - 101.647u - 0.527248 \\ -0.0821773u^{83} - 0.611145u^{82} + \cdots - 11.5617u - 0.776950 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.982090u^{83} + 6.78620u^{82} + \cdots + 125.606u + 9.18920 \\ 0.0715056u^{83} + 0.535672u^{82} + \cdots + 11.4628u + 1.15633 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.910584u^{83} + 6.25053u^{82} + \cdots + 114.143u + 8.03287 \\ 0.0715056u^{83} + 0.535672u^{82} + \cdots + 11.4628u + 1.15633 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.222432u^{83} + 1.54054u^{82} + \cdots + 4.65720u + 4.57953 \\ 0.0211304u^{83} + 0.0895277u^{82} + \cdots - 0.444083u + 0.205948 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.860405u^{83} + 5.98086u^{82} + \cdots + 112.669u + 7.91304 \\ 0.116676u^{83} + 0.831091u^{82} + \cdots + 11.4882u + 1.11809 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.337224u^{83} - 2.15359u^{82} + \cdots - 80.3989u + 4.87290 \\ -0.0485546u^{83} - 0.398974u^{82} + \cdots - 10.5681u - 0.387718 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.01424u^{83} - 6.93488u^{82} + \cdots - 144.713u - 6.43592 \\ -0.171241u^{83} - 1.16510u^{82} + \cdots - 12.7424u - 1.08398 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.661245u^{83} - 4.69918u^{82} + \cdots - 96.1927u - 11.9327$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{84} + 43u^{83} + \cdots - 18u + 1$
c_2, c_5	$u^{84} + 7u^{83} + \cdots + 8u + 1$
c_3	$u^{84} - 7u^{83} + \cdots + 18564u + 47236$
c_4, c_8	$u^{84} + 2u^{83} + \cdots + 3072u + 1024$
c_6	$u^{84} + u^{83} + \cdots - 1664u + 101$
c_7	$u^{84} - 5u^{83} + \cdots + 78942u + 33589$
c_9, c_{11}	$u^{84} + 7u^{83} + \cdots + 19u + 1$
c_{10}	$u^{84} - 13u^{83} + \cdots + 104u + 16$
c_{12}	$u^{84} + 4u^{83} + \cdots + 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{84} + 3y^{83} + \cdots - 590y + 1$
c_2, c_5	$y^{84} + 43y^{83} + \cdots - 18y + 1$
c_3	$y^{84} - 37y^{83} + \cdots - 5800852456y + 2231239696$
c_4, c_8	$y^{84} - 50y^{83} + \cdots - 22020096y + 1048576$
c_6	$y^{84} + 69y^{83} + \cdots - 1278338y + 10201$
c_7	$y^{84} + 85y^{83} + \cdots - 18778069822y + 1128220921$
c_9, c_{11}	$y^{84} - 49y^{83} + \cdots - 211y + 1$
c_{10}	$y^{84} - 21y^{83} + \cdots - 19776y + 256$
c_{12}	$y^{84} - 24y^{83} + \cdots + 11y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.972442 + 0.213795I$ $a = -1.091770 + 0.371559I$ $b = 0.06522 + 2.55411I$	$-0.637274 + 0.732588I$	0
$u = 0.972442 - 0.213795I$ $a = -1.091770 - 0.371559I$ $b = 0.06522 - 2.55411I$	$-0.637274 - 0.732588I$	0
$u = 1.008760 + 0.011115I$ $a = -0.356315 - 0.506244I$ $b = -4.87249 - 4.18408I$	$1.40295 - 1.45862I$	0
$u = 1.008760 - 0.011115I$ $a = -0.356315 + 0.506244I$ $b = -4.87249 + 4.18408I$	$1.40295 + 1.45862I$	0
$u = 0.910290 + 0.355435I$ $a = 1.315660 - 0.399016I$ $b = 0.02342 - 2.05906I$	$-4.18720 - 3.29608I$	0
$u = 0.910290 - 0.355435I$ $a = 1.315660 + 0.399016I$ $b = 0.02342 + 2.05906I$	$-4.18720 + 3.29608I$	0
$u = -0.320871 + 0.909040I$ $a = -1.114210 + 0.444929I$ $b = -0.125891 + 0.751460I$	$-3.15026 + 4.66896I$	0
$u = -0.320871 - 0.909040I$ $a = -1.114210 - 0.444929I$ $b = -0.125891 - 0.751460I$	$-3.15026 - 4.66896I$	0
$u = -0.955077 + 0.022703I$ $a = 0.04180 + 1.68922I$ $b = -0.014974 + 0.435556I$	$8.34326 - 3.21240I$	0
$u = -0.955077 - 0.022703I$ $a = 0.04180 - 1.68922I$ $b = -0.014974 - 0.435556I$	$8.34326 + 3.21240I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.924612 + 0.497424I$ $a = 0.734134 - 1.203290I$ $b = 0.236759 - 0.476931I$	$-1.47667 - 1.22264I$	0
$u = -0.924612 - 0.497424I$ $a = 0.734134 + 1.203290I$ $b = 0.236759 + 0.476931I$	$-1.47667 + 1.22264I$	0
$u = 0.331216 + 0.881361I$ $a = 0.676599 - 0.353102I$ $b = -0.240051 - 0.675771I$	$-0.20954 + 2.08673I$	0
$u = 0.331216 - 0.881361I$ $a = 0.676599 + 0.353102I$ $b = -0.240051 + 0.675771I$	$-0.20954 - 2.08673I$	0
$u = -0.617703 + 0.685861I$ $a = -1.34773 - 1.23740I$ $b = 0.162497 - 1.031290I$	$-8.44334 - 3.92581I$	0
$u = -0.617703 - 0.685861I$ $a = -1.34773 + 1.23740I$ $b = 0.162497 + 1.031290I$	$-8.44334 + 3.92581I$	0
$u = 1.079180 + 0.258468I$ $a = 1.109110 - 0.542042I$ $b = 0.36270 - 2.45765I$	$-3.79074 + 5.18593I$	0
$u = 1.079180 - 0.258468I$ $a = 1.109110 + 0.542042I$ $b = 0.36270 + 2.45765I$	$-3.79074 - 5.18593I$	0
$u = 0.993301 + 0.517113I$ $a = -0.476198 - 0.466599I$ $b = 1.093620 - 0.529398I$	$1.55672 + 3.93406I$	0
$u = 0.993301 - 0.517113I$ $a = -0.476198 + 0.466599I$ $b = 1.093620 + 0.529398I$	$1.55672 - 3.93406I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.030100 + 0.473272I$ $a = 0.752223 + 1.062450I$ $b = -0.26649 + 1.44063I$	$-2.21135 - 4.59052I$	0
$u = -1.030100 - 0.473272I$ $a = 0.752223 - 1.062450I$ $b = -0.26649 - 1.44063I$	$-2.21135 + 4.59052I$	0
$u = 0.858393 + 0.054295I$ $a = -0.165809 - 0.777617I$ $b = 2.21383 - 0.21187I$	$0.83780 - 1.60534I$	$11.55428 + 0.I$
$u = 0.858393 - 0.054295I$ $a = -0.165809 + 0.777617I$ $b = 2.21383 + 0.21187I$	$0.83780 + 1.60534I$	$11.55428 + 0.I$
$u = -1.058300 + 0.459470I$ $a = 1.025540 + 0.596498I$ $b = -1.05338 + 1.07754I$	$1.64539 - 2.41566I$	0
$u = -1.058300 - 0.459470I$ $a = 1.025540 - 0.596498I$ $b = -1.05338 - 1.07754I$	$1.64539 + 2.41566I$	0
$u = 1.142540 + 0.177564I$ $a = -0.337203 + 0.263085I$ $b = 3.94715 + 2.02247I$	$2.34989 - 1.68894I$	0
$u = 1.142540 - 0.177564I$ $a = -0.337203 - 0.263085I$ $b = 3.94715 - 2.02247I$	$2.34989 + 1.68894I$	0
$u = -0.935581 + 0.684978I$ $a = -0.673974 - 1.122900I$ $b = 0.10781 - 1.52966I$	$-7.54628 - 1.28985I$	0
$u = -0.935581 - 0.684978I$ $a = -0.673974 + 1.122900I$ $b = 0.10781 + 1.52966I$	$-7.54628 + 1.28985I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.646868 + 0.523459I$ $a = -1.29135 + 0.69575I$ $b = -0.171529 + 0.706893I$	$-2.28832 - 2.96266I$	0
$u = -0.646868 - 0.523459I$ $a = -1.29135 - 0.69575I$ $b = -0.171529 - 0.706893I$	$-2.28832 + 2.96266I$	0
$u = -1.126650 + 0.469056I$ $a = -0.586175 + 0.912908I$ $b = -0.242673 + 0.366478I$	$2.64295 - 5.32501I$	0
$u = -1.126650 - 0.469056I$ $a = -0.586175 - 0.912908I$ $b = -0.242673 - 0.366478I$	$2.64295 + 5.32501I$	0
$u = -1.142420 + 0.498662I$ $a = -0.708361 - 1.021390I$ $b = 0.32261 - 1.53994I$	$-4.74130 - 10.12840I$	0
$u = -1.142420 - 0.498662I$ $a = -0.708361 + 1.021390I$ $b = 0.32261 + 1.53994I$	$-4.74130 + 10.12840I$	0
$u = 1.194600 + 0.385549I$ $a = 0.359098 - 0.436451I$ $b = -2.04003 - 1.89368I$	$2.92160 + 2.77404I$	0
$u = 1.194600 - 0.385549I$ $a = 0.359098 + 0.436451I$ $b = -2.04003 + 1.89368I$	$2.92160 - 2.77404I$	0
$u = -0.226720 + 1.234900I$ $a = -0.522923 - 0.990090I$ $b = -0.02217 - 1.67883I$	$-4.54665 + 5.72043I$	0
$u = -0.226720 - 1.234900I$ $a = -0.522923 + 0.990090I$ $b = -0.02217 + 1.67883I$	$-4.54665 - 5.72043I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.153780 + 0.515980I$ $a = -0.859747 - 0.652054I$ $b = 1.11954 - 1.39330I$	$2.03077 - 8.41785I$	0
$u = -1.153780 - 0.515980I$ $a = -0.859747 + 0.652054I$ $b = 1.11954 + 1.39330I$	$2.03077 + 8.41785I$	0
$u = -0.190457 + 0.689630I$ $a = -0.255146 - 1.215230I$ $b = -0.34868 - 1.70071I$	$-0.72347 + 3.79694I$	$-4.78687 - 5.26590I$
$u = -0.190457 - 0.689630I$ $a = -0.255146 + 1.215230I$ $b = -0.34868 + 1.70071I$	$-0.72347 - 3.79694I$	$-4.78687 + 5.26590I$
$u = -0.280053 + 0.652017I$ $a = -1.46834 - 1.72562I$ $b = -0.225602 - 0.904495I$	$-7.27588 + 5.64053I$	$-4.23717 - 1.44618I$
$u = -0.280053 - 0.652017I$ $a = -1.46834 + 1.72562I$ $b = -0.225602 + 0.904495I$	$-7.27588 - 5.64053I$	$-4.23717 + 1.44618I$
$u = -0.413220 + 1.230540I$ $a = 0.552234 + 1.040430I$ $b = 0.04555 + 1.65819I$	$-9.11776 + 1.81197I$	0
$u = -0.413220 - 1.230540I$ $a = 0.552234 - 1.040430I$ $b = 0.04555 - 1.65819I$	$-9.11776 - 1.81197I$	0
$u = 1.258140 + 0.371030I$ $a = 0.447345 + 0.321206I$ $b = -0.744087 + 0.186455I$	$2.97676 + 0.06912I$	0
$u = 1.258140 - 0.371030I$ $a = 0.447345 - 0.321206I$ $b = -0.744087 - 0.186455I$	$2.97676 - 0.06912I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.173850 + 0.596639I$ $a = 0.760441 - 0.817940I$ $b = 0.321304 - 0.359548I$	$-0.55121 - 10.15270I$	0
$u = -1.173850 - 0.596639I$ $a = 0.760441 + 0.817940I$ $b = 0.321304 + 0.359548I$	$-0.55121 + 10.15270I$	0
$u = -0.432278 + 0.520555I$ $a = 1.72365 + 1.42967I$ $b = 0.019219 + 0.763148I$	$-3.91699 + 0.49402I$	$-1.75716 + 2.00639I$
$u = -0.432278 - 0.520555I$ $a = 1.72365 - 1.42967I$ $b = 0.019219 - 0.763148I$	$-3.91699 - 0.49402I$	$-1.75716 - 2.00639I$
$u = 1.35490$ $a = 0.339763$ $b = -0.449694$	2.55442	0
$u = -0.198732 + 1.355280I$ $a = 0.556728 + 0.968007I$ $b = 0.00784 + 1.65359I$	$-7.54281 + 10.87570I$	0
$u = -0.198732 - 1.355280I$ $a = 0.556728 - 0.968007I$ $b = 0.00784 - 1.65359I$	$-7.54281 - 10.87570I$	0
$u = -1.24156 + 0.72441I$ $a = 0.727402 + 0.901724I$ $b = -0.73376 + 1.744424I$	$-6.44809 - 8.61020I$	0
$u = -1.24156 - 0.72441I$ $a = 0.727402 - 0.901724I$ $b = -0.73376 - 1.744424I$	$-6.44809 + 8.61020I$	0
$u = -1.44705 + 0.17137I$ $a = 0.315816 + 0.194686I$ $b = 0.118682 + 0.118584I$	$5.61123 - 2.65441I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.44705 - 0.17137I$ $a = 0.315816 - 0.194686I$ $b = 0.118682 - 0.118584I$	$5.61123 + 2.65441I$	0
$u = 1.18182 + 0.87280I$ $a = 0.462410 - 0.603044I$ $b = -0.84076 - 1.49220I$	$0.99043 + 3.63889I$	0
$u = 1.18182 - 0.87280I$ $a = 0.462410 + 0.603044I$ $b = -0.84076 + 1.49220I$	$0.99043 - 3.63889I$	0
$u = -1.45343 + 0.26296I$ $a = -0.344788 + 0.135869I$ $b = -0.165511 + 0.031545I$	$5.71423 - 6.06522I$	0
$u = -1.45343 - 0.26296I$ $a = -0.344788 - 0.135869I$ $b = -0.165511 - 0.031545I$	$5.71423 + 6.06522I$	0
$u = -1.32402 + 0.65852I$ $a = -0.637359 - 0.834221I$ $b = 0.86308 - 1.90054I$	$-1.06531 - 12.31450I$	0
$u = -1.32402 - 0.65852I$ $a = -0.637359 + 0.834221I$ $b = 0.86308 + 1.90054I$	$-1.06531 + 12.31450I$	0
$u = 0.99893 + 1.09943I$ $a = -0.550292 + 0.618639I$ $b = 0.56906 + 1.29599I$	$-2.69617 + 0.11948I$	0
$u = 0.99893 - 1.09943I$ $a = -0.550292 - 0.618639I$ $b = 0.56906 - 1.29599I$	$-2.69617 - 0.11948I$	0
$u = -0.383297 + 0.340658I$ $a = 0.66058 + 1.72839I$ $b = 0.333450 + 1.212380I$	$-0.303408 - 1.335140I$	$-3.78742 + 3.57340I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.383297-0.340658I$ $a=\ 0.66058-1.72839I$ $b=\ 0.333450-1.212380I$	$-0.303408+1.335140I$	$-3.78742-3.57340I$
$u=-1.37417+0.68442I$ $a=\ 0.588585+0.869316I$ $b=-0.79291+1.99045I$	$-3.7955-17.8954I$	0
$u=-1.37417-0.68442I$ $a=\ 0.588585-0.869316I$ $b=-0.79291-1.99045I$	$-3.7955+17.8954I$	0
$u=-0.056966+0.445178I$ $a=\ 1.48669+0.28338I$ $b=\ 0.203441-0.603272I$	$-0.081645+1.388350I$	$-0.20547-3.77437I$
$u=-0.056966-0.445178I$ $a=\ 1.48669-0.28338I$ $b=\ 0.203441+0.603272I$	$-0.081645-1.388350I$	$-0.20547+3.77437I$
$u=\ 1.55444$ $a=\ 0.508397$ $b=-0.418678$	2.51357	0
$u=\ 1.30994+1.00098I$ $a=-0.459489+0.660570I$ $b=\ 0.66060+1.60930I$	$-1.81006+8.25159I$	0
$u=\ 1.30994-1.00098I$ $a=-0.459489-0.660570I$ $b=\ 0.66060-1.60930I$	$-1.81006-8.25159I$	0
$u=\ 0.172995+0.034028I$ $a=-1.87202+3.59277I$ $b=\ 0.345343-0.709443I$	$-0.194651+1.319340I$	$-1.46532-4.00362I$
$u=\ 0.172995-0.034028I$ $a=-1.87202-3.59277I$ $b=\ 0.345343+0.709443I$	$-0.194651-1.319340I$	$-1.46532+4.00362I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.82009 + 0.15092I$ $a = -0.657590 - 0.068438I$ $b = 0.287435 - 0.079406I$	$-0.33247 - 3.91395I$	0
$u = 1.82009 - 0.15092I$ $a = -0.657590 + 0.068438I$ $b = 0.287435 + 0.079406I$	$-0.33247 + 3.91395I$	0
$u = -0.0795493 + 0.0409515I$ $a = 7.05665 - 2.72768I$ $b = 0.405023 - 0.635618I$	$-0.176677 + 1.378470I$	$-2.64856 - 4.43072I$
$u = -0.0795493 - 0.0409515I$ $a = 7.05665 + 2.72768I$ $b = 0.405023 + 0.635618I$	$-0.176677 - 1.378470I$	$-2.64856 + 4.43072I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u^4b + 5u^3b - u^4 + 9u^2b + u^3 - 6bu - 2u^2 + 6b - 7u + 3$

(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, c_{10}	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)^2$
c_7, c_9	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)^2$
c_{11}	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)^2$
c_{12}	$(u^5 - 3u^4 + 4u^3 - u^2 - u + 1)^2$

(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, c_{10}	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^2$
c_7, c_9, c_{11}	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^2$
c_{12}	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 0$ $b = 1.76091 + 3.04998I$	$2.40108 - 2.02988I$	$-2.76075 + 10.60420I$
$u = 1.21774$ $a = 0$ $b = 1.76091 - 3.04998I$	$2.40108 + 2.02988I$	$-2.76075 - 10.60420I$
$u = 0.309916 + 0.549911I$ $a = 0$ $b = 0.864485 + 0.518603I$	$0.329100 - 0.499304I$	$2.01870 - 2.82203I$
$u = 0.309916 + 0.549911I$ $a = 0$ $b = 0.016881 - 1.007970I$	$0.32910 + 3.56046I$	$1.95395 - 6.01185I$
$u = 0.309916 - 0.549911I$ $a = 0$ $b = 0.864485 - 0.518603I$	$0.329100 + 0.499304I$	$2.01870 + 2.82203I$
$u = 0.309916 - 0.549911I$ $a = 0$ $b = 0.016881 + 1.007970I$	$0.32910 - 3.56046I$	$1.95395 + 6.01185I$
$u = -1.41878 + 0.21917I$ $a = 0$ $b = 0.369732 - 0.377747I$	$5.87256 - 6.43072I$	$6.8570 + 13.9114I$
$u = -1.41878 + 0.21917I$ $a = 0$ $b = -0.512005 - 0.131324I$	$5.87256 - 2.37095I$	$9.93110 - 5.20350I$
$u = -1.41878 - 0.21917I$ $a = 0$ $b = 0.369732 + 0.377747I$	$5.87256 + 6.43072I$	$6.8570 - 13.9114I$
$u = -1.41878 - 0.21917I$ $a = 0$ $b = -0.512005 + 0.131324I$	$5.87256 + 2.37095I$	$9.93110 + 5.20350I$

III. $I_3^u = \langle -2a^3 + b - 5a - 1,\ a^4 - a^3 + 3a^2 - 2a + 1,\ u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -15a^3 + 3a^2 - 46a + 36$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4, c_8	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_2, c_5	$y^4 + y^3 + 3y^2 + 2y + 1$
c_3	$y^4 + 9y^3 + 31y^2 + 19y + 4$
c_6, c_7	$y^4 + 10y^3 + 31y^2 - 11y + 1$
c_9, c_{11}	$(y-1)^4$
c_{10}	y^4
c_{12}	$y^4 - 11y^3 + 31y^2 + 10y + 1$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	$0.395123 + 0.506844I$	$1.43393 - 1.41510I$	$21.1644 - 23.7210I$
$b =$	$2.48997 + 2.74859I$		
$u =$	1.00000		
$a =$	$0.395123 - 0.506844I$	$1.43393 + 1.41510I$	$21.1644 + 23.7210I$
$b =$	$2.48997 - 2.74859I$		
$u =$	1.00000		
$a =$	$0.10488 + 1.55249I$	$8.43568 - 3.16396I$	$35.3356 - 15.0782I$
$b =$	$0.010029 + 0.381188I$		
$u =$	1.00000		
$a =$	$0.10488 - 1.55249I$	$8.43568 + 3.16396I$	$35.3356 + 15.0782I$
$b =$	$0.010029 - 0.381188I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^5)(u^4-u^3+3u^2-2u+1)(u^{84}+43u^{83}+\cdots-18u+1)$
c_2	$((u^2+u+1)^5)(u^4-u^3+u^2+1)(u^{84}+7u^{83}+\cdots+8u+1)$
c_3	$(u^2-u+1)^5(u^4+u^3+5u^2-u+2)$ $\cdot(u^{84}-7u^{83}+\cdots+18564u+47236)$
c_4	$u^{10}(u^4-u^3+3u^2-2u+1)(u^{84}+2u^{83}+\cdots+3072u+1024)$
c_5	$((u^2-u+1)^5)(u^4+u^3+u^2+1)(u^{84}+7u^{83}+\cdots+8u+1)$
c_6	$(u^4+2u^3+7u^2+5u+1)(u^5+u^4+2u^3+u^2+u+1)^2$ $\cdot(u^{84}+u^{83}+\cdots-1664u+101)$
c_7	$(u^4+2u^3+7u^2+5u+1)(u^5-u^4-2u^3+u^2+u+1)^2$ $\cdot(u^{84}-5u^{83}+\cdots+78942u+33589)$
c_8	$u^{10}(u^4+u^3+3u^2+2u+1)(u^{84}+2u^{83}+\cdots+3072u+1024)$
c_9	$((u+1)^4)(u^5-u^4+\cdots+u+1)^2(u^{84}+7u^{83}+\cdots+19u+1)$
c_{10}	$u^4(u^5+u^4+\cdots+u+1)^2(u^{84}-13u^{83}+\cdots+104u+16)$
c_{11}	$((u-1)^4)(u^5+u^4+\cdots+u-1)^2(u^{84}+7u^{83}+\cdots+19u+1)$
c_{12}	$(u^4+5u^3+7u^2+2u+1)(u^5-3u^4+4u^3-u^2-u+1)^2$ $\cdot(u^{84}+4u^{83}+\cdots+3u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^5)(y^4+5y^3+\cdots+2y+1)(y^{84}+3y^{83}+\cdots-590y+1)$
c_2, c_5	$((y^2+y+1)^5)(y^4+y^3+3y^2+2y+1)(y^{84}+43y^{83}+\cdots-18y+1)$
c_3	$(y^2+y+1)^5(y^4+9y^3+31y^2+19y+4)$ $\cdot(y^{84}-37y^{83}+\cdots-5800852456y+2231239696)$
c_4, c_8	$y^{10}(y^4+5y^3+7y^2+2y+1)$ $\cdot(y^{84}-50y^{83}+\cdots-22020096y+1048576)$
c_6	$(y^4+10y^3+31y^2-11y+1)(y^5+3y^4+4y^3+y^2-y-1)^2$ $\cdot(y^{84}+69y^{83}+\cdots-1278338y+10201)$
c_7	$(y^4+10y^3+31y^2-11y+1)(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^{84}+85y^{83}+\cdots-18778069822y+1128220921)$
c_9, c_{11}	$(y-1)^4(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^{84}-49y^{83}+\cdots-211y+1)$
c_{10}	$y^4(y^5+3y^4+\cdots-y-1)^2(y^{84}-21y^{83}+\cdots-19776y+256)$
c_{12}	$(y^4-11y^3+31y^2+10y+1)(y^5-y^4+8y^3-3y^2+3y-1)^2$ $\cdot(y^{84}-24y^{83}+\cdots+11y+1)$