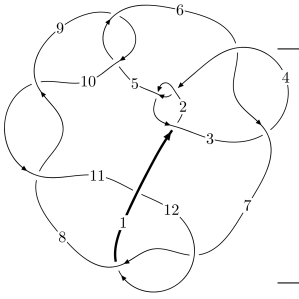
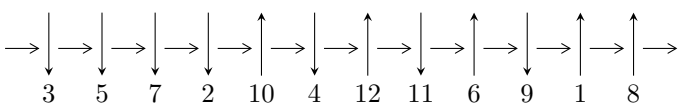
$12a_{0054}$ $(K12a_{0054})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 1.70479 \times 10^{114} u^{95} - 2.20755 \times 10^{114} u^{94} + \cdots + 2.05537 \times 10^{115} b - 3.80401 \times 10^{115},$
$8.56716 \times 10^{113} u^{95} - 4.40413 \times 10^{114} u^{94} + \cdots + 4.11073 \times 10^{115} a + 1.80283 \times 10^{116},\ u^{96} - 2u^{95} + \cdots - 12u$

$I_2^u = \langle b + 1,\ -u^8 + 2u^7 - 3u^6 + 3u^5 - 4u^4 + 4u^3 - 3u^2 + a + 2u - 1,\ u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u +$

$I_1^v = \langle a,\ -v^2 + b + 3v + 1,\ v^3 - 2v^2 - 3v - 1 \rangle$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 108 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. $\boldsymbol{I_1^u = \langle 1.70 \times 10^{114} u^{95} - 2.21 \times 10^{114} u^{94} + \cdots + 2.06 \times 10^{115} b - 3.80 \times 10^{115},\ 8.57 \times 10^{113} u^{95} - 4.40 \times 10^{114} u^{94} + \cdots + 4.11 \times 10^{115} a + 1.80 \times 10^{116},\ u^{96} - 2u^{95} + \cdots - 12u - 8 \rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0208409u^{95} + 0.107137u^{94} + \cdots - 7.91306u - 4.38566 \\ -0.0829433u^{95} + 0.107404u^{94} + \cdots + 3.53916u + 1.85077 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.103784u^{95} + 0.214541u^{94} + \cdots - 4.37390u - 2.53489 \\ -0.0829433u^{95} + 0.107404u^{94} + \cdots + 3.53916u + 1.85077 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0473624u^{95} - 0.0186442u^{94} + \cdots - 5.36990u - 2.42402 \\ -0.137727u^{95} + 0.287200u^{94} + \cdots + 2.40951u - 0.488149 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.213197u^{95} + 0.429416u^{94} + \cdots - 1.62144u - 0.459408 \\ 0.0719032u^{95} - 0.0553870u^{94} + \cdots - 0.297884u - 2.76461 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0903647u^{95} + 0.268555u^{94} + \cdots - 2.96038u - 2.91217 \\ 0.199681u^{95} - 0.470810u^{94} + \cdots - 2.74051u - 0.214459 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.0255767u^{95} + 0.0598845u^{94} + \cdots - 5.58218u - 3.51029 \\ 0.00949794u^{95} + 0.0415095u^{94} + \cdots + 2.45224u + 0.0562999 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.236170u^{95} + 0.601131u^{94} + \cdots + 0.772462u - 8.63749$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{96}+41u^{95}+\cdots+401u+1$
c_2, c_4	$u^{96}-11u^{95}+\cdots+7u+1$
c_3, c_6	$u^{96}-2u^{95}+\cdots+1536u-512$
c_5, c_9	$u^{96}-2u^{95}+\cdots-12u-8$
c_7, c_{12}	$u^{96}+5u^{95}+\cdots-8u+1$
c_8, c_{10}	$u^{96}+24u^{95}+\cdots+48u+64$
c_{11}	$u^{96}-55u^{95}+\cdots-218u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{96} + 39y^{95} + \cdots - 140705y + 1$
c_2, c_4	$y^{96} - 41y^{95} + \cdots - 401y + 1$
c_3, c_6	$y^{96} + 60y^{95} + \cdots + 1835008y + 262144$
c_5, c_9	$y^{96} + 24y^{95} + \cdots + 48y + 64$
c_7, c_{12}	$y^{96} - 55y^{95} + \cdots - 218y + 1$
c_8, c_{10}	$y^{96} + 92y^{95} + \cdots - 879872y + 4096$
c_{11}	$y^{96} - 23y^{95} + \cdots - 43342y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.331849+0.953547I$ $a=-0.991852+0.187481I$ $b=-1.226360+0.183799I$	$-2.99925-3.60208I$	0
$u=-0.331849-0.953547I$ $a=-0.991852-0.187481I$ $b=-1.226360-0.183799I$	$-2.99925+3.60208I$	0
$u=0.420726+0.894455I$ $a=0.0748654+0.0783523I$ $b=0.326390+0.493463I$	$-0.09751+2.03694I$	0
$u=0.420726-0.894455I$ $a=0.0748654-0.0783523I$ $b=0.326390-0.493463I$	$-0.09751-2.03694I$	0
$u=-0.763608+0.666822I$ $a=0.370790-0.523796I$ $b=0.479897+0.066967I$	$3.69919+1.25518I$	0
$u=-0.763608-0.666822I$ $a=0.370790+0.523796I$ $b=0.479897-0.066967I$	$3.69919-1.25518I$	0
$u=-0.917832+0.330602I$ $a=-0.422961+0.922598I$ $b=1.011070-0.616866I$	$2.58601+6.51221I$	0
$u=-0.917832-0.330602I$ $a=-0.422961-0.922598I$ $b=1.011070+0.616866I$	$2.58601-6.51221I$	0
$u=-0.846687+0.463347I$ $a=0.080098-1.096030I$ $b=0.571760+0.611302I$	$3.84701+1.59882I$	0
$u=-0.846687-0.463347I$ $a=0.080098+1.096030I$ $b=0.571760-0.611302I$	$3.84701-1.59882I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.214407+0.917724I$ $a=-1.21899+1.73083I$ $b=-1.043700-0.362721I$	$-3.72115-1.69356I$	$-8.89200+0.I$
$u=-0.214407-0.917724I$ $a=-1.21899-1.73083I$ $b=-1.043700+0.362721I$	$-3.72115+1.69356I$	$-8.89200+0.I$
$u=\ 0.399586+0.985773I$ $a=-0.64535-1.97533I$ $b=-1.015690+0.459888I$	$-2.29930+5.98929I$	0
$u=\ 0.399586-0.985773I$ $a=-0.64535+1.97533I$ $b=-1.015690-0.459888I$	$-2.29930-5.98929I$	0
$u=\ 0.105934+0.913879I$ $a=-1.49280+0.48603I$ $b=-1.144490-0.244528I$	$-4.04166-0.52516I$	$-8.55610+0.I$
$u=\ 0.105934-0.913879I$ $a=-1.49280-0.48603I$ $b=-1.144490+0.244528I$	$-4.04166+0.52516I$	$-8.55610+0.I$
$u=\ 0.543375+0.935475I$ $a=\ 0.306378+0.400786I$ $b=\ 0.588526+0.269748I$	$-0.07900+2.11206I$	0
$u=\ 0.543375-0.935475I$ $a=\ 0.306378-0.400786I$ $b=\ 0.588526-0.269748I$	$-0.07900-2.11206I$	0
$u=\ 0.287889+0.845646I$ $a=\ 0.949105+0.732014I$ $b=-0.483494-0.489887I$	$-0.67980+2.01844I$	$-2.00000-3.46901I$
$u=\ 0.287889-0.845646I$ $a=\ 0.949105-0.732014I$ $b=-0.483494+0.489887I$	$-0.67980-2.01844I$	$-2.00000+3.46901I$

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.002493+1.116370I$		
$a=$	$1.228320+0.018327I$	$-3.12502+4.24954I$	0
$b=$	$0.949803-0.482210I$		
$u=$	$0.002493-1.116370I$		
$a=$	$1.228320-0.018327I$	$-3.12502-4.24954I$	0
$b=$	$0.949803+0.482210I$		
$u=$	$-0.508460+0.999100I$		
$a=$	$-0.361486+0.232503I$	$1.95677-6.48071I$	0
$b=$	$0.336484-0.738021I$		
$u=$	$-0.508460-0.999100I$		
$a=$	$-0.361486-0.232503I$	$1.95677+6.48071I$	0
$b=$	$0.336484+0.738021I$		
$u=$	$-0.416500+0.770558I$		
$a=$	$-0.483230-1.295950I$	$4.46916+0.68945I$	$3.28117+0.85960I$
$b=$	$0.671787-0.640819I$		
$u=$	$-0.416500-0.770558I$		
$a=$	$-0.483230+1.295950I$	$4.46916-0.68945I$	$3.28117-0.85960I$
$b=$	$0.671787+0.640819I$		
$u=$	$0.332265+1.076590I$		
$a=$	$1.42109+1.04142I$	$-1.83045+6.55518I$	0
$b=$	$1.046100-0.573034I$		
$u=$	$0.332265-1.076590I$		
$a=$	$1.42109-1.04142I$	$-1.83045-6.55518I$	0
$b=$	$1.046100+0.573034I$		
$u=$	$0.177267+1.115030I$		
$a=$	$0.907127+0.317756I$	$-2.75506+0.64484I$	0
$b=$	$0.879589+0.432826I$		
$u=$	$0.177267-1.115030I$		
$a=$	$0.907127-0.317756I$	$-2.75506-0.64484I$	0
$b=$	$0.879589-0.432826I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.247496+0.816258I$ $a=\ 2.79839-0.99348I$ $b=\ 0.969526+0.629311I$	$3.58367-4.30558I$	$-0.11915+6.48044I$
$u=-0.247496-0.816258I$ $a=\ 2.79839+0.99348I$ $b=\ 0.969526-0.629311I$	$3.58367+4.30558I$	$-0.11915-6.48044I$
$u=\ 0.840798+0.068830I$ $a=-0.306920-0.930091I$ $b=\ 0.918979+0.594287I$	$1.56693-2.64898I$	$-0.12373+1.94416I$
$u=\ 0.840798-0.068830I$ $a=-0.306920+0.930091I$ $b=\ 0.918979-0.594287I$	$1.56693+2.64898I$	$-0.12373-1.94416I$
$u=\ 0.039988+0.842192I$ $a=\ 0.669881-0.384390I$ $b=-0.173785+0.414358I$	$-1.31139+1.53275I$	$-3.91456-5.18456I$
$u=\ 0.039988-0.842192I$ $a=\ 0.669881+0.384390I$ $b=-0.173785-0.414358I$	$-1.31139-1.53275I$	$-3.91456+5.18456I$
$u=\ 0.799059+0.846331I$ $a=\ 1.07319+1.14008I$ $b=-0.806160-0.624229I$	$2.43670+0.52493I$	0
$u=\ 0.799059-0.846331I$ $a=\ 1.07319-1.14008I$ $b=-0.806160+0.624229I$	$2.43670-0.52493I$	0
$u=-0.767472+0.888370I$ $a=-0.084906+0.851187I$ $b=-1.332930+0.034727I$	$0.72602-2.90143I$	0
$u=-0.767472-0.888370I$ $a=-0.084906-0.851187I$ $b=-1.332930-0.034727I$	$0.72602+2.90143I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.885713+0.776635I$ $a=-0.572131+1.015580I$ $b=\ 1.108900-0.724154I$	$6.26538+5.58089I$	0
$u=-0.885713-0.776635I$ $a=-0.572131-1.015580I$ $b=\ 1.108900+0.724154I$	$6.26538-5.58089I$	0
$u=\ 0.857556+0.825746I$ $a=\ 0.080065-0.973811I$ $b=-1.340690+0.009120I$	$4.57395-1.45279I$	0
$u=\ 0.857556-0.825746I$ $a=\ 0.080065+0.973811I$ $b=-1.340690-0.009120I$	$4.57395+1.45279I$	0
$u=\ 0.830770+0.862931I$ $a=-0.586564-1.051620I$ $b=\ 1.112920+0.756547I$	$10.10790-1.19035I$	0
$u=\ 0.830770-0.862931I$ $a=-0.586564+1.051620I$ $b=\ 1.112920-0.756547I$	$10.10790+1.19035I$	0
$u=\ 0.760213+0.255609I$ $a=-0.148446+1.002920I$ $b=\ 0.776189-0.607942I$	$2.00761+2.10017I$	$0.83891-4.53868I$
$u=\ 0.760213-0.255609I$ $a=-0.148446-1.002920I$ $b=\ 0.776189+0.607942I$	$2.00761-2.10017I$	$0.83891+4.53868I$
$u=-0.838980+0.859841I$ $a=\ 0.17172+2.31211I$ $b=-0.839704-0.634470I$	$6.20074-1.00773I$	0
$u=-0.838980-0.859841I$ $a=\ 0.17172-2.31211I$ $b=-0.839704+0.634470I$	$6.20074+1.00773I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.474625+1.104840I$ $a=\ 1.12838-1.39898I$ $b=\ 1.091600+0.599495I$	$-0.12483-11.51150I$	0
$u=-0.474625-1.104840I$ $a=\ 1.12838+1.39898I$ $b=\ 1.091600-0.599495I$	$-0.12483+11.51150I$	0
$u=-0.870715+0.833568I$ $a=-0.05442-1.45713I$ $b=\ 0.556085+0.944376I$	$7.96094-0.52062I$	0
$u=-0.870715-0.833568I$ $a=-0.05442+1.45713I$ $b=\ 0.556085-0.944376I$	$7.96094+0.52062I$	0
$u=-0.894404+0.820640I$ $a=\ 1.08831-1.18593I$ $b=-0.861586+0.633055I$	$6.13236+3.94857I$	0
$u=-0.894404-0.820640I$ $a=\ 1.08831+1.18593I$ $b=-0.861586-0.633055I$	$6.13236-3.94857I$	0
$u=\ 0.781161+0.930558I$ $a=\ 0.06641-2.24202I$ $b=-0.888865+0.621738I$	$2.17830+5.41664I$	0
$u=\ 0.781161-0.930558I$ $a=\ 0.06641+2.24202I$ $b=-0.888865-0.621738I$	$2.17830-5.41664I$	0
$u=\ 0.806984+0.930820I$ $a=\ 0.56083+2.34249I$ $b=\ 1.126410-0.722210I$	$9.89480+7.30761I$	0
$u=\ 0.806984-0.930820I$ $a=\ 0.56083-2.34249I$ $b=\ 1.126410+0.722210I$	$9.89480-7.30761I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.703854+1.011630I$ $a=\ 0.305278-0.370471I$ $b=\ 0.679665-0.142081I$	$2.66867-6.83395I$	0
$u=-0.703854-1.011630I$ $a=\ 0.305278+0.370471I$ $b=\ 0.679665+0.142081I$	$2.66867+6.83395I$	0
$u=\ 0.703787+0.300436I$ $a=\ 1.45363+1.29987I$ $b=-0.925873-0.325878I$	$-0.02370-2.00842I$	$-1.62743+4.29984I$
$u=\ 0.703787-0.300436I$ $a=\ 1.45363-1.29987I$ $b=-0.925873+0.325878I$	$-0.02370+2.00842I$	$-1.62743-4.29984I$
$u=\ 0.846783+0.902988I$ $a=-0.09596+1.47858I$ $b=\ 0.583726-0.977505I$	$11.73460+5.11833I$	0
$u=\ 0.846783-0.902988I$ $a=-0.09596-1.47858I$ $b=\ 0.583726+0.977505I$	$11.73460-5.11833I$	0
$u=-0.812021+0.937351I$ $a=\ 1.02775-1.15508I$ $b=-0.792949+0.675723I$	$5.95824-5.15041I$	0
$u=-0.812021-0.937351I$ $a=\ 1.02775+1.15508I$ $b=-0.792949-0.675723I$	$5.95824+5.15041I$	0
$u=\ 0.844920+0.911321I$ $a=-1.228240-0.696496I$ $b=\ 0.535424+0.960203I$	$11.70970+1.16815I$	0
$u=\ 0.844920-0.911321I$ $a=-1.228240+0.696496I$ $b=\ 0.535424-0.960203I$	$11.70970-1.16815I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.938146 + 0.839572I$ $a = -0.02587 + 1.49281I$ $b = 0.518746 - 0.964023I$	$11.59380 - 4.19583I$	0
$u = 0.938146 - 0.839572I$ $a = -0.02587 - 1.49281I$ $b = 0.518746 + 0.964023I$	$11.59380 + 4.19583I$	0
$u = 0.964249 + 0.810539I$ $a = -0.600574 - 0.998151I$ $b = 1.135580 + 0.716044I$	$9.6993 - 10.3238I$	0
$u = 0.964249 - 0.810539I$ $a = -0.600574 + 0.998151I$ $b = 1.135580 - 0.716044I$	$9.6993 + 10.3238I$	0
$u = 0.807188 + 0.967313I$ $a = 0.010286 - 0.719507I$ $b = -1.367010 - 0.045646I$	$4.13276 + 7.64866I$	0
$u = 0.807188 - 0.967313I$ $a = 0.010286 + 0.719507I$ $b = -1.367010 + 0.045646I$	$4.13276 - 7.64866I$	0
$u = -0.818771 + 0.967967I$ $a = -1.077720 + 0.692980I$ $b = 0.495683 - 0.960350I$	$7.53995 - 5.75065I$	0
$u = -0.818771 - 0.967967I$ $a = -1.077720 - 0.692980I$ $b = 0.495683 + 0.960350I$	$7.53995 + 5.75065I$	0
$u = -0.374478 + 0.621105I$ $a = -0.250485 - 1.236750I$ $b = 0.790669 + 0.824031I$	$4.94910 - 3.81882I$	$2.10350 + 10.02722I$
$u = -0.374478 - 0.621105I$ $a = -0.250485 + 1.236750I$ $b = 0.790669 - 0.824031I$	$4.94910 + 3.81882I$	$2.10350 - 10.02722I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.798420+1.005590I$ $a=\ 0.54011-2.13936I$ $b=\ 1.143510+0.704102I$	$5.55281-11.82450I$	0
$u=-0.798420-1.005590I$ $a=\ 0.54011+2.13936I$ $b=\ 1.143510-0.704102I$	$5.55281+11.82450I$	0
$u=-0.822932+0.988050I$ $a=\ 0.10986+2.15970I$ $b=-0.907528-0.655336I$	$5.60270-10.30350I$	0
$u=-0.822932-0.988050I$ $a=\ 0.10986-2.15970I$ $b=-0.907528+0.655336I$	$5.60270+10.30350I$	0
$u=\ 0.852797+1.004360I$ $a=-1.040640-0.796571I$ $b=\ 0.485399+0.990678I$	$11.0580+10.7846I$	0
$u=\ 0.852797-1.004360I$ $a=-1.040640+0.796571I$ $b=\ 0.485399-0.990678I$	$11.0580-10.7846I$	0
$u=\ 0.846509+1.032650I$ $a=\ 0.40884+2.10501I$ $b=\ 1.160850-0.710725I$	$8.9763+16.9659I$	0
$u=\ 0.846509-1.032650I$ $a=\ 0.40884-2.10501I$ $b=\ 1.160850+0.710725I$	$8.9763-16.9659I$	0
$u=-0.593118+0.166075I$ $a=\ 1.21211+2.60731I$ $b=-1.065150-0.117254I$	$-0.593809+0.331522I$	$1.43748-9.72886I$
$u=-0.593118-0.166075I$ $a=\ 1.21211-2.60731I$ $b=-1.065150+0.117254I$	$-0.593809-0.331522I$	$1.43748+9.72886I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.254616+0.556672I$ $a=-0.397794+1.141700I$ $b=\ \ 0.937472-0.785999I$	$4.51649+2.17388I$	$-1.65157+5.92574I$
$u=-0.254616-0.556672I$ $a=-0.397794-1.141700I$ $b=\ \ 0.937472+0.785999I$	$4.51649-2.17388I$	$-1.65157-5.92574I$
$u=\ \ 0.265888+0.464329I$ $a=-2.42948-5.30179I$ $b=-0.833958+0.214787I$	$0.614687+0.409343I$	$-5.88588-9.56935I$
$u=\ \ 0.265888-0.464329I$ $a=-2.42948+5.30179I$ $b=-0.833958-0.214787I$	$0.614687-0.409343I$	$-5.88588+9.56935I$
$u=\ \ 0.463872$ $a=\ \ 1.34884$ $b=-0.0516319$	1.25812	8.69990
$u=-0.262621$ $a=\ \ 2.59919$ $b=-0.826000$	-1.19847	-8.67400

II.

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

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u^8 - 2u^7 + 3u^6 - 3u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^8 - 2u^7 + 3u^6 - 3u^5 + 4u^4 - 4u^3 + 3u^2 - 2u \\ -1 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^8 - 2u^7 + 3u^6 - 3u^5 + 4u^4 - 4u^3 + 3u^2 - 2u + 1 \\ -1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u^5 + u \\ u^5 + u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^8 - 8u^7 + 12u^6 - 11u^5 + 18u^4 - 17u^3 + 15u^2 - 6u + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.140343+0.966856I$ $a=-1.004430+0.297869I$ $b=-1.00000$	$-3.42837-2.09337I$	$-6.83106+4.06115I$
$u=-0.140343-0.966856I$ $a=-1.004430-0.297869I$ $b=-1.00000$	$-3.42837+2.09337I$	$-6.83106-4.06115I$
$u=-0.628449+0.875112I$ $a=-0.275254+0.816341I$ $b=-1.00000$	$-1.02799-2.45442I$	$-7.33502+3.27944I$
$u=-0.628449-0.875112I$ $a=-0.275254-0.816341I$ $b=-1.00000$	$-1.02799+2.45442I$	$-7.33502-3.27944I$
$u=\ \ 0.796005+0.733148I$ $a=\ \ 0.070080-0.850995I$ $b=-1.00000$	$2.72642-1.33617I$	$-2.78826+0.80685I$
$u=\ \ 0.796005-0.733148I$ $a=\ \ 0.070080+0.850995I$ $b=-1.00000$	$2.72642+1.33617I$	$-2.78826-0.80685I$
$u=\ \ 0.728966+0.986295I$ $a=-0.195086-0.635552I$ $b=-1.00000$	$1.95319+7.08493I$	$-4.66194-6.93476I$
$u=\ \ 0.728966-0.986295I$ $a=-0.195086+0.635552I$ $b=-1.00000$	$1.95319-7.08493I$	$-4.66194+6.93476I$
$u=-0.512358$ $a=\ \ 3.80937$ $b=-1.00000$	-0.446489	15.2330

III. $I_1^v = \langle a,\ -v^2+b+3v+1,\ v^3-2v^2-3v-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6v^2-19v-9$

(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_8, c_9 c_{10}	u^3
c_6	$u^3 + u^2 + 2u + 1$
c_7, c_{11}	$(u+1)^3$
c_{12}	$(u-1)^3$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.539798+0.182582I$ $a=\quad 0$ $b=\quad 0.877439-0.744862I$	$4.66906+2.82812I$	$2.80443-4.65175I$
$v=-0.539798-0.182582I$ $a=\quad 0$ $b=\quad 0.877439+0.744862I$	$4.66906-2.82812I$	$2.80443+4.65175I$
$v=\quad 3.07960$ $a=\quad 0$ $b=-0.754878$	0.531480	-10.6090

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^3-u^2+2u-1)(u^{96}+41u^{95}+\cdots+401u+1)$
c_2	$((u-1)^9)(u^3+u^2-1)(u^{96}-11u^{95}+\cdots+7u+1)$
c_3	$u^9(u^3-u^2+2u-1)(u^{96}-2u^{95}+\cdots+1536u-512)$
c_4	$((u+1)^9)(u^3-u^2+1)(u^{96}-11u^{95}+\cdots+7u+1)$
c_5	$u^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{96}-2u^{95}+\cdots-12u-8)$
c_6	$u^9(u^3+u^2+2u+1)(u^{96}-2u^{95}+\cdots+1536u-512)$
c_7	$(u+1)^3(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{96}+5u^{95}+\cdots-8u+1)$
c_8	$u^3(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^{96}+24u^{95}+\cdots+48u+64)$
c_9	$u^3(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{96}-2u^{95}+\cdots-12u-8)$
c_{10}	$u^3(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{96}+24u^{95}+\cdots+48u+64)$
c_{11}	$(u+1)^3(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)$ $\cdot(u^{96}-55u^{95}+\cdots-218u+1)$
c_{12}	$(u-1)^3(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{96}+5u^{95}+\cdots-8u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^3+3y^2+2y-1)(y^{96}+39y^{95}+\cdots-140705y+1)$
c_2, c_4	$((y-1)^9)(y^3-y^2+2y-1)(y^{96}-41y^{95}+\cdots-401y+1)$
c_3, c_6	$y^9(y^3+3y^2+2y-1)(y^{96}+60y^{95}+\cdots+1835008y+262144)$
c_5, c_9	$y^3(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{96}+24y^{95}+\cdots+48y+64)$
c_7, c_{12}	$(y-1)^3(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{96}-55y^{95}+\cdots-218y+1)$
c_8, c_{10}	$y^3(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{96}+92y^{95}+\cdots-879872y+4096)$
c_{11}	$(y-1)^3(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{96}-23y^{95}+\cdots-43342y+1)$