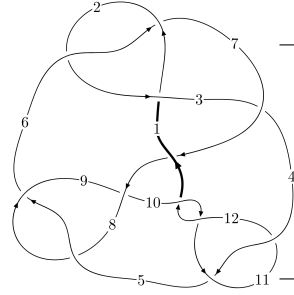
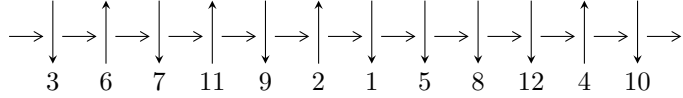


12a₀₂₆₃ (K12a₀₂₆₃)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 2.01086 \times 10^{102} u^{114} + 4.51397 \times 10^{102} u^{113} + \dots + 1.25045 \times 10^{102} b - 1.17954 \times 10^{102}, \\ 1.59104 \times 10^{102} u^{114} + 1.66298 \times 10^{102} u^{113} + \dots + 1.25045 \times 10^{102} a + 4.28857 \times 10^{102}, \\ u^{115} + 2u^{114} + \dots + 10u - 1 \rangle$$

$$I_2^u = \langle -au + b - u + 1, a^4 + 2a^2u + 2u - 2, u^2 - u + 1 \rangle$$

$$I_3^u = \langle au + b + u + 1, a^3, u^2 + u + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 129 representations.

¹The 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>).

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

$$\text{I. } I_1^u = \langle 2.01 \times 10^{102} u^{114} + 4.51 \times 10^{102} u^{113} + \dots + 1.25 \times 10^{102} b - 1.18 \times 10^{102}, 1.59 \times 10^{102} u^{114} + 1.66 \times 10^{102} u^{113} + \dots + 1.25 \times 10^{102} a + 4.29 \times 10^{102}, u^{115} + 2u^{114} + \dots + 10u - 1 \rangle$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^2 + 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.27238u^{114} - 1.32991u^{113} + \dots + 35.6015u - 3.42964 \\ -1.60812u^{114} - 3.60989u^{113} + \dots - 18.7564u + 0.943297 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.62566u^{114} - 2.03980u^{113} + \dots + 29.6716u - 3.74340 \\ -1.88288u^{114} - 3.94564u^{113} + \dots - 15.7526u + 0.703551 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.271415u^{114} - 0.477569u^{113} + \dots - 27.7578u + 7.77372 \\ -2.88361u^{114} - 3.20278u^{113} + \dots + 9.23018u - 0.131897 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.84461u^{114} - 2.63457u^{113} + \dots + 30.9998u - 2.90480 \\ -1.56401u^{114} - 3.81056u^{113} + \dots - 22.3283u + 1.30793 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0966470u^{114} - 0.878225u^{113} + \dots + 55.5042u - 8.98908 \\ 0.591189u^{114} + 0.769460u^{113} + \dots - 4.98689u - 0.0147896 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.48684u^{114} - 2.97209u^{113} + \dots + 56.2347u + 1.88650 \\ -3.04748u^{114} - 4.29788u^{113} + \dots + 6.03056u - 0.234856 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $0.560378u^{114} - 1.25164u^{113} + \dots + 25.2254u - 10.9925$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{115} + 55u^{114} + \dots - 80u - 16$
c_2, c_6	$u^{115} - u^{114} + \dots + 4u + 4$
c_3	$u^{115} + u^{114} + \dots + 22772u + 8452$
c_4, c_{11}	$u^{115} - 2u^{114} + \dots + 10u + 1$
c_5, c_8	$u^{115} + 3u^{114} + \dots + 25u + 13$
c_7	$u^{115} - 5u^{114} + \dots + 185460u + 1006252$
c_9	$u^{115} + 55u^{114} + \dots + 2757u + 169$
c_{10}, c_{12}	$u^{115} + 38u^{114} + \dots - 44u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{115} + 15y^{114} + \dots - 5376y - 256$
c_2, c_6	$y^{115} + 55y^{114} + \dots - 80y - 16$
c_3	$y^{115} - 25y^{114} + \dots + 3322126192y - 71436304$
c_4, c_{11}	$y^{115} + 38y^{114} + \dots - 44y - 1$
c_5, c_8	$y^{115} - 55y^{114} + \dots + 2757y - 169$
c_7	$y^{115} + 35y^{114} + \dots - 28479719212304y - 1012543087504$
c_9	$y^{115} + 25y^{114} + \dots - 632631y - 28561$
c_{10}, c_{12}	$y^{115} + 86y^{114} + \dots + 2540y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.317340 + 0.958509I$ $a = 0.386684 - 0.229998I$ $b = -0.590348 - 0.487723I$	$-0.35471 - 2.01312I$	0
$u = -0.317340 - 0.958509I$ $a = 0.386684 + 0.229998I$ $b = -0.590348 + 0.487723I$	$-0.35471 + 2.01312I$	0
$u = -0.402442 + 0.927578I$ $a = 0.283009 - 0.400198I$ $b = -0.524265 - 0.623213I$	$-0.33786 - 1.99475I$	0
$u = -0.402442 - 0.927578I$ $a = 0.283009 + 0.400198I$ $b = -0.524265 + 0.623213I$	$-0.33786 + 1.99475I$	0
$u = 0.128604 + 0.973698I$ $a = 0.469012 + 0.081766I$ $b = -0.637499 + 0.192073I$	$-4.02849 - 0.46501I$	0
$u = 0.128604 - 0.973698I$ $a = 0.469012 - 0.081766I$ $b = -0.637499 - 0.192073I$	$-4.02849 + 0.46501I$	0
$u = -0.026955 + 0.979717I$ $a = -1.204110 - 0.681289I$ $b = 0.231698 - 1.130490I$	$-7.59317 - 3.77195I$	0
$u = -0.026955 - 0.979717I$ $a = -1.204110 + 0.681289I$ $b = 0.231698 + 1.130490I$	$-7.59317 + 3.77195I$	0
$u = 0.694392 + 0.747476I$ $a = -1.28801 + 2.18792I$ $b = -2.54657 + 0.36171I$	$-2.72628 - 3.43267I$	0
$u = 0.694392 - 0.747476I$ $a = -1.28801 - 2.18792I$ $b = -2.54657 - 0.36171I$	$-2.72628 + 3.43267I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.666498 + 0.806418I$ $a = -0.70376 + 2.31939I$ $b = -2.30466 + 0.80638I$	$-2.41073 + 4.83529I$	0
$u = 0.666498 - 0.806418I$ $a = -0.70376 - 2.31939I$ $b = -2.30466 - 0.80638I$	$-2.41073 - 4.83529I$	0
$u = -0.708294 + 0.793455I$ $a = -0.96316 - 2.03713I$ $b = -2.27747 - 0.46831I$	$0.797868 - 0.556912I$	0
$u = -0.708294 - 0.793455I$ $a = -0.96316 + 2.03713I$ $b = -2.27747 + 0.46831I$	$0.797868 + 0.556912I$	0
$u = -0.724070 + 0.786554I$ $a = 0.205092 + 0.138209I$ $b = -0.442316 - 1.079350I$	$-1.61875 + 2.86367I$	0
$u = -0.724070 - 0.786554I$ $a = 0.205092 - 0.138209I$ $b = -0.442316 + 1.079350I$	$-1.61875 - 2.86367I$	0
$u = -0.827334 + 0.679561I$ $a = -1.50772 - 1.47621I$ $b = -2.34589 + 0.07969I$	$0.02962 + 3.95638I$	0
$u = -0.827334 - 0.679561I$ $a = -1.50772 + 1.47621I$ $b = -2.34589 - 0.07969I$	$0.02962 - 3.95638I$	0
$u = 0.258721 + 1.039580I$ $a = 0.382183 + 0.132670I$ $b = -0.728654 + 0.401051I$	$-2.42367 + 6.60021I$	0
$u = 0.258721 - 1.039580I$ $a = 0.382183 - 0.132670I$ $b = -0.728654 - 0.401051I$	$-2.42367 - 6.60021I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.626056 + 0.680132I$		
$a = 0.144981 + 0.252917I$	$-3.17538 - 3.53458I$	0
$b = -0.371864 - 0.971815I$		
$u = -0.626056 - 0.680132I$		
$a = 0.144981 - 0.252917I$	$-3.17538 + 3.53458I$	0
$b = -0.371864 + 0.971815I$		
$u = 0.460669 + 0.974433I$		
$a = -0.039605 + 0.716668I$	$-2.21464 + 5.95174I$	0
$b = -0.556193 + 0.580174I$		
$u = 0.460669 - 0.974433I$		
$a = -0.039605 - 0.716668I$	$-2.21464 - 5.95174I$	0
$b = -0.556193 - 0.580174I$		
$u = 0.698183 + 0.826164I$		
$a = 0.185654 - 0.111531I$	$0.17908 + 1.79961I$	0
$b = -0.486437 + 1.059710I$		
$u = 0.698183 - 0.826164I$		
$a = 0.185654 + 0.111531I$	$0.17908 - 1.79961I$	0
$b = -0.486437 - 1.059710I$		
$u = 0.323763 + 1.038830I$		
$a = -0.465298 + 0.598826I$	$-2.15583 + 0.04366I$	0
$b = -0.216214 + 0.536876I$		
$u = 0.323763 - 1.038830I$		
$a = -0.465298 - 0.598826I$	$-2.15583 - 0.04366I$	0
$b = -0.216214 - 0.536876I$		
$u = 0.031176 + 0.910871I$		
$a = -1.54113 - 0.58458I$	$-6.42366 + 3.97352I$	0
$b = 0.11802 - 1.42138I$		
$u = 0.031176 - 0.910871I$		
$a = -1.54113 + 0.58458I$	$-6.42366 - 3.97352I$	0
$b = 0.11802 + 1.42138I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.778984 + 0.761257I$		
$a = 1.41887 + 0.08520I$	$1.81812 - 1.36653I$	0
$b = 1.38202 - 0.77443I$		
$u = -0.778984 - 0.761257I$		
$a = 1.41887 - 0.08520I$	$1.81812 + 1.36653I$	0
$b = 1.38202 + 0.77443I$		
$u = -0.248236 + 1.061000I$		
$a = -0.616685 - 0.634563I$	$-0.96649 - 4.49766I$	0
$b = -0.040821 - 0.575935I$		
$u = -0.248236 - 1.061000I$		
$a = -0.616685 + 0.634563I$	$-0.96649 + 4.49766I$	0
$b = -0.040821 + 0.575935I$		
$u = 0.134648 + 1.088300I$		
$a = -0.805339 + 0.756823I$	$-6.57020 + 3.75115I$	0
$b = 0.233553 + 0.683296I$		
$u = 0.134648 - 1.088300I$		
$a = -0.805339 - 0.756823I$	$-6.57020 - 3.75115I$	0
$b = 0.233553 - 0.683296I$		
$u = -0.871760 + 0.670108I$		
$a = -1.49364 - 1.33520I$	$2.73154 + 11.80690I$	0
$b = -2.31543 + 0.13900I$		
$u = -0.871760 - 0.670108I$		
$a = -1.49364 + 1.33520I$	$2.73154 - 11.80690I$	0
$b = -2.31543 - 0.13900I$		
$u = 0.026040 + 0.898962I$		
$a = -1.35487 + 0.42745I$	$-3.84623 + 0.56310I$	0
$b = 0.011317 + 1.254750I$		
$u = 0.026040 - 0.898962I$		
$a = -1.35487 - 0.42745I$	$-3.84623 - 0.56310I$	0
$b = 0.011317 - 1.254750I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.864664 + 0.686181I$ $a = -1.45479 + 1.36848I$ $b = -2.30195 - 0.11899I$	$4.98326 - 6.60319I$	0
$u = 0.864664 - 0.686181I$ $a = -1.45479 - 1.36848I$ $b = -2.30195 + 0.11899I$	$4.98326 + 6.60319I$	0
$u = -0.850826 + 0.737880I$ $a = 1.261740 + 0.172476I$ $b = 1.46412 - 0.48516I$	$4.83005 + 5.88847I$	0
$u = -0.850826 - 0.737880I$ $a = 1.261740 - 0.172476I$ $b = 1.46412 + 0.48516I$	$4.83005 - 5.88847I$	0
$u = 0.854308 + 0.736997I$ $a = -1.30960 + 1.42441I$ $b = -2.23295 - 0.06543I$	$6.34337 - 3.89444I$	0
$u = 0.854308 - 0.736997I$ $a = -1.30960 - 1.42441I$ $b = -2.23295 + 0.06543I$	$6.34337 + 3.89444I$	0
$u = -0.181265 + 1.113750I$ $a = -0.706748 - 0.756843I$ $b = 0.170293 - 0.556044I$	$-2.14972 - 6.38550I$	0
$u = -0.181265 - 1.113750I$ $a = -0.706748 + 0.756843I$ $b = 0.170293 + 0.556044I$	$-2.14972 + 6.38550I$	0
$u = 0.841809 + 0.760377I$ $a = 1.306360 - 0.196562I$ $b = 1.51714 + 0.55395I$	$6.84731 - 0.71770I$	0
$u = 0.841809 - 0.760377I$ $a = 1.306360 + 0.196562I$ $b = 1.51714 - 0.55395I$	$6.84731 + 0.71770I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.676120 + 0.916879I$ $a = 2.43848 - 0.65220I$ $b = 2.43582 + 1.75520I$	$-2.75576 + 0.37527I$	0
$u = 0.676120 - 0.916879I$ $a = 2.43848 + 0.65220I$ $b = 2.43582 - 1.75520I$	$-2.75576 - 0.37527I$	0
$u = -0.845635 + 0.765410I$ $a = -1.22224 - 1.45135I$ $b = -2.18300 + 0.02983I$	$5.32733 - 1.21844I$	0
$u = -0.845635 - 0.765410I$ $a = -1.22224 + 1.45135I$ $b = -2.18300 - 0.02983I$	$5.32733 + 1.21844I$	0
$u = -0.461959 + 1.044150I$ $a = 0.223137 - 0.119182I$ $b = -0.732537 - 0.736053I$	$-0.478894 - 0.657716I$	0
$u = -0.461959 - 1.044150I$ $a = 0.223137 + 0.119182I$ $b = -0.732537 + 0.736053I$	$-0.478894 + 0.657716I$	0
$u = 0.693639 + 0.909576I$ $a = 0.193363 - 0.058251I$ $b = -0.577465 + 1.062100I$	$-0.08212 + 3.55372I$	0
$u = 0.693639 - 0.909576I$ $a = 0.193363 + 0.058251I$ $b = -0.577465 - 1.062100I$	$-0.08212 - 3.55372I$	0
$u = 0.168392 + 1.135500I$ $a = -0.708913 + 0.798541I$ $b = 0.230419 + 0.525876I$	$-4.41133 + 11.33980I$	0
$u = 0.168392 - 1.135500I$ $a = -0.708913 - 0.798541I$ $b = 0.230419 - 0.525876I$	$-4.41133 - 11.33980I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.638048 + 0.960706I$		
$a = 0.180951 + 0.014452I$	$-4.00322 - 1.44759I$	0
$b = -0.638750 - 0.996248I$		
$u = -0.638048 - 0.960706I$		
$a = 0.180951 - 0.014452I$	$-4.00322 + 1.44759I$	0
$b = -0.638750 + 0.996248I$		
$u = 0.540566 + 1.025900I$		
$a = 0.191456 + 0.062867I$	$-4.17186 + 2.86985I$	0
$b = -0.715366 + 0.859306I$		
$u = 0.540566 - 1.025900I$		
$a = 0.191456 - 0.062867I$	$-4.17186 - 2.86985I$	0
$b = -0.715366 - 0.859306I$		
$u = -0.699803 + 0.930419I$		
$a = 2.16993 + 0.76694I$	$0.37777 - 4.85201I$	0
$b = 2.45168 - 1.44491I$		
$u = -0.699803 - 0.930419I$		
$a = 2.16993 - 0.76694I$	$0.37777 + 4.85201I$	0
$b = 2.45168 + 1.44491I$		
$u = 0.832444 + 0.818924I$		
$a = 1.40275 - 0.30782I$	$7.54796 + 2.04605I$	0
$b = 1.71169 + 0.67772I$		
$u = 0.832444 - 0.818924I$		
$a = 1.40275 + 0.30782I$	$7.54796 - 2.04605I$	0
$b = 1.71169 - 0.67772I$		
$u = -0.705536 + 0.937868I$		
$a = 0.205471 + 0.046417I$	$-2.08271 - 8.33515I$	0
$b = -0.609989 - 1.077930I$		
$u = -0.705536 - 0.937868I$		
$a = 0.205471 - 0.046417I$	$-2.08271 + 8.33515I$	0
$b = -0.609989 + 1.077930I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.685259 + 0.956395I$ $a = 2.22212 - 1.05324I$ $b = 2.74734 + 1.39961I$	$-3.36219 + 8.76415I$	0
$u = 0.685259 - 0.956395I$ $a = 2.22212 + 1.05324I$ $b = 2.74734 - 1.39961I$	$-3.36219 - 8.76415I$	0
$u = 0.484616 + 1.074600I$ $a = 0.232791 + 0.092293I$ $b = -0.782883 + 0.769243I$	$-2.48486 - 4.00622I$	0
$u = 0.484616 - 1.074600I$ $a = 0.232791 - 0.092293I$ $b = -0.782883 - 0.769243I$	$-2.48486 + 4.00622I$	0
$u = -0.829054 + 0.847083I$ $a = 1.44147 + 0.38054I$ $b = 1.82162 - 0.71939I$	$6.17057 - 7.18545I$	0
$u = -0.829054 - 0.847083I$ $a = 1.44147 - 0.38054I$ $b = 1.82162 + 0.71939I$	$6.17057 + 7.18545I$	0
$u = 0.768739 + 0.209948I$ $a = 0.617926 - 0.322861I$ $b = 0.095937 + 0.776814I$	$0.12317 + 8.45001I$	$-2.28233 - 8.06437I$
$u = 0.768739 - 0.209948I$ $a = 0.617926 + 0.322861I$ $b = 0.095937 - 0.776814I$	$0.12317 - 8.45001I$	$-2.28233 + 8.06437I$
$u = -0.730015 + 0.969514I$ $a = -0.52972 - 1.34051I$ $b = -1.46590 - 0.19585I$	$1.17851 - 4.34244I$	0
$u = -0.730015 - 0.969514I$ $a = -0.52972 + 1.34051I$ $b = -1.46590 + 0.19585I$	$1.17851 + 4.34244I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.798015 + 0.923550I$ $a = -0.74712 - 1.37409I$ $b = -1.72957 - 0.06860I$	$5.93008 + 1.11957I$	0
$u = -0.798015 - 0.923550I$ $a = -0.74712 + 1.37409I$ $b = -1.72957 + 0.06860I$	$5.93008 - 1.11957I$	0
$u = 0.786185 + 0.947127I$ $a = -0.68717 + 1.34227I$ $b = -1.64246 + 0.07053I$	$7.14895 + 3.99371I$	0
$u = 0.786185 - 0.947127I$ $a = -0.68717 - 1.34227I$ $b = -1.64246 - 0.07053I$	$7.14895 - 3.99371I$	0
$u = -0.738485 + 0.172014I$ $a = 0.660657 + 0.338783I$ $b = 0.102769 - 0.712483I$	$2.13287 - 3.50579I$	$1.21650 + 3.83192I$
$u = -0.738485 - 0.172014I$ $a = 0.660657 - 0.338783I$ $b = 0.102769 + 0.712483I$	$2.13287 + 3.50579I$	$1.21650 - 3.83192I$
$u = 0.231126 + 0.716714I$ $a = -0.721833 - 0.339395I$ $b = -0.401428 + 0.953330I$	$-2.30795 + 0.81433I$	$-8.21026 + 1.09447I$
$u = 0.231126 - 0.716714I$ $a = -0.721833 + 0.339395I$ $b = -0.401428 - 0.953330I$	$-2.30795 - 0.81433I$	$-8.21026 - 1.09447I$
$u = 0.764333 + 0.988730I$ $a = -0.599704 + 1.274690I$ $b = -1.48584 + 0.05708I$	$6.14132 + 6.71356I$	0
$u = 0.764333 - 0.988730I$ $a = -0.599704 - 1.274690I$ $b = -1.48584 - 0.05708I$	$6.14132 - 6.71356I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.769206 + 0.986480I$		
$a = 1.60436 + 0.94967I$	$4.64360 - 4.80354I$	0
$b = 2.48983 - 0.83752I$		
$u = -0.769206 - 0.986480I$		
$a = 1.60436 - 0.94967I$	$4.64360 + 4.80354I$	0
$b = 2.48983 + 0.83752I$		
$u = -0.726511 + 1.024300I$		
$a = 1.63961 + 1.25436I$	$-1.01875 - 9.78161I$	0
$b = 2.76929 - 0.81489I$		
$u = -0.726511 - 1.024300I$		
$a = 1.63961 - 1.25436I$	$-1.01875 + 9.78161I$	0
$b = 2.76929 + 0.81489I$		
$u = -0.759815 + 1.004580I$		
$a = -0.581263 - 1.244870I$	$4.00721 - 11.89380I$	0
$b = -1.43530 - 0.03633I$		
$u = -0.759815 - 1.004580I$		
$a = -0.581263 + 1.244870I$	$4.00721 + 11.89380I$	0
$b = -1.43530 + 0.03633I$		
$u = 0.762064 + 1.006710I$		
$a = 1.57450 - 1.05010I$	$5.51171 + 9.91734I$	0
$b = 2.57894 + 0.79504I$		
$u = 0.762064 - 1.006710I$		
$a = 1.57450 + 1.05010I$	$5.51171 - 9.91734I$	0
$b = 2.57894 - 0.79504I$		
$u = 0.744393 + 1.035660I$		
$a = 1.52987 - 1.21436I$	$3.90897 + 12.59190I$	0
$b = 2.71444 + 0.73036I$		
$u = 0.744393 - 1.035660I$		
$a = 1.52987 + 1.21436I$	$3.90897 - 12.59190I$	0
$b = 2.71444 - 0.73036I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.740577 + 1.045390I$ $a = 1.50029 + 1.25885I$ $b = 2.74585 - 0.69836I$	$1.5783 - 17.8002I$	0
$u = -0.740577 - 1.045390I$ $a = 1.50029 - 1.25885I$ $b = 2.74585 + 0.69836I$	$1.5783 + 17.8002I$	0
$u = -0.404828 + 0.591987I$ $a = 0.879232 - 0.270418I$ $b = 0.067261 - 0.367460I$	$0.44130 - 1.44965I$	$1.24412 + 4.77904I$
$u = -0.404828 - 0.591987I$ $a = 0.879232 + 0.270418I$ $b = 0.067261 + 0.367460I$	$0.44130 + 1.44965I$	$1.24412 - 4.77904I$
$u = 0.712733 + 0.030064I$ $a = 0.819187 + 0.256273I$ $b = 0.269915 - 0.478438I$	$1.05289 + 3.41428I$	$-0.14497 - 2.59163I$
$u = 0.712733 - 0.030064I$ $a = 0.819187 - 0.256273I$ $b = 0.269915 + 0.478438I$	$1.05289 - 3.41428I$	$-0.14497 + 2.59163I$
$u = -0.703794 + 0.045782I$ $a = 0.779121 + 0.305557I$ $b = 0.187077 - 0.551290I$	$2.62952 - 1.36952I$	$2.63173 + 3.11648I$
$u = -0.703794 - 0.045782I$ $a = 0.779121 - 0.305557I$ $b = 0.187077 + 0.551290I$	$2.62952 + 1.36952I$	$2.63173 - 3.11648I$
$u = 0.627772 + 0.271576I$ $a = 0.580861 - 0.493039I$ $b = -0.089198 + 0.712756I$	$-2.24966 + 1.49423I$	$-6.29073 - 2.74212I$
$u = 0.627772 - 0.271576I$ $a = 0.580861 + 0.493039I$ $b = -0.089198 - 0.712756I$	$-2.24966 - 1.49423I$	$-6.29073 + 2.74212I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.525644 + 0.298945I$		
$a = 0.956728 + 0.184803I$	$-0.41672 - 2.12909I$	$-0.54518 + 3.45050I$
$b = 0.271060 - 0.021450I$		
$u = 0.525644 - 0.298945I$		
$a = 0.956728 - 0.184803I$	$-0.41672 + 2.12909I$	$-0.54518 - 3.45050I$
$b = 0.271060 + 0.021450I$		
$u = 0.170670$		
$a = 4.46871$	-1.46207	-6.29150
$b = -0.654711$		
$u = 0.042009 + 0.160567I$		
$a = -3.06976 + 5.72982I$	$-4.16729 - 3.61981I$	$-10.16330 + 4.38456I$
$b = -1.082500 - 0.321939I$		
$u = 0.042009 - 0.160567I$		
$a = -3.06976 - 5.72982I$	$-4.16729 + 3.61981I$	$-10.16330 - 4.38456I$
$b = -1.082500 + 0.321939I$		

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

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ u - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u - 1 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} a \\ au + u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} a \\ a + u - 1 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} a + u \\ au + 2u - 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -a \\ -au - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2a^2u + 2u - 2 \\ -a^3u + a^3 + 2a^2u - a^2 + u - 2 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $4a^2u - 4a^2 - 4u - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.943461 - 0.723943I$ $b = 0.59868 + 1.32112I$	$-4.11234 + 5.69375I$	$-10.00000 - 7.46410I$
$u = 0.500000 + 0.866025I$ $a = -0.943461 + 0.723943I$ $b = -1.59868 + 0.41094I$	$-4.11234 + 5.69375I$	$-10.00000 - 7.46410I$
$u = 0.500000 + 0.866025I$ $a = 0.155223 - 1.179030I$ $b = 0.598684 + 0.410936I$	$-4.11234 - 1.63398I$	$-10.00000 + 0.53590I$
$u = 0.500000 + 0.866025I$ $a = -0.155223 + 1.179030I$ $b = -1.59868 + 1.32112I$	$-4.11234 - 1.63398I$	$-10.00000 + 0.53590I$
$u = 0.500000 - 0.866025I$ $a = 0.943461 + 0.723943I$ $b = 0.59868 - 1.32112I$	$-4.11234 - 5.69375I$	$-10.00000 + 7.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.943461 - 0.723943I$ $b = -1.59868 - 0.41094I$	$-4.11234 - 5.69375I$	$-10.00000 + 7.46410I$
$u = 0.500000 - 0.866025I$ $a = 0.155223 + 1.179030I$ $b = 0.598684 - 0.410936I$	$-4.11234 + 1.63398I$	$-10.00000 - 0.53590I$
$u = 0.500000 - 0.866025I$ $a = -0.155223 - 1.179030I$ $b = -1.59868 - 1.32112I$	$-4.11234 + 1.63398I$	$-10.00000 - 0.53590I$

$$\text{III. } I_3^u = \langle au + b + u + 1, a^3, u^2 + u + 1 \rangle$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ -u - 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ u + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ -u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a \\ -au - u - 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} a^2u \\ a^2u + a + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a - u \\ -au - 2u - 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} a \\ -au - u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0 \\ -a^2 + u \end{pmatrix}$$

(ii) Obstruction class = 1

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-6.00000 + 3.46410I$
$a = 0$		
$b = -0.500000 - 0.866025I$		
$u = -0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-6.00000 + 3.46410I$
$a = 0$		
$b = -0.500000 - 0.866025I$		
$u = -0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-6.00000 + 3.46410I$
$a = 0$		
$b = -0.500000 - 0.866025I$		
$u = -0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-6.00000 - 3.46410I$
$a = 0$		
$b = -0.500000 + 0.866025I$		
$u = -0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-6.00000 - 3.46410I$
$a = 0$		
$b = -0.500000 + 0.866025I$		
$u = -0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-6.00000 - 3.46410I$
$a = 0$		
$b = -0.500000 + 0.866025I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^6(u^2 - 2u + 2)^4(u^{115} + 55u^{114} + \dots - 80u - 16)$
c_2, c_6	$u^6(u^4 + 2u^2 + 2)^2(u^{115} - u^{114} + \dots + 4u + 4)$
c_3	$u^6(u^4 - 2u^2 + 2)^2(u^{115} + u^{114} + \dots + 22772u + 8452)$
c_4	$((u^2 - u + 1)^3)(u^2 + u + 1)^4(u^{115} - 2u^{114} + \dots + 10u + 1)$
c_5	$((u - 1)^6)(u + 1)^8(u^{115} + 3u^{114} + \dots + 25u + 13)$
c_7	$u^6(u^4 - 2u^2 + 2)^2(u^{115} - 5u^{114} + \dots + 185460u + 1006252)$
c_8	$((u - 1)^8)(u + 1)^6(u^{115} + 3u^{114} + \dots + 25u + 13)$
c_9	$((u + 1)^{14})(u^{115} + 55u^{114} + \dots + 2757u + 169)$
c_{10}	$((u^2 - u + 1)^7)(u^{115} + 38u^{114} + \dots - 44u - 1)$
c_{11}	$((u^2 - u + 1)^4)(u^2 + u + 1)^3(u^{115} - 2u^{114} + \dots + 10u + 1)$
c_{12}	$((u^2 + u + 1)^7)(u^{115} + 38u^{114} + \dots - 44u - 1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^6(y^2 + 4)^4(y^{115} + 15y^{114} + \dots - 5376y - 256)$
c_2, c_6	$y^6(y^2 + 2y + 2)^4(y^{115} + 55y^{114} + \dots - 80y - 16)$
c_3	$y^6(y^2 - 2y + 2)^4(y^{115} - 25y^{114} + \dots + 3.32213 \times 10^9y - 7.14363 \times 10^7)$
c_4, c_{11}	$((y^2 + y + 1)^7)(y^{115} + 38y^{114} + \dots - 44y - 1)$
c_5, c_8	$((y - 1)^{14})(y^{115} - 55y^{114} + \dots + 2757y - 169)$
c_7	$y^6(y^2 - 2y + 2)^4$ $\cdot (y^{115} + 35y^{114} + \dots - 28479719212304y - 1012543087504)$
c_9	$((y - 1)^{14})(y^{115} + 25y^{114} + \dots - 632631y - 28561)$
c_{10}, c_{12}	$((y^2 + y + 1)^7)(y^{115} + 86y^{114} + \dots + 2540y - 1)$