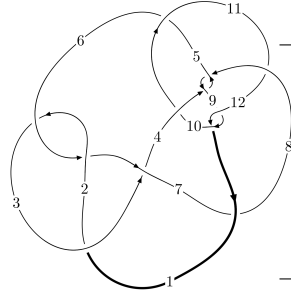
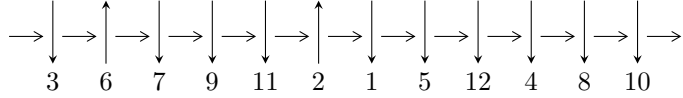


12a₀₂₂₇ (K12a₀₂₂₇)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle 4.95039 \times 10^{487} u^{126} + 2.56995 \times 10^{488} u^{125} + \dots + 6.32406 \times 10^{487} b - 1.63483 \times 10^{490}, \\ - 5.75750 \times 10^{488} u^{126} - 1.83682 \times 10^{490} u^{125} + \dots + 3.65530 \times 10^{490} a + 4.29408 \times 10^{492}, \\ u^{127} + 6u^{126} + \dots - 4456u - 289 \rangle$$

$$I_2^u = \langle 408a^4 + 322a^3 + 13a^2 + 29b - 150a - 27, 17a^5 + 12a^4 - 4a^3 - 7a^2 + 1, u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 132 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.

$$\mathbf{I. } J_1^u = \langle 4.95 \times 10^{487} u^{126} + 2.57 \times 10^{488} u^{125} + \dots + 6.32 \times 10^{487} b - 1.63 \times 10^{490}, -5.76 \times 10^{488} u^{126} - 1.84 \times 10^{490} u^{125} + \dots + 3.66 \times 10^{490} a + 4.29 \times 10^{492}, u^{127} + 6u^{126} + \dots - 4456u - 289 \rangle$$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0157511u^{126} + 0.502508u^{125} + \dots - 1625.76u - 117.475 \\ -0.782788u^{126} - 4.06377u^{125} + \dots + 3675.88u + 258.509 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.767037u^{126} - 3.56126u^{125} + \dots + 2050.12u + 141.034 \\ -0.782788u^{126} - 4.06377u^{125} + \dots + 3675.88u + 258.509 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.325046u^{126} + 1.66964u^{125} + \dots - 1469.09u - 101.084 \\ 1.48773u^{126} + 7.64401u^{125} + \dots - 6389.62u - 439.447 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.43965u^{126} + 7.65363u^{125} + \dots - 7403.82u - 515.811 \\ 0.627650u^{126} + 3.35407u^{125} + \dots - 3268.21u - 228.073 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0752549u^{126} + 0.493597u^{125} + \dots - 467.578u - 21.8549 \\ -0.323000u^{126} - 1.55448u^{125} + \dots + 1076.67u + 75.5079 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0868161u^{126} + 0.553087u^{125} + \dots - 871.738u - 62.8207 \\ -0.326280u^{126} - 1.32698u^{125} + \dots - 51.1311u - 12.2547 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.597942u^{126} + 3.24568u^{125} + \dots - 3738.93u - 252.966 \\ -0.343979u^{126} - 1.59473u^{125} + \dots + 745.172u + 49.8287 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.447356u^{126} - 1.94031u^{125} + \dots - 444.375u - 31.5491 \\ -0.913367u^{126} - 5.14785u^{125} + \dots + 6295.33u + 447.308 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-0.841205u^{126} - 6.08545u^{125} + \dots + 12477.0u + 905.235$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{127} + 60u^{126} + \dots + 2u - 1$
c_2, c_6	$u^{127} - 2u^{126} + \dots - u^2 + 1$
c_3	$u^{127} + 2u^{126} + \dots + 87846u + 10961$
c_4, c_8	$u^{127} + 2u^{126} + \dots + 4u + 1$
c_5	$u^{127} + u^{126} + \dots + 134368u + 9248$
c_7	$u^{127} - 10u^{126} + \dots - 28635552u + 3955392$
c_9, c_{12}	$u^{127} - 6u^{126} + \dots - 4456u + 289$
c_{10}	$17(17u^{127} + 219u^{126} + \dots + 1318123u + 177763)$
c_{11}	$17(17u^{127} - 213u^{126} + \dots - 65771u + 7177)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{127} + 16y^{126} + \dots + 14y - 1$
c_2, c_6	$y^{127} + 60y^{126} + \dots + 2y - 1$
c_3	$y^{127} - 28y^{126} + \dots + 6473657330y - 120143521$
c_4, c_8	$y^{127} + 68y^{126} + \dots + 2y - 1$
c_5	$y^{127} + 33y^{126} + \dots + 1848564224y - 85525504$
c_7	$y^{127} + 36y^{126} + \dots - 534622349001600y - 15645125873664$
c_9, c_{12}	$y^{127} - 72y^{126} + \dots + 7252068y - 83521$
c_{10}	$289(289y^{127} - 11547y^{126} + \dots - 3.38566 \times 10^{11}y - 3.15997 \times 10^{10})$
c_{11}	$289(289y^{127} + 25283y^{126} + \dots - 3.86260 \times 10^9y - 5.15093 \times 10^7)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.852701 + 0.540301I$ $a = -1.34277 - 0.93308I$ $b = -0.609646 + 1.164040I$	$5.72289 + 3.58734I$	0
$u = -0.852701 - 0.540301I$ $a = -1.34277 + 0.93308I$ $b = -0.609646 - 1.164040I$	$5.72289 - 3.58734I$	0
$u = -1.014830 + 0.102099I$ $a = -0.405389 - 0.081079I$ $b = -1.41236 - 0.38918I$	$-7.60578 - 4.18983I$	0
$u = -1.014830 - 0.102099I$ $a = -0.405389 + 0.081079I$ $b = -1.41236 + 0.38918I$	$-7.60578 + 4.18983I$	0
$u = -0.879964 + 0.429525I$ $a = -0.122431 - 0.894058I$ $b = 0.32988 + 1.45127I$	$2.31409 + 8.20324I$	0
$u = -0.879964 - 0.429525I$ $a = -0.122431 + 0.894058I$ $b = 0.32988 - 1.45127I$	$2.31409 - 8.20324I$	0
$u = 0.145194 + 0.964926I$ $a = 0.20478 + 1.71176I$ $b = -0.333801 - 1.133100I$	$-0.42685 - 6.05740I$	0
$u = 0.145194 - 0.964926I$ $a = 0.20478 - 1.71176I$ $b = -0.333801 + 1.133100I$	$-0.42685 + 6.05740I$	0
$u = 0.966417 + 0.023996I$ $a = -6.60150 + 0.91190I$ $b = -0.071131 - 0.985873I$	$-1.82223 - 0.98089I$	0
$u = 0.966417 - 0.023996I$ $a = -6.60150 - 0.91190I$ $b = -0.071131 + 0.985873I$	$-1.82223 + 0.98089I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.026420 + 0.175064I$		
$a = 0.374744 + 0.152595I$	$-4.30492 + 0.43151I$	0
$b = 1.268490 + 0.333071I$		
$u = -1.026420 - 0.175064I$		
$a = 0.374744 - 0.152595I$	$-4.30492 - 0.43151I$	0
$b = 1.268490 - 0.333071I$		
$u = 0.896921 + 0.533977I$		
$a = 0.294430 - 0.441663I$	$-2.29093 + 3.74594I$	0
$b = -0.424264 + 0.189155I$		
$u = 0.896921 - 0.533977I$		
$a = 0.294430 + 0.441663I$	$-2.29093 - 3.74594I$	0
$b = -0.424264 - 0.189155I$		
$u = -0.609834 + 0.717118I$		
$a = -0.339685 - 1.133880I$	$5.29418 - 3.85660I$	0
$b = 0.323059 + 1.314320I$		
$u = -0.609834 - 0.717118I$		
$a = -0.339685 + 1.133880I$	$5.29418 + 3.85660I$	0
$b = 0.323059 - 1.314320I$		
$u = -0.817941 + 0.452259I$		
$a = 0.179258 + 0.897431I$	$4.69061 + 3.13207I$	0
$b = -0.31067 - 1.42866I$		
$u = -0.817941 - 0.452259I$		
$a = 0.179258 - 0.897431I$	$4.69061 - 3.13207I$	0
$b = -0.31067 + 1.42866I$		
$u = -0.911216 + 0.575095I$		
$a = 1.27057 + 1.00453I$	$4.39753 + 8.75064I$	0
$b = 0.604539 - 1.190270I$		
$u = -0.911216 - 0.575095I$		
$a = 1.27057 - 1.00453I$	$4.39753 - 8.75064I$	0
$b = 0.604539 + 1.190270I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.668794 + 0.850025I$ $a = -0.29873 + 1.74665I$ $b = -0.326607 - 1.027610I$	$-0.091432 + 0.584746I$	0
$u = 0.668794 - 0.850025I$ $a = -0.29873 - 1.74665I$ $b = -0.326607 + 1.027610I$	$-0.091432 - 0.584746I$	0
$u = -0.679771 + 0.609705I$ $a = 0.309119 + 1.029780I$ $b = -0.310849 - 1.350500I$	$6.23156 + 0.94338I$	0
$u = -0.679771 - 0.609705I$ $a = 0.309119 - 1.029780I$ $b = -0.310849 + 1.350500I$	$6.23156 - 0.94338I$	0
$u = -0.838598 + 0.355662I$ $a = 1.253440 + 0.620849I$ $b = 0.697957 - 1.121430I$	$-0.19206 + 2.87859I$	0
$u = -0.838598 - 0.355662I$ $a = 1.253440 - 0.620849I$ $b = 0.697957 + 1.121430I$	$-0.19206 - 2.87859I$	0
$u = 0.905744 + 0.042812I$ $a = -4.35368 - 4.03692I$ $b = -0.098574 + 1.035330I$	$0.22852 - 5.78675I$	0
$u = 0.905744 - 0.042812I$ $a = -4.35368 + 4.03692I$ $b = -0.098574 - 1.035330I$	$0.22852 + 5.78675I$	0
$u = 1.020750 + 0.410520I$ $a = -0.229262 + 0.389474I$ $b = 0.362254 - 0.230244I$	$-0.531400 - 0.664928I$	0
$u = 1.020750 - 0.410520I$ $a = -0.229262 - 0.389474I$ $b = 0.362254 + 0.230244I$	$-0.531400 + 0.664928I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.874294 + 0.018592I$ $a = 3.98628 + 3.44373I$ $b = 0.112976 - 1.026810I$	$2.20337 - 0.95953I$	0
$u = 0.874294 - 0.018592I$ $a = 3.98628 - 3.44373I$ $b = 0.112976 + 1.026810I$	$2.20337 + 0.95953I$	0
$u = -1.029780 + 0.468480I$ $a = 0.225034 + 0.332957I$ $b = 1.045950 + 0.219050I$	$0.012322 + 0.568494I$	0
$u = -1.029780 - 0.468480I$ $a = 0.225034 - 0.332957I$ $b = 1.045950 - 0.219050I$	$0.012322 - 0.568494I$	0
$u = -1.124280 + 0.180795I$ $a = -0.294506 - 0.129350I$ $b = -1.261790 - 0.205517I$	$-8.09446 + 4.49424I$	0
$u = -1.124280 - 0.180795I$ $a = -0.294506 + 0.129350I$ $b = -1.261790 + 0.205517I$	$-8.09446 - 4.49424I$	0
$u = -0.717437 + 0.463098I$ $a = -1.55187 - 0.74544I$ $b = -0.607863 + 1.091750I$	$4.97586 + 0.74438I$	0
$u = -0.717437 - 0.463098I$ $a = -1.55187 + 0.74544I$ $b = -0.607863 - 1.091750I$	$4.97586 - 0.74438I$	0
$u = -0.029470 + 0.837233I$ $a = -0.217734 + 0.748893I$ $b = 0.652250 + 0.043201I$	$0.53107 - 8.60738I$	0
$u = -0.029470 - 0.837233I$ $a = -0.217734 - 0.748893I$ $b = 0.652250 - 0.043201I$	$0.53107 + 8.60738I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.408417 + 1.106130I$ $a = -0.253561 - 1.380940I$ $b = 0.377568 + 1.233580I$	$5.96486 - 0.16558I$	0
$u = -0.408417 - 1.106130I$ $a = -0.253561 + 1.380940I$ $b = 0.377568 - 1.233580I$	$5.96486 + 0.16558I$	0
$u = -0.755531 + 0.316294I$ $a = -0.194572 - 0.752235I$ $b = 0.24174 + 1.46206I$	$0.096131 + 0.260592I$	0
$u = -0.755531 - 0.316294I$ $a = -0.194572 + 0.752235I$ $b = 0.24174 - 1.46206I$	$0.096131 - 0.260592I$	0
$u = -1.101670 + 0.487832I$ $a = -0.188407 - 0.304665I$ $b = -1.059130 - 0.185882I$	$0.86608 + 5.64943I$	0
$u = -1.101670 - 0.487832I$ $a = -0.188407 + 0.304665I$ $b = -1.059130 + 0.185882I$	$0.86608 - 5.64943I$	0
$u = -0.648207 + 0.444177I$ $a = 1.69452 + 0.67956I$ $b = 0.589917 - 1.058670I$	$2.97420 - 4.45774I$	0
$u = -0.648207 - 0.444177I$ $a = 1.69452 - 0.67956I$ $b = 0.589917 + 1.058670I$	$2.97420 + 4.45774I$	0
$u = -0.353742 + 1.162250I$ $a = 0.23638 + 1.40821I$ $b = -0.383655 - 1.220840I$	$7.21684 - 5.07057I$	0
$u = -0.353742 - 1.162250I$ $a = 0.23638 - 1.40821I$ $b = -0.383655 + 1.220840I$	$7.21684 + 5.07057I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.070426 + 0.781275I$ $a = 0.200965 - 0.782956I$ $b = -0.648612 - 0.067576I$	$2.60757 - 3.58583I$	0
$u = -0.070426 - 0.781275I$ $a = 0.200965 + 0.782956I$ $b = -0.648612 + 0.067576I$	$2.60757 + 3.58583I$	0
$u = -0.183040 + 1.202740I$ $a = -0.21628 - 1.47407I$ $b = 0.382764 + 1.190200I$	$1.56779 - 5.07438I$	0
$u = -0.183040 - 1.202740I$ $a = -0.21628 + 1.47407I$ $b = 0.382764 - 1.190200I$	$1.56779 + 5.07438I$	0
$u = 1.209210 + 0.230205I$ $a = -0.872059 + 0.432961I$ $b = -0.197040 - 0.810735I$	$-1.06593 - 1.10261I$	0
$u = 1.209210 - 0.230205I$ $a = -0.872059 - 0.432961I$ $b = -0.197040 + 0.810735I$	$-1.06593 + 1.10261I$	0
$u = 0.896049 + 0.853495I$ $a = 0.41426 - 1.53788I$ $b = 0.341377 + 0.982621I$	$1.31495 - 3.76899I$	0
$u = 0.896049 - 0.853495I$ $a = 0.41426 + 1.53788I$ $b = 0.341377 - 0.982621I$	$1.31495 + 3.76899I$	0
$u = 0.560206 + 0.515752I$ $a = 0.451441 - 0.515159I$ $b = -0.458401 + 0.075256I$	$-3.32415 - 2.87892I$	0
$u = 0.560206 - 0.515752I$ $a = 0.451441 + 0.515159I$ $b = -0.458401 - 0.075256I$	$-3.32415 + 2.87892I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.751197 + 0.024211I$ $a = 2.79279 - 3.22065I$ $b = 0.152354 + 1.028160I$	$2.52127 - 0.93793I$	0
$u = 0.751197 - 0.024211I$ $a = 2.79279 + 3.22065I$ $b = 0.152354 - 1.028160I$	$2.52127 + 0.93793I$	0
$u = -1.201760 + 0.399307I$ $a = -0.847325 - 0.984650I$ $b = -0.65214 + 1.30518I$	$-4.26341 + 2.69423I$	0
$u = -1.201760 - 0.399307I$ $a = -0.847325 + 0.984650I$ $b = -0.65214 - 1.30518I$	$-4.26341 - 2.69423I$	0
$u = -0.028343 + 0.729196I$ $a = -0.54338 - 1.72726I$ $b = 0.283010 + 1.170220I$	$2.32539 - 2.52729I$	0
$u = -0.028343 - 0.729196I$ $a = -0.54338 + 1.72726I$ $b = 0.283010 - 1.170220I$	$2.32539 + 2.52729I$	0
$u = -1.211370 + 0.427564I$ $a = 0.169366 + 0.237297I$ $b = 1.101290 + 0.152960I$	$-5.61618 + 5.48676I$	0
$u = -1.211370 - 0.427564I$ $a = 0.169366 - 0.237297I$ $b = 1.101290 - 0.152960I$	$-5.61618 - 5.48676I$	0
$u = -0.353933 + 0.620488I$ $a = 0.041314 + 0.841105I$ $b = 0.706967 + 0.191328I$	$1.87141 + 3.67539I$	0
$u = -0.353933 - 0.620488I$ $a = 0.041314 - 0.841105I$ $b = 0.706967 - 0.191328I$	$1.87141 - 3.67539I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.271409 + 1.257460I$		
$a = 0.20297 + 1.43887I$	$6.24468 - 7.44634I$	0
$b = -0.395164 - 1.202670I$		
$u = -0.271409 - 1.257460I$		
$a = 0.20297 - 1.43887I$	$6.24468 + 7.44634I$	0
$b = -0.395164 + 1.202670I$		
$u = -1.198690 + 0.467402I$		
$a = 0.897126 + 1.037910I$	$-1.03817 + 6.95015I$	0
$b = 0.63347 - 1.29188I$		
$u = -1.198690 - 0.467402I$		
$a = 0.897126 - 1.037910I$	$-1.03817 - 6.95015I$	0
$b = 0.63347 + 1.29188I$		
$u = -0.237781 + 0.665114I$		
$a = 0.071797 - 0.855025I$	$3.30781 - 1.25100I$	0
$b = -0.670987 - 0.146539I$		
$u = -0.237781 - 0.665114I$		
$a = 0.071797 + 0.855025I$	$3.30781 + 1.25100I$	0
$b = -0.670987 + 0.146539I$		
$u = -1.208050 + 0.491552I$		
$a = -0.148140 - 0.263017I$	$-0.71550 + 8.27093I$	0
$b = -1.077310 - 0.146919I$		
$u = -1.208050 - 0.491552I$		
$a = -0.148140 + 0.263017I$	$-0.71550 - 8.27093I$	0
$b = -1.077310 + 0.146919I$		
$u = -0.252316 + 1.296670I$		
$a = -0.18984 - 1.44321I$	$4.09272 - 12.51100I$	0
$b = 0.400598 + 1.198070I$		
$u = -0.252316 - 1.296670I$		
$a = -0.18984 + 1.44321I$	$4.09272 + 12.51100I$	0
$b = 0.400598 - 1.198070I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.083628 + 0.673445I$ $a = -0.322639 + 0.808199I$ $b = 0.580249 + 0.049725I$	$-1.95208 - 1.41580I$	0
$u = 0.083628 - 0.673445I$ $a = -0.322639 - 0.808199I$ $b = 0.580249 - 0.049725I$	$-1.95208 + 1.41580I$	0
$u = 1.260780 + 0.407052I$ $a = -0.128975 + 0.444802I$ $b = 0.366914 - 0.346876I$	$-1.11053 - 2.13759I$	0
$u = 1.260780 - 0.407052I$ $a = -0.128975 - 0.444802I$ $b = 0.366914 + 0.346876I$	$-1.11053 + 2.13759I$	0
$u = -1.238570 + 0.498015I$ $a = 0.135097 + 0.254706I$ $b = 1.078830 + 0.136046I$	$-3.03620 + 13.45980I$	0
$u = -1.238570 - 0.498015I$ $a = 0.135097 - 0.254706I$ $b = 1.078830 - 0.136046I$	$-3.03620 - 13.45980I$	0
$u = 0.651572 + 0.009687I$ $a = -2.39930 + 3.54321I$ $b = -0.167469 - 1.039610I$	$0.80850 - 5.62228I$	$-8.00000 + 6.14117I$
$u = 0.651572 - 0.009687I$ $a = -2.39930 - 3.54321I$ $b = -0.167469 + 1.039610I$	$0.80850 + 5.62228I$	$-8.00000 - 6.14117I$
$u = -1.265070 + 0.472844I$ $a = -0.848771 - 1.083270I$ $b = -0.62201 + 1.30751I$	$-4.55047 + 10.90910I$	0
$u = -1.265070 - 0.472844I$ $a = -0.848771 + 1.083270I$ $b = -0.62201 - 1.30751I$	$-4.55047 - 10.90910I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.210730 + 0.659204I$		
$a = 0.98061 + 1.20435I$	$3.36662 + 6.40956I$	0
$b = 0.585204 - 1.278490I$		
$u = -1.210730 - 0.659204I$		
$a = 0.98061 - 1.20435I$	$3.36662 - 6.40956I$	0
$b = 0.585204 + 1.278490I$		
$u = 1.342020 + 0.379840I$		
$a = -0.583833 + 0.781666I$	$-1.11970 - 1.03596I$	0
$b = -0.290946 - 0.805939I$		
$u = 1.342020 - 0.379840I$		
$a = -0.583833 - 0.781666I$	$-1.11970 + 1.03596I$	0
$b = -0.290946 + 0.805939I$		
$u = 1.326160 + 0.441251I$		
$a = 0.120414 - 0.474901I$	$-3.25281 - 6.89189I$	0
$b = -0.391107 + 0.370722I$		
$u = 1.326160 - 0.441251I$		
$a = 0.120414 + 0.474901I$	$-3.25281 + 6.89189I$	0
$b = -0.391107 - 0.370722I$		
$u = 1.368300 + 0.296535I$		
$a = 0.055203 - 0.452326I$	$-5.07869 + 0.30171I$	0
$b = -0.336674 + 0.419621I$		
$u = 1.368300 - 0.296535I$		
$a = 0.055203 + 0.452326I$	$-5.07869 - 0.30171I$	0
$b = -0.336674 - 0.419621I$		
$u = -1.25122 + 0.66759I$		
$a = -0.95105 - 1.22530I$	$4.32872 + 11.49530I$	0
$b = -0.581822 + 1.286560I$		
$u = -1.25122 - 0.66759I$		
$a = -0.95105 + 1.22530I$	$4.32872 - 11.49530I$	0
$b = -0.581822 - 1.286560I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.08470 + 0.93222I$		
$a = 0.36108 - 1.37118I$	$0.41231 - 5.47477I$	0
$b = 0.373143 + 0.953420I$		
$u = 1.08470 - 0.93222I$		
$a = 0.36108 + 1.37118I$	$0.41231 + 5.47477I$	0
$b = 0.373143 - 0.953420I$		
$u = 1.18333 + 0.84536I$		
$a = -0.409604 + 1.282880I$	$-3.80312 - 2.99685I$	0
$b = -0.367940 - 0.925587I$		
$u = 1.18333 - 0.84536I$		
$a = -0.409604 - 1.282880I$	$-3.80312 + 2.99685I$	0
$b = -0.367940 + 0.925587I$		
$u = -1.31677 + 0.62741I$		
$a = 0.88756 + 1.21991I$	$-2.01313 + 11.43770I$	0
$b = 0.58569 - 1.30127I$		
$u = -1.31677 - 0.62741I$		
$a = 0.88756 - 1.21991I$	$-2.01313 - 11.43770I$	0
$b = 0.58569 + 1.30127I$		
$u = -1.31563 + 0.66936I$		
$a = -0.90391 - 1.24906I$	$2.8882 + 14.1361I$	0
$b = -0.57835 + 1.29849I$		
$u = -1.31563 - 0.66936I$		
$a = -0.90391 + 1.24906I$	$2.8882 - 14.1361I$	0
$b = -0.57835 - 1.29849I$		
$u = 1.34735 + 0.60684I$		
$a = 0.486164 - 1.038140I$	$-4.52009 - 3.74465I$	0
$b = 0.345625 + 0.856806I$		
$u = 1.34735 - 0.60684I$		
$a = 0.486164 + 1.038140I$	$-4.52009 + 3.74465I$	0
$b = 0.345625 - 0.856806I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.13202 + 0.97300I$ $a = -0.329075 + 1.341660I$ $b = -0.385231 - 0.949157I$	$-1.77596 - 10.33220I$	0
$u = 1.13202 - 0.97300I$ $a = -0.329075 - 1.341660I$ $b = -0.385231 + 0.949157I$	$-1.77596 + 10.33220I$	0
$u = -1.33535 + 0.67326I$ $a = 0.89154 + 1.25860I$ $b = 0.57662 - 1.30165I$	$0.6061 + 19.3205I$	0
$u = -1.33535 - 0.67326I$ $a = 0.89154 - 1.25860I$ $b = 0.57662 + 1.30165I$	$0.6061 - 19.3205I$	0
$u = 1.49643 + 0.06250I$ $a = 0.110195 + 0.495314I$ $b = 0.307955 - 0.568239I$	$-5.26758 - 0.53968I$	0
$u = 1.49643 - 0.06250I$ $a = 0.110195 - 0.495314I$ $b = 0.307955 + 0.568239I$	$-5.26758 + 0.53968I$	0
$u = 1.49949 + 0.08387I$ $a = -0.234880 + 0.536039I$ $b = -0.298438 - 0.648883I$	$-1.50701 - 2.01147I$	0
$u = 1.49949 - 0.08387I$ $a = -0.234880 - 0.536039I$ $b = -0.298438 + 0.648883I$	$-1.50701 + 2.01147I$	0
$u = 1.46135 + 0.46595I$ $a = 0.430521 - 0.869662I$ $b = 0.342924 + 0.802331I$	$-3.23960 + 3.37368I$	0
$u = 1.46135 - 0.46595I$ $a = 0.430521 + 0.869662I$ $b = 0.342924 - 0.802331I$	$-3.23960 - 3.37368I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.57282 + 0.05672I$ $a = 0.181839 - 0.580581I$ $b = 0.334663 + 0.635570I$	$-3.66947 - 6.64198I$	0
$u = 1.57282 - 0.05672I$ $a = 0.181839 + 0.580581I$ $b = 0.334663 - 0.635570I$	$-3.66947 + 6.64198I$	0
$u = 0.419987$ $a = -0.913065$ $b = 0.365399$	-0.823929	-11.9850
$u = 0.183609 + 0.274430I$ $a = 1.08021 + 3.79951I$ $b = -0.184938 - 1.093960I$	$-0.476819 + 0.646119I$	$-8.74335 - 1.28978I$
$u = 0.183609 - 0.274430I$ $a = 1.08021 - 3.79951I$ $b = -0.184938 + 1.093960I$	$-0.476819 - 0.646119I$	$-8.74335 + 1.28978I$
$u = -0.148078 + 0.052331I$ $a = 0.65547 + 3.28320I$ $b = 0.245977 + 0.464218I$	$-0.52571 - 1.47397I$	$-4.82957 + 4.26305I$
$u = -0.148078 - 0.052331I$ $a = 0.65547 - 3.28320I$ $b = 0.245977 - 0.464218I$	$-0.52571 + 1.47397I$	$-4.82957 - 4.26305I$

II.

$$I_2^u = \langle 408a^4 + 322a^3 + 13a^2 + 29b - 150a - 27, 17a^5 + 12a^4 - 4a^3 - 7a^2 + 1, u - 1 \rangle$$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_5 = \begin{pmatrix} a \\ -14.0690a^4 - 11.1034a^3 + \dots + 5.17241a + 0.931034 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -14.0690a^4 - 11.1034a^3 + \dots + 6.17241a + 0.931034 \\ -14.0690a^4 - 11.1034a^3 + \dots + 5.17241a + 0.931034 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1.17241a^4 + 3.75862a^3 + \dots - 0.931034a + 0.172414 \\ 15.8276a^4 + 25.2414a^3 + \dots - 6.06897a - 4.17241 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 17a^4 + 29a^3 + 8a^2 - 7a - 4 \\ 15.8276a^4 + 25.2414a^3 + \dots - 6.06897a - 4.17241 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 42.7931a^4 + 43.6897a^3 + \dots - 9.48276a - 4.20690 \\ 42.7931a^4 + 43.6897a^3 + \dots - 11.4828a - 4.20690 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.17241a^4 + 3.75862a^3 + \dots - 0.931034a + 0.172414 \\ 1.17241a^4 + 3.75862a^3 + \dots - 0.931034a + 0.172414 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} a \\ -14.0690a^4 - 11.1034a^3 + \dots + 5.17241a + 0.931034 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 57.4483a^4 + 65.1724a^3 + \dots - 13.6207a - 6.55172 \\ 84.4138a^4 + 100.621a^3 + \dots - 22.0345a - 10.5862 \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $-\frac{13685}{29}a^4 - \frac{17497}{29}a^3 - \frac{4867}{29}a^2 + \frac{3893}{29}a + \frac{1743}{29}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^5 - 3u^4 + 4u^3 - u^2 - u + 1$
c_2	$u^5 - u^4 + 2u^3 - u^2 + u - 1$
c_3, c_4	$u^5 + u^4 - 2u^3 - u^2 + u - 1$
c_5	u^5
c_6	$u^5 + u^4 + 2u^3 + u^2 + u + 1$
c_7	$u^5 + 5u^4 + 8u^3 + 3u^2 - u + 1$
c_8	$u^5 - u^4 - 2u^3 + u^2 + u + 1$
c_9	$(u - 1)^5$
c_{10}	$17(17u^5 - 12u^4 - 4u^3 + 7u^2 - 1)$
c_{11}	$17(17u^5 + 54u^4 + 67u^3 + 38u^2 + 10u + 1)$
c_{12}	$(u + 1)^5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1$
c_2, c_6	$y^5 + 3y^4 + 4y^3 + y^2 - y - 1$
c_3, c_4, c_8	$y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1$
c_5	y^5
c_7	$y^5 - 9y^4 + 32y^3 - 35y^2 - 5y - 1$
c_9, c_{12}	$(y - 1)^5$
c_{10}	$289(289y^5 - 280y^4 + 184y^3 - 73y^2 + 14y - 1)$
c_{11}	$289(289y^5 - 638y^4 + 725y^3 - 212y^2 + 24y - 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.580925 + 0.443398I$ $b = -0.309916 + 0.549911I$	$-1.97403 + 1.53058I$	$-14.0920 - 3.7761I$
$u = 1.00000$ $a = -0.580925 - 0.443398I$ $b = -0.309916 - 0.549911I$	$-1.97403 - 1.53058I$	$-14.0920 + 3.7761I$
$u = 1.00000$ $a = -0.490453$ $b = -1.21774$	-4.04602	-2.23020
$u = 1.00000$ $a = 0.473210 + 0.025337I$ $b = 1.41878 - 0.21917I$	$-7.51750 + 4.40083I$	$-0.4849 - 15.9362I$
$u = 1.00000$ $a = 0.473210 - 0.025337I$ $b = 1.41878 + 0.21917I$	$-7.51750 - 4.40083I$	$-0.4849 + 15.9362I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^5 - 3u^4 + 4u^3 - u^2 - u + 1)(u^{127} + 60u^{126} + \dots + 2u - 1)$
c_2	$(u^5 - u^4 + 2u^3 - u^2 + u - 1)(u^{127} - 2u^{126} + \dots - u^2 + 1)$
c_3	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)(u^{127} + 2u^{126} + \dots + 87846u + 10961)$
c_4	$(u^5 + u^4 - 2u^3 - u^2 + u - 1)(u^{127} + 2u^{126} + \dots + 4u + 1)$
c_5	$u^5(u^{127} + u^{126} + \dots + 134368u + 9248)$
c_6	$(u^5 + u^4 + 2u^3 + u^2 + u + 1)(u^{127} - 2u^{126} + \dots - u^2 + 1)$
c_7	$(u^5 + 5u^4 + 8u^3 + 3u^2 - u + 1)$ $\cdot (u^{127} - 10u^{126} + \dots - 28635552u + 3955392)$
c_8	$(u^5 - u^4 - 2u^3 + u^2 + u + 1)(u^{127} + 2u^{126} + \dots + 4u + 1)$
c_9	$((u - 1)^5)(u^{127} - 6u^{126} + \dots - 4456u + 289)$
c_{10}	$289(17u^5 - 12u^4 - 4u^3 + 7u^2 - 1)$ $\cdot (17u^{127} + 219u^{126} + \dots + 1318123u + 177763)$
c_{11}	$289(17u^5 + 54u^4 + 67u^3 + 38u^2 + 10u + 1)$ $\cdot (17u^{127} - 213u^{126} + \dots - 65771u + 7177)$
c_{12}	$((u + 1)^5)(u^{127} - 6u^{126} + \dots - 4456u + 289)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)(y^{127} + 16y^{126} + \dots + 14y - 1)$
c_2, c_6	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)(y^{127} + 60y^{126} + \dots + 2y - 1)$
c_3	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)$ $\cdot (y^{127} - 28y^{126} + \dots + 6473657330y - 120143521)$
c_4, c_8	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)(y^{127} + 68y^{126} + \dots + 2y - 1)$
c_5	$y^5(y^{127} + 33y^{126} + \dots + 1.84856 \times 10^9 y - 8.55255 \times 10^7)$
c_7	$(y^5 - 9y^4 + 32y^3 - 35y^2 - 5y - 1)$ $\cdot (y^{127} + 36y^{126} + \dots - 534622349001600y - 15645125873664)$
c_9, c_{12}	$((y - 1)^5)(y^{127} - 72y^{126} + \dots + 7252068y - 83521)$
c_{10}	$83521(289y^5 - 280y^4 + 184y^3 - 73y^2 + 14y - 1)$ $\cdot (289y^{127} - 11547y^{126} + \dots - 338566196047y - 31599684169)$
c_{11}	$83521(289y^5 - 638y^4 + 725y^3 - 212y^2 + 24y - 1)$ $\cdot (289y^{127} + 25283y^{126} + \dots - 3862601461y - 51509329)$