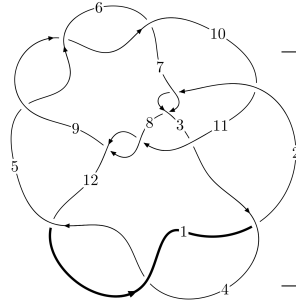
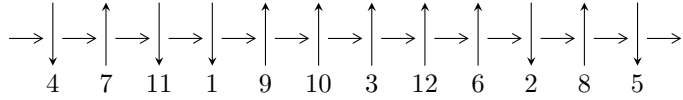


12a<sub>1107</sub> (K12a<sub>1107</sub>)



A knot diagram<sup>1</sup>

**Linearized knot diagram**



**Solving Sequence**

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

**Ideals for irreducible components<sup>2</sup> of  $X_{\text{par}}$**

$$I_1^u = \langle 1.01048 \times 10^{165} u^{79} + 2.54217 \times 10^{164} u^{78} + \dots + 3.41950 \times 10^{164} b - 7.77445 \times 10^{164}, \\ - 5.17035 \times 10^{164} u^{79} + 5.54826 \times 10^{164} u^{78} + \dots + 3.41950 \times 10^{164} a - 3.60849 \times 10^{163}, \\ u^{80} - u^{79} + \dots + 77u^2 + 1 \rangle$$

$$I_2^u = \langle 232u^{23} - 9371u^{22} + \dots + 4397b - 14595, -13378u^{23} - 29082u^{22} + \dots + 30779a - 96133, \\ u^{24} - 9u^{22} + \dots + 2u - 1 \rangle$$

\* 2 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 104 representations.

<sup>1</sup>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>).

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

$$\mathbf{I. } I_1^u = \langle 1.01 \times 10^{165} u^{79} + 2.54 \times 10^{164} u^{78} + \dots + 3.42 \times 10^{164} b - 7.77 \times 10^{164}, -5.17 \times 10^{164} u^{79} + 5.55 \times 10^{164} u^{78} + \dots + 3.42 \times 10^{164} a - 3.61 \times 10^{163}, u^{80} - u^{79} + \dots + 77u^2 + 1 \rangle$$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1.51202u^{79} - 1.62254u^{78} + \dots + 113.235u + 0.105527 \\ -2.95505u^{79} - 0.743435u^{78} + \dots + 11.1242u + 2.27356 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 4.46707u^{79} - 0.879103u^{78} + \dots + 102.111u - 2.16804 \\ -2.95505u^{79} - 0.743435u^{78} + \dots + 11.1242u + 2.27356 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1.67385u^{79} + 0.289420u^{78} + \dots - 1.17646u - 12.9982 \\ -1.18420u^{79} - 0.192329u^{78} + \dots + 0.413449u + 1.05286 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2.40314u^{79} - 1.41293u^{78} + \dots + 104.976u - 0.569502 \\ -1.63115u^{79} - 0.400807u^{78} + \dots + 11.9253u + 1.27435 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.08629u^{79} - 0.293098u^{78} + \dots + 0.912283u + 1.62816 \\ -0.844189u^{79} - 0.0173289u^{78} + \dots - 1.90524u + 1.58429 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 3.48631u^{79} - 2.36607u^{78} + \dots + 164.350u - 0.593819 \\ 3.21212u^{79} + 0.854157u^{78} + \dots + 14.2195u - 2.45641 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.580067u^{79} + 3.15254u^{78} + \dots - 124.634u - 1.51358 \\ 0.746830u^{79} + 0.320814u^{78} + \dots - 17.3276u - 0.655648 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -3.47372u^{79} + 0.944591u^{78} + \dots - 3.30266u + 1.85928 \\ 1.80989u^{79} + 0.553280u^{78} + \dots - 12.0166u - 1.68220 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $-5.07525u^{79} - 1.43220u^{78} + \dots - 10.6961u + 15.3492$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_4, c_{12}$	$u^{80} - 3u^{79} + \dots + 934u - 73$
$c_2, c_7$	$u^{80} + u^{79} + \dots + 77u^2 + 1$
$c_3$	$u^{80} - 2u^{79} + \dots + 237896u - 72979$
$c_5, c_6, c_9$	$u^{80} - 4u^{79} + \dots - 2139u - 529$
$c_8, c_{11}$	$u^{80} - 43u^{78} + \dots + 2193u + 583$
$c_{10}$	$u^{80} + 6u^{79} + \dots + 1524620u - 140713$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4, c_{12}$	$y^{80} + 93y^{79} + \dots - 288502y + 5329$
$c_2, c_7$	$y^{80} - 65y^{79} + \dots + 154y + 1$
$c_3$	$y^{80} + 42y^{79} + \dots + 54740796004y + 5325934441$
$c_5, c_6, c_9$	$y^{80} - 96y^{79} + \dots - 7161073y + 279841$
$c_8, c_{11}$	$y^{80} - 86y^{79} + \dots + 12819505y + 339889$
$c_{10}$	$y^{80} + 46y^{79} + \dots - 642253205014y + 19800148369$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.696936 + 0.729645I$	$4.15739 + 0.27185I$	0
$a = 0.632882 - 0.912130I$		
$b = 0.021106 - 0.373710I$		
$u = 0.696936 - 0.729645I$	$4.15739 - 0.27185I$	0
$a = 0.632882 + 0.912130I$		
$b = 0.021106 + 0.373710I$		
$u = 0.135002 + 0.952540I$	$9.53387 + 5.61294I$	0
$a = 0.864710 - 0.639597I$		
$b = 0.728429 - 0.940911I$		
$u = 0.135002 - 0.952540I$	$9.53387 - 5.61294I$	0
$a = 0.864710 + 0.639597I$		
$b = 0.728429 + 0.940911I$		
$u = 0.868294 + 0.372933I$	$4.75188 + 3.71337I$	0
$a = -1.101470 + 0.485003I$		
$b = -0.868224 + 0.272648I$		
$u = 0.868294 - 0.372933I$	$4.75188 - 3.71337I$	0
$a = -1.101470 - 0.485003I$		
$b = -0.868224 - 0.272648I$		
$u = 0.040864 + 0.925223I$	$3.95442 + 1.49798I$	0
$a = 0.07581 - 1.48298I$		
$b = 0.241815 - 0.985617I$		
$u = 0.040864 - 0.925223I$	$3.95442 - 1.49798I$	0
$a = 0.07581 + 1.48298I$		
$b = 0.241815 + 0.985617I$		
$u = -0.588597 + 0.700636I$	$1.06681 - 2.17703I$	0
$a = -0.397248 + 0.207196I$		
$b = -0.543099 - 0.075426I$		
$u = -0.588597 - 0.700636I$	$1.06681 + 2.17703I$	0
$a = -0.397248 - 0.207196I$		
$b = -0.543099 + 0.075426I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.142022 + 1.091210I$ $a = -0.315318 - 0.470004I$ $b = -0.290486 - 0.637626I$	$1.73943 - 2.57033I$	0
$u = -0.142022 - 1.091210I$ $a = -0.315318 + 0.470004I$ $b = -0.290486 + 0.637626I$	$1.73943 + 2.57033I$	0
$u = -1.126310 + 0.089569I$ $a = -0.442007 + 0.484742I$ $b = -0.071623 - 0.866787I$	$2.07180 - 0.39101I$	0
$u = -1.126310 - 0.089569I$ $a = -0.442007 - 0.484742I$ $b = -0.071623 + 0.866787I$	$2.07180 + 0.39101I$	0
$u = 0.010153 + 0.860616I$ $a = 0.00315 - 1.86109I$ $b = -0.523475 - 1.293000I$	$11.67760 - 3.21420I$	$7.86067 + 0.I$
$u = 0.010153 - 0.860616I$ $a = 0.00315 + 1.86109I$ $b = -0.523475 + 1.293000I$	$11.67760 + 3.21420I$	$7.86067 + 0.I$
$u = 1.176850 + 0.214087I$ $a = 0.453143 + 0.396474I$ $b = 0.521520 - 1.178590I$	$2.04646 + 3.46770I$	0
$u = 1.176850 - 0.214087I$ $a = 0.453143 - 0.396474I$ $b = 0.521520 + 1.178590I$	$2.04646 - 3.46770I$	0
$u = -0.785016$ $a = 1.33024$ $b = 1.08366$	1.13184	8.48010
$u = 1.222590 + 0.169019I$ $a = -0.366542 + 0.187924I$ $b = -0.813785 - 1.003570I$	$5.24817 + 2.02818I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.222590 - 0.169019I$ $a = -0.366542 - 0.187924I$ $b = -0.813785 + 1.003570I$	$5.24817 - 2.02818I$	0
$u = 1.243590 + 0.025750I$ $a = 0.491354 + 0.508234I$ $b = -0.299282 - 1.114900I$	$7.67920 - 1.91271I$	0
$u = 1.243590 - 0.025750I$ $a = 0.491354 - 0.508234I$ $b = -0.299282 + 1.114900I$	$7.67920 + 1.91271I$	0
$u = -1.233740 + 0.160122I$ $a = 0.416652 - 0.189134I$ $b = 1.68403 - 1.29569I$	$12.34390 - 2.02934I$	0
$u = -1.233740 - 0.160122I$ $a = 0.416652 + 0.189134I$ $b = 1.68403 + 1.29569I$	$12.34390 + 2.02934I$	0
$u = -0.224335 + 1.251370I$ $a = 0.396579 + 1.240710I$ $b = 0.439295 + 1.205560I$	$17.5268 - 9.1987I$	0
$u = -0.224335 - 1.251370I$ $a = 0.396579 - 1.240710I$ $b = 0.439295 - 1.205560I$	$17.5268 + 9.1987I$	0
$u = -1.253320 + 0.226787I$ $a = -0.545170 + 0.251974I$ $b = -0.76985 - 1.68601I$	$7.94638 - 5.57424I$	0
$u = -1.253320 - 0.226787I$ $a = -0.545170 - 0.251974I$ $b = -0.76985 + 1.68601I$	$7.94638 + 5.57424I$	0
$u = 1.276730 + 0.036383I$ $a = 1.228410 - 0.105767I$ $b = 2.64332 - 1.67262I$	$19.4910 - 3.4464I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.276730 - 0.036383I$		
$a = 1.228410 + 0.105767I$	$19.4910 + 3.4464I$	0
$b = 2.64332 + 1.67262I$		
$u = -1.265650 + 0.190509I$		
$a = 0.244681 + 0.771958I$	$5.35611 - 2.38954I$	0
$b = 0.017983 - 0.909709I$		
$u = -1.265650 - 0.190509I$		
$a = 0.244681 - 0.771958I$	$5.35611 + 2.38954I$	0
$b = 0.017983 + 0.909709I$		
$u = -1.299340 + 0.029424I$		
$a = -1.217230 + 0.003891I$	$12.50960 + 1.28371I$	0
$b = -1.83036 - 1.15663I$		
$u = -1.299340 - 0.029424I$		
$a = -1.217230 - 0.003891I$	$12.50960 - 1.28371I$	0
$b = -1.83036 + 1.15663I$		
$u = 1.299070 + 0.193597I$		
$a = -0.237125 + 1.091620I$	$12.85860 + 2.75004I$	0
$b = 0.267604 - 0.949221I$		
$u = 1.299070 - 0.193597I$		
$a = -0.237125 - 1.091620I$	$12.85860 - 2.75004I$	0
$b = 0.267604 + 0.949221I$		
$u = 1.326140 + 0.028464I$		
$a = 1.269620 + 0.151823I$	$12.89430 + 2.13766I$	0
$b = 0.866280 - 0.943954I$		
$u = 1.326140 - 0.028464I$		
$a = 1.269620 - 0.151823I$	$12.89430 - 2.13766I$	0
$b = 0.866280 + 0.943954I$		
$u = 1.283090 + 0.364993I$		
$a = -1.183630 + 0.243995I$	$15.6627 + 7.5874I$	0
$b = -1.05605 + 2.29439I$		



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.283090 - 0.364993I$ $a = -1.183630 - 0.243995I$ $b = -1.05605 - 2.29439I$	$15.6627 - 7.5874I$	0
$u = -1.343180 + 0.032900I$ $a = -1.369430 + 0.312616I$ $b = -0.310808 - 0.922191I$	$-19.0242 - 4.4708I$	0
$u = -1.343180 - 0.032900I$ $a = -1.369430 - 0.312616I$ $b = -0.310808 + 0.922191I$	$-19.0242 + 4.4708I$	0
$u = -1.317610 + 0.367711I$ $a = 1.066500 + 0.174236I$ $b = 0.92485 + 1.76034I$	$8.27079 - 6.02105I$	0
$u = -1.317610 - 0.367711I$ $a = 1.066500 - 0.174236I$ $b = 0.92485 - 1.76034I$	$8.27079 + 6.02105I$	0
$u = -1.350370 + 0.391524I$ $a = 1.190330 + 0.228444I$ $b = 0.324743 + 1.026450I$	$15.9502 - 1.3706I$	0
$u = -1.350370 - 0.391524I$ $a = 1.190330 - 0.228444I$ $b = 0.324743 - 1.026450I$	$15.9502 + 1.3706I$	0
$u = 1.312710 + 0.520323I$ $a = -0.376045 + 0.401152I$ $b = 0.446491 + 1.104500I$	$13.10940 - 0.20147I$	0
$u = 1.312710 - 0.520323I$ $a = -0.376045 - 0.401152I$ $b = 0.446491 - 1.104500I$	$13.10940 + 0.20147I$	0
$u = 1.36279 + 0.38161I$ $a = -1.047180 + 0.129175I$ $b = -0.702037 + 1.186500I$	$8.31069 + 3.35890I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.36279 - 0.38161I$ $a = -1.047180 - 0.129175I$ $b = -0.702037 - 1.186500I$	$8.31069 - 3.35890I$	0
$u = -1.37192 + 0.39149I$ $a = 0.807781 - 0.491480I$ $b = 0.74301 + 1.26571I$	$14.3124 - 10.3619I$	0
$u = -1.37192 - 0.39149I$ $a = 0.807781 + 0.491480I$ $b = 0.74301 - 1.26571I$	$14.3124 + 10.3619I$	0
$u = 1.38308 + 0.39841I$ $a = -0.648655 - 0.272797I$ $b = -0.558455 + 1.136390I$	$6.68676 + 7.61230I$	0
$u = 1.38308 - 0.39841I$ $a = -0.648655 + 0.272797I$ $b = -0.558455 - 1.136390I$	$6.68676 - 7.61230I$	0
$u = -1.39460 + 0.45420I$ $a = 0.481757 + 0.042834I$ $b = 0.178283 + 1.047700I$	$6.05912 - 3.19174I$	0
$u = -1.39460 - 0.45420I$ $a = 0.481757 - 0.042834I$ $b = 0.178283 - 1.047700I$	$6.05912 + 3.19174I$	0
$u = 0.14075 + 1.47091I$ $a = -0.146810 + 1.074640I$ $b = -0.154282 + 1.049390I$	$9.31276 + 3.72880I$	0
$u = 0.14075 - 1.47091I$ $a = -0.146810 - 1.074640I$ $b = -0.154282 - 1.049390I$	$9.31276 - 3.72880I$	0
$u = 0.151699 + 0.484888I$ $a = 0.382165 + 0.552524I$ $b = 0.599046 + 0.333795I$	$-1.030810 - 0.677680I$	$-5.64323 + 3.30320I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.151699 - 0.484888I$ $a = 0.382165 - 0.552524I$ $b = 0.599046 - 0.333795I$	$-1.030810 + 0.677680I$	$-5.64323 - 3.30320I$
$u = -0.033695 + 0.492640I$ $a = 1.68449 - 1.09078I$ $b = 0.913552 + 0.729430I$	$8.69093 - 0.23211I$	$6.42670 - 0.21461I$
$u = -0.033695 - 0.492640I$ $a = 1.68449 + 1.09078I$ $b = 0.913552 - 0.729430I$	$8.69093 + 0.23211I$	$6.42670 + 0.21461I$
$u = -0.041679 + 0.436910I$ $a = -1.04487 - 1.00890I$ $b = -0.449373 + 0.440231I$	$1.60345 - 0.01482I$	$6.70518 + 0.02503I$
$u = -0.041679 - 0.436910I$ $a = -1.04487 + 1.00890I$ $b = -0.449373 - 0.440231I$	$1.60345 + 0.01482I$	$6.70518 - 0.02503I$
$u = 1.49122 + 0.49260I$ $a = 1.093130 - 0.164500I$ $b = 0.94025 - 1.68561I$	$-16.4656 + 15.2752I$	0
$u = 1.49122 - 0.49260I$ $a = 1.093130 + 0.164500I$ $b = 0.94025 + 1.68561I$	$-16.4656 - 15.2752I$	0
$u = 0.041118 + 0.424708I$ $a = -0.260292 + 1.379560I$ $b = -0.756220 + 0.857836I$	$3.98697 + 2.93845I$	$-0.70752 - 5.65005I$
$u = 0.041118 - 0.424708I$ $a = -0.260292 - 1.379560I$ $b = -0.756220 - 0.857836I$	$3.98697 - 2.93845I$	$-0.70752 + 5.65005I$
$u = -0.386163$ $a = -1.63277$ $b = -0.124601$	0.879285	12.9290

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.55136 + 0.52158I$ $a = -0.988220 - 0.220179I$ $b = -0.87035 - 1.43468I$	$14.9843 - 10.6270I$	0
$u = -1.55136 - 0.52158I$ $a = -0.988220 + 0.220179I$ $b = -0.87035 + 1.43468I$	$14.9843 + 10.6270I$	0
$u = -1.49451 + 0.74389I$ $a = -0.852568 - 0.491480I$ $b = -0.300488 - 1.121150I$	$-18.1746 + 1.8793I$	0
$u = -1.49451 - 0.74389I$ $a = -0.852568 + 0.491480I$ $b = -0.300488 + 1.121150I$	$-18.1746 - 1.8793I$	0
$u = 1.59349 + 0.62272I$ $a = 0.895221 - 0.321694I$ $b = 0.650987 - 1.202490I$	$14.1821 + 3.9616I$	0
$u = 1.59349 - 0.62272I$ $a = 0.895221 + 0.321694I$ $b = 0.650987 + 1.202490I$	$14.1821 - 3.9616I$	0
$u = 0.102253 + 0.110466I$ $a = -8.53086 + 6.70317I$ $b = 0.914345 + 1.053000I$	$15.7420 + 3.9676I$	$8.47382 - 0.00289I$
$u = 0.102253 - 0.110466I$ $a = -8.53086 - 6.70317I$ $b = 0.914345 - 1.053000I$	$15.7420 - 3.9676I$	$8.47382 + 0.00289I$
$u = -0.0405555 + 0.0915966I$ $a = 7.0436 + 13.7070I$ $b = -0.378225 + 0.861032I$	$8.45061 - 1.71352I$	$11.94923 - 1.77133I$
$u = -0.0405555 - 0.0915966I$ $a = 7.0436 - 13.7070I$ $b = -0.378225 - 0.861032I$	$8.45061 + 1.71352I$	$11.94923 + 1.77133I$

$$\text{II. } I_2^u = \langle 232u^{23} - 9371u^{22} + \dots + 4397b - 14595, -13378u^{23} - 29082u^{22} + \dots + 30779a - 96133, u^{24} - 9u^{22} + \dots + 2u - 1 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_2 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_3 &= \begin{pmatrix} 1 \\ -u^2 \end{pmatrix} \\ a_8 &= \begin{pmatrix} u \\ -u^3 + u \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 0.434647u^{23} + 0.944865u^{22} + \dots + 12.7557u + 3.12333 \\ -0.0527632u^{23} + 2.13123u^{22} + \dots + 2.46350u + 3.31931 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 0.487410u^{23} - 1.18636u^{22} + \dots + 10.2922u - 0.195978 \\ -0.0527632u^{23} + 2.13123u^{22} + \dots + 2.46350u + 3.31931 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 2.25128u^{23} - 0.650801u^{22} + \dots + 4.21879u + 5.72566 \\ 1.06803u^{23} + 0.598038u^{22} + \dots + 1.66591u + 4.37646 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -1.24484u^{23} + 1.95377u^{22} + \dots + 5.99318u + 1.67384 \\ 1.37815u^{23} + 0.0465902u^{22} + \dots + 6.17694u + 2.04899 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -3.18760u^{23} - 1.54206u^{22} + \dots - 2.01956u - 9.97310 \\ 0.559440u^{23} - 1.86981u^{22} + \dots + 4.96861u - 1.32893 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.440560u^{23} - 1.86981u^{22} + \dots - 10.0314u - 4.32893 \\ 0.0720296u^{23} - 1.68345u^{22} + \dots - 1.32363u - 3.13295 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0.565353u^{23} - 1.94487u^{22} + \dots + 5.24426u - 2.12333 \\ -0.919036u^{23} + 1.12622u^{22} + \dots - 0.918126u + 1.19968 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -1.04659u^{23} - 0.254817u^{22} + \dots - 13.2927u - 3.37815 \\ 0.104779u^{23} - 1.86835u^{22} + \dots - 2.33546u - 3.91735 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

$$\text{(iii) Cusp Shapes} = \frac{135137}{30779}u^{23} - \frac{178618}{30779}u^{22} + \dots + \frac{134797}{4397}u - \frac{71459}{30779}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_{12}$	$u^{24} - 2u^{23} + \dots - 2u - 1$
$c_2$	$u^{24} - 9u^{22} + \dots + 2u - 1$
$c_3$	$u^{24} + u^{23} + \dots - 10u^2 - 1$
$c_4$	$u^{24} + 2u^{23} + \dots + 2u - 1$
$c_5, c_6$	$u^{24} - 3u^{23} + \dots + 3u + 1$
$c_7$	$u^{24} - 9u^{22} + \dots - 2u - 1$
$c_8$	$u^{24} - 5u^{23} + \dots - 3u - 1$
$c_9$	$u^{24} + 3u^{23} + \dots - 3u + 1$
$c_{10}$	$u^{24} - u^{23} + \dots - 6u - 1$
$c_{11}$	$u^{24} + 5u^{23} + \dots + 3u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4, c_{12}$	$y^{24} + 28y^{23} + \dots + 10y + 1$
$c_2, c_7$	$y^{24} - 18y^{23} + \dots - 34y + 1$
$c_3$	$y^{24} + 9y^{23} + \dots + 20y + 1$
$c_5, c_6, c_9$	$y^{24} - 29y^{23} + \dots - 17y + 1$
$c_8, c_{11}$	$y^{24} - 27y^{23} + \dots - 19y + 1$
$c_{10}$	$y^{24} + 9y^{23} + \dots + 30y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.948785 + 0.336242I$ $a = 1.56664 + 0.28156I$ $b = -0.48314 + 1.36965I$	$16.7456 - 4.9547I$	$13.14118 + 3.73700I$
$u = -0.948785 - 0.336242I$ $a = 1.56664 - 0.28156I$ $b = -0.48314 - 1.36965I$	$16.7456 + 4.9547I$	$13.14118 - 3.73700I$
$u = -0.480070 + 0.885671I$ $a = -0.245521 - 0.145918I$ $b = 0.098345 + 0.138475I$	$1.56627 - 1.88204I$	$9.40784 - 2.19295I$
$u = -0.480070 - 0.885671I$ $a = -0.245521 + 0.145918I$ $b = 0.098345 - 0.138475I$	$1.56627 + 1.88204I$	$9.40784 + 2.19295I$
$u = 0.453235 + 0.820486I$ $a = -0.84320 + 1.40717I$ $b = 0.078008 + 0.635200I$	$7.93340 + 2.67206I$	$7.99288 - 3.48914I$
$u = 0.453235 - 0.820486I$ $a = -0.84320 - 1.40717I$ $b = 0.078008 - 0.635200I$	$7.93340 - 2.67206I$	$7.99288 + 3.48914I$
$u = 1.077200 + 0.224370I$ $a = 0.037138 + 0.707804I$ $b = -0.971894 - 0.489643I$	$11.22030 + 0.98150I$	$9.90939 - 0.25740I$
$u = 1.077200 - 0.224370I$ $a = 0.037138 - 0.707804I$ $b = -0.971894 + 0.489643I$	$11.22030 - 0.98150I$	$9.90939 + 0.25740I$
$u = 0.330242 + 1.054880I$ $a = 0.303758 - 1.127310I$ $b = 0.189484 - 0.980273I$	$5.11428 + 1.15831I$	$12.52997 - 2.03839I$
$u = 0.330242 - 1.054880I$ $a = 0.303758 + 1.127310I$ $b = 0.189484 + 0.980273I$	$5.11428 - 1.15831I$	$12.52997 + 2.03839I$



Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.235050 + 0.216681I$ $a = 0.192132 + 0.466658I$ $b = 0.353681 - 0.829286I$	$4.51331 - 1.90214I$	$3.26510 - 0.24162I$
$u = -1.235050 - 0.216681I$ $a = 0.192132 - 0.466658I$ $b = 0.353681 + 0.829286I$	$4.51331 + 1.90214I$	$3.26510 + 0.24162I$
$u = -1.251580 + 0.187877I$ $a = -1.268650 - 0.312631I$ $b = -1.55650 - 0.61865I$	$18.1177 + 2.6042I$	$11.52639 - 0.05741I$
$u = -1.251580 - 0.187877I$ $a = -1.268650 + 0.312631I$ $b = -1.55650 + 0.61865I$	$18.1177 - 2.6042I$	$11.52639 + 0.05741I$
$u = 1.294600 + 0.113188I$ $a = -0.396276 + 0.374271I$ $b = 0.085280 - 1.253300I$	$8.11890 + 3.19754I$	$12.70229 - 3.71877I$
$u = 1.294600 - 0.113188I$ $a = -0.396276 - 0.374271I$ $b = 0.085280 + 1.253300I$	$8.11890 - 3.19754I$	$12.70229 + 3.71877I$
$u = 1.37055$ $a = 1.19749$ $b = 1.51198$	12.6669	12.5420
$u = 1.299330 + 0.467553I$ $a = -0.989725 + 0.207171I$ $b = -0.43226 + 1.37704I$	$8.47795 + 4.53556I$	$11.78703 - 4.31442I$
$u = 1.299330 - 0.467553I$ $a = -0.989725 - 0.207171I$ $b = -0.43226 - 1.37704I$	$8.47795 - 4.53556I$	$11.78703 + 4.31442I$
$u = -1.41276 + 0.30830I$ $a = 0.898564 + 0.062896I$ $b = 0.91446 + 1.66365I$	$10.93640 - 5.49310I$	$13.09365 + 3.81125I$

Solutions to $I_2^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.41276 - 0.30830I$		
$a = 0.898564 - 0.062896I$	$10.93640 + 5.49310I$	$13.09365 - 3.81125I$
$b = 0.91446 - 1.66365I$		
$u = 0.330589 + 0.062325I$		
$a = 2.55338 - 0.86643I$	$4.47332 + 2.58880I$	$10.32560 + 1.84657I$
$b = 0.813280 - 0.738569I$		
$u = 0.330589 - 0.062325I$		
$a = 2.55338 + 0.86643I$	$4.47332 - 2.58880I$	$10.32560 - 1.84657I$
$b = 0.813280 + 0.738569I$		
$u = -0.284449$		
$a = -2.81399$	$0.159790$	$-1.90480$
$b = -0.689471$		

### III. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1, c_{12}$	$(u^{24} - 2u^{23} + \dots - 2u - 1)(u^{80} - 3u^{79} + \dots + 934u - 73)$
$c_2$	$(u^{24} - 9u^{22} + \dots + 2u - 1)(u^{80} + u^{79} + \dots + 77u^2 + 1)$
$c_3$	$(u^{24} + u^{23} + \dots - 10u^2 - 1)(u^{80} - 2u^{79} + \dots + 237896u - 72979)$
$c_4$	$(u^{24} + 2u^{23} + \dots + 2u - 1)(u^{80} - 3u^{79} + \dots + 934u - 73)$
$c_5, c_6$	$(u^{24} - 3u^{23} + \dots + 3u + 1)(u^{80} - 4u^{79} + \dots - 2139u - 529)$
$c_7$	$(u^{24} - 9u^{22} + \dots - 2u - 1)(u^{80} + u^{79} + \dots + 77u^2 + 1)$
$c_8$	$(u^{24} - 5u^{23} + \dots - 3u - 1)(u^{80} - 43u^{78} + \dots + 2193u + 583)$
$c_9$	$(u^{24} + 3u^{23} + \dots - 3u + 1)(u^{80} - 4u^{79} + \dots - 2139u - 529)$
$c_{10}$	$(u^{24} - u^{23} + \dots - 6u - 1)(u^{80} + 6u^{79} + \dots + 1524620u - 140713)$
$c_{11}$	$(u^{24} + 5u^{23} + \dots + 3u - 1)(u^{80} - 43u^{78} + \dots + 2193u + 583)$

#### IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1, c_4, c_{12}$	$(y^{24} + 28y^{23} + \dots + 10y + 1)(y^{80} + 93y^{79} + \dots - 288502y + 5329)$
$c_2, c_7$	$(y^{24} - 18y^{23} + \dots - 34y + 1)(y^{80} - 65y^{79} + \dots + 154y + 1)$
$c_3$	$(y^{24} + 9y^{23} + \dots + 20y + 1)$ $\cdot (y^{80} + 42y^{79} + \dots + 54740796004y + 5325934441)$
$c_5, c_6, c_9$	$(y^{24} - 29y^{23} + \dots - 17y + 1)$ $\cdot (y^{80} - 96y^{79} + \dots - 7161073y + 279841)$
$c_8, c_{11}$	$(y^{24} - 27y^{23} + \dots - 19y + 1)$ $\cdot (y^{80} - 86y^{79} + \dots + 12819505y + 339889)$
$c_{10}$	$(y^{24} + 9y^{23} + \dots + 30y + 1)$ $\cdot (y^{80} + 46y^{79} + \dots - 642253205014y + 19800148369)$