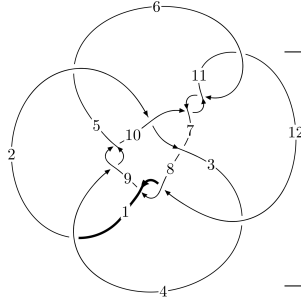
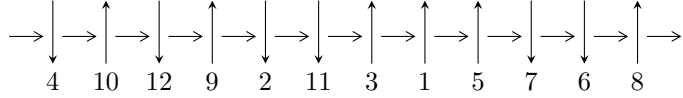


12a₁₂₀₀ (K12a₁₂₀₀)



A knot diagram¹

Linearized knot diagram



Solving Sequence

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

Ideals for irreducible components² of X_{par}

$$I_1^u = \langle -2.47770 \times 10^{71} u^{37} - 6.71387 \times 10^{72} u^{36} + \dots + 8.89209 \times 10^{71} b + 3.00786 \times 10^{74}, \\ - 3.75982 \times 10^{73} u^{37} - 1.01509 \times 10^{75} u^{36} + \dots + 1.35160 \times 10^{74} a + 6.53327 \times 10^{76}, \\ u^{38} + 28u^{37} + \dots - 20672u - 1216 \rangle$$

$$I_2^u = \langle 1.23963 \times 10^{66} u^{44} - 1.60230 \times 10^{67} u^{43} + \dots + 2.01296 \times 10^{66} b - 2.34540 \times 10^{67}, \\ 2.22813 \times 10^{69} au^{44} + 2.15790 \times 10^{69} u^{44} + \dots + 2.36150 \times 10^{72} a - 1.72905 \times 10^{72}, \\ u^{45} - 14u^{44} + \dots + 647u - 95 \rangle$$

$$I_3^u = \langle 25355163523791u^{16} - 260299596465976u^{15} + \dots + 37179633494568b + 433910338329094, \\ 433910338329094u^{16} - 4443396595810751u^{15} + \dots + 483335235429384a + 6883326552789727, \\ u^{17} - 11u^{16} + \dots + 61u - 13 \rangle$$

$$I_4^u = \langle u^6 + u^3 + au + 2u^2 + b, u^5 a - 2u^6 + 2u^5 - u^4 + u^2 a - 4u^3 + a^2 + 2au + 2u - 4, u^7 + 2u^4 + 2u^3 + u + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 159 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.

$$\mathbf{I. } I_1^u = \langle -2.48 \times 10^{71} u^{37} - 6.71 \times 10^{72} u^{36} + \dots + 8.89 \times 10^{71} b + 3.01 \times 10^{74}, -3.76 \times 10^{73} u^{37} - 1.02 \times 10^{75} u^{36} + \dots + 1.35 \times 10^{74} a + 6.53 \times 10^{76}, u^{38} + 28u^{37} + \dots - 20672u - 1216 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.278176u^{37} + 7.51030u^{36} + \dots - 7216.69u - 483.374 \\ 0.278641u^{37} + 7.55038u^{36} + \dots - 5267.09u - 338.262 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.424357u^{37} + 11.7318u^{36} + \dots - 10457.3u - 615.084 \\ 0.150150u^{37} + 4.27796u^{36} + \dots - 8156.22u - 516.018 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.200449u^{37} + 5.56029u^{36} + \dots - 4888.93u - 281.649 \\ 0.156639u^{37} + 4.39770u^{36} + \dots - 6405.46u - 397.016 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.33444u^{37} + 36.6406u^{36} + \dots - 35526.8u - 2221.43 \\ 0.472053u^{37} + 13.1388u^{36} + \dots - 19942.2u - 1283.85 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.000464714u^{37} - 0.0400856u^{36} + \dots - 1949.60u - 145.111 \\ 0.278641u^{37} + 7.55038u^{36} + \dots - 5267.09u - 338.262 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.274206u^{37} - 7.45387u^{36} + \dots + 2300.05u + 100.066 \\ -0.150150u^{37} - 4.27796u^{36} + \dots + 8157.22u + 516.018 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.623672u^{37} + 17.0040u^{36} + \dots - 7186.67u - 372.024 \\ 0.332004u^{37} + 9.32506u^{36} + \dots - 14197.7u - 889.830 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.936820u^{37} + 25.3070u^{36} + \dots - 10048.7u - 559.487 \\ 0.968072u^{37} + 26.7304u^{36} + \dots - 27389.6u - 1696.11 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0194774u^{37} - 0.714546u^{36} + \dots + 2524.43u + 121.508 \\ 0.496891u^{37} + 13.3900u^{36} + \dots - 1264.32u - 16.4375 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $0.0832928u^{37} + 1.12467u^{36} + \dots + 28762.4u + 1917.32$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} - 28u^{37} + \dots + 20672u - 1216$
c_2, c_7	$u^{38} + u^{37} + \dots + 3u - 1$
c_3, c_5	$u^{38} - 3u^{37} + \dots + 54u - 7$
c_4, c_8, c_9 c_{12}	$u^{38} - 19u^{36} + \dots - u + 1$
c_6, c_{10}, c_{11}	$u^{38} + 8u^{37} + \dots - 50u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38} - 4y^{37} + \dots + 24750464y + 1478656$
c_2, c_7	$y^{38} - 37y^{37} + \dots - 51y + 1$
c_3, c_5	$y^{38} + 7y^{37} + \dots + 948y + 49$
c_4, c_8, c_9 c_{12}	$y^{38} - 38y^{37} + \dots - 35y + 1$
c_6, c_{10}, c_{11}	$y^{38} + 36y^{37} + \dots - 316y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.682195 + 0.762723I$ $a = -0.498556 - 1.296080I$ $b = -1.32867 - 0.50392I$	$5.16261 + 6.22750I$	0
$u = -0.682195 - 0.762723I$ $a = -0.498556 + 1.296080I$ $b = -1.32867 + 0.50392I$	$5.16261 - 6.22750I$	0
$u = -0.948277 + 0.506166I$ $a = 0.357357 - 0.741251I$ $b = -0.036323 - 0.883794I$	$4.64617 + 7.95698I$	0
$u = -0.948277 - 0.506166I$ $a = 0.357357 + 0.741251I$ $b = -0.036323 + 0.883794I$	$4.64617 - 7.95698I$	0
$u = -0.294503 + 0.866980I$ $a = -0.585565 + 0.337901I$ $b = 0.120503 + 0.607186I$	$6.70670 - 3.19363I$	0
$u = -0.294503 - 0.866980I$ $a = -0.585565 - 0.337901I$ $b = 0.120503 - 0.607186I$	$6.70670 + 3.19363I$	0
$u = -0.809538 + 0.384223I$ $a = -0.450170 + 0.858186I$ $b = -0.034695 + 0.867701I$	$-1.50443 + 3.87717I$	$0. - 6.90669I$
$u = -0.809538 - 0.384223I$ $a = -0.450170 - 0.858186I$ $b = -0.034695 - 0.867701I$	$-1.50443 - 3.87717I$	$0. + 6.90669I$
$u = -0.078087 + 1.138990I$ $a = 0.084984 - 0.995053I$ $b = -1.126720 - 0.174497I$	$7.14423 - 1.93403I$	0
$u = -0.078087 - 1.138990I$ $a = 0.084984 + 0.995053I$ $b = -1.126720 + 0.174497I$	$7.14423 + 1.93403I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.19263$ $a = -1.16981$ $b = -1.39515$	8.14584	0
$u = 1.19671$ $a = 0.140227$ $b = -0.167811$	-2.28978	0
$u = -0.409471 + 0.689495I$ $a = 0.28064 + 1.47948I$ $b = 1.135010 + 0.412302I$	$2.51458 + 1.40446I$	$0. + 1.66220I$
$u = -0.409471 - 0.689495I$ $a = 0.28064 - 1.47948I$ $b = 1.135010 - 0.412302I$	$2.51458 - 1.40446I$	$0. - 1.66220I$
$u = -0.486590 + 0.508142I$ $a = 1.33553 + 1.63331I$ $b = 1.47981 + 0.11611I$	$13.69540 + 0.47437I$	$10.57797 + 0.I$
$u = -0.486590 - 0.508142I$ $a = 1.33553 - 1.63331I$ $b = 1.47981 - 0.11611I$	$13.69540 - 0.47437I$	$10.57797 + 0.I$
$u = 1.254080 + 0.517048I$ $a = -0.211408 - 0.032930I$ $b = 0.248096 + 0.150605I$	$1.85469 - 1.68737I$	0
$u = 1.254080 - 0.517048I$ $a = -0.211408 + 0.032930I$ $b = 0.248096 - 0.150605I$	$1.85469 + 1.68737I$	0
$u = -0.534423 + 0.232538I$ $a = 0.849709 - 1.051240I$ $b = 0.209652 - 0.759395I$	$-0.216786 - 1.102140I$	$6.06046 - 0.98798I$
$u = -0.534423 - 0.232538I$ $a = 0.849709 + 1.051240I$ $b = 0.209652 + 0.759395I$	$-0.216786 + 1.102140I$	$6.06046 + 0.98798I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.79600 + 1.25404I$ $a = 0.280283 + 1.010800I$ $b = 1.49069 + 0.45311I$	$16.6042 + 5.5812I$	0
$u = -0.79600 - 1.25404I$ $a = 0.280283 - 1.010800I$ $b = 1.49069 - 0.45311I$	$16.6042 - 5.5812I$	0
$u = -1.26064 + 1.00414I$ $a = -0.616800 - 0.532433I$ $b = -1.312200 - 0.051852I$	$7.87194 - 0.16156I$	0
$u = -1.26064 - 1.00414I$ $a = -0.616800 + 0.532433I$ $b = -1.312200 + 0.051852I$	$7.87194 + 0.16156I$	0
$u = -1.02376 + 1.27175I$ $a = -0.347514 - 0.890216I$ $b = -1.48790 - 0.46941I$	$8.78158 + 8.86700I$	0
$u = -1.02376 - 1.27175I$ $a = -0.347514 + 0.890216I$ $b = -1.48790 + 0.46941I$	$8.78158 - 8.86700I$	0
$u = -0.026194 + 0.314902I$ $a = 1.304250 + 0.123198I$ $b = 0.072959 - 0.407482I$	$0.104937 - 1.022030I$	$1.88495 + 5.89504I$
$u = -0.026194 - 0.314902I$ $a = 1.304250 - 0.123198I$ $b = 0.072959 + 0.407482I$	$0.104937 + 1.022030I$	$1.88495 - 5.89504I$
$u = -1.11118 + 1.40570I$ $a = 0.306522 + 0.814258I$ $b = 1.48520 + 0.47391I$	$8.0623 + 14.2088I$	0
$u = -1.11118 - 1.40570I$ $a = 0.306522 - 0.814258I$ $b = 1.48520 - 0.47391I$	$8.0623 - 14.2088I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.11056 + 1.52382I$ $a = -0.256748 - 0.786495I$ $b = -1.48361 - 0.48221I$	$14.4591 + 18.3981I$	0
$u = -1.11056 - 1.52382I$ $a = -0.256748 + 0.786495I$ $b = -1.48361 + 0.48221I$	$14.4591 - 18.3981I$	0
$u = -2.18875 + 0.58924I$ $a = 0.574000 + 0.132729I$ $b = 1.334550 - 0.047713I$	$13.29000 + 2.22094I$	0
$u = -2.18875 - 0.58924I$ $a = 0.574000 - 0.132729I$ $b = 1.334550 + 0.047713I$	$13.29000 - 2.22094I$	0
$u = -1.53894 + 1.77068I$ $a = 0.341740 + 0.404686I$ $b = 1.242490 + 0.017674I$	$7.26991 - 3.65388I$	0
$u = -1.53894 - 1.77068I$ $a = 0.341740 - 0.404686I$ $b = 1.242490 - 0.017674I$	$7.26991 + 3.65388I$	0
$u = -1.95702 + 2.08898I$ $a = -0.295957 - 0.310278I$ $b = -1.227360 + 0.011029I$	$13.0421 - 6.7762I$	0
$u = -1.95702 - 2.08898I$ $a = -0.295957 + 0.310278I$ $b = -1.227360 - 0.011029I$	$13.0421 + 6.7762I$	0

$$\text{II. } I_2^u = \langle 1.24 \times 10^{66} u^{44} - 1.60 \times 10^{67} u^{43} + \dots + 2.01 \times 10^{66} b - 2.35 \times 10^{67}, 2.23 \times 10^{69} a u^{44} + 2.16 \times 10^{69} u^{44} + \dots + 2.36 \times 10^{72} a - 1.73 \times 10^{72}, u^{45} - 14u^{44} + \dots + 647u - 95 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ -0.615824u^{44} + 7.95994u^{43} + \dots + 50.6359u + 11.6515 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.615824au^{44} - 0.491264u^{44} + \dots - 11.6515a - 11.2843 \\ -0.336732u^{44} + 4.56789u^{43} + \dots + 307.564u - 46.6701 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.929888au^{44} - 0.300893u^{44} + \dots + 51.1995a + 3.39628 \\ -0.382414au^{44} - 0.271052u^{44} + \dots - 10.1434a - 38.4007 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.459564au^{44} + 0.593910u^{44} + \dots + 55.6239a + 93.8232 \\ 0.146361au^{44} - 0.615824u^{44} + \dots + 31.9895a + 11.6515 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.615824u^{44} - 7.95994u^{43} + \dots + a - 11.6515 \\ -0.615824u^{44} + 7.95994u^{43} + \dots + 50.6359u + 11.6515 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.661589au^{44} - 0.0317001u^{44} + \dots + 58.5032a + 44.3396 \\ -0.661589au^{44} - 0.459564u^{44} + \dots - 58.5032a - 54.6239 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.0360838au^{44} + 0.167204u^{44} + \dots + 4.77789a + 46.2078 \\ 0.103674au^{44} - 0.311210u^{44} + \dots + 31.7125a - 4.01151 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.550513au^{44} - 0.0645878u^{44} + \dots + 35.7555a + 70.1492 \\ -0.0874292au^{44} - 0.798455u^{44} + \dots + 39.9458a - 99.3659 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.680827au^{44} - 0.423692u^{44} + \dots + 153.624a - 54.8531 \\ -0.749233au^{44} + 0.213638u^{44} + \dots - 77.8171a - 54.6297 \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-3.08751u^{44} + 43.6285u^{43} + \dots + 3503.19u - 546.068$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{45} + 14u^{44} + \dots + 647u + 95)^2$
c_2, c_7	$u^{90} + 2u^{89} + \dots + 36484534u + 8946419$
c_3, c_5	$u^{90} + 3u^{89} + \dots - 321472u + 57793$
c_4, c_8, c_9 c_{12}	$u^{90} + u^{89} + \dots - 4u^2 + 1$
c_6, c_{10}, c_{11}	$(u^{45} - 3u^{44} + \dots + 15u^2 - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{45} + 26y^{44} + \dots - 136951y - 9025)^2$
c_2, c_7	$y^{90} - 20y^{89} + \dots - 2040881454030634y + 80038412923561$
c_3, c_5	$y^{90} + 9y^{89} + \dots + 26479752282y + 3340030849$
c_4, c_8, c_9 c_{12}	$y^{90} - 69y^{89} + \dots - 8y + 1$
c_6, c_{10}, c_{11}	$(y^{45} + 45y^{44} + \dots + 30y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.611610 + 0.781700I$ $a = 0.729264 - 1.039030I$ $b = -1.262600 - 0.392766I$	$2.32033 + 8.38253I$	$0. - 9.64974I$
$u = -0.611610 + 0.781700I$ $a = -0.472221 - 1.245730I$ $b = -0.366184 - 1.205550I$	$2.32033 + 8.38253I$	$0. - 9.64974I$
$u = -0.611610 - 0.781700I$ $a = 0.729264 + 1.039030I$ $b = -1.262600 + 0.392766I$	$2.32033 - 8.38253I$	$0. + 9.64974I$
$u = -0.611610 - 0.781700I$ $a = -0.472221 + 1.245730I$ $b = -0.366184 + 1.205550I$	$2.32033 - 8.38253I$	$0. + 9.64974I$
$u = 0.539451 + 0.881956I$ $a = -0.829441 - 0.107208I$ $b = 1.250180 - 0.180411I$	$1.59150 - 2.15051I$	0
$u = 0.539451 + 0.881956I$ $a = -0.482101 + 1.122630I$ $b = 0.352890 + 0.789364I$	$1.59150 - 2.15051I$	0
$u = 0.539451 - 0.881956I$ $a = -0.829441 + 0.107208I$ $b = 1.250180 + 0.180411I$	$1.59150 + 2.15051I$	0
$u = 0.539451 - 0.881956I$ $a = -0.482101 - 1.122630I$ $b = 0.352890 - 0.789364I$	$1.59150 + 2.15051I$	0
$u = -0.149036 + 0.922013I$ $a = -0.001131 - 1.359660I$ $b = -0.247151 - 1.342480I$	$10.83630 - 0.43960I$	$11.40794 + 0.I$
$u = -0.149036 + 0.922013I$ $a = 1.37673 - 0.49059I$ $b = -1.253790 - 0.201595I$	$10.83630 - 0.43960I$	$11.40794 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.149036 - 0.922013I$ $a = -0.001131 + 1.359660I$ $b = -0.247151 + 1.342480I$	$10.83630 + 0.43960I$	$11.40794 + 0.I$
$u = -0.149036 - 0.922013I$ $a = 1.37673 + 0.49059I$ $b = -1.253790 + 0.201595I$	$10.83630 + 0.43960I$	$11.40794 + 0.I$
$u = 0.666316 + 0.841914I$ $a = 0.428169 - 0.840537I$ $b = 0.113870 - 0.741259I$	$-0.32693 - 2.59057I$	0
$u = 0.666316 + 0.841914I$ $a = 0.475542 + 0.511609I$ $b = -0.992955 + 0.199582I$	$-0.32693 - 2.59057I$	0
$u = 0.666316 - 0.841914I$ $a = 0.428169 + 0.840537I$ $b = 0.113870 + 0.741259I$	$-0.32693 + 2.59057I$	0
$u = 0.666316 - 0.841914I$ $a = 0.475542 - 0.511609I$ $b = -0.992955 - 0.199582I$	$-0.32693 + 2.59057I$	0
$u = 0.638115 + 0.635046I$ $a = 0.912716 + 0.034496I$ $b = -1.228450 + 0.253822I$	$5.51564 - 1.64544I$	$5.84263 - 1.31809I$
$u = 0.638115 + 0.635046I$ $a = 0.768321 - 1.162400I$ $b = -0.560511 - 0.601629I$	$5.51564 - 1.64544I$	$5.84263 - 1.31809I$
$u = 0.638115 - 0.635046I$ $a = 0.912716 - 0.034496I$ $b = -1.228450 - 0.253822I$	$5.51564 + 1.64544I$	$5.84263 + 1.31809I$
$u = 0.638115 - 0.635046I$ $a = 0.768321 + 1.162400I$ $b = -0.560511 + 0.601629I$	$5.51564 + 1.64544I$	$5.84263 + 1.31809I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.11036$ $a = 0.144304 + 0.256392I$ $b = -0.160229 + 0.284686I$	-2.27006	0
$u = 1.11036$ $a = 0.144304 - 0.256392I$ $b = -0.160229 - 0.284686I$	-2.27006	0
$u = -0.775611 + 0.416273I$ $a = -1.56216 - 0.30077I$ $b = -0.121214 + 0.254236I$	$8.62121 + 3.17668I$	$4.82175 - 5.04350I$
$u = -0.775611 + 0.416273I$ $a = -0.257914 + 0.189364I$ $b = -1.336830 + 0.417007I$	$8.62121 + 3.17668I$	$4.82175 - 5.04350I$
$u = -0.775611 - 0.416273I$ $a = -1.56216 + 0.30077I$ $b = -0.121214 - 0.254236I$	$8.62121 - 3.17668I$	$4.82175 + 5.04350I$
$u = -0.775611 - 0.416273I$ $a = -0.257914 - 0.189364I$ $b = -1.336830 - 0.417007I$	$8.62121 - 3.17668I$	$4.82175 + 5.04350I$
$u = -0.681944 + 0.897038I$ $a = -0.690712 + 0.859416I$ $b = 1.309170 + 0.393232I$	$8.8609 + 12.5151I$	0
$u = -0.681944 + 0.897038I$ $a = 0.425318 + 1.136100I$ $b = 0.299902 + 1.205670I$	$8.8609 + 12.5151I$	0
$u = -0.681944 - 0.897038I$ $a = -0.690712 - 0.859416I$ $b = 1.309170 - 0.393232I$	$8.8609 - 12.5151I$	0
$u = -0.681944 - 0.897038I$ $a = 0.425318 - 1.136100I$ $b = 0.299902 - 1.205670I$	$8.8609 - 12.5151I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.211924 + 1.112060I$ $a = -0.479293 - 1.016480I$ $b = 0.066519 - 0.176869I$	$3.71495 - 4.17242I$	0
$u = -0.211924 + 1.112060I$ $a = 0.164472 + 0.028472I$ $b = -1.231970 + 0.317586I$	$3.71495 - 4.17242I$	0
$u = -0.211924 - 1.112060I$ $a = -0.479293 + 1.016480I$ $b = 0.066519 + 0.176869I$	$3.71495 + 4.17242I$	0
$u = -0.211924 - 1.112060I$ $a = 0.164472 - 0.028472I$ $b = -1.231970 - 0.317586I$	$3.71495 + 4.17242I$	0
$u = 0.653910 + 0.547063I$ $a = -1.086380 + 0.896906I$ $b = -1.91786 + 0.58852I$	$5.97311 - 0.46804I$	$7.56258 + 9.30382I$
$u = 0.653910 + 0.547063I$ $a = 1.28241 - 1.97286I$ $b = 1.201060 + 0.007824I$	$5.97311 - 0.46804I$	$7.56258 + 9.30382I$
$u = 0.653910 - 0.547063I$ $a = -1.086380 - 0.896906I$ $b = -1.91786 - 0.58852I$	$5.97311 + 0.46804I$	$7.56258 - 9.30382I$
$u = 0.653910 - 0.547063I$ $a = 1.28241 + 1.97286I$ $b = 1.201060 - 0.007824I$	$5.97311 + 0.46804I$	$7.56258 - 9.30382I$
$u = 0.576783 + 1.030760I$ $a = 0.873639 + 0.089311I$ $b = -1.318070 + 0.145393I$	$6.72958 - 3.09750I$	0
$u = 0.576783 + 1.030760I$ $a = 0.437503 - 1.033930I$ $b = -0.411842 - 0.952021I$	$6.72958 - 3.09750I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.576783 - 1.030760I$ $a = 0.873639 - 0.089311I$ $b = -1.318070 - 0.145393I$	$6.72958 + 3.09750I$	0
$u = 0.576783 - 1.030760I$ $a = 0.437503 + 1.033930I$ $b = -0.411842 + 0.952021I$	$6.72958 + 3.09750I$	0
$u = -0.418461 + 0.682095I$ $a = 0.41304 + 1.48489I$ $b = 0.452920 + 1.334230I$	$2.86075 + 2.90624I$	$6.70323 - 8.96973I$
$u = -0.418461 + 0.682095I$ $a = -1.12521 + 1.35432I$ $b = 1.185680 + 0.339637I$	$2.86075 + 2.90624I$	$6.70323 - 8.96973I$
$u = -0.418461 - 0.682095I$ $a = 0.41304 - 1.48489I$ $b = 0.452920 - 1.334230I$	$2.86075 - 2.90624I$	$6.70323 + 8.96973I$
$u = -0.418461 - 0.682095I$ $a = -1.12521 - 1.35432I$ $b = 1.185680 - 0.339637I$	$2.86075 - 2.90624I$	$6.70323 + 8.96973I$
$u = 1.178110 + 0.303143I$ $a = -0.326728 + 0.359344I$ $b = 0.011662 + 0.553716I$	$1.78035 - 1.52529I$	0
$u = 1.178110 + 0.303143I$ $a = -0.122713 - 0.438429I$ $b = 0.493854 - 0.324300I$	$1.78035 - 1.52529I$	0
$u = 1.178110 - 0.303143I$ $a = -0.326728 - 0.359344I$ $b = 0.011662 - 0.553716I$	$1.78035 + 1.52529I$	0
$u = 1.178110 - 0.303143I$ $a = -0.122713 + 0.438429I$ $b = 0.493854 + 0.324300I$	$1.78035 + 1.52529I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.354893 + 0.613023I$ $a = -0.80218 + 1.22978I$ $b = -0.253625 + 1.040460I$	$1.59061 + 0.21798I$	$2.72267 + 0.45000I$
$u = 0.354893 + 0.613023I$ $a = -1.09182 - 1.04581I$ $b = 1.038570 + 0.055317I$	$1.59061 + 0.21798I$	$2.72267 + 0.45000I$
$u = 0.354893 - 0.613023I$ $a = -0.80218 - 1.22978I$ $b = -0.253625 - 1.040460I$	$1.59061 - 0.21798I$	$2.72267 - 0.45000I$
$u = 0.354893 - 0.613023I$ $a = -1.09182 + 1.04581I$ $b = 1.038570 - 0.055317I$	$1.59061 - 0.21798I$	$2.72267 - 0.45000I$
$u = 0.712444 + 1.138040I$ $a = -0.212487 + 0.798192I$ $b = -0.154669 + 0.667898I$	$4.38368 - 4.83757I$	0
$u = 0.712444 + 1.138040I$ $a = -0.360514 - 0.361601I$ $b = 1.059760 - 0.326849I$	$4.38368 - 4.83757I$	0
$u = 0.712444 - 1.138040I$ $a = -0.212487 - 0.798192I$ $b = -0.154669 - 0.667898I$	$4.38368 + 4.83757I$	0
$u = 0.712444 - 1.138040I$ $a = -0.360514 + 0.361601I$ $b = 1.059760 + 0.326849I$	$4.38368 + 4.83757I$	0
$u = 0.793086 + 1.112180I$ $a = 0.482589 - 0.784671I$ $b = 1.56067 - 0.52472I$	$7.73394 - 5.25113I$	0
$u = 0.793086 + 1.112180I$ $a = -0.350583 + 1.153260I$ $b = -1.255430 + 0.085588I$	$7.73394 - 5.25113I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.793086 - 1.112180I$ $a = 0.482589 + 0.784671I$ $b = 1.56067 + 0.52472I$	$7.73394 + 5.25113I$	0
$u = 0.793086 - 1.112180I$ $a = -0.350583 - 1.153260I$ $b = -1.255430 - 0.085588I$	$7.73394 + 5.25113I$	0
$u = 0.253150 + 0.576313I$ $a = 0.93483 - 1.72737I$ $b = 1.69263 - 0.97809I$	$12.01940 + 4.51852I$	$17.3811 - 5.6393I$
$u = 0.253150 + 0.576313I$ $a = 0.34122 + 3.08688I$ $b = -1.232160 - 0.101472I$	$12.01940 + 4.51852I$	$17.3811 - 5.6393I$
$u = 0.253150 - 0.576313I$ $a = 0.93483 + 1.72737I$ $b = 1.69263 + 0.97809I$	$12.01940 - 4.51852I$	$17.3811 + 5.6393I$
$u = 0.253150 - 0.576313I$ $a = 0.34122 - 3.08688I$ $b = -1.232160 + 0.101472I$	$12.01940 - 4.51852I$	$17.3811 + 5.6393I$
$u = 0.486761 + 1.290350I$ $a = -0.288375 + 0.934430I$ $b = -1.48316 + 0.65192I$	$15.0045 - 7.7049I$	0
$u = 0.486761 + 1.290350I$ $a = -0.062701 - 1.173080I$ $b = 1.346110 - 0.082739I$	$15.0045 - 7.7049I$	0
$u = 0.486761 - 1.290350I$ $a = -0.288375 - 0.934430I$ $b = -1.48316 - 0.65192I$	$15.0045 + 7.7049I$	0
$u = 0.486761 - 1.290350I$ $a = -0.062701 + 1.173080I$ $b = 1.346110 + 0.082739I$	$15.0045 + 7.7049I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.298408 + 0.518145I$ $a = 0.160912 + 0.325351I$ $b = 1.331610 - 0.284286I$	$3.05397 - 0.51778I$	$4.68541 - 4.29429I$
$u = -0.298408 + 0.518145I$ $a = 1.52344 + 1.69258I$ $b = 0.216596 + 0.013712I$	$3.05397 - 0.51778I$	$4.68541 - 4.29429I$
$u = -0.298408 - 0.518145I$ $a = 0.160912 - 0.325351I$ $b = 1.331610 + 0.284286I$	$3.05397 + 0.51778I$	$4.68541 + 4.29429I$
$u = -0.298408 - 0.518145I$ $a = 1.52344 - 1.69258I$ $b = 0.216596 - 0.013712I$	$3.05397 + 0.51778I$	$4.68541 + 4.29429I$
$u = -0.48885 + 1.42397I$ $a = 0.480075 + 0.691881I$ $b = -0.228923 + 0.089425I$	$9.94023 - 6.86720I$	0
$u = -0.48885 + 1.42397I$ $a = -0.105551 - 0.124529I$ $b = 1.219900 - 0.345387I$	$9.94023 - 6.86720I$	0
$u = -0.48885 - 1.42397I$ $a = 0.480075 - 0.691881I$ $b = -0.228923 - 0.089425I$	$9.94023 + 6.86720I$	0
$u = -0.48885 - 1.42397I$ $a = -0.105551 + 0.124529I$ $b = 1.219900 + 0.345387I$	$9.94023 + 6.86720I$	0
$u = 1.30403 + 1.57384I$ $a = -0.317525 + 0.634119I$ $b = -1.138430 + 0.205272I$	$7.21426 - 4.49667I$	0
$u = 1.30403 + 1.57384I$ $a = 0.278035 - 0.492975I$ $b = 1.41206 - 0.32718I$	$7.21426 - 4.49667I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.30403 - 1.57384I$ $a = -0.317525 - 0.634119I$ $b = -1.138430 - 0.205272I$	$7.21426 + 4.49667I$	0
$u = 1.30403 - 1.57384I$ $a = 0.278035 + 0.492975I$ $b = 1.41206 + 0.32718I$	$7.21426 + 4.49667I$	0
$u = 1.03866 + 1.81167I$ $a = 0.185228 - 0.628944I$ $b = 1.165440 - 0.361396I$	$4.20549 - 6.43436I$	0
$u = 1.03866 + 1.81167I$ $a = -0.127441 + 0.570229I$ $b = -1.331830 + 0.317689I$	$4.20549 - 6.43436I$	0
$u = 1.03866 - 1.81167I$ $a = 0.185228 + 0.628944I$ $b = 1.165440 + 0.361396I$	$4.20549 + 6.43436I$	0
$u = 1.03866 - 1.81167I$ $a = -0.127441 - 0.570229I$ $b = -1.331830 - 0.317689I$	$4.20549 + 6.43436I$	0
$u = 0.88495 + 1.89707I$ $a = -0.144548 + 0.642165I$ $b = -1.139300 + 0.488014I$	$9.10603 - 8.38435I$	0
$u = 0.88495 + 1.89707I$ $a = 0.018811 - 0.591785I$ $b = 1.346150 - 0.294066I$	$9.10603 - 8.38435I$	0
$u = 0.88495 - 1.89707I$ $a = -0.144548 - 0.642165I$ $b = -1.139300 - 0.488014I$	$9.10603 + 8.38435I$	0
$u = 0.88495 - 1.89707I$ $a = 0.018811 + 0.591785I$ $b = 1.346150 + 0.294066I$	$9.10603 + 8.38435I$	0

$$\text{III. } I_3^u = \langle 2.54 \times 10^{13} u^{16} - 2.60 \times 10^{14} u^{15} + \dots + 3.72 \times 10^{13} b + 4.34 \times 10^{14}, 4.34 \times 10^{14} u^{16} - 4.44 \times 10^{15} u^{15} + \dots + 4.83 \times 10^{14} a + 6.88 \times 10^{15}, u^{17} - 11u^{16} + \dots + 61u - 13 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_1 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_4 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_2 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_9 &= \begin{pmatrix} -0.897742u^{16} + 9.19320u^{15} + \dots + 51.7535u - 14.2413 \\ -0.681964u^{16} + 7.00113u^{15} + \dots + 40.5210u - 11.6706 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.580585u^{16} + 5.92362u^{15} + \dots + 27.9777u - 9.09389 \\ -0.462812u^{16} + 4.80350u^{15} + \dots + 27.3218u - 7.54760 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.405201u^{16} + 4.13662u^{15} + \dots + 21.3399u - 7.56285 \\ -0.375250u^{16} + 3.87515u^{15} + \dots + 20.9267u - 5.69881 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -1.05032u^{16} + 10.7472u^{15} + \dots + 64.2093u - 17.6504 \\ -0.305860u^{16} + 3.10669u^{15} + \dots + 16.4902u - 4.78869 \end{pmatrix} \\ a_8 &= \begin{pmatrix} -0.215778u^{16} + 2.19206u^{15} + \dots + 11.2325u - 2.57066 \\ -0.681964u^{16} + 7.00113u^{15} + \dots + 40.5210u - 11.6706 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -0.117773u^{16} + 1.12012u^{15} + \dots + 1.65596u - 0.546296 \\ -0.462812u^{16} + 4.80350u^{15} + \dots + 26.3218u - 7.54760 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -0.194696u^{16} + 1.96627u^{15} + \dots + 15.1175u - 4.23860 \\ -0.175383u^{16} + 1.78700u^{15} + \dots + 7.63785u - 2.53105 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -0.0383098u^{16} + 0.354981u^{15} + \dots - 3.47878u + 1.37647 \\ -0.566894u^{16} + 5.77956u^{15} + \dots + 33.6425u - 9.36356 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -1.28094u^{16} + 13.1157u^{15} + \dots + 65.7878u - 20.0167 \\ -0.489126u^{16} + 5.04876u^{15} + \dots + 30.3915u - 8.70823 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes

$$= \frac{14747391055457}{3098302791214} u^{16} - \frac{590594498534627}{12393211164856} u^{15} + \dots - \frac{1018255900118941}{4647454186821} u + \frac{2397735479791261}{37179633494568}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{17} - 11u^{16} + \dots + 61u - 13$
c_2, c_7	$u^{17} - u^{16} + \dots + 5u^2 + 1$
c_3, c_5	$u^{17} + 3u^{16} + \dots + 3u + 1$
c_4, c_8	$u^{17} - 7u^{15} + \dots - 7u^2 + 1$
c_6	$u^{17} + 3u^{16} + \dots - 2u - 1$
c_9, c_{12}	$u^{17} - 7u^{15} + \dots + 7u^2 - 1$
c_{10}, c_{11}	$u^{17} - 3u^{16} + \dots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{17} + 13y^{16} + \dots - 829y - 169$
c_2, c_7	$y^{17} + 3y^{16} + \dots - 10y - 1$
c_3, c_5	$y^{17} + 3y^{16} + \dots - 5y - 1$
c_4, c_8, c_9 c_{12}	$y^{17} - 14y^{16} + \dots + 14y - 1$
c_6, c_{10}, c_{11}	$y^{17} + 17y^{16} + \dots + 18y^2 - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.672523 + 0.994302I$ $a = -0.231992 + 1.105750I$ $b = -1.255470 + 0.512970I$	$4.86856 - 6.83059I$	$4.20585 + 10.23104I$
$u = 0.672523 - 0.994302I$ $a = -0.231992 - 1.105750I$ $b = -1.255470 - 0.512970I$	$4.86856 + 6.83059I$	$4.20585 - 10.23104I$
$u = 0.739575 + 0.064407I$ $a = 0.475693 + 0.886639I$ $b = 0.294705 + 0.686375I$	$-0.84670 + 1.37045I$	$-5.30898 - 4.32463I$
$u = 0.739575 - 0.064407I$ $a = 0.475693 - 0.886639I$ $b = 0.294705 - 0.686375I$	$-0.84670 - 1.37045I$	$-5.30898 + 4.32463I$
$u = 1.29126$ $a = 0.338230$ $b = 0.436742$	-2.05037	18.8440
$u = 0.227690 + 0.618552I$ $a = -0.24105 - 1.81338I$ $b = 1.066790 - 0.561990I$	$3.26404 - 1.84385I$	$9.66761 + 2.94728I$
$u = 0.227690 - 0.618552I$ $a = -0.24105 + 1.81338I$ $b = 1.066790 + 0.561990I$	$3.26404 + 1.84385I$	$9.66761 - 2.94728I$
$u = 1.39451 + 0.50448I$ $a = -0.386813 + 0.041871I$ $b = -0.560538 - 0.136750I$	$2.28339 - 1.51196I$	$11.74266 - 3.04379I$
$u = 1.39451 - 0.50448I$ $a = -0.386813 - 0.041871I$ $b = -0.560538 + 0.136750I$	$2.28339 + 1.51196I$	$11.74266 + 3.04379I$
$u = -0.221722 + 0.326447I$ $a = 2.34722 + 1.33971I$ $b = -0.957777 + 0.469199I$	$9.57721 + 2.19585I$	$10.18532 - 0.67460I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.221722 - 0.326447I$		
$a = 2.34722 - 1.33971I$	$9.57721 - 2.19585I$	$10.18532 + 0.67460I$
$b = -0.957777 - 0.469199I$		
$u = 0.70704 + 1.73293I$		
$a = -0.071556 + 0.682925I$	$5.17054 - 6.41143I$	$8.12565 + 7.83272I$
$b = -1.234060 + 0.358853I$		
$u = 0.70704 - 1.73293I$		
$a = -0.071556 - 0.682925I$	$5.17054 + 6.41143I$	$8.12565 - 7.83272I$
$b = -1.234060 - 0.358853I$		
$u = -0.06721 + 1.99987I$		
$a = -0.186400 - 0.566671I$	$11.28100 - 8.47803I$	$10.04502 + 7.78423I$
$b = 1.145800 - 0.334688I$		
$u = -0.06721 - 1.99987I$		
$a = -0.186400 + 0.566671I$	$11.28100 + 8.47803I$	$10.04502 - 7.78423I$
$b = 1.145800 + 0.334688I$		
$u = 1.40196 + 2.02720I$		
$a = 0.202703 - 0.492303I$	$8.19546 - 5.71646I$	$8.91465 + 6.33996I$
$b = 1.282180 - 0.279271I$		
$u = 1.40196 - 2.02720I$		
$a = 0.202703 + 0.492303I$	$8.19546 + 5.71646I$	$8.91465 - 6.33996I$
$b = 1.282180 + 0.279271I$		

IV.

$$I_4^u = \langle u^6 + u^3 + au + 2u^2 + b, u^5a - 2u^6 + \dots + a^2 - 4, u^7 + 2u^4 + 2u^3 + u + 1 \rangle$$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} a \\ -u^6 - u^3 - au - 2u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^6a - 2u^6 + u^5 - u^3a - 2u^2a - 4u^3 - 2u^2 + 2u - 2 \\ -u^6 - 2u^3 - 2u^2 + u - 2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^6a + u^5a - u^6 + u^5 - u^3a - u^2a - 2u^3 + au + 2u - 1 \\ -u^6 - u^4a - u^3a - 2u^3 - au - 2u^2 - a - 2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^6a + u^5a + u^5 - 2u^3a - u^4 + 2au + u^2 - a + u - 2 \\ -u^6 - u^2a - u^3 - 2u^2 - a \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^6 + u^3 + au + 2u^2 + a \\ -u^6 - u^3 - au - 2u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^6 + u^4a + 2u^3 + au + 2u^2 + a + 1 \\ u^6 - u^4a - u^5 + 2u^3 - au - a - 2u + 2 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} -u^6a - u^6 + u^5 - 2u^3a - u^4 - u^2a - u^3 + au - u^2 - a + u - 1 \\ -u^6 + u^5 + u^3a - u^4 - u^2a - u^3 - u^2 - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^4a + u^5 + u^3a - u^4 + 2au + 2u^2 + a - 1 \\ u^5a - u^6 - u^4a - 2u^3 - au - u^2 - a - u \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $4u^6 - 3u^5 + 2u^4 + 9u^3 + 3u^2 - 2u + 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^7 + 2u^4 + 2u^3 + u + 1)^2$
c_2, c_7	$u^{14} + u^{13} + \dots + 10u - 7$
c_3, c_5	$u^{14} - 8u^{13} + \dots - 2u + 1$
c_4, c_8	$u^{14} - 8u^{12} + \dots - 10u - 7$
c_6	$(u^7 - u^6 + 4u^5 - 3u^4 + 4u^3 - 3u^2 - 1)^2$
c_9, c_{12}	$u^{14} - 8u^{12} + \dots + 10u - 7$
c_{10}, c_{11}	$(u^7 + u^6 + 4u^5 + 3u^4 + 4u^3 + 3u^2 + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^7 + 4y^5 - 2y^4 + 4y^3 + y - 1)^2$
c_2, c_7	$y^{14} - 7y^{13} + \dots - 30y + 49$
c_3, c_5	$y^{14} - 10y^{13} + \dots - 14y + 1$
c_4, c_8, c_9 c_{12}	$y^{14} - 16y^{13} + \dots - 100y + 49$
c_6, c_{10}, c_{11}	$(y^7 + 7y^6 + 18y^5 + 17y^4 - 4y^3 - 15y^2 - 6y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.900716 + 0.538193I$ $a = 1.050160 + 0.494892I$ $b = 1.44605 + 0.54572I$	$11.31250 - 4.40574I$	$5.74423 + 3.20281I$
$u = -0.900716 + 0.538193I$ $a = -0.91628 - 1.15337I$ $b = -1.212240 + 0.119430I$	$11.31250 - 4.40574I$	$5.74423 + 3.20281I$
$u = -0.900716 - 0.538193I$ $a = 1.050160 - 0.494892I$ $b = 1.44605 - 0.54572I$	$11.31250 + 4.40574I$	$5.74423 - 3.20281I$
$u = -0.900716 - 0.538193I$ $a = -0.91628 + 1.15337I$ $b = -1.212240 - 0.119430I$	$11.31250 + 4.40574I$	$5.74423 - 3.20281I$
$u = 0.386298 + 0.728050I$ $a = -1.098970 - 0.313372I$ $b = 1.208430 - 0.210612I$	$1.98837 - 1.74054I$	$5.22031 - 0.02742I$
$u = 0.386298 + 0.728050I$ $a = 0.46148 - 1.41496I$ $b = -0.196378 - 0.921156I$	$1.98837 - 1.74054I$	$5.22031 - 0.02742I$
$u = 0.386298 - 0.728050I$ $a = -1.098970 + 0.313372I$ $b = 1.208430 + 0.210612I$	$1.98837 + 1.74054I$	$5.22031 + 0.02742I$
$u = 0.386298 - 0.728050I$ $a = 0.46148 + 1.41496I$ $b = -0.196378 + 0.921156I$	$1.98837 + 1.74054I$	$5.22031 + 0.02742I$
$u = -0.705834$ $a = -1.72443$ $b = -1.98557$	6.21285	13.2580
$u = -0.705834$ $a = 2.81309$ $b = 1.21716$	6.21285	13.2580

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.867335 + 1.068730I$	$4.97682 - 2.64701I$	$1.40643 + 3.44312I$
$a = -0.494795 + 0.762932I$		
$b = 0.382866 + 0.494187I$		
$u = 0.867335 + 1.068730I$	$4.97682 - 2.64701I$	$1.40643 + 3.44312I$
$a = 0.454076 + 0.010265I$		
$b = -1.244520 + 0.132917I$		
$u = 0.867335 - 1.068730I$	$4.97682 + 2.64701I$	$1.40643 - 3.44312I$
$a = -0.494795 - 0.762932I$		
$b = 0.382866 - 0.494187I$		
$u = 0.867335 - 1.068730I$	$4.97682 + 2.64701I$	$1.40643 - 3.44312I$
$a = 0.454076 - 0.010265I$		
$b = -1.244520 - 0.132917I$		

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^7 + 2u^4 + 2u^3 + u + 1)^2)(u^{17} - 11u^{16} + \dots + 61u - 13)$ $\cdot (u^{38} - 28u^{37} + \dots + 20672u - 1216)$ $\cdot (u^{45} + 14u^{44} + \dots + 647u + 95)^2$
c_2, c_7	$(u^{14} + u^{13} + \dots + 10u - 7)(u^{17} - u^{16} + \dots + 5u^2 + 1)$ $\cdot (u^{38} + u^{37} + \dots + 3u - 1)(u^{90} + 2u^{89} + \dots + 3.64845 \times 10^7 u + 8946419)$
c_3, c_5	$(u^{14} - 8u^{13} + \dots - 2u + 1)(u^{17} + 3u^{16} + \dots + 3u + 1)$ $\cdot (u^{38} - 3u^{37} + \dots + 54u - 7)(u^{90} + 3u^{89} + \dots - 321472u + 57793)$
c_4, c_8	$(u^{14} - 8u^{12} + \dots - 10u - 7)(u^{17} - 7u^{15} + \dots - 7u^2 + 1)$ $\cdot (u^{38} - 19u^{36} + \dots - u + 1)(u^{90} + u^{89} + \dots - 4u^2 + 1)$
c_6	$((u^7 - u^6 + \dots - 3u^2 - 1)^2)(u^{17} + 3u^{16} + \dots - 2u - 1)$ $\cdot (u^{38} + 8u^{37} + \dots - 50u - 4)(u^{45} - 3u^{44} + \dots + 15u^2 - 1)^2$
c_9, c_{12}	$(u^{14} - 8u^{12} + \dots + 10u - 7)(u^{17} - 7u^{15} + \dots + 7u^2 - 1)$ $\cdot (u^{38} - 19u^{36} + \dots - u + 1)(u^{90} + u^{89} + \dots - 4u^2 + 1)$
c_{10}, c_{11}	$((u^7 + u^6 + \dots + 3u^2 + 1)^2)(u^{17} - 3u^{16} + \dots - 2u + 1)$ $\cdot (u^{38} + 8u^{37} + \dots - 50u - 4)(u^{45} - 3u^{44} + \dots + 15u^2 - 1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^7 + 4y^5 - 2y^4 + 4y^3 + y - 1)^2)(y^{17} + 13y^{16} + \dots - 829y - 169)$ $\cdot (y^{38} - 4y^{37} + \dots + 24750464y + 1478656)$ $\cdot (y^{45} + 26y^{44} + \dots - 136951y - 9025)^2$
c_2, c_7	$(y^{14} - 7y^{13} + \dots - 30y + 49)(y^{17} + 3y^{16} + \dots - 10y - 1)$ $\cdot (y^{38} - 37y^{37} + \dots - 51y + 1)$ $\cdot (y^{90} - 20y^{89} + \dots - 2040881454030634y + 80038412923561)$
c_3, c_5	$(y^{14} - 10y^{13} + \dots - 14y + 1)(y^{17} + 3y^{16} + \dots - 5y - 1)$ $\cdot (y^{38} + 7y^{37} + \dots + 948y + 49)$ $\cdot (y^{90} + 9y^{89} + \dots + 26479752282y + 3340030849)$
c_4, c_8, c_9 c_{12}	$(y^{14} - 16y^{13} + \dots - 100y + 49)(y^{17} - 14y^{16} + \dots + 14y - 1)$ $\cdot (y^{38} - 38y^{37} + \dots - 35y + 1)(y^{90} - 69y^{89} + \dots - 8y + 1)$
c_6, c_{10}, c_{11}	$(y^7 + 7y^6 + 18y^5 + 17y^4 - 4y^3 - 15y^2 - 6y - 1)^2$ $\cdot (y^{17} + 17y^{16} + \dots + 18y^2 - 1)(y^{38} + 36y^{37} + \dots - 316y + 16)$ $\cdot (y^{45} + 45y^{44} + \dots + 30y - 1)^2$