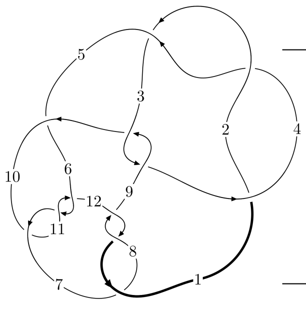
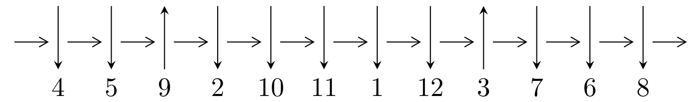
$12a_{0841}$ ($K12a_{0841}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3u^{28} - 5u^{27} + \cdots + 8b + 3,\ -29u^{28} - 15u^{27} + \cdots + 32a - 23,\ u^{29} + 15u^{27} + \cdots + 8u^2 - 1\rangle$$

$$I_2^u = \langle 4.83718 \times 10^{20}u^{45} + 8.97498 \times 10^{20}u^{44} + \cdots + 9.64382 \times 10^{20}b + 5.08979 \times 10^{21},$$
$$5.98621 \times 10^{21}u^{45} + 8.38005 \times 10^{21}u^{44} + \cdots + 2.89315 \times 10^{21}a + 6.78007 \times 10^{22},\ u^{46} + 2u^{45} + \cdots + 36u +$$

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

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

$$I_5^u = \langle au + 2b - a + 2u,\ a^2 - au + a + 2u,\ u^2 + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 86 representations.

[1] The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $\boldsymbol{I_1^u = \langle -3u^{28} - 5u^{27} + \cdots + 8b + 3,\ -29u^{28} - 15u^{27} + \cdots + 32a - 23,\ u^{29} + 15u^{27} + \cdots + 8u^2 - 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.906250u^{28} + 0.468750u^{27} + \cdots + 8.65625u + 0.718750 \\ \frac{3}{8}u^{28} + \frac{5}{8}u^{27} + \cdots - \frac{1}{8}u - \frac{3}{8} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.593750u^{28} + 0.0312500u^{27} + \cdots + 7.34375u + 0.781250 \\ \frac{1}{2}u^{28} + \frac{1}{2}u^{27} + \cdots - u - \frac{1}{2} \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0312500u^{28} + 0.343750u^{27} + \cdots + 8.78125u + 1.09375 \\ -\frac{3}{8}u^{28} - \frac{3}{8}u^{27} + \cdots - \frac{3}{8}u + \frac{1}{8} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^3 - 2u \\ -\frac{1}{4}u^{28} - \frac{7}{2}u^{26} + \cdots - \frac{29}{4}u^3 + \frac{5}{4}u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u \\ -\frac{1}{4}u^{28} - \frac{7}{2}u^{26} + \cdots - \frac{21}{4}u^3 + \frac{5}{4}u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ \frac{1}{4}u^{27} + \frac{7}{2}u^{25} + \cdots + \frac{21}{4}u^2 - \frac{1}{4} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{153}{64}u^{28} - \frac{5}{64}u^{27} + \cdots + \frac{433}{64}u - \frac{445}{64}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{29} - 4u^{28} + \cdots + 9u - 4$
c_3, c_9	$u^{29} - 3u^{28} + \cdots - 136u - 32$
c_5	$u^{29} - 6u^{28} + \cdots + 256u - 64$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{29} + 15u^{27} + \cdots + 8u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{29} - 30y^{28} + \cdots + 449y - 16$
c_3, c_9	$y^{29} + 21y^{28} + \cdots + 3392y - 1024$
c_5	$y^{29} - 12y^{28} + \cdots + 45056y - 4096$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{29} + 30y^{28} + \cdots + 16y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.850727 + 0.156624I$ $a = -0.33070 - 2.13581I$ $b = 0.52738 - 1.44214I$	$-11.18250 - 6.23241I$	$-15.4958 + 4.4354I$
$u = 0.850727 - 0.156624I$ $a = -0.33070 + 2.13581I$ $b = 0.52738 + 1.44214I$	$-11.18250 + 6.23241I$	$-15.4958 - 4.4354I$
$u = -0.220678 + 1.200740I$ $a = 0.348620 - 0.909991I$ $b = 0.25885 - 1.75018I$	$-5.29574 + 1.64756I$	$-6.64036 - 4.87433I$
$u = -0.220678 - 1.200740I$ $a = 0.348620 + 0.909991I$ $b = 0.25885 + 1.75018I$	$-5.29574 - 1.64756I$	$-6.64036 + 4.87433I$
$u = -0.776315$ $a = 0.835156$ $b = 1.22191$	-6.47257	-15.0600
$u = 0.762739 + 0.066975I$ $a = 0.24083 + 2.47525I$ $b = -0.215490 + 1.174450I$	$-4.34611 - 2.54689I$	$-14.3374 + 3.8948I$
$u = 0.762739 - 0.066975I$ $a = 0.24083 - 2.47525I$ $b = -0.215490 - 1.174450I$	$-4.34611 + 2.54689I$	$-14.3374 - 3.8948I$
$u = -0.389704 + 0.578994I$ $a = 0.893913 - 0.386935I$ $b = -0.020656 - 1.382320I$	$-6.72574 + 1.45946I$	$-13.9846 - 4.7500I$
$u = -0.389704 - 0.578994I$ $a = 0.893913 + 0.386935I$ $b = -0.020656 + 1.382320I$	$-6.72574 - 1.45946I$	$-13.9846 + 4.7500I$
$u = -0.295755 + 1.326220I$ $a = -0.65679 + 1.37777I$ $b = 0.152881 + 1.337510I$	$3.59611 + 4.94229I$	$-5.90176 - 3.25931I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.295755-1.326220I$ $a=-0.65679-1.37777I$ $b=\ \ 0.152881-1.337510I$	$3.59611-4.94229I$	$-5.90176+3.25931I$
$u=-0.031725+1.373280I$ $a=\ \ 0.498676+0.750755I$ $b=-0.833765+0.932700I$	$6.88971+1.52242I$	$-3.08698-0.91142I$
$u=-0.031725-1.373280I$ $a=\ \ 0.498676-0.750755I$ $b=-0.833765-0.932700I$	$6.88971-1.52242I$	$-3.08698+0.91142I$
$u=\ \ 0.334857+1.341710I$ $a=-0.052463-0.514744I$ $b=\ \ 1.363430+0.335492I$	$2.04714-8.02731I$	$-6.19853+5.31620I$
$u=\ \ 0.334857-1.341710I$ $a=-0.052463+0.514744I$ $b=\ \ 1.363430-0.335492I$	$2.04714+8.02731I$	$-6.19853-5.31620I$
$u=-0.35253+1.37355I$ $a=\ \ 1.02044-1.34914I$ $b=-0.486235-1.297300I$	$4.85486+10.72890I$	$-4.66596-7.57137I$
$u=-0.35253-1.37355I$ $a=\ \ 1.02044+1.34914I$ $b=-0.486235+1.297300I$	$4.85486-10.72890I$	$-4.66596+7.57137I$
$u=\ \ 0.24683+1.41814I$ $a=\ \ 0.066073+0.309790I$ $b=-0.764350-0.100103I$	$8.59031-5.90549I$	$1.11192+5.11469I$
$u=\ \ 0.24683-1.41814I$ $a=\ \ 0.066073-0.309790I$ $b=-0.764350+0.100103I$	$8.59031+5.90549I$	$1.11192-5.11469I$
$u=\ \ 0.07466+1.44080I$ $a=-0.513088-0.364599I$ $b=\ \ 0.808356-0.740580I$	$10.76360-2.89956I$	$0.60665+2.87370I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.07466 - 1.44080I$ $a = -0.513088 + 0.364599I$ $b = 0.808356 + 0.740580I$	$10.76360 + 2.89956I$	$0.60665 - 2.87370I$
$u = -0.40528 + 1.39829I$ $a = -1.16438 + 1.17876I$ $b = 0.73766 + 1.39230I$	$-1.3772 + 15.4179I$	$-7.45070 - 8.08574I$
$u = -0.40528 - 1.39829I$ $a = -1.16438 - 1.17876I$ $b = 0.73766 - 1.39230I$	$-1.3772 - 15.4179I$	$-7.45070 + 8.08574I$
$u = -0.536309$ $a = -0.494577$ $b = -0.458728$	-1.04228	-9.21320
$u = 0.17794 + 1.53799I$ $a = 0.448537 - 0.057808I$ $b = -0.334229 + 0.884134I$	$7.23806 - 6.07610I$	$-7.24625 + 5.96720I$
$u = 0.17794 - 1.53799I$ $a = 0.448537 + 0.057808I$ $b = -0.334229 - 0.884134I$	$7.23806 + 6.07610I$	$-7.24625 - 5.96720I$
$u = -0.212154 + 0.255646I$ $a = -1.010790 + 0.763833I$ $b = 0.130923 + 0.622392I$	$-0.423563 + 0.810930I$	$-9.27103 - 8.41081I$
$u = -0.212154 - 0.255646I$ $a = -1.010790 - 0.763833I$ $b = 0.130923 - 0.622392I$	$-0.423563 - 0.810930I$	$-9.27103 + 8.41081I$
$u = 0.232774$ $a = 3.58165$ $b = -0.412704$	-2.00372	-0.355130

II. $I_2^u = \langle 4.84\times10^{20}u^{45}+8.97\times10^{20}u^{44}+\cdots+9.64\times10^{20}b+5.09\times10^{21},\ 5.99\times10^{21}u^{45}+8.38\times10^{21}u^{44}+\cdots+2.89\times10^{21}a+6.78\times10^{22},\ u^{46}+2u^{45}+\cdots+36u+9\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -2.06910u^{45}-2.89652u^{44}+\cdots-63.4881u-23.4350 \\ -0.501583u^{45}-0.930646u^{44}+\cdots-17.2611u-5.27777 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.14401u^{45}-1.45942u^{44}+\cdots-28.8674u-7.34206 \\ -0.0137503u^{45}-0.130285u^{44}+\cdots+2.36181u+3.83874 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1.43328u^{45}-2.16999u^{44}+\cdots-45.8330u-15.7079 \\ -0.589166u^{45}-0.982067u^{44}+\cdots-18.1174u-7.06307 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.318055u^{45}+0.101865u^{44}+\cdots+12.9697u+5.31725 \\ -0.512383u^{45}-0.773762u^{44}+\cdots-15.6515u-5.26019 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.83572u^{45}-2.63620u^{44}+\cdots-63.5472u-23.3857 \\ -2.15378u^{45}-2.73806u^{44}+\cdots-74.5169u-28.7029 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 2.15396u^{45}+2.58331u^{44}+\cdots+66.0693u+22.7732 \\ 1.03525u^{45}+1.64133u^{44}+\cdots+42.7004u+14.5215 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3547470192556570911139}{3214606688886555555043}u^{45} - \frac{5051390449434000068515}{3214606688886555555043}u^{44} + \cdots - \frac{4881775673414018995 94}{3214606688886555555043}u - \frac{3117355638652138218610}{3214606688886555555043}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$(u^{23} - 3u^{22} + \cdots - u + 1)^2$
c_3, c_9	$(u^{23} + u^{22} + \cdots + 8u - 4)^2$
c_5	$(u^{23} + 2u^{22} + \cdots + 18u + 9)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{46} + 2u^{45} + \cdots + 36u + 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^{23} - 23y^{22} + \cdots - 7y - 1)^2$
c_3, c_9	$(y^{23} + 15y^{22} + \cdots - 40y - 16)^2$
c_5	$(y^{23} - 12y^{22} + \cdots - 450y - 81)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{46} + 34y^{45} + \cdots + 288y + 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.792003 + 0.636640I$ $a = -0.464182 - 0.795612I$ $b = 0.107498 - 1.054050I$	$-0.12065 - 2.74438I$	$-10.00137 + 3.42075I$
$u = 0.792003 - 0.636640I$ $a = -0.464182 + 0.795612I$ $b = 0.107498 + 1.054050I$	$-0.12065 + 2.74438I$	$-10.00137 - 3.42075I$
$u = -0.934455 + 0.180416I$ $a = 0.01842 - 2.02427I$ $b = -0.63403 - 1.38420I$	$-6.36348 + 10.62070I$	$-11.02627 - 6.45650I$
$u = -0.934455 - 0.180416I$ $a = 0.01842 + 2.02427I$ $b = -0.63403 + 1.38420I$	$-6.36348 - 10.62070I$	$-11.02627 + 6.45650I$
$u = -0.415847 + 1.040410I$ $a = -0.783548 + 1.151140I$ $b = -0.308169 + 0.985429I$	$2.62555 - 2.00215I$	$-5.23588 + 3.62705I$
$u = -0.415847 - 1.040410I$ $a = -0.783548 - 1.151140I$ $b = -0.308169 - 0.985429I$	$2.62555 + 2.00215I$	$-5.23588 - 3.62705I$
$u = -0.827301 + 0.173977I$ $a = -0.01971 + 2.35915I$ $b = 0.383777 + 1.192290I$	$-0.03073 + 6.47771I$	$-8.77780 - 6.52194I$
$u = -0.827301 - 0.173977I$ $a = -0.01971 - 2.35915I$ $b = 0.383777 - 1.192290I$	$-0.03073 - 6.47771I$	$-8.77780 + 6.52194I$
$u = 0.025834 + 1.168220I$ $a = -1.46131 + 1.12134I$ $b = 0.441227 + 0.551458I$	$1.18777 - 0.88878I$	$-10.39291 - 0.92577I$
$u = 0.025834 - 1.168220I$ $a = -1.46131 - 1.12134I$ $b = 0.441227 - 0.551458I$	$1.18777 + 0.88878I$	$-10.39291 + 0.92577I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.425501 + 1.089070I$ $a = -0.570025 - 0.705470I$ $b = -0.37388 - 1.47842I$	$-8.32991 + 1.64388I$	$-13.30470 - 0.40272I$
$u = 0.425501 - 1.089070I$ $a = -0.570025 + 0.705470I$ $b = -0.37388 + 1.47842I$	$-8.32991 - 1.64388I$	$-13.30470 + 0.40272I$
$u = 0.308254 + 1.133610I$ $a = -0.92194 - 1.29169I$ $b = 0.969482$	0.502753	$-6.32391 + 0.I$
$u = 0.308254 - 1.133610I$ $a = -0.92194 + 1.29169I$ $b = 0.969482$	0.502753	$-6.32391 + 0.I$
$u = 0.472378 + 0.647473I$ $a = -0.055315 + 1.183280I$ $b = -0.494865 + 0.507562I$	$4.00909 - 1.37448I$	$-1.29822 + 4.35124I$
$u = 0.472378 - 0.647473I$ $a = -0.055315 - 1.183280I$ $b = -0.494865 - 0.507562I$	$4.00909 + 1.37448I$	$-1.29822 - 4.35124I$
$u = 0.780797 + 0.120550I$ $a = -0.886569 - 0.462655I$ $b = -1.222080 - 0.199525I$	$-2.55344 - 3.99588I$	$-10.60901 + 3.49800I$
$u = 0.780797 - 0.120550I$ $a = -0.886569 + 0.462655I$ $b = -1.222080 + 0.199525I$	$-2.55344 + 3.99588I$	$-10.60901 - 3.49800I$
$u = 0.307733 + 1.209490I$ $a = 0.72001 + 1.31534I$ $b = 0.000983 + 1.149400I$	$-0.86138 - 1.33135I$	$-11.15950 + 0.I$
$u = 0.307733 - 1.209490I$ $a = 0.72001 - 1.31534I$ $b = 0.000983 - 1.149400I$	$-0.86138 + 1.33135I$	$-11.15950 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.562612 + 1.118280I$ $a = 0.694930 - 0.643080I$ $b = 0.51611 - 1.32552I$	$-3.51902 - 5.35900I$	$-8.00000 + 0.I$
$u = -0.562612 - 1.118280I$ $a = 0.694930 + 0.643080I$ $b = 0.51611 + 1.32552I$	$-3.51902 + 5.35900I$	$-8.00000 + 0.I$
$u = 0.665930 + 0.330412I$ $a = 0.671534 + 0.192645I$ $b = 0.598699 + 0.195967I$	$3.01275 - 2.59653I$	$-2.53697 + 3.78636I$
$u = 0.665930 - 0.330412I$ $a = 0.671534 - 0.192645I$ $b = 0.598699 - 0.195967I$	$3.01275 + 2.59653I$	$-2.53697 - 3.78636I$
$u = -0.241954 + 1.241490I$ $a = 1.62697 - 0.89642I$ $b = -0.308169 - 0.985429I$	$2.62555 + 2.00215I$	$-8.00000 + 0.I$
$u = -0.241954 - 1.241490I$ $a = 1.62697 + 0.89642I$ $b = -0.308169 + 0.985429I$	$2.62555 - 2.00215I$	$-8.00000 + 0.I$
$u = -0.708329 + 0.156769I$ $a = 0.92255 - 2.13346I$ $b = -0.37388 - 1.47842I$	$-8.32991 + 1.64388I$	$-13.30470 - 0.40272I$
$u = -0.708329 - 0.156769I$ $a = 0.92255 + 2.13346I$ $b = -0.37388 + 1.47842I$	$-8.32991 - 1.64388I$	$-13.30470 + 0.40272I$
$u = 0.004181 + 1.278050I$ $a = 0.797831 + 0.327490I$ $b = -0.494865 - 0.507562I$	$4.00909 + 1.37448I$	$0. - 4.35124I$
$u = 0.004181 - 1.278050I$ $a = 0.797831 - 0.327490I$ $b = -0.494865 + 0.507562I$	$4.00909 - 1.37448I$	$0. + 4.35124I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.694715 + 0.088611I$ $a = -0.45479 - 2.70390I$ $b = \ \ 0.000983 - 1.149400I$	$-0.86138 + 1.33135I$	$-11.15950 - 0.67575I$
$u = -0.694715 - 0.088611I$ $a = -0.45479 + 2.70390I$ $b = \ \ 0.000983 + 1.149400I$	$-0.86138 - 1.33135I$	$-11.15950 + 0.67575I$
$u = -0.186653 + 1.293090I$ $a = -0.225783 + 0.453951I$ $b = \ \ 0.598699 - 0.195967I$	$3.01275 + 2.59653I$	0
$u = -0.186653 - 1.293090I$ $a = -0.225783 - 0.453951I$ $b = \ \ 0.598699 + 0.195967I$	$3.01275 - 2.59653I$	0
$u = -0.331769 + 1.264340I$ $a = \ \ 0.339428 - 0.762833I$ $b = -1.222080 + 0.199525I$	$-2.55344 + 3.99588I$	0
$u = -0.331769 - 1.264340I$ $a = \ \ 0.339428 + 0.762833I$ $b = -1.222080 - 0.199525I$	$-2.55344 - 3.99588I$	0
$u = \ \ 0.325464 + 1.311080I$ $a = -1.25782 - 1.25504I$ $b = \ \ 0.383777 - 1.192290I$	$-0.03073 - 6.47771I$	0
$u = \ \ 0.325464 - 1.311080I$ $a = -1.25782 + 1.25504I$ $b = \ \ 0.383777 + 1.192290I$	$-0.03073 + 6.47771I$	0
$u = -0.306328 + 1.362140I$ $a = -1.55159 + 0.54359I$ $b = \ \ 0.51611 + 1.32552I$	$-3.51902 + 5.35900I$	0
$u = -0.306328 - 1.362140I$ $a = -1.55159 - 0.54359I$ $b = \ \ 0.51611 - 1.32552I$	$-3.51902 - 5.35900I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.36850 + 1.37093I$ $a = 1.40661 + 0.98862I$ $b = -0.63403 + 1.38420I$	$-6.36348 - 10.62070I$	0
$u = 0.36850 - 1.37093I$ $a = 1.40661 - 0.98862I$ $b = -0.63403 - 1.38420I$	$-6.36348 + 10.62070I$	0
$u = -0.06153 + 1.44896I$ $a = -0.341144 - 0.682320I$ $b = 0.107498 + 1.054050I$	$-0.12065 + 2.74438I$	0
$u = -0.06153 - 1.44896I$ $a = -0.341144 + 0.682320I$ $b = 0.107498 - 1.054050I$	$-0.12065 - 2.74438I$	0
$u = -0.205082 + 0.466322I$ $a = 0.12875 - 3.30791I$ $b = 0.441227 - 0.551458I$	$1.18777 + 0.88878I$	$-10.39291 + 0.92577I$
$u = -0.205082 - 0.466322I$ $a = 0.12875 + 3.30791I$ $b = 0.441227 + 0.551458I$	$1.18777 - 0.88878I$	$-10.39291 - 0.92577I$

III. $I_3^u = \langle b,\ u^2 + 2a - u + 3,\ u^3 + 2u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{25}{4}u^2 + \frac{11}{4}u - \frac{71}{4}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_9	y^3
c_5	$y^3 + y^2 + 13y - 4$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.22670 + 1.46771I$ $a = -0.335258 + 0.401127I$ $b = 0$	$7.79580 - 5.13794I$	$-3.98417 - 0.12290I$
$u = 0.22670 - 1.46771I$ $a = -0.335258 - 0.401127I$ $b = 0$	$7.79580 + 5.13794I$	$-3.98417 + 0.12290I$
$u = -0.453398$ $a = -1.82948$ $b = 0$	-2.43213	-20.2820

IV. $\boldsymbol{I_4^u = \langle b,\ u^3 + a + u - 1,\ u^4 - u^3 + 2u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^3 + 4u - 9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_9	y^4
c_5	$(y^2+y+1)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^4+3y^3+2y^2+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.621744 + 0.440597I$ $a = 0.500000 - 0.866025I$ $b = 0$	$1.64493 - 2.02988I$	$-7.00000 + 3.46410I$
$u = 0.621744 - 0.440597I$ $a = 0.500000 + 0.866025I$ $b = 0$	$1.64493 + 2.02988I$	$-7.00000 - 3.46410I$
$u = -0.121744 + 1.306620I$ $a = 0.500000 + 0.866025I$ $b = 0$	$1.64493 + 2.02988I$	$-7.00000 - 3.46410I$
$u = -0.121744 - 1.306620I$ $a = 0.500000 - 0.866025I$ $b = 0$	$1.64493 - 2.02988I$	$-7.00000 + 3.46410I$

V. $\boldsymbol{I_5^u = \langle au + 2b - a + 2u,\ a^2 - au + a + 2u,\ u^2 + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a \\ -\frac{1}{2}au + \frac{1}{2}a - u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}a + u \\ -\frac{1}{2}au + \frac{1}{2}a - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{1}{2}au + \frac{1}{2}a - 1 \\ \frac{1}{2}au - \frac{1}{2}a + 2u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -\frac{1}{2}au - \frac{1}{2}a - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ -\frac{1}{2}au - \frac{1}{2}a + u - 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1 \\ \frac{1}{2}au - \frac{1}{2}a + 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y^2 - 3y + 1)^2$
c_3, c_9	$(y^2 + 3y + 1)^2$
c_5	y^4
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y + 1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 0.618034 - 0.618034I$ $b = -1.61803I$	-5.59278	-8.00000
$u = 1.000000I$ $a = -1.61803 + 1.61803I$ $b = 0.618034I$	2.30291	-8.00000
$u = -1.000000I$ $a = 0.618034 + 0.618034I$ $b = 1.61803I$	-5.59278	-8.00000
$u = -1.000000I$ $a = -1.61803 - 1.61803I$ $b = -0.618034I$	2.30291	-8.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^7)(u^2+u-1)^2(u^{23}-3u^{22}+\cdots-u+1)^2$ $\cdot(u^{29}-4u^{28}+\cdots+9u-4)$
c_3, c_9	$u^7(u^4+3u^2+1)(u^{23}+u^{22}+\cdots+8u-4)^2$ $\cdot(u^{29}-3u^{28}+\cdots-136u-32)$
c_4	$((u+1)^7)(u^2-u-1)^2(u^{23}-3u^{22}+\cdots-u+1)^2$ $\cdot(u^{29}-4u^{28}+\cdots+9u-4)$
c_5	$u^4(u^2+u+1)^2(u^3-3u^2+5u-2)(u^{23}+2u^{22}+\cdots+18u+9)^2$ $\cdot(u^{29}-6u^{28}+\cdots+256u-64)$
c_6, c_7, c_8	$(u^2+1)^2(u^3+2u-1)(u^4+u^3+2u^2+2u+1)$ $\cdot(u^{29}+15u^{27}+\cdots+8u^2-1)(u^{46}+2u^{45}+\cdots+36u+9)$
c_{10}, c_{11}, c_{12}	$(u^2+1)^2(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(u^{29}+15u^{27}+\cdots+8u^2-1)(u^{46}+2u^{45}+\cdots+36u+9)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^7)(y^2-3y+1)^2(y^{23}-23y^{22}+\cdots-7y-1)^2$ $\cdot(y^{29}-30y^{28}+\cdots+449y-16)$
c_3, c_9	$y^7(y^2+3y+1)^2(y^{23}+15y^{22}+\cdots-40y-16)^2$ $\cdot(y^{29}+21y^{28}+\cdots+3392y-1024)$
c_5	$y^4(y^2+y+1)^2(y^3+y^2+13y-4)(y^{23}-12y^{22}+\cdots-450y-81)^2$ $\cdot(y^{29}-12y^{28}+\cdots+45056y-4096)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y+1)^4(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{29}+30y^{28}+\cdots+16y-1)(y^{46}+34y^{45}+\cdots+288y+81)$