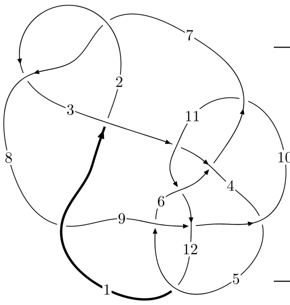
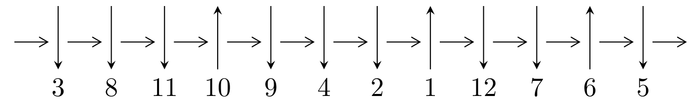
$12a_{0785}$ ($K12a_{0785}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -440u^{19} - 7822u^{18} + \cdots + b - 83010,\ 101350u^{19} + 1884588u^{18} + \cdots + 419a + 33060194,$$
$$u^{20} + 19u^{19} + \cdots + 4045u + 419\rangle$$
$$I_2^u = \langle -55u^{25} - 1474u^{24} + \cdots + b - 140189,\ -17044u^{25} - 361672u^{24} + \cdots + 2239a + 75396086,$$
$$u^{26} + 27u^{25} + \cdots + 29107u + 2239\rangle$$
$$I_3^u = \langle -5.90378 \times 10^{27}a^{17}u^3 + 2.02102 \times 10^{27}a^{16}u^3 + \cdots - 6.93993 \times 10^{27}a - 7.66958 \times 10^{27},$$
$$-a^{17}u^3 - 3a^{16}u^3 + \cdots - 143936a + 299131,\ u^4 - u^3 + 2u + 1\rangle$$
$$I_4^u = \langle 8.04582 \times 10^{32}a^{17}u + 5.01372 \times 10^{32}a^{16}u + \cdots - 7.33139 \times 10^{32}a - 5.03241 \times 10^{33},$$
$$-2a^{17}u + 3a^{16}u + \cdots + 36a + 9,\ u^2 - u + 1\rangle$$
$$I_5^u = \langle 1.00210 \times 10^{26}u^{37} - 1.30856 \times 10^{27}u^{36} + \cdots + 8.88085 \times 10^{25}b - 1.95986 \times 10^{26},$$
$$9.57765 \times 10^{25}u^{37} - 1.33504 \times 10^{27}u^{36} + \cdots + 8.88085 \times 10^{25}a - 6.26187 \times 10^{25},\ u^{38} - 14u^{37} + \cdots + u + 1$$
$$I_6^u = \langle b^2 + ba - a^2 - 1,\ a^9 - a^8 + 2a^7 - a^6 + 3a^5 - a^4 + 2a^3 + a + 1,\ u - 1\rangle$$
$$I_7^u = \langle b + 1,\ a,\ u - 1\rangle$$

$$I_1^v = \langle a,\ b^9 + b^8 + 2b^7 + b^6 + 3b^5 + b^4 + 2b^3 + b - 1,\ v - 1\rangle$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 220 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. $\boldsymbol{I^u_1 = \langle -440u^{19} - 7822u^{18} + \cdots + b - 83010,\ 1.01 \times 10^5 u^{19} + 1.88 \times 10^6 u^{18} + \cdots + 419a + 3.31 \times 10^7,\ u^{20} + 19u^{19} + \cdots + 4045u + 419 \rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} -241.885u^{19} - 4497.82u^{18} + \cdots - 728143.u - 78902.6 \\ 440u^{19} + 7822u^{18} + \cdots + 797266u + 83010 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 198.115u^{19} + 3324.18u^{18} + \cdots + 69123.0u + 4107.39 \\ 440u^{19} + 7822u^{18} + \cdots + 797266u + 83010 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.498807u^{19} + 8.47733u^{18} + \cdots + 82.9165u - 5.32697 \\ u^{19} + 18u^{18} + \cdots + 2024u + 209 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 296.115u^{19} + 5559.18u^{18} + \cdots + 968647.u + 105457. \\ -679u^{19} - 11745u^{18} + \cdots - 752581u - 73277 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -174.885u^{19} - 2643.82u^{18} + \cdots + 364183.u + 45169.4 \\ -716u^{19} - 13126u^{18} + \cdots - 1876012u - 201491 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 4.25060u^{19} + 81.7613u^{18} + \cdots + 18071.5u + 1994.66 \\ -2u^{19} - 27u^{18} + \cdots + 11364u + 1362 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.501193u^{19} - 8.52267u^{18} + \cdots - 127.084u - 4.32697 \\ -u^{18} - 17u^{17} + \cdots - 1812u - 210 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -532.943u^{19} - 9436.91u^{18} + \cdots - 915041.u - 94759.3 \\ -73u^{19} - 1966u^{18} + \cdots - 1107172u - 125676 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 10.5609u^{19} + 95.6563u^{18} + \cdots - 125604.u - 14672.3 \\ 90u^{19} + 1670u^{18} + \cdots + 266050u + 28727 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= -272u^{19} - 4238u^{18} - 31694u^{17} - 149912u^{16} - 499032u^{15} - 1231956u^{14} - 2311268u^{13} - 3295698u^{12} - 3426358u^{11} - 2150740u^{10} + 263316u^9 + 2695132u^8 + 4037400u^7 + 4211956u^6 + 3957808u^5 + 3582696u^4 + 2698114u^3 + 1385042u^2 + 391594u + 50234$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{20} + 10u^{19} + \cdots - 160u + 64$
c_2, c_7	$u^{20} - 6u^{19} + \cdots - 40u + 8$
c_3, c_5, c_{10} c_{12}	$u^{20} + u^{19} + \cdots - u + 1$
c_4, c_{11}	$u^{20} + u^{19} + \cdots + 2u + 26$
c_6, c_9	$u^{20} - 19u^{19} + \cdots - 4045u + 419$
c_8	$u^{20} - 18u^{19} + \cdots - 24920u + 3688$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{20} - 2y^{19} + \cdots - 23040y + 4096$
c_2, c_7	$y^{20} - 10y^{19} + \cdots + 160y + 64$
c_3, c_5, c_{10} c_{12}	$y^{20} - y^{19} + \cdots + 11y + 1$
c_4, c_{11}	$y^{20} + 21y^{19} + \cdots + 10448y + 676$
c_6, c_9	$y^{20} - 9y^{19} + \cdots - 853997y + 175561$
c_8	$y^{20} - 4y^{19} + \cdots + 14317984y + 13601344$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.512099 + 0.698028I$ $a = -0.757073 - 0.694555I$ $b = 0.169556 + 0.506438I$	$-0.63165 - 1.63991I$	$-3.29731 + 4.07135I$
$u = 0.512099 - 0.698028I$ $a = -0.757073 + 0.694555I$ $b = 0.169556 - 0.506438I$	$-0.63165 + 1.63991I$	$-3.29731 - 4.07135I$
$u = 0.00580 + 1.43849I$ $a = 0.706982 + 0.120837I$ $b = -0.419757 - 0.411483I$	$-4.80670 - 5.98648I$	$-6.00000 + 11.08698I$
$u = 0.00580 - 1.43849I$ $a = 0.706982 - 0.120837I$ $b = -0.419757 + 0.411483I$	$-4.80670 + 5.98648I$	$-6.00000 - 11.08698I$
$u = -1.16335 + 1.05046I$ $a = -0.242193 + 1.117750I$ $b = 1.31614 - 1.05420I$	$-8.2024 + 21.0457I$	0
$u = -1.16335 - 1.05046I$ $a = -0.242193 - 1.117750I$ $b = 1.31614 + 1.05420I$	$-8.2024 - 21.0457I$	0
$u = -1.17748 + 1.05342I$ $a = 0.232775 - 1.068910I$ $b = -1.25568 + 1.02028I$	$-5.1187 + 15.7823I$	0
$u = -1.17748 - 1.05342I$ $a = 0.232775 + 1.068910I$ $b = -1.25568 - 1.02028I$	$-5.1187 - 15.7823I$	0
$u = -1.17927 + 1.07828I$ $a = -0.298894 + 1.028330I$ $b = 1.27177 - 0.91287I$	$-9.8158 + 11.6670I$	0
$u = -1.17927 - 1.07828I$ $a = -0.298894 - 1.028330I$ $b = 1.27177 + 0.91287I$	$-9.8158 - 11.6670I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.26927 + 1.01007I$ $a = 0.086517 - 0.867442I$ $b = -0.909643 + 1.001230I$	$-0.48741 + 13.75390I$	0
$u = -1.26927 - 1.01007I$ $a = 0.086517 + 0.867442I$ $b = -0.909643 - 1.001230I$	$-0.48741 - 13.75390I$	0
$u = -0.290662 + 0.201866I$ $a = -1.20981 + 1.20451I$ $b = 0.079084 + 0.815354I$	$1.78290 - 2.14893I$	$0.04329 + 4.23950I$
$u = -0.290662 - 0.201866I$ $a = -1.20981 - 1.20451I$ $b = 0.079084 - 0.815354I$	$1.78290 + 2.14893I$	$0.04329 - 4.23950I$
$u = -1.34983 + 0.99384I$ $a = -0.068669 + 0.743707I$ $b = 0.756125 - 0.916597I$	$0.45556 + 8.22051I$	0
$u = -1.34983 - 0.99384I$ $a = -0.068669 - 0.743707I$ $b = 0.756125 + 0.916597I$	$0.45556 - 8.22051I$	0
$u = -1.49300 + 1.31522I$ $a = 0.274286 - 0.533423I$ $b = -0.698441 + 0.483867I$	$-7.23704 + 6.69767I$	0
$u = -1.49300 - 1.31522I$ $a = 0.274286 + 0.533423I$ $b = -0.698441 - 0.483867I$	$-7.23704 - 6.69767I$	0
$u = -2.09503 + 0.56369I$ $a = -0.029412 + 0.377289I$ $b = 0.190855 - 0.638731I$	$0.34008 + 3.38661I$	0
$u = -2.09503 - 0.56369I$ $a = -0.029412 - 0.377289I$ $b = 0.190855 + 0.638731I$	$0.34008 - 3.38661I$	0

II. $I_2^u = \langle -55u^{25} - 1474u^{24} + \cdots + b - 140189,\ -1.70 \times 10^4 u^{25} - 3.62 \times 10^5 u^{24} + \cdots + 2239a + 7.54 \times 10^7,\ u^{26} + 27u^{25} + \cdots + 29107u + 2239 \rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 7.61233u^{25} + 161.533u^{24} + \cdots - 386377.u - 33674 \\ 55u^{25} + 1474u^{24} + \cdots + 1715942u + 140189 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 62.6123u^{25} + 1635.53u^{24} + \cdots + 1.32957 \times 10^6 u + 106515 \\ 55u^{25} + 1474u^{24} + \cdots + 1715942u + 140189 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.49978u^{25} - 39.4940u^{24} + \cdots - 40819.5u - 3351 \\ -u^{25} - 27u^{24} + \cdots - 40302u - 3358 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 18.6123u^{25} + 533.533u^{24} + \cdots + 1.07432 \times 10^6 u + 89471 \\ -62u^{25} - 1572u^{24} + \cdots - 688744u - 52365 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 129.612u^{25} + 3364.53u^{24} + \cdots + 2.48091 \times 10^6 u + 197811 \\ 29u^{25} + 900u^{24} + \cdots + 2630825u + 220793 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 4.25011u^{25} + 105.753u^{24} + \cdots - 539.268u - 555 \\ 9u^{25} + 233u^{24} + \cdots + 150013u + 11755 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.500223u^{25} + 13.5060u^{24} + \cdots + 14037.5u + 1126 \\ -u^{25} - 26u^{24} + \cdots - 14553u - 1119 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 43.4185u^{25} + 1199.30u^{24} + \cdots + 1.88287 \times 10^6 u + 155911 \\ -113u^{25} - 2859u^{24} + \cdots - 1150846u - 86384 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -41.1867u^{25} - 1062.04u^{24} + \cdots - 628304.u - 48954 \\ -3u^{25} - 119u^{24} + \cdots - 642593u - 54154 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 115u^{25} + 2941u^{24} + \cdots + 1504608u + 115595$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{13}+6u^{12}+\cdots+12u+16)^2$
c_2, c_7	$(u^{13}-4u^{12}+\cdots-14u+4)^2$
c_3, c_5, c_{10} c_{12}	$u^{26}+u^{25}+\cdots+u+1$
c_4, c_{11}	$(u^{13}+u^{11}+u^{10}-2u^7-u^6-u^5-2u^4+u^3+u^2+u+1)^2$
c_6, c_9	$u^{26}-27u^{25}+\cdots-29107u+2239$
c_8	$(u^{13}-12u^{12}+\cdots+210u+4)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{13} + 2y^{12} + \cdots - 656y - 256)^2$
c_2, c_7	$(y^{13} - 6y^{12} + \cdots + 12y - 16)^2$
c_3, c_5, c_{10} c_{12}	$y^{26} - 3y^{25} + \cdots - y + 1$
c_4, c_{11}	$(y^{13} + 2y^{12} + \cdots - y - 1)^2$
c_6, c_9	$y^{26} - 13y^{25} + \cdots + 24344647y + 5013121$
c_8	$(y^{13} + 2y^{12} + \cdots + 52908y - 16)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.666943 + 0.686087I$ $a = \quad 0.512939 + 0.892142I$ $b = \quad 0.833119 - 0.986335I$	$2.19583 + 5.62038I$	0
$u = -0.666943 - 0.686087I$ $a = \quad 0.512939 - 0.892142I$ $b = \quad 0.833119 + 0.986335I$	$2.19583 - 5.62038I$	0
$u = -0.570390 + 0.767585I$ $a = -0.523314 - 0.899263I$ $b = -0.659342 + 0.919109I$	$3.66757 + 0.92622I$	0
$u = -0.570390 - 0.767585I$ $a = -0.523314 + 0.899263I$ $b = -0.659342 - 0.919109I$	$3.66757 - 0.92622I$	0
$u = -0.444770 + 0.992031I$ $a = -0.465440 - 0.788020I$ $b = -0.339390 + 0.806743I$	$3.66757 - 0.92622I$	0
$u = -0.444770 - 0.992031I$ $a = -0.465440 + 0.788020I$ $b = -0.339390 - 0.806743I$	$3.66757 + 0.92622I$	0
$u = -0.427386 + 1.179570I$ $a = \quad 0.441249 + 0.649055I$ $b = \quad 0.151020 - 0.735618I$	$2.19583 - 5.62038I$	0
$u = -0.427386 - 1.179570I$ $a = \quad 0.441249 - 0.649055I$ $b = \quad 0.151020 + 0.735618I$	$2.19583 + 5.62038I$	0
$u = -1.132080 + 0.739477I$ $a = \quad 0.070245 - 0.895176I$ $b = -1.25982 + 1.01265I$	$-7.7321 + 12.4192I$	0
$u = -1.132080 - 0.739477I$ $a = \quad 0.070245 + 0.895176I$ $b = -1.25982 - 1.01265I$	$-7.7321 - 12.4192I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.164030 + 0.702554I$ $a = -0.062452 + 0.817215I$ $b = 1.18521 - 0.99046I$	$-4.61821 + 6.97339I$	0
$u = -1.164030 - 0.702554I$ $a = -0.062452 - 0.817215I$ $b = 1.18521 + 0.99046I$	$-4.61821 - 6.97339I$	0
$u = -0.184678 + 0.579008I$ $a = 0.391553 + 1.227610I$ $b = 0.638483 - 0.453424I$	-0.986461	$-7.57792 + 0.I$
$u = -0.184678 - 0.579008I$ $a = 0.391553 - 1.227610I$ $b = 0.638483 + 0.453424I$	-0.986461	$-7.57792 + 0.I$
$u = -1.23786 + 0.75067I$ $a = 0.176474 - 0.765518I$ $b = -1.17090 + 0.84552I$	$-9.61879 + 2.75258I$	0
$u = -1.23786 - 0.75067I$ $a = 0.176474 + 0.765518I$ $b = -1.17090 - 0.84552I$	$-9.61879 - 2.75258I$	0
$u = -1.59354 + 0.40724I$ $a = -0.064942 + 0.451082I$ $b = 0.493879 - 0.916766I$	$0.14961 + 3.18230I$	0
$u = -1.59354 - 0.40724I$ $a = -0.064942 - 0.451082I$ $b = 0.493879 + 0.916766I$	$0.14961 - 3.18230I$	0
$u = -1.23407 + 1.31050I$ $a = -0.652684 + 0.170177I$ $b = 0.864731 + 0.289992I$	$-7.7321 - 12.4192I$	0
$u = -1.23407 - 1.31050I$ $a = -0.652684 - 0.170177I$ $b = 0.864731 - 0.289992I$	$-7.7321 + 12.4192I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.38359 + 1.21059I$ $a = -0.532677 + 0.314559I$ $b = 0.895509 + 0.010486I$	$-9.61879 - 2.75258I$	0
$u = -1.38359 - 1.21059I$ $a = -0.532677 - 0.314559I$ $b = 0.895509 - 0.010486I$	$-9.61879 + 2.75258I$	0
$u = -1.31515 + 1.34980I$ $a = 0.563894 - 0.177924I$ $b = -0.781390 - 0.189057I$	$-4.61821 - 6.97339I$	0
$u = -1.31515 - 1.34980I$ $a = 0.563894 + 0.177924I$ $b = -0.781390 + 0.189057I$	$-4.61821 + 6.97339I$	0
$u = -2.14553 + 0.78598I$ $a = 0.145155 - 0.294181I$ $b = -0.351114 + 0.409675I$	$0.14961 - 3.18230I$	0
$u = -2.14553 - 0.78598I$ $a = 0.145155 + 0.294181I$ $b = -0.351114 - 0.409675I$	$0.14961 + 3.18230I$	0

III. $I^u_3 = \langle -5.90 \times 10^{27} a^{17} u^3 + 2.02 \times 10^{27} a^{16} u^3 + \cdots - 6.94 \times 10^{27} a - 7.67 \times 10^{27},\ -a^{17}u^3 - 3a^{16}u^3 + \cdots - 143936a + 299131,\ u^4 - u^3 + 2u + 1\rangle$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} a \\ 10.8520a^{17}u^3 - 3.71493a^{16}u^3 + \cdots + 12.7566a + 14.0978 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 10.8520a^{17}u^3 - 3.71493a^{16}u^3 + \cdots + 13.7566a + 14.0978 \\ 10.8520a^{17}u^3 - 3.71493a^{16}u^3 + \cdots + 12.7566a + 14.0978 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -23.0597a^{17}u^3 - 29.2653a^{16}u^3 + \cdots + 0.121965a - 21.6421 \\ -20.4865a^{17}u^3 - 35.2837a^{16}u^3 + \cdots + 10.9648a + 5.80110 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -74.9828a^{17}u^3 + 65.3497a^{16}u^3 + \cdots + 8.99494a + 9.62933 \\ 2.66737a^{17}u^3 - 28.8131a^{16}u^3 + \cdots + 12.7566a + 7.79364 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -52.3563a^{17}u^3 + 43.0709a^{16}u^3 + \cdots - 21.4565a - 11.4650 \\ 44.5851a^{17}u^3 - 47.4784a^{16}u^3 + \cdots - 15.4615a - 9.97553 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -5.90924a^{17}u^3 + 13.5578a^{16}u^3 + \cdots + 16.5792a - 1.55499 \\ -12.6224a^{17}u^3 - 41.2569a^{16}u^3 + \cdots - 2.59196a + 20.6120 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -a^2u \\ -2.57314a^{17}u^3 + 6.01835a^{16}u^3 + \cdots - 10.8428a - 27.4432 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -17.6642a^{17}u^3 + 26.4376a^{16}u^3 + \cdots - 1.06590a + 3.09641 \\ -15.0877a^{17}u^3 + 16.6517a^{16}u^3 + \cdots + 18.8899a + 17.1794 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -19.7311a^{17}u^3 - 69.4691a^{16}u^3 + \cdots + 3.00101a - 43.6395 \\ 93.3569a^{17}u^3 - 211.428a^{16}u^3 + \cdots - 9.44918a + 38.6282 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$$= \frac{29740572986906423854681079856}{1813422928279653705671752 75}a^{17}u^3 + \frac{108659784729720410020224525 96}{1813422928279653705671752 75}a^{16}u^3 + \cdots - \frac{1356666516790991755424401582 4}{1813422928279653705671752 75}a + \frac{358282414867692411042348754}{1813422928279653705671752 75}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^8$
c_2, c_7	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^8$
c_3, c_5, c_{10} c_{12}	$u^{72}-u^{71}+\cdots+276774u+52573$
c_4, c_{11}	$(u^{36}-u^{35}+\cdots-248u+4921)^2$
c_6, c_9	$(u^4+u^3-2u+1)^{18}$
c_8	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^8$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^8$
c_2, c_7	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^8$
c_3, c_5, c_{10} c_{12}	$y^{72} - 27y^{71} + \cdots - 85049384088y + 2763920329$
c_4, c_{11}	$(y^{36} + 39y^{35} + \cdots + 446076356y + 24216241)^2$
c_6, c_9	$(y^4 - y^3 + 6y^2 - 4y + 1)^{18}$
c_8	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^8$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.621964+0.187730I$ $a=\ \ 0.243057-0.919495I$ $b=\ \ 1.38638+0.42505I$	$-1.50643+1.96639I$	$-11.48501-2.76537I$
$u=-0.621964+0.187730I$ $a=\ \ 0.134471+1.161030I$ $b=-1.47915-0.89391I$	$-1.50643+6.15314I$	$-11.4850-11.0910I$
$u=-0.621964+0.187730I$ $a=\ \ 0.007767-1.345090I$ $b=-1.50405+1.31508I$	$-6.88799-3.02516I$	$-17.5768-1.0149I$
$u=-0.621964+0.187730I$ $a=\ \ 0.16894+1.46402I$ $b=\ \ 1.24189-1.23421I$	$-3.90681+1.60535I$	$-14.3279-4.0152I$
$u=-0.621964+0.187730I$ $a=\ \ 0.42871+1.57754I$ $b=-1.36735-1.70981I$	$-3.90681+6.51418I$	$-14.3279-9.8412I$
$u=-0.621964+0.187730I$ $a=-0.01568-1.64400I$ $b=-1.12952+1.59123I$	$-7.66122+5.39594I$	$-19.2841-7.6300I$
$u=-0.621964+0.187730I$ $a=-0.55384-1.59587I$ $b=\ \ 1.55061+1.88028I$	$-6.88799+11.14470I$	$-17.5768-12.8416I$
$u=-0.621964+0.187730I$ $a=-0.41384-1.74353I$ $b=\ \ 1.12745+1.97870I$	$-7.66122+2.72360I$	$-19.2841-6.2265I$
$u=-0.621964+0.187730I$ $a=\ \ 1.45832-1.14441I$ $b=\ \ 0.920625-0.121920I$	$-3.90681+1.60535I$	$-14.3279-4.0152I$
$u=-0.621964+0.187730I$ $a=\ \ 0.11177+1.88289I$ $b=-0.04479-1.46120I$	$-4.48831+4.05977I$	$-20.6523-6.9282I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.621964 + 0.187730I$ $a = 0.93323 + 1.85638I$ $b = 0.920630 - 0.613419I$	$-1.50643 + 1.96639I$	$-11.48501 - 2.76537I$
$u = -0.621964 + 0.187730I$ $a = -1.86495 + 1.00666I$ $b = -0.936272 + 0.262230I$	$-6.88799 - 3.02516I$	$-17.5768 + 0.I$
$u = -0.621964 + 0.187730I$ $a = -1.64997 + 1.66023I$ $b = -0.722178 + 0.182166I$	$-7.66122 + 5.39594I$	$-19.2841 - 7.6300I$
$u = -0.621964 + 0.187730I$ $a = 0.46308 - 2.42279I$ $b = 0.120823 + 0.249703I$	$-4.48831 + 4.05977I$	0
$u = -0.621964 + 0.187730I$ $a = -0.99584 - 2.39369I$ $b = -0.786199 + 0.418575I$	$-1.50643 + 6.15314I$	0
$u = -0.621964 + 0.187730I$ $a = -0.64577 - 3.22161I$ $b = -0.608633 + 0.093941I$	$-3.90681 + 6.51418I$	0
$u = -0.621964 + 0.187730I$ $a = 0.29331 + 3.40489I$ $b = 0.487989 + 0.012299I$	$-7.66122 + 2.72360I$	0
$u = -0.621964 + 0.187730I$ $a = 0.77528 + 3.47061I$ $b = 0.673351 - 0.010234I$	$-6.88799 + 11.14470I$	0
$u = -0.621964 - 0.187730I$ $a = 0.243057 + 0.919495I$ $b = 1.38638 - 0.42505I$	$-1.50643 - 1.96639I$	$-11.48501 + 2.76537I$
$u = -0.621964 - 0.187730I$ $a = 0.134471 - 1.161030I$ $b = -1.47915 + 0.89391I$	$-1.50643 - 6.15314I$	$-11.4850 + 11.0910I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.621964-0.187730I$ $a=\ \ 0.007767+1.345090I$ $b=-1.50405-1.31508I$	$-6.88799+3.02516I$	$-17.5768+1.0149I$
$u=-0.621964-0.187730I$ $a=\ \ 0.16894-1.46402I$ $b=\ \ 1.24189+1.23421I$	$-3.90681-1.60535I$	$-14.3279+4.0152I$
$u=-0.621964-0.187730I$ $a=\ \ 0.42871-1.57754I$ $b=-1.36735+1.70981I$	$-3.90681-6.51418I$	$-14.3279+9.8412I$
$u=-0.621964-0.187730I$ $a=-0.01568+1.64400I$ $b=-1.12952-1.59123I$	$-7.66122-5.39594I$	$-19.2841+7.6300I$
$u=-0.621964-0.187730I$ $a=-0.55384+1.59587I$ $b=\ \ 1.55061-1.88028I$	$-6.88799-11.14470I$	$-17.5768+12.8416I$
$u=-0.621964-0.187730I$ $a=-0.41384+1.74353I$ $b=\ \ 1.12745-1.97870I$	$-7.66122-2.72360I$	$-19.2841+6.2265I$
$u=-0.621964-0.187730I$ $a=\ \ 1.45832+1.14441I$ $b=\ \ 0.920625+0.121920I$	$-3.90681-1.60535I$	$-14.3279+4.0152I$
$u=-0.621964-0.187730I$ $a=\ \ 0.11177-1.88289I$ $b=-0.04479+1.46120I$	$-4.48831-4.05977I$	$-20.6523+6.9282I$
$u=-0.621964-0.187730I$ $a=\ \ 0.93323-1.85638I$ $b=\ \ 0.920630+0.613419I$	$-1.50643-1.96639I$	$-11.48501+2.76537I$
$u=-0.621964-0.187730I$ $a=-1.86495-1.00666I$ $b=-0.936272-0.262230I$	$-6.88799+3.02516I$	$-17.5768+0.I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.621964-0.187730I$ $a=-1.64997-1.66023I$ $b=-0.722178-0.182166I$	$-7.66122-5.39594I$	$-19.2841+7.6300I$
$u=-0.621964-0.187730I$ $a=\ \ 0.46308+2.42279I$ $b=\ \ 0.120823-0.249703I$	$-4.48831-4.05977I$	0
$u=-0.621964-0.187730I$ $a=-0.99584+2.39369I$ $b=-0.786199-0.418575I$	$-1.50643-6.15314I$	0
$u=-0.621964-0.187730I$ $a=-0.64577+3.22161I$ $b=-0.608633-0.093941I$	$-3.90681-6.51418I$	0
$u=-0.621964-0.187730I$ $a=\ \ 0.29331-3.40489I$ $b=\ \ 0.487989-0.012299I$	$-7.66122-2.72360I$	0
$u=-0.621964-0.187730I$ $a=\ \ 0.77528-3.47061I$ $b=\ \ 0.673351+0.010234I$	$-6.88799-11.14470I$	0
$u=\ \ 1.12196+1.05376I$ $a=\ \ 0.935424+0.317876I$ $b=-1.352910+0.093439I$	$-7.66122-5.39594I$	$-19.2841+7.6300I$
$u=\ \ 1.12196+1.05376I$ $a=-0.629892-0.828967I$ $b=\ \ 1.34287+0.48468I$	$-4.48831-4.05977I$	$-20.6523+6.9282I$
$u=\ \ 1.12196+1.05376I$ $a=-0.072905-1.091850I$ $b=\ \ 0.773356+0.936297I$	$-1.50643-6.15314I$	$-11.4850+11.0910I$
$u=\ \ 1.12196+1.05376I$ $a=\ \ 0.893999+0.030444I$ $b=-1.131990+0.328604I$	$-6.88799+3.02516I$	$-17.5768+1.0149I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.12196 + 1.05376I$ $a = -0.004295 + 0.876976I$ $b = -0.558649 - 0.685116I$	$-1.50643 - 1.96639I$	$-11.48501 + 2.76537I$
$u = 1.12196 + 1.05376I$ $a = 0.311224 + 0.732782I$ $b = -1.162730 - 0.365037I$	$-4.48831 - 4.05977I$	$-20.6523 + 6.9282I$
$u = 1.12196 + 1.05376I$ $a = -0.766136 - 0.158857I$ $b = 1.102540 - 0.125636I$	$-3.90681 - 1.60535I$	$-14.3279 + 4.0152I$
$u = 1.12196 + 1.05376I$ $a = -0.170868 - 0.736807I$ $b = 1.30660 + 0.60299I$	$-7.66122 - 2.72360I$	$-19.2841 + 6.2265I$
$u = 1.12196 + 1.05376I$ $a = -0.090223 - 0.707270I$ $b = 1.24928 + 0.73115I$	$-6.88799 - 11.14470I$	$-17.5768 + 12.8416I$
$u = 1.12196 + 1.05376I$ $a = -0.302703 - 0.624434I$ $b = 0.901831 - 0.021552I$	$-7.66122 - 5.39594I$	$-19.2841 + 7.6300I$
$u = 1.12196 + 1.05376I$ $a = 0.134083 + 0.676847I$ $b = -1.209800 - 0.658356I$	$-3.90681 - 6.51418I$	$-14.3279 + 9.8412I$
$u = 1.12196 + 1.05376I$ $a = 0.210978 + 0.585167I$ $b = -0.677217 - 0.035293I$	$-3.90681 - 1.60535I$	$-14.3279 + 4.0152I$
$u = 1.12196 + 1.05376I$ $a = -0.360671 - 1.339120I$ $b = 1.22641 + 1.11280I$	$-3.90681 - 6.51418I$	$-14.3279 + 9.8412I$
$u = 1.12196 + 1.05376I$ $a = -0.255451 - 0.507035I$ $b = 0.645364 - 0.152056I$	$-6.88799 + 3.02516I$	$-17.5768 + 1.0149I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.12196 + 1.05376I$ $a = 0.52832 + 1.34223I$ $b = -1.41527 - 1.04664I$	$-7.66122 - 2.72360I$	$-19.2841 + 6.2265I$
$u = 1.12196 + 1.05376I$ $a = 0.35846 + 1.45756I$ $b = -1.27526 - 1.24816I$	$-6.88799 - 11.14470I$	$-17.5768 + 12.8416I$
$u = 1.12196 + 1.05376I$ $a = 0.167125 + 0.464153I$ $b = -0.949795 - 0.563580I$	$-1.50643 - 6.15314I$	$-11.4850 + 11.0910I$
$u = 1.12196 + 1.05376I$ $a = -0.264501 - 0.301973I$ $b = 0.833776 + 0.377946I$	$-1.50643 - 1.96639I$	$-11.48501 + 2.76537I$
$u = 1.12196 - 1.05376I$ $a = 0.935424 - 0.317876I$ $b = -1.352910 - 0.093439I$	$-7.66122 + 5.39594I$	$-19.2841 - 7.6300I$
$u = 1.12196 - 1.05376I$ $a = -0.629892 + 0.828967I$ $b = 1.34287 - 0.48468I$	$-4.48831 + 4.05977I$	$-20.6523 - 6.9282I$
$u = 1.12196 - 1.05376I$ $a = -0.072905 + 1.091850I$ $b = 0.773356 - 0.936297I$	$-1.50643 + 6.15314I$	$-11.4850 - 11.0910I$
$u = 1.12196 - 1.05376I$ $a = 0.893999 - 0.030444I$ $b = -1.131990 - 0.328604I$	$-6.88799 - 3.02516I$	$-17.5768 - 1.0149I$
$u = 1.12196 - 1.05376I$ $a = -0.004295 - 0.876976I$ $b = -0.558649 + 0.685116I$	$-1.50643 + 1.96639I$	$-11.48501 - 2.76537I$
$u = 1.12196 - 1.05376I$ $a = 0.311224 - 0.732782I$ $b = -1.162730 + 0.365037I$	$-4.48831 + 4.05977I$	$-20.6523 - 6.9282I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.12196 - 1.05376I$ $a = -0.766136 + 0.158857I$ $b = 1.102540 + 0.125636I$	$-3.90681 + 1.60535I$	$-14.3279 - 4.0152I$
$u = 1.12196 - 1.05376I$ $a = -0.170868 + 0.736807I$ $b = 1.30660 - 0.60299I$	$-7.66122 + 2.72360I$	$-19.2841 - 6.2265I$
$u = 1.12196 - 1.05376I$ $a = -0.090223 + 0.707270I$ $b = 1.24928 - 0.73115I$	$-6.88799 + 11.14470I$	$-17.5768 - 12.8416I$
$u = 1.12196 - 1.05376I$ $a = -0.302703 + 0.624434I$ $b = 0.901831 + 0.021552I$	$-7.66122 + 5.39594I$	$-19.2841 - 7.6300I$
$u = 1.12196 - 1.05376I$ $a = 0.134083 - 0.676847I$ $b = -1.209800 + 0.658356I$	$-3.90681 + 6.51418I$	$-14.3279 - 9.8412I$
$u = 1.12196 - 1.05376I$ $a = 0.210978 - 0.585167I$ $b = -0.677217 + 0.035293I$	$-3.90681 + 1.60535I$	$-14.3279 - 4.0152I$
$u = 1.12196 - 1.05376I$ $a = -0.360671 + 1.339120I$ $b = 1.22641 - 1.11280I$	$-3.90681 + 6.51418I$	$-14.3279 - 9.8412I$
$u = 1.12196 - 1.05376I$ $a = -0.255451 + 0.507035I$ $b = 0.645364 + 0.152056I$	$-6.88799 - 3.02516I$	$-17.5768 - 1.0149I$
$u = 1.12196 - 1.05376I$ $a = 0.52832 - 1.34223I$ $b = -1.41527 + 1.04664I$	$-7.66122 + 2.72360I$	$-19.2841 - 6.2265I$
$u = 1.12196 - 1.05376I$ $a = 0.35846 - 1.45756I$ $b = -1.27526 + 1.24816I$	$-6.88799 + 11.14470I$	$-17.5768 - 12.8416I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.12196 - 1.05376I$ $a = 0.167125 - 0.464153I$ $b = -0.949795 + 0.563580I$	$-1.50643 + 6.15314I$	$-11.4850 - 11.0910I$
$u = 1.12196 - 1.05376I$ $a = -0.264501 + 0.301973I$ $b = 0.833776 - 0.377946I$	$-1.50643 + 1.96639I$	$-11.48501 - 2.76537I$

IV. $\boldsymbol{I^u_4 = \langle 8.05 \times 10^{32} a^{17} u + 5.01 \times 10^{32} a^{16} u + \cdots - 7.33 \times 10^{32} a - 5.03 \times 10^{33},\ -2a^{17} u + 3a^{16} u + \cdots + 36a + 9,\ u^2 - u + 1\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} a \\ -0.385900a^{17}u - 0.240472a^{16}u + \cdots + 0.351634a + 2.41369 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -0.385900a^{17}u - 0.240472a^{16}u + \cdots + 1.35163a + 2.41369 \\ -0.385900a^{17}u - 0.240472a^{16}u + \cdots + 0.351634a + 2.41369 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.171431a^{17}u + 0.264717a^{16}u + \cdots - 21.2084a + 1.58429 \\ 0.218698a^{17}u + 0.742566a^{16}u + \cdots - 33.7196a - 2.09684 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.398902a^{17}u - 0.497063a^{16}u + \cdots + 6.40875a - 1.34451 \\ -0.797803a^{17}u + 0.994126a^{16}u + \cdots - 12.8175a + 2.68902 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.385900a^{17}u - 0.240472a^{16}u + \cdots + 2.35163a + 2.41369 \\ 0.385900a^{17}u + 0.240472a^{16}u + \cdots - 1.35163a - 2.41369 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.115010a^{17}u - 0.353110a^{16}u + \cdots + 15.4897a + 2.23782 \\ 0.185024a^{17}u + 0.460788a^{16}u + \cdots + 9.03962a - 9.84163 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -a^2u \\ -0.0472669a^{17}u - 0.477849a^{16}u + \cdots + 12.5112a + 3.68113 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.216648a^{17}u - 0.531277a^{16}u + \cdots + 2.78395a - 2.13112 \\ -0.232474a^{17}u + 0.00880116a^{16}u + \cdots + 11.3610a + 3.70600 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0834056a^{17}u + 0.277553a^{16}u + \cdots - 43.0081a + 1.20610 \\ -0.572218a^{17}u + 0.212244a^{16}u + \cdots + 38.3797a - 9.86400 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00962865a^{17}u - 0.477998a^{16}u + \cdots - 45.3429a + 35.5487$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^4$
c_2, c_7	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^4$
c_3, c_5, c_{10} c_{12}	$u^{36}+u^{35}+\cdots+2u^2+1$
c_4, c_{11}	$u^{36}+3u^{35}+\cdots+948u+193$
c_6, c_9	$(u^2+u+1)^{18}$
c_8	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^4$
c_2, c_7	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^4$
c_3, c_5, c_{10} c_{12}	$y^{36}-9y^{35}+\cdots+4y+1$
c_4, c_{11}	$y^{36}-21y^{35}+\cdots+837524y+37249$
c_6, c_9	$(y^2+y+1)^{18}$
c_8	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = 0.541983 + 0.836491I$ $b = -1.62386 - 0.82399I$	$-0.61694 - 6.51418I$	$-2.32792 + 9.84118I$
$u = 0.500000 + 0.866025I$ $a = -0.603976 - 0.851109I$ $b = 1.76804 + 0.88879I$	$-3.59813 - 11.14470I$	$-5.57680 + 12.84155I$
$u = 0.500000 + 0.866025I$ $a = -0.409962 - 0.969381I$ $b = 0.90415 + 1.09651I$	$1.78344 - 1.96639I$	$0.51499 + 2.76537I$
$u = 0.500000 + 0.866025I$ $a = 0.438782 + 0.957848I$ $b = -1.18925 - 1.06578I$	$1.78344 - 6.15314I$	$0.51499 + 11.09103I$
$u = 0.500000 + 0.866025I$ $a = -0.561919 - 0.738983I$ $b = 1.71694 + 0.61600I$	$-4.37135 - 2.72360I$	$-7.28409 + 6.22645I$
$u = 0.500000 + 0.866025I$ $a = -0.992366 - 0.445735I$ $b = 0.253752 + 0.238566I$	$-0.61694 - 1.60535I$	$-2.32792 + 4.01523I$
$u = 0.500000 + 0.866025I$ $a = -0.523373 - 0.642770I$ $b = 0.189893 + 0.743243I$	$-0.61694 - 1.60535I$	$-2.32792 + 4.01523I$
$u = 0.500000 + 0.866025I$ $a = 0.257489 + 0.650379I$ $b = 0.036976 - 1.088490I$	$-3.59813 + 3.02516I$	$-5.57680 + 1.01485I$
$u = 0.500000 + 0.866025I$ $a = 0.109500 + 0.594369I$ $b = -1.081850 - 0.202354I$	$-1.19845 - 4.05977I$	$-8.65235 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = -1.26468 + 0.72630I$ $b = -0.136996 - 0.491540I$	$1.78344 - 1.96639I$	$0.51499 + 2.76537I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.10950 - 1.48180I$ $b = 0.825668 + 0.646069I$	$-1.19845 - 4.05977I$	$-8.65235 + 6.92820I$
$u = 0.500000 + 0.866025I$ $a = 1.06039 + 1.13009I$ $b = -0.712881 - 0.379867I$	$-4.37135 - 5.39594I$	$-7.28409 + 7.62995I$
$u = 0.500000 + 0.866025I$ $a = 1.45082 + 0.61223I$ $b = -0.526650 - 0.035958I$	$-3.59813 + 3.02516I$	$-5.57680 + 1.01485I$
$u = 0.500000 + 0.866025I$ $a = 0.209456 + 0.248628I$ $b = 0.475959 - 0.676068I$	$-4.37135 - 5.39594I$	$-7.28409 + 7.62995I$
$u = 0.500000 + 0.866025I$ $a = 1.23586 - 1.20093I$ $b = 0.281762 + 0.703896I$	$1.78344 - 6.15314I$	$0.51499 + 11.09103I$
$u = 0.500000 + 0.866025I$ $a = 0.97376 - 1.92500I$ $b = 0.551769 + 0.930683I$	$-0.61694 - 6.51418I$	$-2.32792 + 9.84118I$
$u = 0.500000 + 0.866025I$ $a = -0.70793 + 2.11771I$ $b = -0.684016 - 0.938790I$	$-4.37135 - 2.72360I$	$-7.28409 + 6.22645I$
$u = 0.500000 + 0.866025I$ $a = -1.10434 + 2.11371I$ $b = -0.549397 - 1.026950I$	$-3.59813 - 11.14470I$	$-5.57680 + 12.84155I$
$u = 0.500000 - 0.866025I$ $a = 0.541983 - 0.836491I$ $b = -1.62386 + 0.82399I$	$-0.61694 + 6.51418I$	$-2.32792 - 9.84118I$
$u = 0.500000 - 0.866025I$ $a = -0.603976 + 0.851109I$ $b = 1.76804 - 0.88879I$	$-3.59813 + 11.14470I$	$-5.57680 - 12.84155I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = -0.409962 + 0.969381I$ $b = 0.90415 - 1.09651I$	$1.78344 + 1.96639I$	$0.51499 - 2.76537I$
$u = 0.500000 - 0.866025I$ $a = 0.438782 - 0.957848I$ $b = -1.18925 + 1.06578I$	$1.78344 + 6.15314I$	$0.51499 - 11.09103I$
$u = 0.500000 - 0.866025I$ $a = -0.561919 + 0.738983I$ $b = 1.71694 - 0.61600I$	$-4.37135 + 2.72360I$	$-7.28409 - 6.22645I$
$u = 0.500000 - 0.866025I$ $a = -0.992366 + 0.445735I$ $b = 0.253752 - 0.238566I$	$-0.61694 + 1.60535I$	$-2.32792 - 4.01523I$
$u = 0.500000 - 0.866025I$ $a = -0.523373 + 0.642770I$ $b = 0.189893 - 0.743243I$	$-0.61694 + 1.60535I$	$-2.32792 - 4.01523I$
$u = 0.500000 - 0.866025I$ $a = 0.257489 - 0.650379I$ $b = 0.036976 + 1.088490I$	$-3.59813 - 3.02516I$	$-5.57680 - 1.01485I$
$u = 0.500000 - 0.866025I$ $a = 0.109500 - 0.594369I$ $b = -1.081850 + 0.202354I$	$-1.19845 + 4.05977I$	$-8.65235 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = -1.26468 - 0.72630I$ $b = -0.136996 + 0.491540I$	$1.78344 + 1.96639I$	$0.51499 - 2.76537I$
$u = 0.500000 - 0.866025I$ $a = -0.10950 + 1.48180I$ $b = 0.825668 - 0.646069I$	$-1.19845 + 4.05977I$	$-8.65235 - 6.92820I$
$u = 0.500000 - 0.866025I$ $a = 1.06039 - 1.13009I$ $b = -0.712881 + 0.379867I$	$-4.37135 + 5.39594I$	$-7.28409 - 7.62995I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.500000 - 0.866025I$ $a = 1.45082 - 0.61223I$ $b = -0.526650 + 0.035958I$	$-3.59813 - 3.02516I$	$-5.57680 - 1.01485I$
$u = 0.500000 - 0.866025I$ $a = 0.209456 - 0.248628I$ $b = 0.475959 + 0.676068I$	$-4.37135 + 5.39594I$	$-7.28409 - 7.62995I$
$u = 0.500000 - 0.866025I$ $a = 1.23586 + 1.20093I$ $b = 0.281762 - 0.703896I$	$1.78344 + 6.15314I$	$0.51499 - 11.09103I$
$u = 0.500000 - 0.866025I$ $a = 0.97376 + 1.92500I$ $b = 0.551769 - 0.930683I$	$-0.61694 + 6.51418I$	$-2.32792 - 9.84118I$
$u = 0.500000 - 0.866025I$ $a = -0.70793 - 2.11771I$ $b = -0.684016 + 0.938790I$	$-4.37135 + 2.72360I$	$-7.28409 - 6.22645I$
$u = 0.500000 - 0.866025I$ $a = -1.10434 - 2.11371I$ $b = -0.549397 + 1.026950I$	$-3.59813 + 11.14470I$	$-5.57680 - 12.84155I$

V.

$\boldsymbol{I^u_5 = \langle 1.00\times10^{26}u^{37} - 1.31\times10^{27}u^{36} + \cdots + 8.88\times10^{25}b - 1.96\times10^{26},\ 9.58\times10^{25}u^{37} - 1.34\times10^{27}u^{36} + \cdots + 8.88\times10^{25}a - 6.26\times10^{25},\ u^{38} - 14u^{37} + \cdots + u + 1\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix}-1.07846u^{37} + 15.0328u^{36} + \cdots - 1.32859u + 0.705098\\ -1.12838u^{37} + 14.7346u^{36} + \cdots + 5.11878u + 2.20684\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}-2.20684u^{37} + 29.7674u^{36} + \cdots + 3.79019u + 2.91194\\ -1.12838u^{37} + 14.7346u^{36} + \cdots + 5.11878u + 2.20684\end{pmatrix}$$

$$a_1 = \begin{pmatrix}1.14500u^{37} - 13.8852u^{36} + \cdots - 5.28452u - 6.30863\\ 2.14475u^{37} - 29.3644u^{36} + \cdots - 6.45362u - 1.14500\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-2.14118u^{37} + 29.5971u^{36} + \cdots + 2.00663u + 1.83348\\ 0.711034u^{37} - 7.98714u^{36} + \cdots + 4.30409u + 1.45781\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-1.29908u^{37} + 18.2134u^{36} + \cdots + 3.34374u - 5.63126\\ -0.348895u^{37} + 4.27392u^{36} + \cdots - 1.33584u + 1.26983\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-2.04475u^{37} + 26.4077u^{36} + \cdots - 8.11017u + 6.02040\\ -1.55656u^{37} + 20.0352u^{36} + \cdots + 3.77539u - 0.100008\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-2.48235u^{37} + 35.5630u^{36} + \cdots + 6.33298u - 6.16339\\ 1.48260u^{37} - 20.0838u^{36} + \cdots - 3.16387u + 0.999756\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.353686u^{37} - 8.41298u^{36} + \cdots + 2.42110u + 7.48022\\ -3.06937u^{37} + 42.9880u^{36} + \cdots + 9.94450u + 2.74494\end{pmatrix}$$

$$a_2 = \begin{pmatrix}5.94574u^{37} - 82.0649u^{36} + \cdots - 3.71762u + 7.45689\\ 0.912713u^{37} - 8.80065u^{36} + \cdots + 3.88952u - 2.58106\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{4927275747858999218815166 31}{888084903070337343475316 51}u^{37} - \frac{6194406854275124730621113225}{88808490307033734347531651}u^{36} + \cdots - \frac{3077658052047205031838876941}{88808490307033734347531651}u - \frac{1759778284097884737803921371}{88808490307033734347531651}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{19} - 11u^{18} + \cdots - 2u + 1)^2$
c_2, c_7	$u^{38} - 11u^{36} + \cdots - 2u^2 + 1$
c_3, c_{10}	$u^{38} - 2u^{37} + \cdots - 5u + 1$
c_4, c_{11}	$u^{38} + 11u^{36} + \cdots + 39u^2 + 1$
c_5, c_{12}	$u^{38} + 2u^{37} + \cdots + 5u + 1$
c_6	$u^{38} + 14u^{37} + \cdots - u + 1$
c_8	$u^{38} - 39u^{34} + \cdots - 12u^2 + 1$
c_9	$u^{38} - 14u^{37} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{19} + y^{18} + \cdots + 34y - 1)^2$
c_2, c_7	$(y^{19} - 11y^{18} + \cdots - 2y + 1)^2$
c_3, c_5, c_{10} c_{12}	$y^{38} - 14y^{37} + \cdots + 31y + 1$
c_4, c_{11}	$(y^{19} + 11y^{18} + \cdots + 39y + 1)^2$
c_6, c_9	$y^{38} - 20y^{37} + \cdots - 21y + 1$
c_8	$(y^{19} - 39y^{17} + \cdots - 12y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.968758 + 0.176842I$ $a = 0.033254 + 0.182169I$ $b = -0.999984 + 0.176661I$	-3.32952	$-11.83134 + 0.I$
$u = 0.968758 - 0.176842I$ $a = 0.033254 - 0.182169I$ $b = -0.999984 - 0.176661I$	-3.32952	$-11.83134 + 0.I$
$u = -0.579538 + 0.657340I$ $a = -0.943026 + 1.017610I$ $b = 0.205604 - 0.680250I$	$-6.22842 + 5.39858I$	$-13.3102 - 7.2958I$
$u = -0.579538 - 0.657340I$ $a = -0.943026 - 1.017610I$ $b = 0.205604 + 0.680250I$	$-6.22842 - 5.39858I$	$-13.3102 + 7.2958I$
$u = 0.989111 + 0.541052I$ $a = -0.374160 - 0.278889I$ $b = 0.875497 - 0.422743I$	$-6.16647 + 4.01607I$	$-12.51721 - 5.30034I$
$u = 0.989111 - 0.541052I$ $a = -0.374160 + 0.278889I$ $b = 0.875497 + 0.422743I$	$-6.16647 - 4.01607I$	$-12.51721 + 5.30034I$
$u = 0.754554 + 0.921192I$ $a = -0.130405 + 0.889071I$ $b = -0.805968 - 0.781140I$	$-0.09286 - 5.79250I$	$0. + 9.57133I$
$u = 0.754554 - 0.921192I$ $a = -0.130405 - 0.889071I$ $b = -0.805968 + 0.781140I$	$-0.09286 + 5.79250I$	$0. - 9.57133I$
$u = 0.689684 + 0.304524I$ $a = 0.009715 - 0.697784I$ $b = 1.130350 - 0.432057I$	$-6.16647 - 4.01607I$	$-12.51721 + 5.30034I$
$u = 0.689684 - 0.304524I$ $a = 0.009715 + 0.697784I$ $b = 1.130350 + 0.432057I$	$-6.16647 + 4.01607I$	$-12.51721 - 5.30034I$

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.206852 + 0.719847I$ $a = -0.36842 - 1.38031I$ $b = 0.979786 + 0.194884I$	$-0.09286 - 5.79250I$	$-5.01784 + 9.57133I$
$u = 0.206852 - 0.719847I$ $a = -0.36842 + 1.38031I$ $b = 0.979786 - 0.194884I$	$-0.09286 + 5.79250I$	$-5.01784 - 9.57133I$
$u = 0.450422 + 0.588996I$ $a = -0.260946 + 1.313780I$ $b = -1.152450 - 0.438017I$	$-0.21041 - 2.23415I$	$-4.27004 + 3.35920I$
$u = 0.450422 - 0.588996I$ $a = -0.260946 - 1.313780I$ $b = -1.152450 + 0.438017I$	$-0.21041 + 2.23415I$	$-4.27004 - 3.35920I$
$u = 0.648553 + 1.127180I$ $a = 0.049855 - 0.762092I$ $b = 0.578914 + 0.610276I$	$-0.21041 - 2.23415I$	0
$u = 0.648553 - 1.127180I$ $a = 0.049855 + 0.762092I$ $b = 0.578914 - 0.610276I$	$-0.21041 + 2.23415I$	0
$u = 1.023480 + 0.941692I$ $a = -0.104442 - 1.057930I$ $b = 1.22994 + 0.97508I$	$-6.07851 - 10.59750I$	0
$u = 1.023480 - 0.941692I$ $a = -0.104442 + 1.057930I$ $b = 1.22994 - 0.97508I$	$-6.07851 + 10.59750I$	0
$u = 1.051710 + 0.921697I$ $a = 0.127410 + 0.955311I$ $b = -1.16836 - 0.87547I$	$-3.13428 - 5.88725I$	0
$u = 1.051710 - 0.921697I$ $a = 0.127410 - 0.955311I$ $b = -1.16836 + 0.87547I$	$-3.13428 + 5.88725I$	0

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.05571 + 0.97125I$ $a = -0.276111 - 1.011390I$ $b = 1.33028 + 0.78757I$	$-6.96832 - 2.20792I$	0
$u = 1.05571 - 0.97125I$ $a = -0.276111 + 1.011390I$ $b = 1.33028 - 0.78757I$	$-6.96832 + 2.20792I$	0
$u = -0.450018 + 0.294282I$ $a = -2.30414 + 0.98679I$ $b = 0.645307 - 0.642915I$	$-3.13428 - 5.88725I$	$-6.10322 + 3.33579I$
$u = -0.450018 - 0.294282I$ $a = -2.30414 - 0.98679I$ $b = 0.645307 + 0.642915I$	$-3.13428 + 5.88725I$	$-6.10322 - 3.33579I$
$u = -0.503149 + 0.186021I$ $a = 0.28442 - 2.60224I$ $b = 0.112954 + 0.920226I$	$-4.01271 + 3.94421I$	$-0.80843 - 2.14732I$
$u = -0.503149 - 0.186021I$ $a = 0.28442 + 2.60224I$ $b = 0.112954 - 0.920226I$	$-4.01271 - 3.94421I$	$-0.80843 + 2.14732I$
$u = 1.08335 + 1.05071I$ $a = 0.466233 + 0.805227I$ $b = -1.262780 - 0.424688I$	$-4.01271 - 3.94421I$	0
$u = 1.08335 - 1.05071I$ $a = 0.466233 - 0.805227I$ $b = -1.262780 + 0.424688I$	$-4.01271 + 3.94421I$	0
$u = -0.409291 + 0.110056I$ $a = 2.39251 - 2.62061I$ $b = -0.560795 + 0.904131I$	$-6.96832 - 2.20792I$	$-9.88914 - 0.83240I$
$u = -0.409291 - 0.110056I$ $a = 2.39251 + 2.62061I$ $b = -0.560795 - 0.904131I$	$-6.96832 + 2.20792I$	$-9.88914 + 0.83240I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.323511 + 0.265038I$ $a = 3.43477 - 0.83700I$ $b = -0.817872 + 0.728634I$	$-6.07851 - 10.59750I$	$-8.79802 + 6.88476I$
$u = -0.323511 - 0.265038I$ $a = 3.43477 + 0.83700I$ $b = -0.817872 - 0.728634I$	$-6.07851 + 10.59750I$	$-8.79802 - 6.88476I$
$u = 1.07221 + 1.23787I$ $a = -0.509379 - 0.540089I$ $b = 0.968129 + 0.155352I$	$-6.22842 - 5.39858I$	0
$u = 1.07221 - 1.23787I$ $a = -0.509379 + 0.540089I$ $b = 0.968129 - 0.155352I$	$-6.22842 + 5.39858I$	0
$u = 1.75690 + 0.41553I$ $a = 0.040049 + 0.451631I$ $b = -0.332418 - 0.887807I$	$0.01311 - 3.38613I$	0
$u = 1.75690 - 0.41553I$ $a = 0.040049 - 0.451631I$ $b = -0.332418 + 0.887807I$	$0.01311 + 3.38613I$	0
$u = -2.48579 + 0.15450I$ $a = -0.067185 + 0.321722I$ $b = 0.043866 - 0.230460I$	$0.01311 - 3.38613I$	0
$u = -2.48579 - 0.15450I$ $a = -0.067185 - 0.321722I$ $b = 0.043866 + 0.230460I$	$0.01311 + 3.38613I$	0

VI. $\boldsymbol{I_6^u = \langle b^2 + ba - a^2 - 1,\ a^9 - a^8 + 2a^7 - a^6 + 3a^5 - a^4 + 2a^3 + a + 1,\ u - 1\rangle}$

(i) Arc colorings

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ b \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} b + a \\ b \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -ba - 2a^2 - 1 \\ -a^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} b + 2a \\ b + a \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -b - a \\ -a \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a^3b + 2a^4 + a^2 + 1 \\ a^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -a^2 \\ -ba + 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} a^2b + a^3 + b + 2a \\ a^3 + a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -a^7b - a^8 - 2a^5b - 3a^6 - 2a^3b - 3a^4 - 2ba - 4a^2 - 1 \\ -a^8 - 2a^6 - 2a^4 - 2a^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4a^7 - 4a^6 + 4a^5 - 4a^4 + 8a^3 - 4a^2 - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^2$
c_2, c_7	$(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^2$
c_3, c_5, c_{10} c_{12}	$u^{18}-u^{17}+\cdots+6u-1$
c_4, c_{11}	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^2$
c_6, c_9	$(u+1)^{18}$
c_8	$(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^2$
c_2, c_7	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^2$
c_3, c_5, c_{10} c_{12}	$y^{18} - 9y^{17} + \cdots - 36y + 1$
c_4, c_{11}	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^2$
c_6, c_9	$(y-1)^{18}$
c_8	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.140343 + 0.966856I$ $b = 0.405278 - 0.989579I$	$-1.50643 + 2.09337I$	$-11.48501 - 4.16283I$
$u = 1.00000$ $a = -0.140343 + 0.966856I$ $b = -0.264935 + 0.022723I$	$-1.50643 + 2.09337I$	$-11.48501 - 4.16283I$
$u = 1.00000$ $a = -0.140343 - 0.966856I$ $b = 0.405278 + 0.989579I$	$-1.50643 - 2.09337I$	$-11.48501 + 4.16283I$
$u = 1.00000$ $a = -0.140343 - 0.966856I$ $b = -0.264935 - 0.022723I$	$-1.50643 - 2.09337I$	$-11.48501 + 4.16283I$
$u = 1.00000$ $a = -0.628449 + 0.875112I$ $b = -0.688833 + 0.247803I$	$-3.90681 + 2.45442I$	$-14.3279 - 2.9130I$
$u = 1.00000$ $a = -0.628449 + 0.875112I$ $b = 1.31728 - 1.12291I$	$-3.90681 + 2.45442I$	$-14.3279 - 2.9130I$
$u = 1.00000$ $a = -0.628449 - 0.875112I$ $b = -0.688833 - 0.247803I$	$-3.90681 - 2.45442I$	$-14.3279 + 2.9130I$
$u = 1.00000$ $a = -0.628449 - 0.875112I$ $b = 1.31728 + 1.12291I$	$-3.90681 - 2.45442I$	$-14.3279 + 2.9130I$
$u = 1.00000$ $a = 0.796005 + 0.733148I$ $b = 0.818454 + 0.233108I$	$-7.66122 + 1.33617I$	$-19.2841 - 0.7017I$
$u = 1.00000$ $a = 0.796005 + 0.733148I$ $b = -1.61446 - 0.96626I$	$-7.66122 + 1.33617I$	$-19.2841 - 0.7017I$

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.796005 - 0.733148I$ $b = 0.818454 - 0.233108I$	$-7.66122 - 1.33617I$	$-19.2841 + 0.7017I$
$u = 1.00000$ $a = 0.796005 - 0.733148I$ $b = -1.61446 + 0.96626I$	$-7.66122 - 1.33617I$	$-19.2841 + 0.7017I$
$u = 1.00000$ $a = 0.728966 + 0.986295I$ $b = 0.708074 + 0.344774I$	$-6.88799 - 7.08493I$	$-17.5768 + 5.9133I$
$u = 1.00000$ $a = 0.728966 + 0.986295I$ $b = -1.43704 - 1.33107I$	$-6.88799 - 7.08493I$	$-17.5768 + 5.9133I$
$u = 1.00000$ $a = 0.728966 - 0.986295I$ $b = 0.708074 - 0.344774I$	$-6.88799 + 7.08493I$	$-17.5768 - 5.9133I$
$u = 1.00000$ $a = 0.728966 - 0.986295I$ $b = -1.43704 + 1.33107I$	$-6.88799 + 7.08493I$	$-17.5768 - 5.9133I$
$u = 1.00000$ $a = -0.512358$ $b = -0.896270$	-4.48831	-20.6520
$u = 1.00000$ $a = -0.512358$ $b = 1.40863$	-4.48831	-20.6520

VII. $I_7^u = \langle b+1,\ a,\ u-1 \rangle$

(i) Arc colorings

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

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

$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

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

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

$a_4 = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$

$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_7, c_8, c_{11}	y
c_3, c_5, c_6 c_9, c_{10}, c_{12}	$y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0$ $b = -1.00000$	-3.28987	-12.0000

VIII. $I_1^v = \langle a,\ b^9+b^8+2b^7+b^6+3b^5+b^4+2b^3+b-1,\ v-1\rangle$

(i) Arc colorings

$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0\\b\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_5 = \begin{pmatrix}b\\b\end{pmatrix}$$
$$a_1 = \begin{pmatrix}b^2+1\\b^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\b\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\b\end{pmatrix}$$
$$a_8 = \begin{pmatrix}b^4+b^2+1\\b^4\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1\\b^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}b\\b^3+b\end{pmatrix}$$
$$a_2 = \begin{pmatrix}b^6+b^4+2b^2+1\\b^8+2b^6+2b^4+2b^2\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4b^7-4b^6-4b^5-4b^4-8b^3-4b^2-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$
c_2, c_7	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_3, c_4, c_5 c_{10}, c_{11}, c_{12}	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_6, c_9	u^9
c_8	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_2, c_7	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_3, c_4, c_5 c_{10}, c_{11}, c_{12}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_6, c_9	y^9
c_8	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = 0.140343 + 0.966856I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$v = 1.00000$ $a = 0$ $b = 0.140343 - 0.966856I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$v = 1.00000$ $a = 0$ $b = 0.628449 + 0.875112I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$v = 1.00000$ $a = 0$ $b = 0.628449 - 0.875112I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$v = 1.00000$ $a = 0$ $b = -0.796005 + 0.733148I$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$v = 1.00000$ $a = 0$ $b = -0.796005 - 0.733148I$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$v = 1.00000$ $a = 0$ $b = -0.728966 + 0.986295I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$v = 1.00000$ $a = 0$ $b = -0.728966 - 0.986295I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$v = 1.00000$ $a = 0$ $b = 0.512358$	-1.19845	-8.65230

IX. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^{15}$ $\cdot((u^{13}+6u^{12}+\cdots+12u+16)^2)(u^{19}-11u^{18}+\cdots-2u+1)^2$ $\cdot(u^{20}+10u^{19}+\cdots-160u+64)$
c_2, c_7	$u(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^{14}$ $\cdot((u^{13}-4u^{12}+\cdots-14u+4)^2)(u^{20}-6u^{19}+\cdots-40u+8)$ $\cdot(u^{38}-11u^{36}+\cdots-2u^2+1)$
c_3, c_{10}	$(u+1)(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{18}-u^{17}+\cdots+6u-1)(u^{20}+u^{19}+\cdots-u+1)(u^{26}+u^{25}+\cdots+u+1)$ $\cdot(u^{36}+u^{35}+\cdots+2u^2+1)(u^{38}-2u^{37}+\cdots-5u+1)$ $\cdot(u^{72}-u^{71}+\cdots+276774u+52573)$
c_4, c_{11}	$u(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^3$ $\cdot(u^{13}+u^{11}+u^{10}-2u^7-u^6-u^5-2u^4+u^3+u^2+u+1)^2$ $\cdot(u^{20}+u^{19}+\cdots+2u+26)(u^{36}-u^{35}+\cdots-248u+4921)^2$ $\cdot(u^{36}+3u^{35}+\cdots+948u+193)(u^{38}+11u^{36}+\cdots+39u^2+1)$
c_5, c_{12}	$(u-1)(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{18}-u^{17}+\cdots+6u-1)(u^{20}+u^{19}+\cdots-u+1)(u^{26}+u^{25}+\cdots+u+1)$ $\cdot(u^{36}+u^{35}+\cdots+2u^2+1)(u^{38}+2u^{37}+\cdots+5u+1)$ $\cdot(u^{72}-u^{71}+\cdots+276774u+52573)$
c_6	$u^9(u+1)^{19}(u^2+u+1)^{18}(u^4+u^3-2u+1)^{18}$ $\cdot(u^{20}-19u^{19}+\cdots-4045u+419)$ $\cdot(u^{26}-27u^{25}+\cdots-29107u+2239)(u^{38}+14u^{37}+\cdots-u+1)$
c_8	$u(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^{14}$ $\cdot((u^{13}-12u^{12}+\cdots+210u+4)^2)(u^{20}-18u^{19}+\cdots-24920u+3688)$ $\cdot(u^{38}-39u^{34}+\cdots-12u^2+1)$
c_9	$u^9(u-1)(u+1)^{18}(u^2+u+1)^{18}(u^4+u^3-2u+1)^{18}$ $\cdot(u^{20}-19u^{19}+\cdots-4045u+419)$ $\cdot(u^{26}-27u^{25}+\cdots-29107u+2239)(u^{38}-14u^{37}+\cdots+u+1)$

X. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^{15}$ $\cdot((y^{13} + 2y^{12} + \cdots - 656y - 256)^2)(y^{19} + y^{18} + \cdots + 34y - 1)^2$ $\cdot(y^{20} - 2y^{19} + \cdots - 23040y + 4096)$
c_2, c_7	$y(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^{15}$ $\cdot((y^{13} - 6y^{12} + \cdots + 12y - 16)^2)(y^{19} - 11y^{18} + \cdots - 2y + 1)^2$ $\cdot(y^{20} - 10y^{19} + \cdots + 160y + 64)$
c_3, c_5, c_{10} c_{12}	$(y - 1)(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)$ $\cdot(y^{18} - 9y^{17} + \cdots - 36y + 1)(y^{20} - y^{19} + \cdots + 11y + 1)$ $\cdot(y^{26} - 3y^{25} + \cdots - y + 1)(y^{36} - 9y^{35} + \cdots + 4y + 1)$ $\cdot(y^{38} - 14y^{37} + \cdots + 31y + 1)$ $\cdot(y^{72} - 27y^{71} + \cdots - 85049384088y + 2763920329)$
c_4, c_{11}	$y(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^3$ $\cdot((y^{13} + 2y^{12} + \cdots - y - 1)^2)(y^{19} + 11y^{18} + \cdots + 39y + 1)^2$ $\cdot(y^{20} + 21y^{19} + \cdots + 10448y + 676)$ $\cdot(y^{36} - 21y^{35} + \cdots + 837524y + 37249)$ $\cdot(y^{36} + 39y^{35} + \cdots + 446076356y + 24216241)^2$
c_6, c_9	$y^9(y - 1)^{19}(y^2 + y + 1)^{18}(y^4 - y^3 + 6y^2 - 4y + 1)^{18}$ $\cdot(y^{20} - 9y^{19} + \cdots - 853997y + 175561)$ $\cdot(y^{26} - 13y^{25} + \cdots + 24344647y + 5013121)$ $\cdot(y^{38} - 20y^{37} + \cdots - 21y + 1)$
c_8	$y(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^{15}$ $\cdot((y^{13} + 2y^{12} + \cdots + 52908y - 16)^2)(y^{19} - 39y^{17} + \cdots - 12y + 1)^2$ $\cdot(y^{20} - 4y^{19} + \cdots + 14317984y + 13601344)$