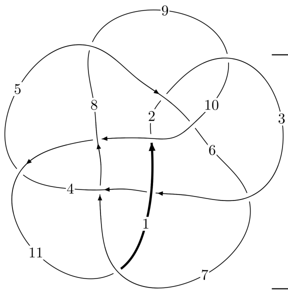
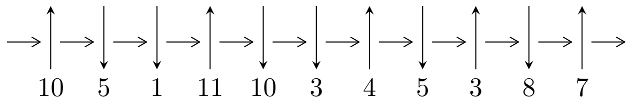
$11n_{156}$ ($K11n_{156}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 286u^{13} + 1025u^{12} + \cdots + 189b + 494,\ a - 1,$$
$$2u^{14} + 3u^{13} + 6u^{12} + u^{11} + 11u^{10} + 5u^9 + 20u^8 - 2u^7 + 15u^6 - 5u^5 + 11u^4 - 7u^3 + 7u^2 - 3u + 1\rangle$$
$$I_2^u = \langle 2u^7 - 14u^6 - 8u^5 - 21u^4 + 25u^3 - 19u^2 + 9b + 30u - 14,\ a + 1,$$
$$2u^8 + 2u^6 - 5u^5 + 4u^4 - 6u^3 + 5u^2 - 2u + 1\rangle$$
$$I_3^u = \langle -1.76422 \times 10^{54}u^{35} - 3.41094 \times 10^{54}u^{34} + \cdots + 1.61573 \times 10^{53}b + 2.47914 \times 10^{53},$$
$$3.12290 \times 10^{54}u^{35} + 4.43281 \times 10^{54}u^{34} + \cdots + 2.30819 \times 10^{52}a - 3.74791 \times 10^{54},\ 2u^{36} + 2u^{35} + \cdots - 14u +$$
$$I_4^u = \langle 4u^3 + 6u^2 + 3b + 4u + 1,\ 4u^3 + 12u^2 + 3a + 10u + 1,\ 2u^4 + 4u^3 + 2u^2 + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 62 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.

$$I^u_1 = \langle 286u^{13} + 1025u^{12} + \cdots + 189b + 494,\ a - 1,\ 2u^{14} + 3u^{13} + \cdots - 3u + 1\rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -1.51323u^{13} - 5.42328u^{12} + \cdots - 0.164021u - 2.61376 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -1.51323u^{13} - 5.42328u^{12} + \cdots - 0.164021u - 1.61376 \\ -1.51323u^{13} - 5.42328u^{12} + \cdots - 0.164021u - 2.61376 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u \\ -3.15344u^{13} - 6.81481u^{12} + \cdots - 3.88360u + 0.756614 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2.08466u^{13} + 3.32804u^{12} + \cdots + 3.97354u - 0.576720 \\ 2.06349u^{13} + 2.26984u^{12} + \cdots + 5.63492u - 2.73016 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 3.56614u^{13} + 4.35450u^{12} + \cdots + 8.86772u - 3.40741 \\ 3.43915u^{13} + 4.67196u^{12} + \cdots + 8.16931u - 3.32804 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -4.79365u^{13} - 11.9206u^{12} + \cdots - 4.74603u - 0.777778 \\ -5.22751u^{13} - 10.4550u^{12} + \cdots - 8.65608u + 1.37037 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -5.46032u^{13} - 10.2540u^{12} + \cdots - 9.41270u + 2.55556 \\ -2.30688u^{13} - 3.43915u^{12} + \cdots - 4.52910u + 1.79894 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.08466u^{13} + 3.32804u^{12} + \cdots + 3.97354u - 0.576720 \\ -3.01587u^{13} - 7.50794u^{12} + \cdots - 3.39683u - 0.936508 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2.08466u^{13} + 3.32804u^{12} + \cdots + 3.97354u - 0.576720 \\ -3.01587u^{13} - 7.50794u^{12} + \cdots - 3.39683u - 0.936508 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{136}{27}u^{13} - \frac{1550}{189}u^{12} - \frac{2491}{189}u^{11} + \frac{248}{189}u^{10} - \frac{1103}{63}u^9 - \frac{2428}{189}u^8 - \frac{2563}{63}u^7 + \frac{1360}{189}u^6 - \frac{1738}{189}u^5 + \frac{1937}{189}u^4 - \frac{1363}{63}u^3 - \frac{16}{27}u^2 - \frac{2242}{189}u - \frac{176}{189}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$4(4u^{14}+43u^{13}+\cdots+336u+64)$
c_2, c_5	$2(2u^{14}-u^{13}+\cdots+9u^2+1)$
c_3, c_{10}	$u^{14}-2u^{13}+\cdots-3u+2$
c_4, c_{11}	$2(2u^{14}-3u^{13}+\cdots+3u+1)$
c_6, c_8	$u^{14}-u^{13}+\cdots-13u+2$
c_7	$u^{14}-9u^{13}+\cdots-24u+8$
c_9	$u^{14}-10u^{13}+\cdots-80u+32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$16(16y^{14} - 105y^{13} + \cdots + 16128y + 4096)$
c_2, c_5	$4(4y^{14} + 83y^{13} + \cdots + 18y + 1)$
c_3, c_{10}	$y^{14} + 4y^{13} + \cdots - 5y + 4$
c_4, c_{11}	$4(4y^{14} + 15y^{13} + \cdots + 5y + 1)$
c_6, c_8	$y^{14} + 7y^{13} + \cdots - 33y + 4$
c_7	$y^{14} + 3y^{13} + \cdots - 96y + 64$
c_9	$y^{14} - 10y^{13} + \cdots + 5376y + 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.747471 + 0.736656I$ $a = 1.00000$ $b = -1.190140 + 0.650810I$	$2.08139 - 2.02696I$	$1.83038 + 2.57438I$
$u = -0.747471 - 0.736656I$ $a = 1.00000$ $b = -1.190140 - 0.650810I$	$2.08139 + 2.02696I$	$1.83038 - 2.57438I$
$u = 0.068372 + 0.773508I$ $a = 1.00000$ $b = 0.483737 - 0.312119I$	$0.50090 - 2.66807I$	$3.96052 + 3.99756I$
$u = 0.068372 - 0.773508I$ $a = 1.00000$ $b = 0.483737 + 0.312119I$	$0.50090 + 2.66807I$	$3.96052 - 3.99756I$
$u = 0.863068 + 0.906873I$ $a = 1.00000$ $b = -1.23002 - 1.06519I$	$1.01240 + 7.85357I$	$1.37704 - 6.81636I$
$u = 0.863068 - 0.906873I$ $a = 1.00000$ $b = -1.23002 + 1.06519I$	$1.01240 - 7.85357I$	$1.37704 + 6.81636I$
$u = -0.606706 + 1.104340I$ $a = 1.00000$ $b = -0.474186 + 0.465380I$	$2.86726 - 1.52978I$	$-3.12219 + 1.19653I$
$u = -0.606706 - 1.104340I$ $a = 1.00000$ $b = -0.474186 - 0.465380I$	$2.86726 + 1.52978I$	$-3.12219 - 1.19653I$
$u = 0.376941 + 0.517480I$ $a = 1.00000$ $b = -0.75145 + 1.71976I$	$6.55927 + 6.69837I$	$-2.55381 - 9.47495I$
$u = 0.376941 - 0.517480I$ $a = 1.00000$ $b = -0.75145 - 1.71976I$	$6.55927 - 6.69837I$	$-2.55381 + 9.47495I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.387427 + 0.358801I$ $a = 1.00000$ $b = -0.081855 - 1.118280I$	$-1.68063 + 1.15707I$	$-4.41586 - 6.34189I$
$u = 0.387427 - 0.358801I$ $a = 1.00000$ $b = -0.081855 + 1.118280I$	$-1.68063 - 1.15707I$	$-4.41586 + 6.34189I$
$u = -1.09163 + 1.20653I$ $a = 1.00000$ $b = -1.25608 + 0.97829I$	$8.3986 - 15.3972I$	$1.29891 + 7.67212I$
$u = -1.09163 - 1.20653I$ $a = 1.00000$ $b = -1.25608 - 0.97829I$	$8.3986 + 15.3972I$	$1.29891 - 7.67212I$

II.

$$\boldsymbol{I_2^u = \langle 2u^7 - 14u^6 + \cdots + 9b - 14,\ a+1,\ 2u^8 + 2u^6 - 5u^5 + 4u^4 - 6u^3 + 5u^2 - 2u + 1 \rangle}$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1 \\ -\frac{2}{9}u^7 + \frac{14}{9}u^6 + \cdots - \frac{10}{3}u + \frac{14}{9} \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{2}{9}u^7 + \frac{14}{9}u^6 + \cdots - \frac{10}{3}u + \frac{5}{9} \\ -\frac{2}{9}u^7 + \frac{14}{9}u^6 + \cdots - \frac{10}{3}u + \frac{14}{9} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -\frac{14}{9}u^7 - \frac{10}{9}u^6 + \cdots - \frac{1}{3}u - \frac{1}{9} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{10}{9}u^7 + \frac{2}{9}u^6 + \cdots + \frac{5}{3}u + \frac{2}{9} \\ \frac{2}{3}u^7 + 2u^5 + \cdots + \frac{5}{3}u - \frac{4}{3} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{20}{9}u^7 + \frac{10}{9}u^6 + \cdots + 3u - \frac{11}{9} \\ -\frac{4}{9}u^7 - \frac{8}{9}u^6 + \cdots + \frac{4}{3}u - \frac{8}{9} \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -\frac{8}{3}u^7 - \frac{2}{3}u^6 + \cdots - \frac{10}{3}u + 1 \\ -\frac{10}{9}u^7 + \frac{4}{9}u^6 + \cdots - 2u + \frac{10}{9} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{10}{9}u^7 - \frac{2}{9}u^6 + \cdots - \frac{5}{3}u - \frac{2}{9} \\ \frac{4}{3}u^7 + \frac{8}{3}u^6 + \cdots - 2u + \frac{2}{3} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{10}{9}u^7 - \frac{2}{9}u^6 + \cdots - \frac{5}{3}u - \frac{2}{9} \\ \frac{4}{3}u^7 + \frac{8}{3}u^6 + \cdots - 2u + \frac{2}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{166}{9}u^7 - \frac{92}{9}u^6 - \frac{194}{9}u^5 + \frac{103}{3}u^4 - \frac{128}{9}u^3 + \frac{344}{9}u^2 - 18u - \frac{59}{9}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$16 \cdot (16y^8 - 64y^7 + 168y^6 - 217y^5 + 197y^4 - 240y^3 + 131y^2 + 17y + 1)$
c_2, c_5	$4(4y^8 + 12y^7 - 24y^6 - 45y^5 + 143y^4 - 139y^3 + 64y^2 - 13y + 1)$
c_3, c_{10}	$y^8 + 2y^7 + 5y^6 + 8y^5 + 8y^4 + 3y^3 + 8y^2 - 12y + 4$
c_4, c_{11}	$4(4y^8 + 8y^7 + 20y^6 + 11y^5 - 20y^4 - 12y^3 + 9y^2 + 6y + 1)$
c_6, c_8	$y^8 + y^7 + 7y^6 - 4y^5 + 49y^4 - 81y^3 + 104y^2 - 88y + 36$
c_7	$y^8 + 2y^7 + 11y^6 + 17y^5 + 33y^4 + 53y^3 + 30y^2 - 4y + 1$
c_9	$y^8 - 7y^7 + 15y^6 - 14y^5 + 29y^4 + 2y^3 + 14y^2 + 7y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.081144 + 0.964537I$ $a = -1.00000$ $b = -0.344131 - 0.211497I$	$-0.11790 + 2.52032I$	$-8.47313 - 1.37245I$
$u = -0.081144 - 0.964537I$ $a = -1.00000$ $b = -0.344131 + 0.211497I$	$-0.11790 - 2.52032I$	$-8.47313 + 1.37245I$
$u = 0.876567 + 0.170950I$ $a = -1.00000$ $b = 0.186359 + 1.054490I$	$7.53561 + 5.92481I$	$2.17560 - 4.89559I$
$u = 0.876567 - 0.170950I$ $a = -1.00000$ $b = 0.186359 - 1.054490I$	$7.53561 - 5.92481I$	$2.17560 + 4.89559I$
$u = 0.120498 + 0.535479I$ $a = -1.00000$ $b = 1.02903 - 1.25354I$	$-2.49208 + 1.02158I$	$-16.3238 - 6.0123I$
$u = 0.120498 - 0.535479I$ $a = -1.00000$ $b = 1.02903 + 1.25354I$	$-2.49208 - 1.02158I$	$-16.3238 + 6.0123I$
$u = -0.91592 + 1.17562I$ $a = -1.00000$ $b = 1.12874 - 0.87067I$	$-1.63576 - 8.28057I$	$-4.87863 + 7.63527I$
$u = -0.91592 - 1.17562I$ $a = -1.00000$ $b = 1.12874 + 0.87067I$	$-1.63576 + 8.28057I$	$-4.87863 - 7.63527I$

III. $\boldsymbol{I^u_3 = \langle -1.76\times 10^{54}u^{35} - 3.41\times 10^{54}u^{34} + \cdots + 1.62\times 10^{53}b + 2.48\times 10^{53},\ 3.12\times 10^{54}u^{35} + 4.43\times 10^{54}u^{34} + \cdots + 2.31\times 10^{52}a - 3.75\times 10^{54},\ 2u^{36} + 2u^{35} + \cdots - 14u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-135.297u^{35} - 192.047u^{34} + \cdots - 1894.64u + 162.375\\ 10.9190u^{35} + 21.1108u^{34} + \cdots + 23.6339u - 1.53438\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-124.378u^{35} - 170.936u^{34} + \cdots - 1871.00u + 160.840\\ 10.9190u^{35} + 21.1108u^{34} + \cdots + 23.6339u - 1.53438\end{pmatrix}$$

$$a_1 = \begin{pmatrix}140.578u^{35} + 183.175u^{34} + \cdots + 2437.80u - 225.735\\ -22.7951u^{35} - 26.5223u^{34} + \cdots - 458.196u + 42.0517\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-203.081u^{35} - 272.115u^{34} + \cdots - 3148.94u + 274.459\\ 46.8092u^{35} + 61.5248u^{34} + \cdots + 699.352u - 58.6705\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-177.136u^{35} - 236.734u^{34} + \cdots - 2831.29u + 250.306\\ 44.3327u^{35} + 58.6254u^{34} + \cdots + 646.276u - 53.9528\end{pmatrix}$$

$$a_6 = \begin{pmatrix}28.2278u^{35} + 40.0599u^{34} + \cdots + 373.025u - 32.8519\\ -6.91942u^{35} - 4.84581u^{34} + \cdots - 223.697u + 19.9655\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}104.432u^{35} + 141.715u^{34} + \cdots + 1653.06u - 152.962\\ -13.3506u^{35} - 14.9377u^{34} + \cdots - 324.539u + 30.7209\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-117.271u^{35} - 167.192u^{34} + \cdots - 1630.91u + 139.095\\ 14.3939u^{35} + 26.3816u^{34} + \cdots + 50.7212u - 3.21539\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-117.271u^{35} - 167.192u^{34} + \cdots - 1630.91u + 139.095\\ 14.3939u^{35} + 26.3816u^{34} + \cdots + 50.7212u - 3.21539\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -284.262u^{35} - 374.406u^{34} + \cdots - 4742.13u + 418.350$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$4(2u^{18} - 16u^{17} + \cdots - 7u + 7)^2$
c_2, c_5	$2(2u^{36} + 2u^{35} + \cdots + 1164u + 139)$
c_3, c_{10}	$u^{36} - 5u^{35} + \cdots - 20u + 2$
c_4, c_{11}	$2(2u^{36} - 2u^{35} + \cdots + 14u + 1)$
c_6, c_8	$u^{36} + u^{35} + \cdots + 804u + 346$
c_7	$(u^{18} + 4u^{17} + \cdots + 2u + 1)^2$
c_9	$(u^{18} + 6u^{17} + \cdots - 17u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$16(4y^{18} - 72y^{17} + \cdots - 553y + 49)^2$
c_2, c_5	$4(4y^{36} + 156y^{35} + \cdots - 52188y + 19321)$
c_3, c_{10}	$y^{36} + 7y^{35} + \cdots + 344y + 4$
c_4, c_{11}	$4(4y^{36} - 20y^{35} + \cdots - 8y + 1)$
c_6, c_8	$y^{36} + 15y^{35} + \cdots - 174472y + 119716$
c_7	$(y^{18} - 2y^{17} + \cdots - 12y + 1)^2$
c_9	$(y^{18} - 24y^{17} + \cdots - 197y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.961570 + 0.451207I$ $a = -0.99137 + 1.45940I$ $b = 0.705308 + 0.173824I$	$9.41487 + 6.35338I$	$6.10831 - 5.82519I$
$u = 0.961570 - 0.451207I$ $a = -0.99137 - 1.45940I$ $b = 0.705308 - 0.173824I$	$9.41487 - 6.35338I$	$6.10831 + 5.82519I$
$u = 0.802634 + 0.723579I$ $a = -0.970908 + 0.553934I$ $b = 1.09375 + 1.07152I$	$9.34056 + 3.99785I$	$4.89270 - 3.37103I$
$u = 0.802634 - 0.723579I$ $a = -0.970908 - 0.553934I$ $b = 1.09375 - 1.07152I$	$9.34056 - 3.99785I$	$4.89270 + 3.37103I$
$u = 1.045790 + 0.309537I$ $a = 0.012525 - 0.502541I$ $b = 0.201172 + 0.954404I$	$-1.66631 - 0.81812I$	$-4.46509 + 7.48163I$
$u = 1.045790 - 0.309537I$ $a = 0.012525 + 0.502541I$ $b = 0.201172 - 0.954404I$	$-1.66631 + 0.81812I$	$-4.46509 - 7.48163I$
$u = -0.313395 + 0.785869I$ $a = 1.82670 + 0.98006I$ $b = -0.590040 + 0.925318I$	$5.29155 - 6.58230I$	$-1.74185 + 7.38738I$
$u = -0.313395 - 0.785869I$ $a = 1.82670 - 0.98006I$ $b = -0.590040 - 0.925318I$	$5.29155 + 6.58230I$	$-1.74185 - 7.38738I$
$u = -1.146610 + 0.289938I$ $a = 0.879803 + 0.475338I$ $b = -0.771930$	2.09741	$6.92265 + 0.I$
$u = -1.146610 - 0.289938I$ $a = 0.879803 - 0.475338I$ $b = -0.771930$	2.09741	$6.92265 + 0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=0.925613+0.773706I$ $a=0.177368-0.984145I$ $b=-0.377469$	0.191595	0
$u=0.925613-0.773706I$ $a=0.177368+0.984145I$ $b=-0.377469$	0.191595	0
$u=-1.180100+0.257922I$ $a=-0.777034+0.443323I$ $b=1.09375-1.07152I$	$9.34056-3.99785I$	$4.89270+3.37103I$
$u=-1.180100-0.257922I$ $a=-0.777034-0.443323I$ $b=1.09375+1.07152I$	$9.34056+3.99785I$	$4.89270-3.37103I$
$u=0.445688+1.214900I$ $a=0.262519-0.268046I$ $b=-1.212220+0.386817I$	$7.83132+1.16760I$	$4.47566+0.I$
$u=0.445688-1.214900I$ $a=0.262519+0.268046I$ $b=-1.212220-0.386817I$	$7.83132-1.16760I$	$4.47566+0.I$
$u=0.242297+0.574880I$ $a=-0.483632-0.551179I$ $b=0.620071-1.035940I$	$-1.91252+0.92110I$	$0.62272-2.27597I$
$u=0.242297-0.574880I$ $a=-0.483632+0.551179I$ $b=0.620071+1.035940I$	$-1.91252-0.92110I$	$0.62272+2.27597I$
$u=0.168654+0.521676I$ $a=0.04956-1.98865I$ $b=0.201172-0.954404I$	$-1.66631+0.81812I$	$-4.46509-7.48163I$
$u=0.168654-0.521676I$ $a=0.04956+1.98865I$ $b=0.201172+0.954404I$	$-1.66631-0.81812I$	$-4.46509+7.48163I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.04555 + 1.04502I$ $a = -1.025980 - 0.149246I$ $b = 1.129710 + 0.820643I$	$-0.40495 + 7.64175I$	0
$u = 1.04555 - 1.04502I$ $a = -1.025980 + 0.149246I$ $b = 1.129710 - 0.820643I$	$-0.40495 - 7.64175I$	0
$u = -0.61317 + 1.38045I$ $a = -0.131546 - 0.191009I$ $b = 0.626954 - 0.364844I$	$0.56981 - 3.14278I$	0
$u = -0.61317 - 1.38045I$ $a = -0.131546 + 0.191009I$ $b = 0.626954 + 0.364844I$	$0.56981 + 3.14278I$	0
$u = 0.442651 + 0.199469I$ $a = 1.86494 + 1.90421I$ $b = -1.212220 + 0.386817I$	$7.83132 + 1.16760I$	$4.47566 - 0.91080I$
$u = 0.442651 - 0.199469I$ $a = 1.86494 - 1.90421I$ $b = -1.212220 - 0.386817I$	$7.83132 - 1.16760I$	$4.47566 + 0.91080I$
$u = -0.91675 + 1.22821I$ $a = -0.954477 - 0.138844I$ $b = 1.129710 - 0.820643I$	$-0.40495 - 7.64175I$	0
$u = -0.91675 - 1.22821I$ $a = -0.954477 + 0.138844I$ $b = 1.129710 + 0.820643I$	$-0.40495 + 7.64175I$	0
$u = 0.199679 + 0.411580I$ $a = -0.899448 - 1.025070I$ $b = 0.620071 + 1.035940I$	$-1.91252 - 0.92110I$	$0.62272 + 2.27597I$
$u = 0.199679 - 0.411580I$ $a = -0.899448 + 1.025070I$ $b = 0.620071 - 1.035940I$	$-1.91252 + 0.92110I$	$0.62272 - 2.27597I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.344338 + 0.064471I$ $a = -2.44560 - 3.55110I$ $b = 0.626954 + 0.364844I$	$0.56981 + 3.14278I$	$0.19751 - 9.10915I$
$u = 0.344338 - 0.064471I$ $a = -2.44560 + 3.55110I$ $b = 0.626954 - 0.364844I$	$0.56981 - 3.14278I$	$0.19751 + 9.10915I$
$u = -1.34267 + 1.12840I$ $a = 0.425077 - 0.228061I$ $b = -0.590040 + 0.925318I$	$5.29155 - 6.58230I$	0
$u = -1.34267 - 1.12840I$ $a = 0.425077 + 0.228061I$ $b = -0.590040 - 0.925318I$	$5.29155 + 6.58230I$	0
$u = -1.61177 + 0.95600I$ $a = -0.318496 - 0.468858I$ $b = 0.705308 + 0.173824I$	$9.41487 + 6.35338I$	0
$u = -1.61177 - 0.95600I$ $a = -0.318496 + 0.468858I$ $b = 0.705308 - 0.173824I$	$9.41487 - 6.35338I$	0

IV.

$\boldsymbol{I_4^u = \langle 4u^3+6u^2+3b+4u+1,\ 4u^3+12u^2+3a+10u+1,\ 2u^4+4u^3+2u^2+1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_5 = \begin{pmatrix}1\\-u^2\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-\frac{4}{3}u^3-4u^2-\frac{10}{3}u-\frac{1}{3}\\-\frac{4}{3}u^3-2u^2-\frac{4}{3}u-\frac{1}{3}\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-\frac{8}{3}u^3-6u^2-\frac{14}{3}u-\frac{2}{3}\\-\frac{4}{3}u^3-2u^2-\frac{4}{3}u-\frac{1}{3}\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-\frac{4}{3}u^3-4u^2-\frac{13}{3}u-\frac{4}{3}\\-\frac{2}{3}u^3-2u^2-\frac{2}{3}u-\frac{2}{3}\end{pmatrix}$$

$$a_3 = \begin{pmatrix}-2u^3-4u^2-2u+2\\-2u^2\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-2u^3-4u^2-u+2\\-u^3-2u^2\end{pmatrix}$$

$$a_6 = \begin{pmatrix}-\frac{4}{3}u^3-6u^2-\frac{28}{3}u-\frac{13}{3}\\-2u^2-2u-1\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-\frac{8}{3}u^3-8u^2-\frac{26}{3}u-\frac{8}{3}\\-\frac{2}{3}u^3-2u^2-\frac{5}{3}u-\frac{2}{3}\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-\frac{2}{3}u^3-4u^2-\frac{14}{3}u-\frac{2}{3}\\-\frac{10}{3}u^3-4u^2-\frac{1}{3}u-\frac{4}{3}\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-\frac{2}{3}u^3-4u^2-\frac{14}{3}u-\frac{2}{3}\\-\frac{10}{3}u^3-4u^2-\frac{1}{3}u-\frac{4}{3}\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$16(4y^2+1)^2$
c_2, c_4, c_5 c_{11}	$4(4y^4-8y^3+8y^2+4y+1)$
c_3, c_{10}	$y^4-4y^3+8y^2+8y+4$
c_6, c_8	$y^4+4y^3+8y^2-8y+4$
c_7, c_9	$(y+1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.207110 + 0.500000I$ $a = 0.414214I$ $b = -1.000000I$	-1.64493	-4.00000
$u = -1.207110 - 0.500000I$ $a = -0.414214I$ $b = 1.000000I$	-1.64493	-4.00000
$u = 0.207107 + 0.500000I$ $a = -2.41421I$ $b = -1.000000I$	-1.64493	-4.00000
$u = 0.207107 - 0.500000I$ $a = 2.41421I$ $b = 1.000000I$	-1.64493	-4.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$256(2u^2-2u+1)^2(4u^8-8u^7+\cdots-3u+1)$ $\cdot(4u^{14}+43u^{13}+\cdots+336u+64)(2u^{18}-16u^{17}+\cdots-7u+7)^2$
c_2, c_5	$16(2u^4-4u^3+2u^2+1)$ $\cdot(2u^8-2u^7+4u^6+u^5-11u^4+5u^3+6u^2-5u+1)$ $\cdot(2u^{14}-u^{13}+\cdots+9u^2+1)(2u^{36}+2u^{35}+\cdots+1164u+139)$
c_3, c_{10}	$(u^4+4u^3+6u^2+4u+2)$ $\cdot(u^8+2u^7+3u^6+2u^5+2u^4+3u^3+6u^2+6u+2)$ $\cdot(u^{14}-2u^{13}+\cdots-3u+2)(u^{36}-5u^{35}+\cdots-20u+2)$
c_4, c_{11}	$16(2u^4+4u^3+2u^2+1)(2u^8+2u^6+\cdots-2u+1)$ $\cdot(2u^{14}-3u^{13}+\cdots+3u+1)(2u^{36}-2u^{35}+\cdots+14u+1)$
c_6, c_8	$(u^4+2u^2+4u+2)(u^8+u^7+u^6+4u^5+7u^4-u^3-2u^2+8u+6)$ $\cdot(u^{14}-u^{13}+\cdots-13u+2)(u^{36}+u^{35}+\cdots+804u+346)$
c_7	$(u^2+1)^2(u^8+4u^7+9u^6+11u^5+9u^4+3u^3-2u+1)$ $\cdot(u^{14}-9u^{13}+\cdots-24u+8)(u^{18}+4u^{17}+\cdots+2u+1)^2$
c_9	$(u^2+1)^2(u^8-u^7-3u^6-2u^5+5u^4+6u^3+4u^2+u+1)$ $\cdot(u^{14}-10u^{13}+\cdots-80u+32)(u^{18}+6u^{17}+\cdots-17u-1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$65536(4y^2+1)^2$ $\cdot\,(16y^8-64y^7+168y^6-217y^5+197y^4-240y^3+131y^2+17y+1)$ $\cdot\,(16y^{14}-105y^{13}+\cdots+16128y+4096)$ $\cdot\,(4y^{18}-72y^{17}+\cdots-553y+49)^2$
c_2, c_5	$256(4y^4-8y^3+8y^2+4y+1)$ $\cdot\,(4y^8+12y^7-24y^6-45y^5+143y^4-139y^3+64y^2-13y+1)$ $\cdot\,(4y^{14}+83y^{13}+\cdots+18y+1)$ $\cdot\,(4y^{36}+156y^{35}+\cdots-52188y+19321)$
c_3, c_{10}	$(y^4-4y^3+8y^2+8y+4)$ $\cdot\,(y^8+2y^7+5y^6+8y^5+8y^4+3y^3+8y^2-12y+4)$ $\cdot\,(y^{14}+4y^{13}+\cdots-5y+4)(y^{36}+7y^{35}+\cdots+344y+4)$
c_4, c_{11}	$256(4y^4-8y^3+8y^2+4y+1)$ $\cdot\,(4y^8+8y^7+20y^6+11y^5-20y^4-12y^3+9y^2+6y+1)$ $\cdot\,(4y^{14}+15y^{13}+\cdots+5y+1)(4y^{36}-20y^{35}+\cdots-8y+1)$
c_6, c_8	$(y^4+4y^3+8y^2-8y+4)$ $\cdot\,(y^8+y^7+7y^6-4y^5+49y^4-81y^3+104y^2-88y+36)$ $\cdot\,(y^{14}+7y^{13}+\cdots-33y+4)(y^{36}+15y^{35}+\cdots-174472y+119716)$
c_7	$(y+1)^4(y^8+2y^7+11y^6+17y^5+33y^4+53y^3+30y^2-4y+1)$ $\cdot\,(y^{14}+3y^{13}+\cdots-96y+64)(y^{18}-2y^{17}+\cdots-12y+1)^2$
c_9	$(y+1)^4(y^8-7y^7+15y^6-14y^5+29y^4+2y^3+14y^2+7y+1)$ $\cdot\,(y^{14}-10y^{13}+\cdots+5376y+1024)(y^{18}-24y^{17}+\cdots-197y+1)^2$