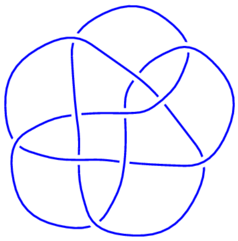
$11n_{156}$ ($K11n_{156}$)



[1]

Arc Sequences

$$\rightarrow \overset{\uparrow}{10} \rightarrow \overset{\downarrow}{5} \rightarrow \overset{\downarrow}{1} \rightarrow \overset{\uparrow}{11} \rightarrow \overset{\downarrow}{10} \rightarrow \overset{\downarrow}{3} \rightarrow \overset{\uparrow}{4} \rightarrow \overset{\downarrow}{5} \rightarrow \overset{\uparrow}{3} \rightarrow \overset{\downarrow}{8} \rightarrow \overset{\uparrow}{7} \rightarrow$$

Solving Sequence

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

Representation Ideals

$$I = \bigcap_{i=1}^{4} I_i^u$$

$$I_1^u = \langle 2b^4 + 4b^3 + 2b^2 + 1,\ 2b^3 + 6b^2 + 5b + 3a + 2,\ 4b^3 + 6b^2 + 4b + 3u + 1 \rangle$$

$$I_2^u = \langle u^8 - 4u^7 + 9u^6 - 11u^5 + 9u^4 - 3u^3 + 2u + 1,\ -u^6 + 4u^5 - 8u^4 + 9u^3 - 5u^2 + 2b + 2u + 1,$$
$$-u^7 + 4u^6 - 10u^5 + 15u^4 - 17u^3 + 12u^2 + 2a - 5u \rangle$$

$$I_3^u = \langle u^{14} + 9u^{13} + \cdots + 24u + 8,\ 281u^{13} + 2297u^{12} + \cdots + 3820a + 4534,$$
$$116u^{13} + 1492u^{12} + \cdots + 1910b + 1124 \rangle$$

$$I_4^u = \langle 2b^{36} + 2b^{35} + \cdots - 14b + 1,\ 1.61573 \times 10^{53}u - 1.76422 \times 10^{54}b^{35} + \cdots - 3.81860 \times 10^{54}b + 2.47914 \times 10^{53},$$
$$-5.63234 \times 10^{54}b^{35} - 8.25020 \times 10^{54}b^{34} + \cdots + 1.61573 \times 10^{53}a + 6.06429 \times 10^{54} \rangle$$

There are 4 irreducible components with 62 representations.

[1]The knot diagram image is adapter from “C. Livingston and A. H. Moore, KnotInfo: Table of Knot Invariants, http://www.indiana.edu/ knotinfo”

I. $\boldsymbol{I_1^u = \langle 2b^4 + 4b^3 + 2b^2 + 1,\ 2b^3 + 6b^2 + 5b + 3a + 2,\ 4b^3 + 6b^2 + 4b + 3u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{2}{3}b^3 - 2b^2 - \frac{5}{3}b - \frac{2}{3} \\ b \end{pmatrix}$$
$$a_5 = \begin{pmatrix} \frac{2}{3}b^3 + b^2 + \frac{2}{3}b + \frac{2}{3} \\ -b^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -\frac{4}{3}b^3 - 2b^2 - \frac{4}{3}b - \frac{1}{3} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{4}{3}b^3 - 2b^2 - \frac{4}{3}b - \frac{1}{3} \\ -\frac{4}{3}b^3 - 2b^2 - \frac{4}{3}b - \frac{1}{3} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{2}{3}b^3 - 2b^2 - \frac{5}{3}b - \frac{2}{3} \\ -\frac{2}{3}b^3 - 2b^2 - \frac{2}{3}b - \frac{2}{3} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{2}{3}b^3 - 2b^2 - \frac{2}{3}b + \frac{4}{3} \\ -2b^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2b^2 - 4b - 2 \\ -2b^2 - 2b - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{4}{3}b^3 - 4b^2 - \frac{13}{3}b - \frac{4}{3} \\ -\frac{2}{3}b^3 - 2b^2 - \frac{5}{3}b - \frac{2}{3} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -b^3 - 2b^2 + 1 \\ -b^3 - 2b^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{2}{3}b^3 - 2b^2 - \frac{5}{3}b - \frac{2}{3} \\ -\frac{10}{3}b^3 - 4b^2 - \frac{1}{3}b - \frac{4}{3} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{2}{3}b^3 - 2b^2 - \frac{5}{3}b - \frac{2}{3} \\ -\frac{10}{3}b^3 - 4b^2 - \frac{1}{3}b - \frac{4}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000I$ $a = -0.500000 - 0.207107I$ $b = -1.207107 - 0.500000I$	-1.64493	-4.00000
$u = -1.00000I$ $a = -0.500000 + 0.207107I$ $b = -1.207107 + 0.500000I$	-1.64493	-4.00000
$u = 1.00000I$ $a = -0.500000 + 1.207107I$ $b = 0.207107 - 0.500000I$	-1.64493	-4.00000
$u = -1.00000I$ $a = -0.500000 - 1.207107I$ $b = 0.207107 + 0.500000I$	-1.64493	-4.00000

II. $\boldsymbol{I_2^u = \langle u^8 - 4u^7 + 9u^6 - 11u^5 + 9u^4 - 3u^3 + 2u + 1,\ -u^6 + 4u^5 - 8u^4 + 9u^3 - 5u^2 + 2b + 2u + 1,\ -u^7 + 4u^6 + \cdots + 2a - 5u\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^7 - 2u^6 + \cdots - 6u^2 + \frac{5}{2}u \\ \frac{1}{2}u^6 - 2u^5 + \cdots - u - \frac{1}{2} \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{1}{4}u^7 + \frac{5}{4}u^6 + \cdots - \frac{1}{4}u - \frac{5}{4} \\ \frac{1}{4}u^7 - \frac{5}{4}u^6 + \cdots - \frac{7}{4}u + \frac{1}{4} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{2}u^7 - 2u^6 + \cdots - 6u^2 + \frac{5}{2}u \\ -\frac{1}{2}u^7 + \frac{5}{2}u^6 + \cdots - \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -\frac{1}{2}u^7 + \frac{5}{2}u^6 + \cdots + \frac{3}{2}u - \frac{3}{2} \\ u^4 - 2u^3 + 3u^2 - u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^3 + u^2 - 2 \\ -u^3 + 2u^2 - 2u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^6 + 2u^5 + \cdots + 2u - \frac{1}{2} \\ -\frac{1}{2}u^7 + 2u^6 + \cdots - \frac{3}{2}u - 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^5 + \frac{3}{2}u^4 + \cdots + \frac{1}{2}u - \frac{3}{2} \\ -\frac{1}{2}u^5 + \frac{3}{2}u^4 + \cdots - \frac{3}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^7 - 2u^6 + \cdots + \frac{1}{2}u + 1 \\ \frac{1}{2}u^7 - 2u^6 + \cdots + \frac{1}{2}u - 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^7 - 2u^6 + \cdots + \frac{1}{2}u + 1 \\ \frac{1}{2}u^7 - 2u^6 + \cdots + \frac{1}{2}u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.344131 - 0.211497I$ $a = -1.07916 - 2.13958I$ $b = -0.081144 + 0.964537I$	$-0.11790 + 2.52032I$	$-8.47313 - 1.37245I$
$u = -0.344131 + 0.211497I$ $a = -1.07916 + 2.13958I$ $b = -0.081144 - 0.964537I$	$-0.11790 - 2.52032I$	$-8.47313 + 1.37245I$
$u = 0.186359 - 1.054490I$ $a = 0.299667 + 0.778311I$ $b = 0.876567 - 0.170950I$	$7.53561 - 5.92481I$	$2.17560 + 4.89559I$
$u = 0.186359 + 1.054490I$ $a = 0.299667 - 0.778311I$ $b = 0.876567 + 0.170950I$	$7.53561 + 5.92481I$	$2.17560 - 4.89559I$
$u = 1.02903 - 1.25354I$ $a = -0.208057 + 0.266920I$ $b = 0.120498 + 0.535479I$	$-2.49208 + 1.02158I$	$-16.3238 - 6.0123I$
$u = 1.02903 + 1.25354I$ $a = -0.208057 - 0.266920I$ $b = 0.120498 - 0.535479I$	$-2.49208 - 1.02158I$	$-16.3238 + 6.0123I$
$u = 1.12874 - 0.87067I$ $a = -1.012451 + 0.260569I$ $b = -0.91592 + 1.17562I$	$-1.63576 - 8.28057I$	$-4.87863 + 7.63527I$
$u = 1.12874 + 0.87067I$ $a = -1.012451 - 0.260569I$ $b = -0.91592 - 1.17562I$	$-1.63576 + 8.28057I$	$-4.87863 - 7.63527I$

III. $I_3^u = \langle u^{14} + 9u^{13} + \cdots + 24u + 8,\ 281u^{13} + 2297u^{12} + \cdots + 3820a + 4534,\ 116u^{13} + 1492u^{12} + \cdots + 1910b + 1124\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.0735602u^{13} - 0.601309u^{12} + \cdots + 1.54712u - 1.18691\\-0.0607330u^{13} - 0.781152u^{12} + \cdots - 0.578534u - 0.588482\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.424607u^{13} + 3.49581u^{12} + \cdots + 10.6008u + 5.44188\\0.325654u^{13} + 2.49031u^{12} + \cdots + 5.74869u + 3.39686\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.0735602u^{13} - 0.601309u^{12} + \cdots + 1.54712u - 1.18691\\-0.295288u^{13} - 1.84974u^{12} + \cdots + 0.290576u - 0.102618\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.0989529u^{13} + 1.00550u^{12} + \cdots + 4.85209u + 2.04503\\0.0102094u^{13} + 0.458901u^{12} + \cdots + 4.87958u + 1.71099\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.394110u^{13} - 2.61217u^{12} + \cdots - 2.26178u + 0.271728\\0.156806u^{13} + 2.18927u^{12} + \cdots + 9.08639u + 4.40733\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}0.734293u^{13} + 5.58246u^{12} + \cdots + 8.53141u + 1.17539\\0.747120u^{13} + 5.40262u^{12} + \cdots + 6.40576u + 1.77382\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.780497u^{13} + 6.50864u^{12} + \cdots + 11.5890u + 0.713613\\1.24254u^{13} + 10.5204u^{12} + \cdots + 20.1649u + 6.59581\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.360340u^{13} + 3.40196u^{12} + \cdots + 11.9293u + 3.53037\\-0.0337696u^{13} + 0.789791u^{12} + \cdots + 9.66754u + 3.80209\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.360340u^{13} + 3.40196u^{12} + \cdots + 11.9293u + 3.53037\\-0.0337696u^{13} + 0.789791u^{12} + \cdots + 9.66754u + 3.80209\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =**unknown**

(iv) Complex Volumes and Cusp Shapes

Solution to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.25608 - 0.97829I$ $a = -1.006598 - 0.176573I$ $b = -1.09163 - 1.20653I$	$8.3986 + 15.3972I$	$1.29891 - 7.67212I$
$u = -1.25608 + 0.97829I$ $a = -1.006598 + 0.176573I$ $b = -1.09163 + 1.20653I$	$8.3986 - 15.3972I$	$1.29891 + 7.67212I$
$u = -1.23002 - 1.06519I$ $a = 0.765826 + 0.074082I$ $b = 0.863068 + 0.906873I$	$1.01240 + 7.85357I$	$1.37704 - 6.81636I$
$u = -1.23002 + 1.06519I$ $a = 0.765826 - 0.074082I$ $b = 0.863068 - 0.906873I$	$1.01240 - 7.85357I$	$1.37704 + 6.81636I$
$u = -1.190142 - 0.650810I$ $a = -0.744036 - 0.212101I$ $b = -0.747471 - 0.736656I$	$2.08139 + 2.02696I$	$1.83038 - 2.57438I$
$u = -1.190142 + 0.650810I$ $a = -0.744036 + 0.212101I$ $b = -0.747471 + 0.736656I$	$2.08139 - 2.02696I$	$1.83038 + 2.57438I$
$u = -0.75145 - 1.71976I$ $a = -0.172244 - 0.294444I$ $b = 0.376941 - 0.517480I$	$6.55927 - 6.69837I$	$-2.55381 + 9.47495I$
$u = -0.75145 + 1.71976I$ $a = -0.172244 + 0.294444I$ $b = 0.376941 + 0.517480I$	$6.55927 + 6.69837I$	$-2.55381 - 9.47495I$
$u = -0.474186 - 0.465380I$ $a = -1.81598 - 0.54666I$ $b = -0.606706 - 1.104341I$	$2.86726 + 1.52978I$	$-3.12219 - 1.19653I$
$u = -0.474186 + 0.465380I$ $a = -1.81598 + 0.54666I$ $b = -0.606706 + 1.104341I$	$2.86726 - 1.52978I$	$-3.12219 + 1.19653I$

Solution to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.081855 - 1.118277I$ $a = 0.344366 - 0.321243I$ $b = 0.387427 + 0.358801I$	$-1.68063 + 1.15707I$	$-4.41586 - 6.34189I$
$u = -0.081855 + 1.118277I$ $a = 0.344366 + 0.321243I$ $b = 0.387427 - 0.358801I$	$-1.68063 - 1.15707I$	$-4.41586 + 6.34189I$
$u = 0.483737 - 0.312119I$ $a = 0.628666 - 1.193395I$ $b = 0.068372 + 0.773508I$	$0.50090 - 2.66807I$	$3.96052 + 3.99756I$
$u = 0.483737 + 0.312119I$ $a = 0.628666 + 1.193395I$ $b = 0.068372 - 0.773508I$	$0.50090 + 2.66807I$	$3.96052 - 3.99756I$

IV.

$\boldsymbol{I^u_4 = \langle 2b^{36}+2b^{35}+\cdots-14b+1,\ 1.62\times10^{53}u-1.76\times10^{54}b^{35}+\cdots-3.82\times10^{54}b+ 2.48\times10^{53},\ -5.63\times10^{54}b^{35}-8.25\times10^{54}b^{34}+\cdots+1.62\times10^{53}a+6.06\times10^{54}\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 34.8594b^{35} + 51.0616b^{34} + \cdots + 443.825b - 37.5327 \\ b \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -16.2023b^{35} - 22.9486b^{34} + \cdots - 206.483b + 18.4297 \\ -b^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ 10.9190b^{35} + 21.1108b^{34} + \cdots + 23.6339b - 1.53438 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 10.9190b^{35} + 21.1108b^{34} + \cdots + 23.6339b - 1.53438 \\ 10.9190b^{35} + 21.1108b^{34} + \cdots + 23.6339b - 1.53438 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 34.8594b^{35} + 51.0616b^{34} + \cdots + 443.825b - 37.5327 \\ -22.7951b^{35} - 26.5223b^{34} + \cdots - 458.196b + 42.0517 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 26.3948b^{35} + 31.4045b^{34} + \cdots + 551.825b - 51.8591 \\ 46.8092b^{35} + 61.5248b^{34} + \cdots + 699.352b - 58.6705 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -50.5652b^{35} - 64.7081b^{34} + \cdots - 878.879b + 78.3405 \\ -6.91942b^{35} - 4.84581b^{34} + \cdots - 223.697b + 19.9655 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 21.5088b^{35} + 36.1239b^{34} + \cdots + 118.286b - 6.81182 \\ -13.3506b^{35} - 14.9377b^{34} + \cdots - 324.539b + 30.7209 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -43.3941b^{35} - 56.5062b^{34} + \cdots - 672.095b + 58.1772 \\ -44.3327b^{35} - 58.6254b^{34} + \cdots - 646.276b + 53.9528 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 36.9608b^{35} + 51.4897b^{34} + \cdots + 493.724b - 41.8828 \\ 14.3939b^{35} + 26.3816b^{34} + \cdots + 50.7212b - 3.21539 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 36.9608b^{35} + 51.4897b^{34} + \cdots + 493.724b - 41.8828 \\ 14.3939b^{35} + 26.3816b^{34} + \cdots + 50.7212b - 3.21539 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes =unknown

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.705308 - 0.173824I$ $a = -1.43390 + 0.28634I$ $b = -1.61177 - 0.95600I$	$9.41487 - 6.35338I$	$6.10831 + 5.82519I$
$u = \ \ 0.705308 + 0.173824I$ $a = -1.43390 - 0.28634I$ $b = -1.61177 + 0.95600I$	$9.41487 + 6.35338I$	$6.10831 - 5.82519I$
$u = -0.590040 - 0.925318I$ $a = -0.757326 - 0.144229I$ $b = -1.34267 - 1.12840I$	$5.29155 + 6.58230I$	$-1.74185 - 7.38738I$
$u = -0.590040 + 0.925318I$ $a = -0.757326 + 0.144229I$ $b = -1.34267 + 1.12840I$	$5.29155 - 6.58230I$	$-1.74185 + 7.38738I$
$u = \ \ 1.09375 + 1.07152I$ $a = -0.705160 + 0.029271I$ $b = -1.180099 - 0.257922I$	$9.34056 + 3.99785I$	$4.89270 - 3.37103I$
$u = \ \ 1.09375 - 1.07152I$ $a = -0.705160 - 0.029271I$ $b = -1.180099 + 0.257922I$	$9.34056 - 3.99785I$	$4.89270 + 3.37103I$
$u = -0.771930$ $a = -1.48538 + 0.37560I$ $b = -1.146608 - 0.289938I$	2.09741	6.92265
$u = -0.771930$ $a = -1.48538 - 0.37560I$ $b = -1.146608 + 0.289938I$	2.09741	6.92265
$u = \ \ 1.129708 + 0.820643I$ $a = -1.045677 - 0.165431I$ $b = -0.91675 - 1.22821I$	$-0.40495 + 7.64175I$	$2.03043 - 4.50361I$
$u = \ \ 1.129708 - 0.820643I$ $a = -1.045677 + 0.165431I$ $b = -0.91675 + 1.22821I$	$-0.40495 - 7.64175I$	$2.03043 + 4.50361I$

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.626954 + 0.364844I$ $a = -0.454986 + 0.161939I$ $b = -0.61317 - 1.38045I$	$0.56981 + 3.14278I$	$0.19751 - 9.10915I$
$u = 0.626954 - 0.364844I$ $a = -0.454986 - 0.161939I$ $b = -0.61317 + 1.38045I$	$0.56981 - 3.14278I$	$0.19751 + 9.10915I$
$u = -0.590040 - 0.925318I$ $a = -1.52476 + 0.47876I$ $b = -0.313395 - 0.785869I$	$5.29155 + 6.58230I$	$-1.74185 - 7.38738I$
$u = -0.590040 + 0.925318I$ $a = -1.52476 - 0.47876I$ $b = -0.313395 + 0.785869I$	$5.29155 - 6.58230I$	$-1.74185 + 7.38738I$
$u = 0.201172 + 0.954404I$ $a = -0.531670 + 0.983687I$ $b = 0.168654 - 0.521676I$	$-1.66631 - 0.81812I$	$-4.46509 + 7.48163I$
$u = 0.201172 - 0.954404I$ $a = -0.531670 - 0.983687I$ $b = 0.168654 + 0.521676I$	$-1.66631 + 0.81812I$	$-4.46509 - 7.48163I$
$u = 0.620071 - 1.035935I$ $a = 0.305490 - 0.416746I$ $b = 0.199679 - 0.411580I$	$-1.91252 + 0.92110I$	$0.62272 - 2.27597I$
$u = 0.620071 + 1.035935I$ $a = 0.305490 + 0.416746I$ $b = 0.199679 + 0.411580I$	$-1.91252 - 0.92110I$	$0.62272 + 2.27597I$
$u = 0.620071 + 1.035935I$ $a = -0.377447 - 0.033172I$ $b = 0.242297 - 0.574880I$	$-1.91252 - 0.92110I$	$0.62272 + 2.27597I$
$u = 0.620071 - 1.035935I$ $a = -0.377447 + 0.033172I$ $b = 0.242297 + 0.574880I$	$-1.91252 + 0.92110I$	$0.62272 - 2.27597I$

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.626954 - 0.364844I$ $a = 1.68778 - 1.21966I$ $b = 0.344338 - 0.064471I$	$0.56981 - 3.14278I$	$0.19751 + 9.10915I$
$u = 0.626954 + 0.364844I$ $a = 1.68778 + 1.21966I$ $b = 0.344338 + 0.064471I$	$0.56981 + 3.14278I$	$0.19751 - 9.10915I$
$u = -1.212224 - 0.386817I$ $a = 0.043437 - 1.016067I$ $b = 0.442651 - 0.199469I$	$7.83132 - 1.16760I$	$4.47566 + 0.91080I$
$u = -1.212224 + 0.386817I$ $a = 0.043437 + 1.016067I$ $b = 0.442651 + 0.199469I$	$7.83132 + 1.16760I$	$4.47566 - 0.91080I$
$u = -1.212224 - 0.386817I$ $a = 0.283756 - 0.255094I$ $b = 0.445688 - 1.214898I$	$7.83132 - 1.16760I$	$4.47566 + 0.91080I$
$u = -1.212224 + 0.386817I$ $a = 0.283756 + 0.255094I$ $b = 0.445688 + 1.214898I$	$7.83132 + 1.16760I$	$4.47566 - 0.91080I$
$u = 1.09375 - 1.07152I$ $a = 0.668430 + 0.419032I$ $b = 0.802634 - 0.723579I$	$9.34056 - 3.99785I$	$4.89270 + 3.37103I$
$u = 1.09375 + 1.07152I$ $a = 0.668430 - 0.419032I$ $b = 0.802634 + 0.723579I$	$9.34056 + 3.99785I$	$4.89270 - 3.37103I$
$u = -0.377469$ $a = 2.45215 + 2.04972I$ $b = 0.925613 - 0.773706I$	0.191595	0.836560
$u = -0.377469$ $a = 2.45215 - 2.04972I$ $b = 0.925613 + 0.773706I$	0.191595	0.836560

Solution to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.705308 - 0.173824I$ $a = 1.83942 + 1.80877I$ $b = 0.961570 - 0.451207I$	$9.41487 - 6.35338I$	$6.10831 + 5.82519I$
$u = 0.705308 + 0.173824I$ $a = 1.83942 - 1.80877I$ $b = 0.961570 + 0.451207I$	$9.41487 + 6.35338I$	$6.10831 - 5.82519I$
$u = 1.129708 - 0.820643I$ $a = 1.048158 - 0.325793I$ $b = 1.04555 - 1.04502I$	$-0.40495 - 7.64175I$	$2.03043 + 4.50361I$
$u = 1.129708 + 0.820643I$ $a = 1.048158 + 0.325793I$ $b = 1.04555 + 1.04502I$	$-0.40495 + 7.64175I$	$2.03043 - 4.50361I$
$u = 0.201172 - 0.954404I$ $a = 0.487684 - 0.279507I$ $b = 1.045791 - 0.309537I$	$-1.66631 + 0.81812I$	$-4.46509 - 7.48163I$
$u = 0.201172 + 0.954404I$ $a = 0.487684 + 0.279507I$ $b = 1.045791 + 0.309537I$	$-1.66631 - 0.81812I$	$-4.46509 + 7.48163I$

V. u-Polynomials

Crossings	u-Polynomials at each crossings
c_1	$(2u^2-2u+1)^2(4u^8-8u^7+17u^5-13u^4-2u^3+13u^2-3u+1)$ $(4u^{14}-43u^{13}+\cdots-336u+64)$ $(7+7u-36u^2-73u^3+249u^4+822u^5+506u^6-871u^7-1462u^8-302u^9+964u^{10}+821u$
c_2, c_5	$(2u^4-4u^3+2u^2+1)(2u^8-2u^7+\cdots-5u+1)$ $(2u^{14}-u^{13}+\cdots+9u^2+1)(2u^{36}+2u^{35}+\cdots+1164u+139)$
c_3, c_{10}	$(u^4+4u^3+6u^2+4u+2)$ $(u^8+2u^7+3u^6+2u^5+2u^4+3u^3+6u^2+6u+2)$ $(u^{14}+2u^{13}+\cdots+3u+2)(u^{36}+5u^{35}+\cdots+20u+2)$
c_4, c_{11}	$(2u^4+4u^3+2u^2+1)(2u^8+2u^6-5u^5+4u^4-6u^3+5u^2-2u+1)$ $(2u^{14}+3u^{13}+\cdots-3u+1)(2u^{36}+2u^{35}+\cdots-14u+1)$
c_6, c_8	$(u^4+2u^2+4u+2)(u^8+u^7+u^6+4u^5+7u^4-u^3-2u^2+8u+6)$ $(u^{14}+u^{13}+\cdots+13u+2)(u^{36}-u^{35}+\cdots-804u+346)$
c_7	$(u^2+1)^2(u^8+4u^7+9u^6+11u^5+9u^4+3u^3-2u+1)$ $(u^{14}+9u^{13}+\cdots+24u+8)$ $(1-2u-4u^2+17u^3-19u^4+24u^6-32u^7+21u^8-9u^9+9u^{10}-7u^{11}-3u^{12}+12u^{13}-7u$
c_9	$(u^2+1)^2(u^8-u^7-3u^6-2u^5+5u^4+6u^3+4u^2+u+1)$ $(u^{14}-10u^{13}+\cdots-80u+32)$ $(-1-17u-46u^2-25u^3+90u^4+184u^5+139u^6+28u^7-33u^8-31u^9+86u^{10}+237u^{11}+$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossings
c_1	$(4y^2+1)^2$ $(16y^8-64y^7+168y^6-217y^5+197y^4-240y^3+131y^2+17y+1)$ $(16y^{14}-105y^{13}+\cdots+16128y+4096)$ $(49-553y+5804y^2-2.77\times 10^4y^3+1.37\times 10^5y^4-4.28\times 10^5y^5+8.34\times 10^5y^6-1.14\times 1$
c_2, c_5	$(4y^4-8y^3+8y^2+4y+1)$ $(4y^8+12y^7-24y^6-45y^5+143y^4-139y^3+64y^2-13y+1)$ $(4y^{14}+83y^{13}+\cdots+18y+1)$ $(4y^{36}+156y^{35}+\cdots-52188y+19321)$
c_3, c_{10}	$(y^4-4y^3+8y^2+8y+4)$ $(y^8+2y^7+5y^6+8y^5+8y^4+3y^3+8y^2-12y+4)$ $(y^{14}+4y^{13}+\cdots-5y+4)(y^{36}+7y^{35}+\cdots+344y+4)$
c_4, c_{11}	$(4y^4-8y^3+8y^2+4y+1)$ $(4y^8+8y^7+20y^6+11y^5-20y^4-12y^3+9y^2+6y+1)$ $(4y^{14}+15y^{13}+\cdots+5y+1)(4y^{36}-20y^{35}+\cdots-8y+1)$
c_6, c_8	$(y^4+4y^3+8y^2-8y+4)$ $(y^8+y^7+7y^6-4y^5+49y^4-81y^3+104y^2-88y+36)$ $(y^{14}+7y^{13}+\cdots-33y+4)(y^{36}+15y^{35}+\cdots-174472y+119716)$
c_7	$(y+1)^4(y^8+2y^7+11y^6+17y^5+33y^4+53y^3+30y^2-4y+1)$ $(y^{14}+3y^{13}+\cdots-96y+64)$ $(1-12y+46y^2-89y^3+83y^4-10y^5-22y^6-62y^7+61y^8+3y^9+123y^{10}-75y^{11}+83y^{12}$
c_9	$(y+1)^4(y^8-7y^7+15y^6-14y^5+29y^4+2y^3+14y^2+7y+1)$ $(y^{14}-10y^{13}+\cdots+5376y+1024)$ $(1-197y+1086y^2-2927y^3+5530y^4-5626y^5+1319y^6+1.20\times 10^4y^7-2.26\times 10^4y^8+1$