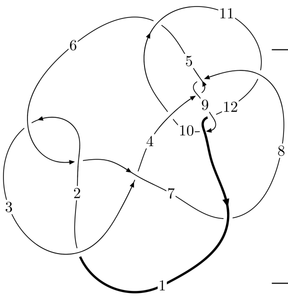
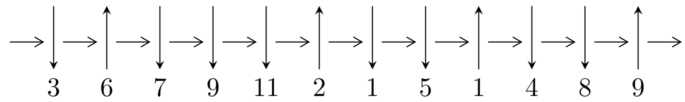
$12n_{0302}$ ($K12n_{0302}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -u^{30} - u^{29} + \cdots + 64b + 1,\ u^{30} + u^{29} + \cdots + 64a - 65,\ u^{31} + 4u^{29} + \cdots + 2u - 1\rangle \\
I_2^u &= \langle 1.68907 \times 10^{23} u^{35} - 1.11374 \times 10^{23} u^{34} + \cdots + 9.33256 \times 10^{23} b + 1.62659 \times 10^{24}, \\
&\quad - 2.83334 \times 10^{24} u^{35} + 1.80304 \times 10^{24} u^{34} + \cdots + 1.58653 \times 10^{25} a + 2.57411 \times 10^{25}, \\
&\quad u^{36} - u^{35} + \cdots - 44u + 17\rangle \\
I_3^u &= \langle b + a + 1,\ a^6 + a^5 u + 6a^5 + 5a^4 u + 16a^4 + 12a^3 u + 24a^3 + 16a^2 u + 21a^2 + 12au + 10a + 4u + 1,\ u^2 + 1\rangle
\end{aligned}$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 79 representations.

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[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.

$$I_1^u = \langle -u^{30}-u^{29}+\cdots+64b+1,\ u^{30}+u^{29}+\cdots+64a-65,\ u^{31}+4u^{29}+\cdots+2u-1\rangle$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} -0.0156250u^{30} - 0.0156250u^{29} + \cdots - 0.0156250u + 1.01563 \\ 0.0156250u^{30} + 0.0156250u^{29} + \cdots + 0.0156250u - 0.0156250 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0156250u^{30} - 0.0156250u^{29} + \cdots - 0.0156250u + 1.01563 \\ 0.0156250u^{30} + 0.0156250u^{29} + \cdots + 0.0156250u - 0.0156250 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.171875u^{30} - 0.203125u^{29} + \cdots - 0.265625u + 1.23438 \\ \frac{5}{32}u^{30} + \frac{3}{16}u^{29} + \cdots + \frac{1}{4}u - \frac{7}{32} \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -2.37500u^{30} - 0.125000u^{29} + \cdots + 7.68750u - 0.625000 \\ 1.45313u^{30} + 0.453125u^{29} + \cdots - 2.23438u + 0.0468750 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0156250u^{30} - 0.0156250u^{29} + \cdots - 0.0156250u + 1.01563 \\ 0.0156250u^{30} + 0.0156250u^{29} + \cdots + 0.0156250u - 0.0156250 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ 0.0156250u^{30} + 0.0156250u^{29} + \cdots + 0.0156250u - 0.0156250 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -0.0156250u^{30} + 0.0156250u^{29} + \cdots + 1.04688u - 0.0156250 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.45313u^{30} - 1.10938u^{29} + \cdots + 6.73438u + 1.04688 \\ \frac{1}{32}u^{30} + \frac{43}{32}u^{29} + \cdots + \frac{61}{16}u - \frac{7}{2} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{15}{8}u^{30} + \frac{7}{2}u^{29} + \cdots + \frac{343}{16}u - \frac{181}{16}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{31} + 15u^{30} + \cdots - 3u - 4$
c_2, c_6	$u^{31} - 3u^{30} + \cdots - 5u + 2$
c_3	$u^{31} + 3u^{30} + \cdots - 13u + 2$
c_4, c_5, c_8	$u^{31} + 4u^{29} + \cdots + 2u + 1$
c_7	$u^{31} - 15u^{30} + \cdots - 971u + 86$
c_9, c_{12}	$u^{31} - 8u^{30} + \cdots - 12u + 1$
c_{10}	$u^{31} - 19u^{29} + \cdots + 328u + 73$
c_{11}	$u^{31} + 29u^{30} + \cdots + 2490368u + 262144$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{31}+3y^{30}+\cdots+129y-16$
c_2, c_6	$y^{31}+15y^{30}+\cdots-3y-4$
c_3	$y^{31}-9y^{30}+\cdots-27y-4$
c_4, c_5, c_8	$y^{31}+8y^{30}+\cdots-12y-1$
c_7	$y^{31}+3y^{30}+\cdots+25565y-7396$
c_9, c_{12}	$y^{31}+44y^{30}+\cdots+4y-1$
c_{10}	$y^{31}-38y^{30}+\cdots+121892y-5329$
c_{11}	$y^{31}-7y^{30}+\cdots+188978561024y-68719476736$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.428614 + 0.787639I$ $a = 0.020444 - 1.071240I$ $b = 0.277691 + 1.156760I$	$2.11446 - 7.62347I$	$-2.55486 + 10.23287I$
$u = 0.428614 - 0.787639I$ $a = 0.020444 + 1.071240I$ $b = 0.277691 - 1.156760I$	$2.11446 + 7.62347I$	$-2.55486 - 10.23287I$
$u = -0.398489 + 0.747920I$ $a = 0.277025 + 1.072210I$ $b = 0.127552 - 1.190720I$	$3.81643 + 2.62838I$	$0.13136 - 5.27727I$
$u = -0.398489 - 0.747920I$ $a = 0.277025 - 1.072210I$ $b = 0.127552 + 1.190720I$	$3.81643 - 2.62838I$	$0.13136 + 5.27727I$
$u = -0.823498 + 0.113059I$ $a = 0.851475 - 0.053587I$ $b = 1.221930 - 0.380414I$	$-4.06065 + 3.78130I$	$-10.92047 - 4.50880I$
$u = -0.823498 - 0.113059I$ $a = 0.851475 + 0.053587I$ $b = 1.221930 + 0.380414I$	$-4.06065 - 3.78130I$	$-10.92047 + 4.50880I$
$u = -0.308639 + 0.692422I$ $a = 0.807667 + 1.093890I$ $b = -0.226940 - 1.192890I$	$3.71218 + 0.23183I$	$-0.44077 - 4.37023I$
$u = -0.308639 - 0.692422I$ $a = 0.807667 - 1.093890I$ $b = -0.226940 + 1.192890I$	$3.71218 - 0.23183I$	$-0.44077 + 4.37023I$
$u = 0.737257 + 0.999674I$ $a = -1.014960 + 0.279964I$ $b = -0.405856 - 0.149663I$	$-1.01582 - 3.41753I$	$-1.81646 + 1.83833I$
$u = 0.737257 - 0.999674I$ $a = -1.014960 - 0.279964I$ $b = -0.405856 + 0.149663I$	$-1.01582 + 3.41753I$	$-1.81646 - 1.83833I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.493312 + 0.567058I$ $a = 0.507385 - 0.402871I$ $b = 0.107522 + 0.874845I$	$-0.97829 - 1.43223I$	$-7.64253 + 4.49429I$
$u = 0.493312 - 0.567058I$ $a = 0.507385 + 0.402871I$ $b = 0.107522 - 0.874845I$	$-0.97829 + 1.43223I$	$-7.64253 - 4.49429I$
$u = 0.263305 + 0.688070I$ $a = 1.04620 - 1.12763I$ $b = -0.418303 + 1.197120I$	$1.88939 + 4.73630I$	$-3.89657 - 0.59420I$
$u = 0.263305 - 0.688070I$ $a = 1.04620 + 1.12763I$ $b = -0.418303 - 1.197120I$	$1.88939 - 4.73630I$	$-3.89657 + 0.59420I$
$u = 0.896581 + 0.914182I$ $a = -0.497658 + 0.734722I$ $b = -1.22042 + 0.80006I$	$-4.16004 - 2.58701I$	$-4.00000 + 2.53611I$
$u = 0.896581 - 0.914182I$ $a = -0.497658 - 0.734722I$ $b = -1.22042 - 0.80006I$	$-4.16004 + 2.58701I$	$-4.00000 - 2.53611I$
$u = -0.747911 + 1.060550I$ $a = -1.244110 - 0.413683I$ $b = -0.518247 + 0.621142I$	$-0.50947 + 8.32474I$	$-0.66671 - 7.63696I$
$u = -0.747911 - 1.060550I$ $a = -1.244110 + 0.413683I$ $b = -0.518247 - 0.621142I$	$-0.50947 - 8.32474I$	$-0.66671 + 7.63696I$
$u = -0.946068 + 0.895466I$ $a = -0.369074 - 0.860893I$ $b = -1.39985 - 1.14923I$	$-6.97286 - 2.17567I$	$-7.38278 + 1.16604I$
$u = -0.946068 - 0.895466I$ $a = -0.369074 + 0.860893I$ $b = -1.39985 + 1.14923I$	$-6.97286 + 2.17567I$	$-7.38278 - 1.16604I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.918427 + 0.979157I$ $a = -0.674803 - 0.903235I$ $b = -1.66201 - 0.48080I$	$-8.26580 + 6.12965I$	$-8.72219 - 5.26564I$
$u = -0.918427 - 0.979157I$ $a = -0.674803 + 0.903235I$ $b = -1.66201 + 0.48080I$	$-8.26580 - 6.12965I$	$-8.72219 + 5.26564I$
$u = 0.654707$ $a = 0.828573$ $b = 0.783801$	-1.18982	-8.14570
$u = -0.789945 + 1.134080I$ $a = -1.45883 - 0.71380I$ $b = -0.97512 + 1.29471I$	$-2.55844 + 10.54750I$	$-1.65094 - 6.34331I$
$u = -0.789945 - 1.134080I$ $a = -1.45883 + 0.71380I$ $b = -0.97512 - 1.29471I$	$-2.55844 - 10.54750I$	$-1.65094 + 6.34331I$
$u = 0.831569 + 1.116210I$ $a = -1.30990 + 0.83774I$ $b = -1.38338 - 1.03976I$	$-7.22926 - 7.46449I$	$-7.55894 + 4.20366I$
$u = 0.831569 - 1.116210I$ $a = -1.30990 - 0.83774I$ $b = -1.38338 + 1.03976I$	$-7.22926 + 7.46449I$	$-7.55894 - 4.20366I$
$u = 0.796078 + 1.157720I$ $a = -1.53812 + 0.78506I$ $b = -1.06685 - 1.54659I$	$-5.0523 - 15.6504I$	$-4.62054 + 9.85010I$
$u = 0.796078 - 1.157720I$ $a = -1.53812 - 0.78506I$ $b = -1.06685 + 1.54659I$	$-5.0523 + 15.6504I$	$-4.62054 - 9.85010I$
$u = 0.158909 + 0.450532I$ $a = 1.182970 - 0.267894I$ $b = -0.349614 + 0.360185I$	$-0.56592 - 1.41483I$	$-5.18401 + 4.52622I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.158909 - 0.450532I$ $a = 1.182970 + 0.267894I$ $b = -0.349614 - 0.360185I$	$-0.56592 + 1.41483I$	$-5.18401 - 4.52622I$

II. $\boldsymbol{I_2^u = \langle 1.69 \times 10^{23}u^{35} - 1.11 \times 10^{23}u^{34} + \cdots + 9.33 \times 10^{23}b + 1.63 \times 10^{24},\ -2.83 \times 10^{24}u^{35} + 1.80 \times 10^{24}u^{34} + \cdots + 1.59 \times 10^{25}a + 2.57 \times 10^{25},\ u^{36} - u^{35} + \cdots - 44u + 17\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.178587u^{35} - 0.113646u^{34} + \cdots - 2.60843u - 1.62248 \\ -0.180987u^{35} + 0.119339u^{34} + \cdots - 0.246496u - 1.74292 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.00240038u^{35} + 0.00569313u^{34} + \cdots - 2.85493u - 2.36540 \\ 0.0118866u^{35} - 0.0147001u^{34} + \cdots - 0.196623u - 1.07676 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.116243u^{35} - 0.0798703u^{34} + \cdots - 2.42275u - 0.678453 \\ -0.208906u^{35} + 0.154096u^{34} + \cdots - 0.572363u - 1.69509 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0899876u^{35} - 0.234769u^{34} + \cdots + 6.71425u - 2.77653 \\ 0.0464972u^{35} - 0.00440409u^{34} + \cdots + 2.00161u - 0.344605 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0509778u^{35} - 0.0297385u^{34} + \cdots - 2.54053u - 0.983544 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0509778u^{35} - 0.0297385u^{34} + \cdots - 2.54053u - 1.98354 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0375842u^{35} - 0.0900247u^{34} + \cdots - 7.79934u + 1.72161 \\ 0.0212393u^{35} - 0.148848u^{34} + \cdots + 1.25948u - 0.866623 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.267879u^{35} - 0.421650u^{34} + \cdots + 20.4123u - 11.1581 \\ 0.0138355u^{35} + 0.221537u^{34} + \cdots + 0.400166u - 0.936209 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{944594276490776968372 88}{933255522779965433376737}u^{35} + \frac{1669130199746521433848712}{933255522779965433376737}u^{34} + \cdots - \frac{2517086147059865964144 0976}{933255522779965433376737}u + \frac{1667795781533429661370718}{933255522779965433376737}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{18} + 9u^{17} + \cdots + u + 1)^2$
c_2, c_6	$(u^{18} + u^{17} + \cdots + u + 1)^2$
c_3	$(u^{18} - u^{17} + \cdots - u + 5)^2$
c_4, c_5, c_8	$u^{36} + u^{35} + \cdots + 44u + 17$
c_7	$(u^{18} + 5u^{17} + \cdots + 13u + 3)^2$
c_9, c_{12}	$u^{36} - 15u^{35} + \cdots - 3300u + 289$
c_{10}	$u^{36} + u^{35} + \cdots - 22616u + 236209$
c_{11}	$(u - 1)^{36}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{18}+y^{17}+\cdots+9y+1)^2$
c_2, c_6	$(y^{18}+9y^{17}+\cdots+y+1)^2$
c_3	$(y^{18}-7y^{17}+\cdots-91y+25)^2$
c_4, c_5, c_8	$y^{36}+15y^{35}+\cdots+3300y+289$
c_7	$(y^{18}-3y^{17}+\cdots+5y+9)^2$
c_9, c_{12}	$y^{36}+11y^{35}+\cdots+3006276y+83521$
c_{10}	$y^{36}-5y^{35}+\cdots-292100155924y+55794691681$
c_{11}	$(y-1)^{36}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.320634 + 0.870916I$ $a = -1.59556 + 0.83474I$ $b = 0.087095 + 0.616918I$	$4.20760 + 0.97328I$	$2.11395 - 4.55184I$
$u = -0.320634 - 0.870916I$ $a = -1.59556 - 0.83474I$ $b = 0.087095 - 0.616918I$	$4.20760 - 0.97328I$	$2.11395 + 4.55184I$
$u = -0.828905 + 0.682944I$ $a = 0.886516 + 0.217948I$ $b = 0.420070 + 0.303007I$	$-1.65768 - 2.36433I$	$-3.03894 + 3.34702I$
$u = -0.828905 - 0.682944I$ $a = 0.886516 - 0.217948I$ $b = 0.420070 - 0.303007I$	$-1.65768 + 2.36433I$	$-3.03894 - 3.34702I$
$u = 0.338195 + 1.021420I$ $a = -1.33297 - 1.04821I$ $b = 0.609948 - 0.458991I$	$2.68166 + 3.09151I$	$-0.88507 - 2.77317I$
$u = 0.338195 - 1.021420I$ $a = -1.33297 + 1.04821I$ $b = 0.609948 + 0.458991I$	$2.68166 - 3.09151I$	$-0.88507 + 2.77317I$
$u = 0.786288 + 0.800353I$ $a = 1.137130 - 0.178590I$ $b = 0.420070 + 0.303007I$	$-1.65768 - 2.36433I$	$-3.03894 + 3.34702I$
$u = 0.786288 - 0.800353I$ $a = 1.137130 + 0.178590I$ $b = 0.420070 - 0.303007I$	$-1.65768 + 2.36433I$	$-3.03894 - 3.34702I$
$u = -0.061644 + 1.184410I$ $a = 0.586032 - 0.513303I$ $b = -0.954493 + 0.372508I$	$-0.299485 - 0.584791I$	$-8.18494 - 0.42463I$
$u = -0.061644 - 1.184410I$ $a = 0.586032 + 0.513303I$ $b = -0.954493 - 0.372508I$	$-0.299485 + 0.584791I$	$-8.18494 + 0.42463I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.001550 + 0.646267I$ $a = 0.708963 + 0.596743I$ $b = 1.09501 + 1.09178I$	$-4.08770 - 3.98828I$	$-3.98066 + 2.30410I$
$u = -1.001550 - 0.646267I$ $a = 0.708963 - 0.596743I$ $b = 1.09501 - 1.09178I$	$-4.08770 + 3.98828I$	$-3.98066 - 2.30410I$
$u = 0.216325 + 1.182910I$ $a = -0.713880 - 1.120330I$ $b = 0.609948 + 0.458991I$	$2.68166 - 3.09151I$	$-0.88507 + 2.77317I$
$u = 0.216325 - 1.182910I$ $a = -0.713880 + 1.120330I$ $b = 0.609948 - 0.458991I$	$2.68166 + 3.09151I$	$-0.88507 - 2.77317I$
$u = -0.113877 + 1.199280I$ $a = -0.350242 + 0.891800I$ $b = 0.087095 - 0.616918I$	$4.20760 - 0.97328I$	$2.11395 + 4.55184I$
$u = -0.113877 - 1.199280I$ $a = -0.350242 - 0.891800I$ $b = 0.087095 + 0.616918I$	$4.20760 + 0.97328I$	$2.11395 - 4.55184I$
$u = 1.043630 + 0.630455I$ $a = 0.645528 - 0.695501I$ $b = 1.22852 - 1.39513I$	$-6.71673 + 8.95499I$	$-7.02415 - 5.84784I$
$u = 1.043630 - 0.630455I$ $a = 0.645528 + 0.695501I$ $b = 1.22852 + 1.39513I$	$-6.71673 - 8.95499I$	$-7.02415 + 5.84784I$
$u = 0.509916 + 0.585624I$ $a = -1.93080 - 0.98314I$ $b = -0.908336 - 0.995159I$	$1.11805 - 6.64525I$	$-4.64041 + 7.71274I$
$u = 0.509916 - 0.585624I$ $a = -1.93080 + 0.98314I$ $b = -0.908336 + 0.995159I$	$1.11805 + 6.64525I$	$-4.64041 - 7.71274I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.411107 + 0.639674I$ $a = -1.94005 + 0.91219I$ $b = -0.616271 + 0.817602I$	$3.38528 + 2.06052I$	$-0.97721 - 4.27827I$
$u = -0.411107 - 0.639674I$ $a = -1.94005 - 0.91219I$ $b = -0.616271 - 0.817602I$	$3.38528 - 2.06052I$	$-0.97721 + 4.27827I$
$u = 1.021780 + 0.715295I$ $a = 0.873555 - 0.679781I$ $b = 1.53845 - 0.79255I$	$-8.50059 + 0.69909I$	$-9.38255 + 0.31146I$
$u = 1.021780 - 0.715295I$ $a = 0.873555 + 0.679781I$ $b = 1.53845 + 0.79255I$	$-8.50059 - 0.69909I$	$-9.38255 - 0.31146I$
$u = -0.006529 + 1.249810I$ $a = 0.249742 + 0.857549I$ $b = -0.616271 - 0.817602I$	$3.38528 - 2.06052I$	$-0.97721 + 4.27827I$
$u = -0.006529 - 1.249810I$ $a = 0.249742 - 0.857549I$ $b = -0.616271 + 0.817602I$	$3.38528 + 2.06052I$	$-0.97721 - 4.27827I$
$u = -0.029699 + 1.287060I$ $a = 0.453155 - 0.982720I$ $b = -0.908336 + 0.995159I$	$1.11805 + 6.64525I$	$-4.64041 - 7.71274I$
$u = -0.029699 - 1.287060I$ $a = 0.453155 + 0.982720I$ $b = -0.908336 - 0.995159I$	$1.11805 - 6.64525I$	$-4.64041 + 7.71274I$
$u = 0.886065 + 0.936840I$ $a = 1.41586 - 0.38586I$ $b = 1.09501 + 1.09178I$	$-4.08770 - 3.98828I$	$-4.00000 + 2.30410I$
$u = 0.886065 - 0.936840I$ $a = 1.41586 + 0.38586I$ $b = 1.09501 - 1.09178I$	$-4.08770 + 3.98828I$	$-4.00000 - 2.30410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.945816+0.902689I$ $a=\ \ 1.34476+0.52640I$ $b=\ \ 1.53845-0.79255I$	$-8.50059+0.69909I$	$-9.38255+0.31146I$
$u=-0.945816-0.902689I$ $a=\ \ 1.34476-0.52640I$ $b=\ \ 1.53845+0.79255I$	$-8.50059-0.69909I$	$-9.38255-0.31146I$
$u=-0.904248+0.975132I$ $a=\ \ 1.50571+0.41815I$ $b=\ \ 1.22852-1.39513I$	$-6.71673+8.95499I$	$-7.02415-5.84784I$
$u=-0.904248-0.975132I$ $a=\ \ 1.50571-0.41815I$ $b=\ \ 1.22852+1.39513I$	$-6.71673-8.95499I$	$-7.02415+5.84784I$
$u=\ \ 0.321811+0.404020I$ $a=-2.26698-1.18927I$ $b=-0.954493-0.372508I$	$-0.299485+0.584791I$	$-8.18494+0.42463I$
$u=\ \ 0.321811-0.404020I$ $a=-2.26698+1.18927I$ $b=-0.954493+0.372508I$	$-0.299485-0.584791I$	$-8.18494-0.42463I$

III. $\boldsymbol{I_3^u = \langle b + a + 1,\ a^5u + 5a^4u + \cdots + 10a + 1,\ u^2 + 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

$$a_{10} = \begin{pmatrix} a+1 \\ -a-2 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} a^2+a+1 \\ -a^2-2a-1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} a+1 \\ -a-2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ -a-2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u \\ -au-u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -a^5u-4a^4u-8a^3u-9a^2u-6au-u \\ -a^4u-4a^3u+\cdots-12a-4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^4 - 16a^3 - 28a^2 - 4au - 24a - 4u - 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$
c_2, c_6, c_7	$u^{12}+3u^{10}+5u^8+4u^6+2u^4+u^2+1$
c_3	$u^{12}-u^{10}+5u^8+6u^4-3u^2+1$
c_4, c_5, c_8	$(u^2+1)^6$
c_9	$(u+1)^{12}$
c_{10}	$u^{12}-2u^{11}+\cdots-56u+17$
c_{11}	$u^{12}-12u^{11}+\cdots-116u+17$
c_{12}	$(u-1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6+y^5+5y^4+6y^2+3y+1)^2$
c_2, c_6, c_7	$(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$
c_3	$(y^6-y^5+5y^4+6y^2-3y+1)^2$
c_4, c_5, c_8	$(y+1)^{12}$
c_9, c_{12}	$(y-1)^{12}$
c_{10}	$y^{12}+6y^{11}+\cdots-620y+289$
c_{11}	$y^{12}-6y^{11}+\cdots+620y+289$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.441248 - 1.073950I$ $b = -0.558752 + 1.073950I$	$3.28987 + 5.69302I$	$2.00000 - 5.51057I$
$u = 1.000000I$ $a = -0.704458 + 1.002190I$ $b = -0.295542 - 1.002190I$	$5.18047 - 0.92430I$	$5.71672 + 0.79423I$
$u = 1.000000I$ $a = -0.335469 - 0.428243I$ $b = -0.664531 + 0.428243I$	$1.39926 - 0.92430I$	$-1.71672 + 0.79423I$
$u = 1.000000I$ $a = -1.29554 + 1.00219I$ $b = 0.295542 - 1.002190I$	$5.18047 + 0.92430I$	$5.71672 - 0.79423I$
$u = 1.000000I$ $a = -1.66453 - 0.42824I$ $b = 0.664531 + 0.428243I$	$1.39926 + 0.92430I$	$-1.71672 - 0.79423I$
$u = 1.000000I$ $a = -1.55875 - 1.07395I$ $b = 0.558752 + 1.073950I$	$3.28987 - 5.69302I$	$2.00000 + 5.51057I$
$u = -1.000000I$ $a = -0.441248 + 1.073950I$ $b = -0.558752 - 1.073950I$	$3.28987 - 5.69302I$	$2.00000 + 5.51057I$
$u = -1.000000I$ $a = -0.704458 - 1.002190I$ $b = -0.295542 + 1.002190I$	$5.18047 + 0.92430I$	$5.71672 - 0.79423I$
$u = -1.000000I$ $a = -0.335469 + 0.428243I$ $b = -0.664531 - 0.428243I$	$1.39926 + 0.92430I$	$-1.71672 - 0.79423I$
$u = -1.000000I$ $a = -1.29554 - 1.00219I$ $b = 0.295542 + 1.002190I$	$5.18047 - 0.92430I$	$5.71672 + 0.79423I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.000000I$ $a = -1.66453 + 0.42824I$ $b = \quad 0.664531 - 0.428243I$	$1.39926 - 0.92430I$	$-1.71672 + 0.79423I$
$u = \quad - 1.000000I$ $a = -1.55875 + 1.07395I$ $b = \quad 0.558752 - 1.073950I$	$3.28987 + 5.69302I$	$2.00000 - 5.51057I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^6 - 3u^5 + 5u^4 - 4u^3 + 2u^2 - u + 1)^2)(u^{18} + 9u^{17} + \cdots + u + 1)^2$ $\cdot (u^{31} + 15u^{30} + \cdots - 3u - 4)$
c_2, c_6	$(u^{12} + 3u^{10} + \cdots + u^2 + 1)(u^{18} + u^{17} + \cdots + u + 1)^2$ $\cdot (u^{31} - 3u^{30} + \cdots - 5u + 2)$
c_3	$(u^{12} - u^{10} + 5u^8 + 6u^4 - 3u^2 + 1)(u^{18} - u^{17} + \cdots - u + 5)^2$ $\cdot (u^{31} + 3u^{30} + \cdots - 13u + 2)$
c_4, c_5, c_8	$((u^2 + 1)^6)(u^{31} + 4u^{29} + \cdots + 2u + 1)(u^{36} + u^{35} + \cdots + 44u + 17)$
c_7	$(u^{12} + 3u^{10} + \cdots + u^2 + 1)(u^{18} + 5u^{17} + \cdots + 13u + 3)^2$ $\cdot (u^{31} - 15u^{30} + \cdots - 971u + 86)$
c_9	$((u + 1)^{12})(u^{31} - 8u^{30} + \cdots - 12u + 1)$ $\cdot (u^{36} - 15u^{35} + \cdots - 3300u + 289)$
c_{10}	$(u^{12} - 2u^{11} + \cdots - 56u + 17)(u^{31} - 19u^{29} + \cdots + 328u + 73)$ $\cdot (u^{36} + u^{35} + \cdots - 22616u + 236209)$
c_{11}	$((u - 1)^{36})(u^{12} - 12u^{11} + \cdots - 116u + 17)$ $\cdot (u^{31} + 29u^{30} + \cdots + 2490368u + 262144)$
c_{12}	$((u - 1)^{12})(u^{31} - 8u^{30} + \cdots - 12u + 1)$ $\cdot (u^{36} - 15u^{35} + \cdots - 3300u + 289)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^6+y^5+5y^4+6y^2+3y+1)^2)(y^{18}+y^{17}+\cdots+9y+1)^2$ $\cdot\,(y^{31}+3y^{30}+\cdots+129y-16)$
c_2, c_6	$((y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2)(y^{18}+9y^{17}+\cdots+y+1)^2$ $\cdot\,(y^{31}+15y^{30}+\cdots-3y-4)$
c_3	$((y^6-y^5+5y^4+6y^2-3y+1)^2)(y^{18}-7y^{17}+\cdots-91y+25)^2$ $\cdot\,(y^{31}-9y^{30}+\cdots-27y-4)$
c_4, c_5, c_8	$((y+1)^{12})(y^{31}+8y^{30}+\cdots-12y-1)$ $\cdot\,(y^{36}+15y^{35}+\cdots+3300y+289)$
c_7	$((y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2)(y^{18}-3y^{17}+\cdots+5y+9)^2$ $\cdot\,(y^{31}+3y^{30}+\cdots+25565y-7396)$
c_9, c_{12}	$((y-1)^{12})(y^{31}+44y^{30}+\cdots+4y-1)$ $\cdot\,(y^{36}+11y^{35}+\cdots+3006276y+83521)$
c_{10}	$(y^{12}+6y^{11}+\cdots-620y+289)(y^{31}-38y^{30}+\cdots+121892y-5329)$ $\cdot\,(y^{36}-5y^{35}+\cdots-292100155924y+55794691681)$
c_{11}	$((y-1)^{36})(y^{12}-6y^{11}+\cdots+620y+289)$ $\cdot\,(y^{31}-7y^{30}+\cdots+188978561024y-68719476736)$