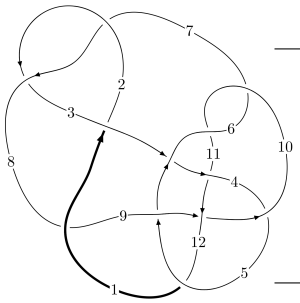
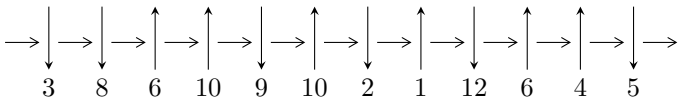
$12n_{0613}$ $(K12n_{0613})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b-u,\ 5.43932\times 10^{30}u^{31} + 8.12908\times 10^{30}u^{30} + \cdots + 3.35339\times 10^{30}a - 9.00124\times 10^{30},$$
$$u^{32} + u^{31} + \cdots - 5u + 1\rangle$$
$$I_2^u = \langle b+u,\ -2006601310117u^{21} - 1475756618264u^{20} + \cdots + 214817393669a - 6503947392620,$$
$$u^{22} + u^{21} + \cdots + 6u + 1\rangle$$
$$I_3^u = \langle 2.83028\times 10^{140}u^{47} + 8.71962\times 10^{140}u^{46} + \cdots + 1.13769\times 10^{141}b - 1.39265\times 10^{141},$$
$$6.79051\times 10^{120}u^{47} + 2.06789\times 10^{121}u^{46} + \cdots + 6.50621\times 10^{120}a - 3.02432\times 10^{121},\ u^{48} + 3u^{47} + \cdots - 14u$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 102 representations.

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

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

I. $\boldsymbol{I_1^u = \langle b-u,\ 5.44\times 10^{30}u^{31}+8.13\times 10^{30}u^{30}+\cdots+3.35\times 10^{30}a-9.00\times 10^{30},\ u^{32}+u^{31}+\cdots-5u+1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-1.62204u^{31}-2.42414u^{30}+\cdots-16.2084u+2.68422\\u\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-5.53414u^{31}-6.62833u^{30}+\cdots-35.0052u+20.9674\\0.249234u^{31}+0.273240u^{30}+\cdots+3.38846u-0.802100\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-7.19778u^{31}-9.20184u^{30}+\cdots-52.2087u+21.0419\\0.101749u^{31}+0.189658u^{30}+\cdots+1.30173u+0.191010\end{pmatrix}$$

$$a_1 = \begin{pmatrix}-1.62204u^{31}-2.42414u^{30}+\cdots-17.2084u+2.68422\\u\end{pmatrix}$$

$$a_4 = \begin{pmatrix}0.441611u^{31}+0.993111u^{30}+\cdots+10.9819u+4.63637\\0.0376695u^{31}+0.0100421u^{30}+\cdots+1.01416u-0.742510\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.543360u^{31}+1.18277u^{30}+\cdots+12.2837u+4.82738\\0.0198247u^{31}-0.00142549u^{30}+\cdots+1.35196u-0.830419\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-6.03260u^{31}-7.17481u^{30}+\cdots-39.7822u+22.5716\\0.249234u^{31}+0.273240u^{30}+\cdots+3.38846u-0.802100\end{pmatrix}$$

$$a_2 = \begin{pmatrix}-8.35596u^{31}-10.3141u^{30}+\cdots-49.1564u+32.2862\\0.207248u^{31}+0.365116u^{30}+\cdots+2.95393u-0.843951\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-5.04086u^{31}-6.12139u^{30}+\cdots-31.6800u+19.0711\\0.257866u^{31}+0.306994u^{30}+\cdots+2.96350u-0.815763\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 7.99213u^{31}+9.89259u^{30}+\cdots+52.3956u-21.8422$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{32}+16u^{31}+\cdots-384u+256$
c_2, c_7	$u^{32}-8u^{31}+\cdots-128u+16$
c_3	$u^{32}+22u^{31}+\cdots+27648u+4096$
c_4	$u^{32}-8u^{30}+\cdots+7u-6$
c_5, c_{12}	$u^{32}+u^{31}+\cdots-5u+1$
c_6, c_{10}, c_{11}	$u^{32}-23u^{30}+\cdots-9u^2+1$
c_8	$u^{32}-24u^{31}+\cdots-24064u-2544$
c_9	$u^{32}-21u^{31}+\cdots-992u+64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{32} + 4y^{31} + \cdots - 614400y + 65536$
c_2, c_7	$y^{32} - 16y^{31} + \cdots + 384y + 256$
c_3	$y^{32} - 30y^{31} + \cdots - 131072000y + 16777216$
c_4	$y^{32} - 16y^{31} + \cdots - 661y + 36$
c_5, c_{12}	$y^{32} + 3y^{31} + \cdots - 11y + 1$
c_6, c_{10}, c_{11}	$y^{32} - 46y^{31} + \cdots - 18y + 1$
c_8	$y^{32} + 14y^{31} + \cdots - 3117275776y + 6471936$
c_9	$y^{32} + 9y^{31} + \cdots + 39936y + 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.390564+0.967977I$ $a=-1.60621-0.49572I$ $b=-0.390564+0.967977I$	$9.63313+1.78314I$	$5.24416-2.15129I$
$u=-0.390564-0.967977I$ $a=-1.60621+0.49572I$ $b=-0.390564-0.967977I$	$9.63313-1.78314I$	$5.24416+2.15129I$
$u=-0.859015+0.595187I$ $a=-0.70225-1.35017I$ $b=-0.859015+0.595187I$	$3.11013+9.06642I$	$-0.91274-7.85173I$
$u=-0.859015-0.595187I$ $a=-0.70225+1.35017I$ $b=-0.859015-0.595187I$	$3.11013-9.06642I$	$-0.91274+7.85173I$
$u=-0.519398+0.932460I$ $a=-0.647989-0.004890I$ $b=-0.519398+0.932460I$	$1.88830+3.18747I$	$4.96056-5.55794I$
$u=-0.519398-0.932460I$ $a=-0.647989+0.004890I$ $b=-0.519398-0.932460I$	$1.88830-3.18747I$	$4.96056+5.55794I$
$u=0.275358+0.858528I$ $a=0.738399-0.042001I$ $b=0.275358+0.858528I$	$2.15595+1.03231I$	$4.92013-2.65648I$
$u=0.275358-0.858528I$ $a=0.738399+0.042001I$ $b=0.275358-0.858528I$	$2.15595-1.03231I$	$4.92013+2.65648I$
$u=0.657277+0.519284I$ $a=0.91075-1.90121I$ $b=0.657277+0.519284I$	$5.54728-3.21063I$	$1.80460+6.59174I$
$u=0.657277-0.519284I$ $a=0.91075+1.90121I$ $b=0.657277-0.519284I$	$5.54728+3.21063I$	$1.80460-6.59174I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.791811$ $a=-1.98040$ $b=-0.791811$	-1.01617	-9.04870
$u=-0.755035$ $a=-0.694813$ $b=-0.755035$	-1.77548	-4.53550
$u=0.621825+1.097920I$ $a=1.294920-0.198954I$ $b=0.621825+1.097920I$	$9.99995-7.71025I$	$4.49240+6.45370I$
$u=0.621825-1.097920I$ $a=1.294920+0.198954I$ $b=0.621825-1.097920I$	$9.99995+7.71025I$	$4.49240-6.45370I$
$u=0.313313+0.638057I$ $a=-1.166610-0.622327I$ $b=0.313313+0.638057I$	$-2.47132-5.60513I$	$-2.05099+8.20859I$
$u=0.313313-0.638057I$ $a=-1.166610+0.622327I$ $b=0.313313-0.638057I$	$-2.47132+5.60513I$	$-2.05099-8.20859I$
$u=-0.956018+0.923610I$ $a=-0.573225+0.070285I$ $b=-0.956018+0.923610I$	$-0.91090+3.64926I$	$4.33113-1.37429I$
$u=-0.956018-0.923610I$ $a=-0.573225-0.070285I$ $b=-0.956018-0.923610I$	$-0.91090-3.64926I$	$4.33113+1.37429I$
$u=1.086610+0.795029I$ $a=0.574623+0.109929I$ $b=1.086610+0.795029I$	$-4.85287+0.14998I$	$-1.49645-3.04413I$
$u=1.086610-0.795029I$ $a=0.574623-0.109929I$ $b=1.086610-0.795029I$	$-4.85287-0.14998I$	$-1.49645+3.04413I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.06617+0.94422I$ $a=-1.051680+0.248881I$ $b=-1.06617+0.94422I$	$1.89136+7.99794I$	$-1.89042-4.55066I$
$u=-1.06617-0.94422I$ $a=-1.051680-0.248881I$ $b=-1.06617-0.94422I$	$1.89136-7.99794I$	$-1.89042+4.55066I$
$u=-0.075680+0.568202I$ $a=\ \ 1.265330-0.049232I$ $b=-0.075680+0.568202I$	$0.51553+1.38561I$	$2.36633-4.82018I$
$u=-0.075680-0.568202I$ $a=\ \ 1.265330+0.049232I$ $b=-0.075680-0.568202I$	$0.51553-1.38561I$	$2.36633+4.82018I$
$u=\ \ 1.03468+1.01787I$ $a=\ \ 0.546848+0.069159I$ $b=\ \ 1.03468+1.01787I$	$-3.90029-8.39051I$	$2.20035+3.96164I$
$u=\ \ 1.03468-1.01787I$ $a=\ \ 0.546848-0.069159I$ $b=\ \ 1.03468-1.01787I$	$-3.90029+8.39051I$	$2.20035-3.96164I$
$u=\ \ 1.09517+1.16567I$ $a=\ \ 0.950401+0.099835I$ $b=\ \ 1.09517+1.16567I$	$7.31268-11.42420I$	0
$u=\ \ 1.09517-1.16567I$ $a=\ \ 0.950401-0.099835I$ $b=\ \ 1.09517-1.16567I$	$7.31268+11.42420I$	0
$u=-1.21195+1.18977I$ $a=-0.876418+0.125795I$ $b=-1.21195+1.18977I$	$4.7481+16.9486I$	0
$u=-1.21195-1.18977I$ $a=-0.876418-0.125795I$ $b=-1.21195-1.18977I$	$4.7481-16.9486I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.267983 + 0.096022I$		
$a = -3.81929 - 5.94198I$	$-2.01749 + 2.84138I$	$-3.8195 + 16.5875I$
$b = 0.267983 + 0.096022I$		
$u = 0.267983 - 0.096022I$		
$a = -3.81929 + 5.94198I$	$-2.01749 - 2.84138I$	$-3.8195 - 16.5875I$
$b = 0.267983 - 0.096022I$		

II. $I_2^u = \langle b+u,\ -2.01\times 10^{12}u^{21} - 1.48\times 10^{12}u^{20} + \cdots + 2.15\times 10^{11}a - 6.50\times 10^{12},\ u^{22}+u^{21}+\cdots+6u+1\rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}9.34096u^{21}+6.86982u^{20}+\cdots+89.6739u+30.2766\\-u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}14.5794u^{21}+8.87809u^{20}+\cdots+142.535u+28.7075\\0.590428u^{21}+0.491225u^{20}+\cdots+6.48590u+2.47114\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-30.2766u^{21}-20.9357u^{20}+\cdots-297.306u-90.9859\\-0.439803u^{21}-0.428977u^{20}+\cdots-4.50594u-2.28936\end{pmatrix}$$
$$a_1 = \begin{pmatrix}9.34096u^{21}+6.86982u^{20}+\cdots+90.6739u+30.2766\\-u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-8.47114u^{21}-6.88072u^{20}+\cdots-81.7691u-36.3410\\0.340599u^{21}+0.259687u^{20}+\cdots+3.43451u+0.698927\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-8.91095u^{21}-7.30969u^{20}+\cdots-86.2751u-38.6303\\0.499053u^{21}+0.260079u^{20}+\cdots+3.80936u+0.688101\end{pmatrix}$$
$$a_8 = \begin{pmatrix}13.3986u^{21}+7.89564u^{20}+\cdots+131.564u+23.7653\\0.590428u^{21}+0.491225u^{20}+\cdots+6.48590u+2.47114\end{pmatrix}$$
$$a_2 = \begin{pmatrix}20.5604u^{21}+11.9205u^{20}+\cdots+201.038u+37.4919\\1.44804u^{21}+0.929665u^{20}+\cdots+12.8961u+4.26770\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}13.2901u^{21}+8.02853u^{20}+\cdots+129.393u+25.4774\\0.579602u^{21}+0.321944u^{20}+\cdots+5.13644u+2.03134\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\frac{8090826551153}{214817393669}u^{21} - \frac{5909957309789}{214817393669}u^{20} + \cdots - \frac{76582895018229}{214817393669}u - \frac{30531044823813}{214817393669}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} - 13u^{21} + \cdots - 8u + 1$
c_2	$u^{22} + u^{21} + \cdots - 4u^2 + 1$
c_3	$u^{22} + 15u^{21} + \cdots + 132u + 29$
c_4	$u^{22} - 5u^{20} + \cdots - 19u + 13$
c_5, c_{12}	$u^{22} + u^{21} + \cdots + 6u + 1$
c_6, c_{11}	$u^{22} - 2u^{21} + \cdots - u + 1$
c_7	$u^{22} - u^{21} + \cdots - 4u^2 + 1$
c_8	$u^{22} - 3u^{21} + \cdots - 8u^2 + 1$
c_9	$u^{22} - 10u^{21} + \cdots + 3u^2 + 1$
c_{10}	$u^{22} + 2u^{21} + \cdots + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22}+3y^{21}+\cdots-8y+1$
c_2, c_7	$y^{22}-13y^{21}+\cdots-8y+1$
c_3	$y^{22}-23y^{21}+\cdots-7738y+841$
c_4	$y^{22}-10y^{21}+\cdots+1017y+169$
c_5, c_{12}	$y^{22}-7y^{21}+\cdots-20y+1$
c_6, c_{10}, c_{11}	$y^{22}-12y^{21}+\cdots+17y+1$
c_8	$y^{22}+13y^{21}+\cdots-16y+1$
c_9	$y^{22}+8y^{21}+\cdots+6y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.858443+0.472828I$ $a=-0.268594-0.545737I$ $b=\ \ 0.858443-0.472828I$	$6.63217-1.18036I$	$3.98252-0.95830I$
$u=-0.858443-0.472828I$ $a=-0.268594+0.545737I$ $b=\ \ 0.858443+0.472828I$	$6.63217+1.18036I$	$3.98252+0.95830I$
$u=-0.969570+0.104792I$ $a=\ \ 0.958370-1.015960I$ $b=\ \ 0.969570-0.104792I$	$-4.48502+5.07387I$	$-8.63863-8.30587I$
$u=-0.969570-0.104792I$ $a=\ \ 0.958370+1.015960I$ $b=\ \ 0.969570+0.104792I$	$-4.48502-5.07387I$	$-8.63863+8.30587I$
$u=-0.362670+0.880683I$ $a=\ \ 0.684664-0.540153I$ $b=\ \ 0.362670-0.880683I$	$4.53253-2.07273I$	$8.32895+4.83845I$
$u=-0.362670-0.880683I$ $a=\ \ 0.684664+0.540153I$ $b=\ \ 0.362670+0.880683I$	$4.53253+2.07273I$	$8.32895-4.83845I$
$u=\ \ 0.647068+0.985785I$ $a=-0.320022-0.399758I$ $b=-0.647068-0.985785I$	$3.43411-0.50011I$	$2.53542+4.24945I$
$u=\ \ 0.647068-0.985785I$ $a=-0.320022+0.399758I$ $b=-0.647068+0.985785I$	$3.43411+0.50011I$	$2.53542-4.24945I$
$u=\ \ 1.153990+0.411356I$ $a=-0.864989-0.491617I$ $b=-1.153990-0.411356I$	$-2.39449-2.98768I$	$1.98501+3.10922I$
$u=\ \ 1.153990-0.411356I$ $a=-0.864989+0.491617I$ $b=-1.153990+0.411356I$	$-2.39449+2.98768I$	$1.98501-3.10922I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.027480 + 0.719532I$ $a = 0.048327 - 0.358842I$ $b = -1.027480 - 0.719532I$	$4.91059 + 5.90541I$	$1.71844 - 3.95716I$
$u = 1.027480 - 0.719532I$ $a = 0.048327 + 0.358842I$ $b = -1.027480 + 0.719532I$	$4.91059 - 5.90541I$	$1.71844 + 3.95716I$
$u = 0.470860 + 0.507733I$ $a = -2.04467 + 0.62131I$ $b = -0.470860 - 0.507733I$	$-0.39120 - 2.98356I$	$-1.48889 + 12.19524I$
$u = 0.470860 - 0.507733I$ $a = -2.04467 - 0.62131I$ $b = -0.470860 + 0.507733I$	$-0.39120 + 2.98356I$	$-1.48889 - 12.19524I$
$u = 1.015410 + 0.828466I$ $a = -0.835698 - 0.057216I$ $b = -1.015410 - 0.828466I$	$-1.82515 - 4.29426I$	$-2.89416 + 5.12116I$
$u = 1.015410 - 0.828466I$ $a = -0.835698 + 0.057216I$ $b = -1.015410 + 0.828466I$	$-1.82515 + 4.29426I$	$-2.89416 - 5.12116I$
$u = -1.23379 + 0.77502I$ $a = 0.728855 - 0.197315I$ $b = 1.23379 - 0.77502I$	$-5.39649 + 0.76944I$	$-5.69205 - 1.85880I$
$u = -1.23379 - 0.77502I$ $a = 0.728855 + 0.197315I$ $b = 1.23379 + 0.77502I$	$-5.39649 - 0.76944I$	$-5.69205 + 1.85880I$
$u = -1.08883 + 0.97192I$ $a = 0.712895 - 0.033605I$ $b = 1.08883 - 0.97192I$	$-4.58982 + 8.86717I$	$-6.46501 - 9.30335I$
$u = -1.08883 - 0.97192I$ $a = 0.712895 + 0.033605I$ $b = 1.08883 + 0.97192I$	$-4.58982 - 8.86717I$	$-6.46501 + 9.30335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.301500+0.088234I$		
$a=\ \ 1.20086+7.48943I$	$-2.07217+2.98695I$	$-23.8716-31.2516I$
$b=\ \ 0.301500-0.088234I$		
$u=-0.301500-0.088234I$		
$a=\ \ 1.20086-7.48943I$	$-2.07217-2.98695I$	$-23.8716+31.2516I$
$b=\ \ 0.301500+0.088234I$		

III. $I_3^u = \langle 2.83 \times 10^{140} u^{47} + 8.72 \times 10^{140} u^{46} + \cdots + 1.14 \times 10^{141} b - 1.39 \times 10^{141},\ 6.79 \times 10^{120} u^{47} + 2.07 \times 10^{121} u^{46} + \cdots + 6.51 \times 10^{120} a - 3.02 \times 10^{121},\ u^{48} + 3u^{47} + \cdots - 14u + 1 \rangle$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.04370u^{47} - 3.17834u^{46} + \cdots - 112.473u + 4.64836 \\ -0.248774u^{47} - 0.766430u^{46} + \cdots - 25.7903u + 1.22410 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.352601u^{47} + 1.15475u^{46} + \cdots + 9.77743u + 5.15330 \\ 0.0884410u^{47} + 0.277756u^{46} + \cdots + 5.39711u + 0.961781 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.459789u^{47} - 1.51384u^{46} + \cdots - 18.0243u - 5.98347 \\ -0.181840u^{47} - 0.582355u^{46} + \cdots - 10.3425u - 1.14025 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.794923u^{47} - 2.41191u^{46} + \cdots - 86.6830u + 3.42426 \\ -0.248774u^{47} - 0.766430u^{46} + \cdots - 25.7903u + 1.22410 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.641629u^{47} + 2.09620u^{46} + \cdots + 28.3668u + 7.12371 \\ 0.188784u^{47} + 0.597549u^{46} + \cdots + 12.0992u + 0.968939 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.459789u^{47} + 1.51384u^{46} + \cdots + 18.0243u + 5.98347 \\ 0.184999u^{47} + 0.586827u^{46} + \cdots + 11.7654u + 1.00577 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.182173u^{47} + 0.616405u^{46} + \cdots + 2.12767u + 3.43309 \\ 0.0819875u^{47} + 0.260591u^{46} + \cdots + 4.25265u + 0.758426 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.182173u^{47} + 0.616405u^{46} + \cdots + 2.12767u + 3.43309 \\ 0.0524818u^{47} + 0.165721u^{46} + \cdots + 2.21890u + 0.634265 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.442236u^{47} + 1.43983u^{46} + \cdots + 14.1699u + 6.21203 \\ 0.0885446u^{47} + 0.276604u^{46} + \cdots + 5.53392u + 0.945606 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.726576u^{47} - 2.21182u^{46} + \cdots - 75.1418u + 5.51596$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$(u^6+3u^5+5u^4+4u^3+2u^2+u+1)^8$
c_2, c_7	$(u^6+u^5-u^4-2u^3+u+1)^8$
c_3	$(u^4-3u^3+u^2+2u+1)^{12}$
c_4	$u^{48}+u^{47}+\cdots+30108u+22357$
c_5, c_{12}	$u^{48}+3u^{47}+\cdots-14u+1$
c_6, c_{10}, c_{11}	$u^{48}+u^{47}+\cdots+76002u+31907$
c_9	$(u^4+u^3+u^2+1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^6+y^5+5y^4+6y^2+3y+1)^8$
c_2, c_7	$(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^8$
c_3	$(y^4-7y^3+15y^2-2y+1)^{12}$
c_4	$y^{48}-21y^{47}+\cdots-2279703318y+499835449$
c_5, c_{12}	$y^{48}-9y^{47}+\cdots+44y+1$
c_6, c_{10}, c_{11}	$y^{48}-45y^{47}+\cdots-3001288400y+1018056649$
c_9	$(y^4+y^3+3y^2+2y+1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.629593 + 0.781806I$ $a = -1.239320 + 0.091509I$ $b = -1.12594 - 0.99017I$	$0.03467 - 4.08827I$	$3.88998 + 3.35903I$
$u = \ 0.629593 - 0.781806I$ $a = -1.239320 - 0.091509I$ $b = -1.12594 + 0.99017I$	$0.03467 + 4.08827I$	$3.88998 - 3.35903I$
$u = \ 0.330707 + 0.926113I$ $a = \ 0.810156 - 0.090576I$ $b = \ 1.69106 - 0.76622I$	$7.03641 - 0.49080I$	$7.54346 + 4.11452I$
$u = \ 0.330707 - 0.926113I$ $a = \ 0.810156 + 0.090576I$ $b = \ 1.69106 + 0.76622I$	$7.03641 + 0.49080I$	$7.54346 - 4.11452I$
$u = -1.069080 + 0.043286I$ $a = \ 0.761004 + 0.883218I$ $b = \ 1.023650 + 0.361469I$	$-3.74655 - 4.08827I$	$-3.54346 + 3.35903I$
$u = -1.069080 - 0.043286I$ $a = \ 0.761004 - 0.883218I$ $b = \ 1.023650 - 0.361469I$	$-3.74655 + 4.08827I$	$-3.54346 - 3.35903I$
$u = \ 1.023650 + 0.361469I$ $a = -1.019380 - 0.530277I$ $b = -1.069080 + 0.043286I$	$-3.74655 - 4.08827I$	$-3.54346 + 3.35903I$
$u = \ 1.023650 - 0.361469I$ $a = -1.019380 + 0.530277I$ $b = -1.069080 - 0.043286I$	$-3.74655 + 4.08827I$	$-3.54346 - 3.35903I$
$u = -1.091250 + 0.090133I$ $a = -0.266053 - 0.682083I$ $b = \ 0.011750 - 1.180710I$	$3.25520 - 2.33941I$	$0.11002 + 5.70297I$
$u = -1.091250 - 0.090133I$ $a = -0.266053 + 0.682083I$ $b = \ 0.011750 + 1.180710I$	$3.25520 + 2.33941I$	$0.11002 - 5.70297I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.542828+0.716452I$ $a=\ \ 1.380360+0.143081I$ $b=\ \ 0.238962-0.272108I$	$0.03467+2.23966I$	$3.88998-1.77057I$
$u=-0.542828-0.716452I$ $a=\ \ 1.380360-0.143081I$ $b=\ \ 0.238962+0.272108I$	$0.03467-2.23966I$	$3.88998+1.77057I$
$u=-0.358866+1.095930I$ $a=-0.688574-0.095537I$ $b=-1.90461-0.46488I$	$5.14581-4.27792I$	$3.82674+0.60183I$
$u=-0.358866-1.095930I$ $a=-0.688574+0.095537I$ $b=-1.90461+0.46488I$	$5.14581+4.27792I$	$3.82674-0.60183I$
$u=\ \ 0.011750+1.180710I$ $a=-0.607068-0.304005I$ $b=-1.091250-0.090133I$	$3.25520+2.33941I$	$0.-5.70297I$
$u=\ \ 0.011750-1.180710I$ $a=-0.607068+0.304005I$ $b=-1.091250+0.090133I$	$3.25520-2.33941I$	$0.+5.70297I$
$u=-0.755849+0.949728I$ $a=\ \ 1.024450+0.081577I$ $b=\ \ 1.36656-1.07638I$	$-1.85594+8.85698I$	$0.-8.07537I$
$u=-0.755849-0.949728I$ $a=\ \ 1.024450-0.081577I$ $b=\ \ 1.36656+1.07638I$	$-1.85594-8.85698I$	$0.+8.07537I$
$u=-1.030050+0.657859I$ $a=\ \ 0.988705-0.253254I$ $b=\ \ 1.41741-0.53201I$	$-3.74655+2.23966I$	$-3.54346+0.I$
$u=-1.030050-0.657859I$ $a=\ \ 0.988705+0.253254I$ $b=\ \ 1.41741+0.53201I$	$-3.74655-2.23966I$	$-3.54346+0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.167396+0.661515I$ $a=-0.98845+1.53779I$ $b=\ \ 0.414199-0.088722I$	$-1.85594+2.52906I$	$0.17326-2.94577I$
$u=-0.167396-0.661515I$ $a=-0.98845-1.53779I$ $b=\ \ 0.414199+0.088722I$	$-1.85594-2.52906I$	$0.17326+2.94577I$
$u=\ \ 0.388273+0.497540I$ $a=\ \ 1.242770+0.262742I$ $b=\ \ 1.39675-1.46025I$	$7.03641-2.33941I$	$7.54346+5.70297I$
$u=\ \ 0.388273-0.497540I$ $a=\ \ 1.242770-0.262742I$ $b=\ \ 1.39675+1.46025I$	$7.03641+2.33941I$	$7.54346-5.70297I$
$u=-0.490886+0.302457I$ $a=-1.174830+0.743568I$ $b=-1.32499-1.79381I$	$5.14581+7.10813I$	$3.82674-10.41931I$
$u=-0.490886-0.302457I$ $a=-1.174830-0.743568I$ $b=-1.32499+1.79381I$	$5.14581-7.10813I$	$3.82674+10.41931I$
$u=-1.12594+0.99017I$ $a=\ \ 0.827967-0.081233I$ $b=\ \ 0.629593-0.781806I$	$0.03467+4.08827I$	0
$u=-1.12594-0.99017I$ $a=\ \ 0.827967+0.081233I$ $b=\ \ 0.629593+0.781806I$	$0.03467-4.08827I$	0
$u=\ \ 1.41741+0.53201I$ $a=-0.738267-0.365826I$ $b=-1.030050-0.657859I$	$-3.74655-2.23966I$	0
$u=\ \ 1.41741-0.53201I$ $a=-0.738267+0.365826I$ $b=-1.030050+0.657859I$	$-3.74655+2.23966I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.414199 + 0.088722I$ $a = -1.51570 + 2.52480I$ $b = -0.167396 - 0.661515I$	$-1.85594 - 2.52906I$	$0.17326 + 2.94577I$
$u = 0.414199 - 0.088722I$ $a = -1.51570 - 2.52480I$ $b = -0.167396 + 0.661515I$	$-1.85594 + 2.52906I$	$0.17326 - 2.94577I$
$u = 0.238962 + 0.272108I$ $a = -3.44289 + 0.10691I$ $b = -0.542828 - 0.716452I$	$0.03467 - 2.23966I$	$3.88998 + 1.77057I$
$u = 0.238962 - 0.272108I$ $a = -3.44289 - 0.10691I$ $b = -0.542828 + 0.716452I$	$0.03467 + 2.23966I$	$3.88998 - 1.77057I$
$u = -0.61144 + 1.52100I$ $a = 0.327664 - 0.363021I$ $b = 0.0642708 - 0.0873744I$	$3.25520 - 0.49080I$	0
$u = -0.61144 - 1.52100I$ $a = 0.327664 + 0.363021I$ $b = 0.0642708 + 0.0873744I$	$3.25520 + 0.49080I$	0
$u = 1.36656 + 1.07638I$ $a = -0.708821 - 0.108545I$ $b = -0.755849 - 0.949728I$	$-1.85594 - 8.85698I$	0
$u = 1.36656 - 1.07638I$ $a = -0.708821 + 0.108545I$ $b = -0.755849 + 0.949728I$	$-1.85594 + 8.85698I$	0
$u = 1.69106 + 0.76622I$ $a = 0.012472 - 0.431621I$ $b = 0.330707 - 0.926113I$	$7.03641 + 0.49080I$	0
$u = 1.69106 - 0.76622I$ $a = 0.012472 + 0.431621I$ $b = 0.330707 + 0.926113I$	$7.03641 - 0.49080I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.0642708 + 0.0873744I$ $a = -3.42782 - 6.54788I$ $b = -0.61144 - 1.52100I$	$3.25520 + 0.49080I$	$0.11002 - 4.11452I$
$u = \quad 0.0642708 - 0.0873744I$ $a = -3.42782 + 6.54788I$ $b = -0.61144 + 1.52100I$	$3.25520 - 0.49080I$	$0.11002 + 4.11452I$
$u = -1.90461 + 0.46488I$ $a = -0.087205 - 0.399494I$ $b = -0.358866 - 1.095930I$	$5.14581 + 4.27792I$	0
$u = -1.90461 - 0.46488I$ $a = -0.087205 + 0.399494I$ $b = -0.358866 + 1.095930I$	$5.14581 - 4.27792I$	0
$u = \quad 1.39675 + 1.46025I$ $a = -0.137267 - 0.372220I$ $b = \quad 0.388273 - 0.497540I$	$7.03641 + 2.33941I$	0
$u = \quad 1.39675 - 1.46025I$ $a = -0.137267 + 0.372220I$ $b = \quad 0.388273 + 0.497540I$	$7.03641 - 2.33941I$	0
$u = -1.32499 + 1.79381I$ $a = \quad 0.166087 - 0.318804I$ $b = -0.490886 - 0.302457I$	$5.14581 - 7.10813I$	0
$u = -1.32499 - 1.79381I$ $a = \quad 0.166087 + 0.318804I$ $b = -0.490886 + 0.302457I$	$5.14581 + 7.10813I$	0

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^6+3u^5+5u^4+4u^3+2u^2+u+1)^8)(u^{22}-13u^{21}+\cdots-8u+1)$ $\cdot(u^{32}+16u^{31}+\cdots-384u+256)$
c_2	$((u^6+u^5-u^4-2u^3+u+1)^8)(u^{22}+u^{21}+\cdots-4u^2+1)$ $\cdot(u^{32}-8u^{31}+\cdots-128u+16)$
c_3	$((u^4-3u^3+u^2+2u+1)^{12})(u^{22}+15u^{21}+\cdots+132u+29)$ $\cdot(u^{32}+22u^{31}+\cdots+27648u+4096)$
c_4	$(u^{22}-5u^{20}+\cdots-19u+13)(u^{32}-8u^{30}+\cdots+7u-6)$ $\cdot(u^{48}+u^{47}+\cdots+30108u+22357)$
c_5, c_{12}	$(u^{22}+u^{21}+\cdots+6u+1)(u^{32}+u^{31}+\cdots-5u+1)$ $\cdot(u^{48}+3u^{47}+\cdots-14u+1)$
c_6, c_{11}	$(u^{22}-2u^{21}+\cdots-u+1)(u^{32}-23u^{30}+\cdots-9u^2+1)$ $\cdot(u^{48}+u^{47}+\cdots+76002u+31907)$
c_7	$((u^6+u^5-u^4-2u^3+u+1)^8)(u^{22}-u^{21}+\cdots-4u^2+1)$ $\cdot(u^{32}-8u^{31}+\cdots-128u+16)$
c_8	$((u^6+3u^5+5u^4+4u^3+2u^2+u+1)^8)(u^{22}-3u^{21}+\cdots-8u^2+1)$ $\cdot(u^{32}-24u^{31}+\cdots-24064u-2544)$
c_9	$((u^4+u^3+u^2+1)^{12})(u^{22}-10u^{21}+\cdots+3u^2+1)$ $\cdot(u^{32}-21u^{31}+\cdots-992u+64)$
c_{10}	$(u^{22}+2u^{21}+\cdots+u+1)(u^{32}-23u^{30}+\cdots-9u^2+1)$ $\cdot(u^{48}+u^{47}+\cdots+76002u+31907)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^6+y^5+5y^4+6y^2+3y+1)^8)(y^{22}+3y^{21}+\cdots-8y+1)$ $\cdot(y^{32}+4y^{31}+\cdots-614400y+65536)$
c_2, c_7	$((y^6-3y^5+5y^4-4y^3+2y^2-y+1)^8)(y^{22}-13y^{21}+\cdots-8y+1)$ $\cdot(y^{32}-16y^{31}+\cdots+384y+256)$
c_3	$((y^4-7y^3+15y^2-2y+1)^{12})(y^{22}-23y^{21}+\cdots-7738y+841)$ $\cdot(y^{32}-30y^{31}+\cdots-131072000y+16777216)$
c_4	$(y^{22}-10y^{21}+\cdots+1017y+169)(y^{32}-16y^{31}+\cdots-661y+36)$ $\cdot(y^{48}-21y^{47}+\cdots-2279703318y+499835449)$
c_5, c_{12}	$(y^{22}-7y^{21}+\cdots-20y+1)(y^{32}+3y^{31}+\cdots-11y+1)$ $\cdot(y^{48}-9y^{47}+\cdots+44y+1)$
c_6, c_{10}, c_{11}	$(y^{22}-12y^{21}+\cdots+17y+1)(y^{32}-46y^{31}+\cdots-18y+1)$ $\cdot(y^{48}-45y^{47}+\cdots-3001288400y+1018056649)$
c_8	$((y^6+y^5+5y^4+6y^2+3y+1)^8)(y^{22}+13y^{21}+\cdots-16y+1)$ $\cdot(y^{32}+14y^{31}+\cdots-3117275776y+6471936)$
c_9	$((y^4+y^3+3y^2+2y+1)^{12})(y^{22}+8y^{21}+\cdots+6y+1)$ $\cdot(y^{32}+9y^{31}+\cdots+39936y+4096)$