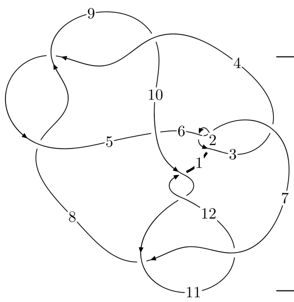
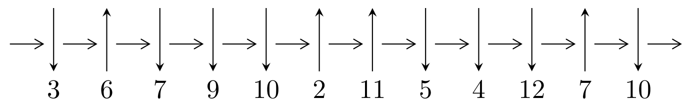
$12n_{0297}$ $(K12n_{0297})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -u^3 + b - u,\ u^{13} - u^{12} + 5u^{11} - 4u^{10} + 10u^9 - 7u^8 + 7u^7 - 4u^6 - 4u^5 + 2u^4 - 5u^3 + 3u^2 + 2a + u + 1,$$
$$u^{17} - u^{16} + \cdots - u + 1\rangle$$
$$I_2^u = \langle -6.01027 \times 10^{15}u^{41} + 4.38628 \times 10^{15}u^{40} + \cdots + 4.85875 \times 10^{15}b - 1.83034 \times 10^{16},$$
$$2907486392199263u^{41} - 6406067892977536u^{40} + \cdots + 2242499937318462a + 3116730258713323,$$
$$u^{42} - 2u^{41} + \cdots - 13u + 3\rangle$$
$$I_3^u = \langle b + u + 1,\ a^2 - 2a - 2u - 1,\ u^2 + u + 1\rangle$$
$$I_4^u = \langle b + u - 1,\ a + 1,\ u^2 - u + 1\rangle$$
$$I_5^u = \langle b - u,\ a^2 + 2au + 2a - u - 2,\ u^2 + u + 1\rangle$$
$$I_6^u = \langle b - u,\ a + u - 1,\ u^2 - u + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 71 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. $\boldsymbol{I_1^u = \langle -u^3 + b - u,\ u^{13} - u^{12} + \cdots + 2a + 1,\ u^{17} - u^{16} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^{13} + \frac{1}{2}u^{12} + \cdots - \frac{1}{2}u - \frac{1}{2} \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^{16} - u^{15} + \cdots - u + \frac{3}{2} \\ \frac{1}{2}u^{14} - \frac{1}{2}u^{13} + \cdots - \frac{1}{2}u^2 + \frac{1}{2}u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} \frac{1}{2}u^{15} - \frac{1}{2}u^{14} + \cdots - \frac{1}{2}u - \frac{1}{2} \\ -\frac{1}{2}u^{15} + \frac{1}{2}u^{14} + \cdots + \frac{3}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{2}u^{15} - \frac{1}{2}u^{14} + \cdots + \frac{3}{2}u^3 + \frac{1}{2}u^2 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{1}{2}u^{15} - \frac{1}{2}u^{14} + \cdots + \frac{1}{2}u^2 - u \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{2}u^{16} + \frac{1}{2}u^{15} + \cdots + u^2 + 1 \\ -u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -5u^{16} + 2u^{15} - 24u^{14} + 5u^{13} - 50u^{12} + 5u^{11} - 42u^{10} - 3u^9 + 8u^8 + 33u^6 + 4u^5 + 8u^4 - 4u^3 - 11u^2 - 8u - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}, c_{12}	$u^{17} + 11u^{16} + \cdots - 7u - 1$
c_2, c_6, c_7 c_{11}	$u^{17} - u^{16} + \cdots - u + 1$
c_3	$u^{17} + u^{16} + \cdots + u + 1$
c_4, c_8, c_9	$u^{17} + 5u^{16} + \cdots + 24u + 4$
c_5	$u^{17} - 5u^{16} + \cdots + 32u + 356$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$y^{17} - 5y^{16} + \cdots + y - 1$
c_2, c_6, c_7 c_{11}	$y^{17} + 11y^{16} + \cdots - 7y - 1$
c_3	$y^{17} - 21y^{16} + \cdots - 7y - 1$
c_4, c_8, c_9	$y^{17} + 15y^{16} + \cdots - 32y - 16$
c_5	$y^{17} - 5y^{16} + \cdots - 685344y - 126736$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.322943 + 1.038240I$ $a = -1.76695 - 1.17117I$ $b = 0.687713 + 0.243922I$	$2.86633 - 4.06837I$	$-7.21746 + 4.92513I$
$u = -0.322943 - 1.038240I$ $a = -1.76695 + 1.17117I$ $b = 0.687713 - 0.243922I$	$2.86633 + 4.06837I$	$-7.21746 - 4.92513I$
$u = 0.846972 + 0.190636I$ $a = 0.057316 + 0.298967I$ $b = 1.36222 + 0.59397I$	$1.50690 - 4.21109I$	$0.87343 + 2.53739I$
$u = 0.846972 - 0.190636I$ $a = 0.057316 - 0.298967I$ $b = 1.36222 - 0.59397I$	$1.50690 + 4.21109I$	$0.87343 - 2.53739I$
$u = 0.110349 + 1.142920I$ $a = 0.440223 - 0.492438I$ $b = -0.320742 - 0.308287I$	$-4.58609 + 2.21395I$	$-10.42618 - 3.79439I$
$u = 0.110349 - 1.142920I$ $a = 0.440223 + 0.492438I$ $b = -0.320742 + 0.308287I$	$-4.58609 - 2.21395I$	$-10.42618 + 3.79439I$
$u = -0.817813$ $a = -0.0448823$ $b = -1.36478$	-2.55092	-3.29090
$u = -0.430215 + 0.605602I$ $a = 1.58821 - 0.32847I$ $b = -0.036492 + 0.719758I$	$5.54966 - 2.41434I$	$1.92444 + 1.74579I$
$u = -0.430215 - 0.605602I$ $a = 1.58821 + 0.32847I$ $b = -0.036492 - 0.719758I$	$5.54966 + 2.41434I$	$1.92444 - 1.74579I$
$u = 0.432341 + 1.261340I$ $a = 1.58526 + 0.60200I$ $b = -1.55038 - 0.03811I$	$-6.94626 + 4.33928I$	$-7.37666 - 2.73345I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.432341 - 1.261340I$ $a = 1.58526 - 0.60200I$ $b = -1.55038 + 0.03811I$	$-6.94626 - 4.33928I$	$-7.37666 + 2.73345I$
$u = 0.581005 + 1.217160I$ $a = 1.92685 + 1.19674I$ $b = -1.80511 + 0.64658I$	$-4.4941 + 14.7863I$	$-4.66375 - 8.62681I$
$u = 0.581005 - 1.217160I$ $a = 1.92685 - 1.19674I$ $b = -1.80511 - 0.64658I$	$-4.4941 - 14.7863I$	$-4.66375 + 8.62681I$
$u = -0.523425 + 1.252060I$ $a = -1.77570 + 0.95237I$ $b = 1.79480 + 0.31837I$	$-9.65986 - 9.78843I$	$-8.66609 + 6.57063I$
$u = -0.523425 - 1.252060I$ $a = -1.77570 - 0.95237I$ $b = 1.79480 - 0.31837I$	$-9.65986 + 9.78843I$	$-8.66609 - 6.57063I$
$u = 0.214821 + 0.520126I$ $a = -0.532769 - 0.701691I$ $b = 0.050387 + 0.451424I$	$-0.232914 + 1.043600I$	$-3.80228 - 6.41835I$
$u = 0.214821 - 0.520126I$ $a = -0.532769 + 0.701691I$ $b = 0.050387 - 0.451424I$	$-0.232914 - 1.043600I$	$-3.80228 + 6.41835I$

II. $\boldsymbol{I_2^u = \langle -6.01\times 10^{15}u^{41} + 4.39\times 10^{15}u^{40} + \cdots + 4.86\times 10^{15}b - 1.83\times 10^{16},\ 2.91\times 10^{15}u^{41} - 6.41\times 10^{15}u^{40} + \cdots + 2.24\times 10^{15}a + 3.12\times 10^{15},\ u^{42} - 2u^{41} + \cdots - 13u + 3\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -1.29654u^{41} + 2.85666u^{40} + \cdots - 2.89896u - 1.38985 \\ 1.23700u^{41} - 0.902758u^{40} + \cdots - 18.1061u + 3.76710 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1.28722u^{41} + 4.62863u^{40} + \cdots - 72.8325u + 16.6384 \\ 0.929780u^{41} - 2.10128u^{40} + \cdots + 4.35029u + 1.40533 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.801807u^{41} + 1.81747u^{40} + \cdots + 6.37909u - 3.86212 \\ 0.263884u^{41} + 0.269109u^{40} + \cdots - 18.9125u + 3.93233 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.615799u^{41} + 0.348663u^{40} + \cdots + 35.1901u - 10.2810 \\ -0.211969u^{41} + 1.35987u^{40} + \cdots - 12.2107u + 0.682808 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.403831u^{41} - 1.01121u^{40} + \cdots + 47.4008u - 10.9638 \\ -0.211969u^{41} + 1.35987u^{40} + \cdots - 12.2107u + 0.682808 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -3.43389u^{41} + 6.89021u^{40} + \cdots - 2.02041u - 3.37620 \\ 1.03167u^{41} - 1.32061u^{40} + \cdots - 1.13275u + 0.551934 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{14132658601726202}{4858749864190001}u^{41} - \frac{2000261855343520}{373749989553077}u^{40} + \cdots + \frac{110747832601789324}{4858749864190001}u - \frac{197781118216284 99}{4858749864190001}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{10}, c_{12}	$u^{42} + 22u^{41} + \cdots + 59u + 9$
c_2, c_6, c_7 c_{11}	$u^{42} - 2u^{41} + \cdots - 13u + 3$
c_3	$u^{42} + 2u^{41} + \cdots - 1001u + 375$
c_4, c_8, c_9	$(u^{21} - 2u^{20} + \cdots - 4u + 2)^2$
c_5	$(u^{21} + 2u^{20} + \cdots - 4u + 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$y^{42} - 2y^{41} + \cdots - 2329y + 81$
c_2, c_6, c_7 c_{11}	$y^{42} + 22y^{41} + \cdots + 59y + 9$
c_3	$y^{42} - 26y^{41} + \cdots + 2152499y + 140625$
c_4, c_8, c_9	$(y^{21} + 18y^{20} + \cdots + 16y - 4)^2$
c_5	$(y^{21} - 22y^{20} + \cdots + 40y - 4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.648340 + 0.786994I$ $a = 0.520796 + 0.410581I$ $b = 0.600235 + 0.207579I$	$4.76959 - 2.48515I$	$1.90098 + 3.54281I$
$u = -0.648340 - 0.786994I$ $a = 0.520796 - 0.410581I$ $b = 0.600235 - 0.207579I$	$4.76959 + 2.48515I$	$1.90098 - 3.54281I$
$u = -0.281169 + 0.918116I$ $a = 1.66079 + 0.03172I$ $b = -0.705944 - 1.191570I$	$-0.82885 - 3.61332I$	$-9.58837 + 1.89402I$
$u = -0.281169 - 0.918116I$ $a = 1.66079 - 0.03172I$ $b = -0.705944 + 1.191570I$	$-0.82885 + 3.61332I$	$-9.58837 - 1.89402I$
$u = 0.919345 + 0.237233I$ $a = 0.139375 - 0.118273I$ $b = -1.65616 - 0.52114I$	$-1.52142 - 9.31938I$	$-2.21398 + 5.58015I$
$u = 0.919345 - 0.237233I$ $a = 0.139375 + 0.118273I$ $b = -1.65616 + 0.52114I$	$-1.52142 + 9.31938I$	$-2.21398 - 5.58015I$
$u = -0.918649 + 0.104898I$ $a = -0.159545 + 0.217864I$ $b = 1.52694 - 0.17361I$	$-6.16843 + 4.59035I$	$-6.34834 - 3.42334I$
$u = -0.918649 - 0.104898I$ $a = -0.159545 - 0.217864I$ $b = 1.52694 + 0.17361I$	$-6.16843 - 4.59035I$	$-6.34834 + 3.42334I$
$u = -0.746719 + 0.798648I$ $a = 0.124923 - 0.315475I$ $b = -1.083540 - 0.394401I$	$2.13930 - 6.31791I$	$-2.69400 + 7.27088I$
$u = -0.746719 - 0.798648I$ $a = 0.124923 + 0.315475I$ $b = -1.083540 + 0.394401I$	$2.13930 + 6.31791I$	$-2.69400 - 7.27088I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.896010 + 0.063848I$ $a = 0.148702 - 0.571049I$ $b = -1.197580 - 0.165877I$	$-2.87260 - 0.28571I$	$-3.90381 + 0.09482I$
$u = 0.896010 - 0.063848I$ $a = 0.148702 + 0.571049I$ $b = -1.197580 + 0.165877I$	$-2.87260 + 0.28571I$	$-3.90381 - 0.09482I$
$u = 0.616574 + 0.917444I$ $a = -0.466225 + 0.312796I$ $b = 0.407626 - 0.361948I$	$-0.82885 + 3.61332I$	$-9.58837 - 1.89402I$
$u = 0.616574 - 0.917444I$ $a = -0.466225 - 0.312796I$ $b = 0.407626 + 0.361948I$	$-0.82885 - 3.61332I$	$-9.58837 + 1.89402I$
$u = -0.707790 + 0.857193I$ $a = -0.264002 - 1.060620I$ $b = -0.934767 + 0.363773I$	$1.95965 + 0.82852I$	$-3.22814 - 1.28551I$
$u = -0.707790 - 0.857193I$ $a = -0.264002 + 1.060620I$ $b = -0.934767 - 0.363773I$	$1.95965 - 0.82852I$	$-3.22814 + 1.28551I$
$u = -0.553188 + 0.964414I$ $a = 1.11387 + 1.08458I$ $b = 0.028624 - 0.375859I$	$4.51229 - 1.78805I$	$-2.74245 + 3.28020I$
$u = -0.553188 - 0.964414I$ $a = 1.11387 - 1.08458I$ $b = 0.028624 + 0.375859I$	$4.51229 + 1.78805I$	$-2.74245 - 3.28020I$
$u = 0.405897 + 1.075130I$ $a = 0.742962 - 1.081300I$ $b = 0.49784 + 1.51562I$	$1.95965 + 0.82852I$	$-3.22814 - 1.28551I$
$u = 0.405897 - 1.075130I$ $a = 0.742962 + 1.081300I$ $b = 0.49784 - 1.51562I$	$1.95965 - 0.82852I$	$-3.22814 + 1.28551I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.515102 + 0.670364I$ $a = -0.086404 - 0.577180I$ $b = 0.058588 + 0.436947I$	$-0.099396 + 1.054050I$	$-5.09416 - 5.72302I$
$u = 0.515102 - 0.670364I$ $a = -0.086404 + 0.577180I$ $b = 0.058588 - 0.436947I$	$-0.099396 - 1.054050I$	$-5.09416 + 5.72302I$
$u = 0.438792 + 1.104820I$ $a = -1.41623 + 0.50848I$ $b = 0.26578 - 1.62519I$	$2.13930 + 6.31791I$	$-2.69400 - 7.27088I$
$u = 0.438792 - 1.104820I$ $a = -1.41623 - 0.50848I$ $b = 0.26578 + 1.62519I$	$2.13930 - 6.31791I$	$-2.69400 + 7.27088I$
$u = 0.352371 + 1.227840I$ $a = -1.56964 - 0.94140I$ $b = 1.60440 + 0.21737I$	$-2.87260 - 0.28571I$	$-4.00000 + 0.I$
$u = 0.352371 - 1.227840I$ $a = -1.56964 + 0.94140I$ $b = 1.60440 - 0.21737I$	$-2.87260 + 0.28571I$	$-4.00000 + 0.I$
$u = -0.184003 + 0.671383I$ $a = -1.095080 - 0.579917I$ $b = -0.042669 + 0.902715I$	$-0.099396 + 1.054050I$	$-5.09416 - 5.72302I$
$u = -0.184003 - 0.671383I$ $a = -1.095080 + 0.579917I$ $b = -0.042669 - 0.902715I$	$-0.099396 - 1.054050I$	$-5.09416 + 5.72302I$
$u = -0.463537 + 1.225960I$ $a = 1.72317 - 0.93419I$ $b = -1.66359 - 0.36932I$	$-6.16843 - 4.59035I$	0
$u = -0.463537 - 1.225960I$ $a = 1.72317 + 0.93419I$ $b = -1.66359 + 0.36932I$	$-6.16843 + 4.59035I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.073463 + 0.681917I$ $a = -2.84879 - 0.54672I$ $b = 0.821077 - 0.952800I$	$4.51229 + 1.78805I$	$-2.74245 - 3.28020I$
$u = -0.073463 - 0.681917I$ $a = -2.84879 + 0.54672I$ $b = 0.821077 + 0.952800I$	$4.51229 - 1.78805I$	$-2.74245 + 3.28020I$
$u = 0.542292 + 1.203890I$ $a = -1.84110 - 0.94344I$ $b = 1.54115 - 0.82541I$	$-1.52142 + 9.31938I$	$0. - 5.58015I$
$u = 0.542292 - 1.203890I$ $a = -1.84110 + 0.94344I$ $b = 1.54115 + 0.82541I$	$-1.52142 - 9.31938I$	$0. + 5.58015I$
$u = 0.301624 + 1.287530I$ $a = 1.83725 + 0.98743I$ $b = -1.71923 - 0.20551I$	$-6.49606 - 5.29485I$	0
$u = 0.301624 - 1.287530I$ $a = 1.83725 - 0.98743I$ $b = -1.71923 + 0.20551I$	$-6.49606 + 5.29485I$	0
$u = 0.495316 + 1.253840I$ $a = 1.39824 + 0.99998I$ $b = -1.170980 + 0.495445I$	$-6.49606 + 5.29485I$	0
$u = 0.495316 - 1.253840I$ $a = 1.39824 - 0.99998I$ $b = -1.170980 - 0.495445I$	$-6.49606 - 5.29485I$	0
$u = -0.404607 + 1.286580I$ $a = -1.64330 + 1.00540I$ $b = 1.53839 + 0.21123I$	-10.5274	0
$u = -0.404607 - 1.286580I$ $a = -1.64330 - 1.00540I$ $b = 1.53839 - 0.21123I$	-10.5274	0

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.498140+0.119986I$		
$a=$	$0.81356+1.59996I$	$4.76959-2.48515I$	$1.90098+3.54281I$
$b=$	$0.283799+1.291990I$		
$u=$	$0.498140-0.119986I$		
$a=$	$0.81356-1.59996I$	$4.76959+2.48515I$	$1.90098-3.54281I$
$b=$	$0.283799-1.291990I$		

III. $I_3^u = \langle b+u+1,\ a^2-2a-2u-1,\ u^2+u+1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ -u-1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -au-a-u+2 \\ au-2u-1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} au+2a-u-1 \\ -au-1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} au+a+1 \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} au+a+u+1 \\ -u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a \\ u+1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_7 c_{10}	$(u^2 - u + 1)^2$
c_3, c_6, c_{11} c_{12}	$(u^2 + u + 1)^2$
c_4, c_5, c_8 c_9	$(u^2 + 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2 + y + 1)^2$
c_4, c_5, c_8 c_9	$(y + 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -0.224745 - 0.707107I$ $b = -0.500000 - 0.866025I$	$4.93480 - 4.05977I$	$0. + 6.92820I$
$u = -0.500000 + 0.866025I$ $a = 2.22474 + 0.70711I$ $b = -0.500000 - 0.866025I$	$4.93480 - 4.05977I$	$0. + 6.92820I$
$u = -0.500000 - 0.866025I$ $a = -0.224745 + 0.707107I$ $b = -0.500000 + 0.866025I$	$4.93480 + 4.05977I$	$0. - 6.92820I$
$u = -0.500000 - 0.866025I$ $a = 2.22474 - 0.70711I$ $b = -0.500000 + 0.866025I$	$4.93480 + 4.05977I$	$0. - 6.92820I$

IV. $\boldsymbol{I_4^u = \langle b + u - 1,\ a + 1,\ u^2 - u + 1 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

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

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

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

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

$$a_{12} = \begin{pmatrix} u - 2 \\ -u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -1 \\ -u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_6 c_{10}, c_{11}	$u^2 - u + 1$
c_2, c_7, c_{12}	$u^2 + u + 1$
c_4, c_5, c_8 c_9	u^2

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7, c_{10} c_{11}, c_{12}	$y^2 + y + 1$
c_4, c_5, c_8 c_9	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.500000 + 0.866025I$ $a = -1.00000$ $b = \quad 0.500000 - 0.866025I$	$4.05977I$	$0. - 6.92820I$
$u = \quad 0.500000 - 0.866025I$ $a = -1.00000$ $b = \quad 0.500000 + 0.866025I$	$-4.05977I$	$0. + 6.92820I$

V. $I_5^u = \langle b-u,\ a^2+2au+2a-u-2,\ u^2+u+1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1 \\ -u-1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -1 \\ u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} au-2u \\ a \end{pmatrix}$$
$$a_9 = \begin{pmatrix} au+2a+u \\ -au+u+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -au+1 \\ u+1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -au-u \\ u+1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a \\ -u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_7 c_{10}	$(u^2 - u + 1)^2$
c_3, c_6, c_{11} c_{12}	$(u^2 + u + 1)^2$
c_4, c_5, c_8 c_9	$(u^2 + 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7, c_{10} c_{11}, c_{12}	$(y^2 + y + 1)^2$
c_4, c_5, c_8 c_9	$(y + 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = \quad 0.724745 - 0.158919I$ $b = -0.500000 + 0.866025I$	4.93480	0
$u = -0.500000 + 0.866025I$ $a = -1.72474 - 1.57313I$ $b = -0.500000 + 0.866025I$	4.93480	0
$u = -0.500000 - 0.866025I$ $a = \quad 0.724745 + 0.158919I$ $b = -0.500000 - 0.866025I$	4.93480	0
$u = -0.500000 - 0.866025I$ $a = -1.72474 + 1.57313I$ $b = -0.500000 - 0.866025I$	4.93480	0

VI. $I_6^u = \langle b - u,\ a + u - 1,\ u^2 - u + 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

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

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

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

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

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

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

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

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

$$a_{11} = \begin{pmatrix} -u + 1 \\ u - 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -u + 1 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_6 c_{10}, c_{11}	$u^2 - u + 1$
c_2, c_7, c_{12}	$u^2 + u + 1$
c_4, c_5, c_8 c_9	u^2

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_6, c_7, c_{10} c_{11}, c_{12}	$y^2 + y + 1$
c_4, c_5, c_8 c_9	y^2

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.500000 + 0.866025I$		
$a =$	$0.500000 - 0.866025I$	0	-6.00000
$b =$	$0.500000 + 0.866025I$		
$u =$	$0.500000 - 0.866025I$		
$a =$	$0.500000 + 0.866025I$	0	-6.00000
$b =$	$0.500000 - 0.866025I$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{10}	$((u^2-u+1)^6)(u^{17}+11u^{16}+\cdots-7u-1)(u^{42}+22u^{41}+\cdots+59u+9)$
c_2, c_7	$((u^2-u+1)^4)(u^2+u+1)^2(u^{17}-u^{16}+\cdots-u+1)$ $\cdot(u^{42}-2u^{41}+\cdots-13u+3)$
c_3	$((u^2-u+1)^2)(u^2+u+1)^4(u^{17}+u^{16}+\cdots+u+1)$ $\cdot(u^{42}+2u^{41}+\cdots-1001u+375)$
c_4, c_8, c_9	$u^4(u^2+2)^4(u^{17}+5u^{16}+\cdots+24u+4)(u^{21}-2u^{20}+\cdots-4u+2)^2$
c_5	$u^4(u^2+2)^4(u^{17}-5u^{16}+\cdots+32u+356)(u^{21}+2u^{20}+\cdots-4u+2)^2$
c_6, c_{11}	$((u^2-u+1)^2)(u^2+u+1)^4(u^{17}-u^{16}+\cdots-u+1)$ $\cdot(u^{42}-2u^{41}+\cdots-13u+3)$
c_{12}	$((u^2+u+1)^6)(u^{17}+11u^{16}+\cdots-7u-1)(u^{42}+22u^{41}+\cdots+59u+9)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$((y^2+y+1)^6)(y^{17}-5y^{16}+\cdots+y-1)(y^{42}-2y^{41}+\cdots-2329y+81)$
c_2, c_6, c_7 c_{11}	$((y^2+y+1)^6)(y^{17}+11y^{16}+\cdots-7y-1)(y^{42}+22y^{41}+\cdots+59y+9)$
c_3	$((y^2+y+1)^6)(y^{17}-21y^{16}+\cdots-7y-1)$ $\cdot(y^{42}-26y^{41}+\cdots+2152499y+140625)$
c_4, c_8, c_9	$y^4(y+2)^8(y^{17}+15y^{16}+\cdots-32y-16)$ $\cdot(y^{21}+18y^{20}+\cdots+16y-4)^2$
c_5	$y^4(y+2)^8(y^{17}-5y^{16}+\cdots-685344y-126736)$ $\cdot(y^{21}-22y^{20}+\cdots+40y-4)^2$