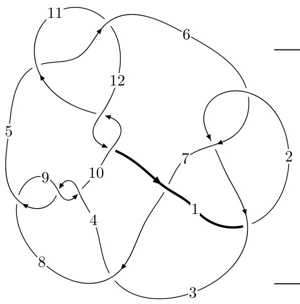
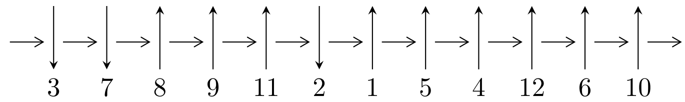
$12a_{0513}$ $(K12a_{0513})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.92594 \times 10^{42} u^{79} - 6.66950 \times 10^{42} u^{78} + \cdots + 7.86358 \times 10^{42} b - 2.35601 \times 10^{43},$$
$$5.36807 \times 10^{42} u^{79} - 2.27727 \times 10^{43} u^{78} + \cdots + 7.86358 \times 10^{42} a - 1.74971 \times 10^{44},\ u^{80} - 4u^{79} + \cdots - 52u +$$
$$I_2^u = \langle -au + b + 1,\ a^2 + au - 1,\ u^2 + 1 \rangle$$
$$I_3^u = \langle -602a^4u^2 - 112a^3u^2 + \cdots - 678a + 1654,$$
$$2a^4u^2 + a^5 + 2a^4u + 4a^4 - 3a^3u - 8a^2u^2 - 3a^3 - 6a^2u + 5u^2a - 12a^2 + 4au + 11u^2 + 9a + 5u + 18,$$
$$u^3 + u^2 + 2u + 1 \rangle$$
$$I_4^u = \langle au + b,\ a^2 + au - 1,\ u^2 + 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 103 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. $I^u_1 =$
$\langle 1.93\times10^{42}u^{79}-6.67\times10^{42}u^{78}+\cdots+7.86\times10^{42}b-2.36\times10^{43},\ 5.37\times10^{42}u^{79}-2.28\times10^{43}u^{78}+\cdots+7.86\times10^{42}a-1.75\times10^{44},\ u^{80}-4u^{79}+\cdots-52u+4\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.682650u^{79}+2.89597u^{78}+\cdots-176.929u+22.2508 \\ -0.244918u^{79}+0.848150u^{78}+\cdots-31.1691u+2.99611 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^5-2u^3-u \\ -u^7-3u^5-2u^3+u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.284048u^{79}-1.00384u^{78}+\cdots+100.169u-16.0275 \\ 0.259001u^{79}-1.01996u^{78}+\cdots+36.9256u-4.27465 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.595274u^{79}+2.67307u^{78}+\cdots-170.692u+21.3726 \\ -0.245575u^{79}+0.838980u^{78}+\cdots-34.0566u+3.54660 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.437731u^{79}+2.04782u^{78}+\cdots-145.760u+19.2547 \\ -0.244918u^{79}+0.848150u^{78}+\cdots-31.1691u+2.99611 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.211687u^{79}-0.839912u^{78}+\cdots+3.89957u+5.74577 \\ -0.381115u^{79}+1.41021u^{78}+\cdots-36.1654u+4.19766 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.04592u^{79}-4.04767u^{78}+\cdots+105.753u-6.02938 \\ -0.123990u^{79}+0.478152u^{78}+\cdots-0.617434u+1.20681 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.35269u^{79}+7.88005u^{78}+\cdots-272.741u+41.4718$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{80} + 39u^{79} + \cdots + 6u + 1$
c_2, c_6	$u^{80} - u^{79} + \cdots - 3u^2 + 1$
c_3	$u^{80} - 4u^{79} + \cdots + 16384u + 1024$
c_4, c_8, c_9	$u^{80} + 4u^{79} + \cdots + 52u + 4$
c_5, c_{11}	$u^{80} - u^{79} + \cdots + 6u + 1$
c_7	$u^{80} - 3u^{79} + \cdots + 1122u + 989$
c_{10}, c_{12}	$u^{80} - 27u^{79} + \cdots - 22u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{80} + 9y^{79} + \cdots + 18y + 1$
c_2, c_6	$y^{80} - 39y^{79} + \cdots - 6y + 1$
c_3	$y^{80} - 20y^{79} + \cdots - 70254592y + 1048576$
c_4, c_8, c_9	$y^{80} + 68y^{79} + \cdots - 632y + 16$
c_5, c_{11}	$y^{80} - 27y^{79} + \cdots - 22y + 1$
c_7	$y^{80} + 21y^{79} + \cdots + 14907310y + 978121$
c_{10}, c_{12}	$y^{80} + 57y^{79} + \cdots - 54y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.551136 + 0.802488I$ $a = 0.554036 - 0.632918I$ $b = -0.296637 - 1.259010I$	$-4.73746 + 0.08999I$	0
$u = -0.551136 - 0.802488I$ $a = 0.554036 + 0.632918I$ $b = -0.296637 + 1.259010I$	$-4.73746 - 0.08999I$	0
$u = -0.208379 + 1.008740I$ $a = 0.1249350 - 0.0323541I$ $b = -0.226657 + 0.715830I$	$-1.88182 - 2.17157I$	0
$u = -0.208379 - 1.008740I$ $a = 0.1249350 + 0.0323541I$ $b = -0.226657 - 0.715830I$	$-1.88182 + 2.17157I$	0
$u = -0.106567 + 1.055930I$ $a = 0.842709 - 0.235495I$ $b = -0.0559371 + 0.0534132I$	$-1.50643 - 2.08258I$	0
$u = -0.106567 - 1.055930I$ $a = 0.842709 + 0.235495I$ $b = -0.0559371 - 0.0534132I$	$-1.50643 + 2.08258I$	0
$u = 0.596084 + 0.710997I$ $a = -0.493767 - 0.447695I$ $b = -0.163120 - 1.208000I$	$-4.92608 + 5.37940I$	0
$u = 0.596084 - 0.710997I$ $a = -0.493767 + 0.447695I$ $b = -0.163120 + 1.208000I$	$-4.92608 - 5.37940I$	0
$u = 0.521840 + 0.938751I$ $a = -0.055226 - 0.427953I$ $b = 0.013258 - 1.063850I$	$-4.08872 - 1.79777I$	0
$u = 0.521840 - 0.938751I$ $a = -0.055226 + 0.427953I$ $b = 0.013258 + 1.063850I$	$-4.08872 + 1.79777I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.408175 + 1.010050I$ $a = 0.171639 + 0.544181I$ $b = -0.509729 + 1.240020I$	$-1.18830 - 2.70563I$	0
$u = 0.408175 - 1.010050I$ $a = 0.171639 - 0.544181I$ $b = -0.509729 - 1.240020I$	$-1.18830 + 2.70563I$	0
$u = -0.879762 + 0.227693I$ $a = -1.51369 + 1.09263I$ $b = -0.55379 + 1.42889I$	$-0.91388 - 12.22470I$	$6.00000 + 9.71272I$
$u = -0.879762 - 0.227693I$ $a = -1.51369 - 1.09263I$ $b = -0.55379 - 1.42889I$	$-0.91388 + 12.22470I$	$6.00000 - 9.71272I$
$u = 0.838234 + 0.262017I$ $a = 1.27745 + 0.85390I$ $b = 0.199465 + 1.029370I$	$-2.02492 + 6.59780I$	$3.40984 - 5.16517I$
$u = 0.838234 - 0.262017I$ $a = 1.27745 - 0.85390I$ $b = 0.199465 - 1.029370I$	$-2.02492 - 6.59780I$	$3.40984 + 5.16517I$
$u = -0.305412 + 0.799433I$ $a = -0.1368440 + 0.0226105I$ $b = -0.215314 + 0.977607I$	$-1.84711 - 2.26526I$	$3.71962 + 4.08071I$
$u = -0.305412 - 0.799433I$ $a = -0.1368440 - 0.0226105I$ $b = -0.215314 - 0.977607I$	$-1.84711 + 2.26526I$	$3.71962 - 4.08071I$
$u = -0.528719 + 1.021590I$ $a = 0.227668 - 0.723744I$ $b = -0.47028 - 1.34644I$	$-3.33066 + 7.25011I$	0
$u = -0.528719 - 1.021590I$ $a = 0.227668 + 0.723744I$ $b = -0.47028 + 1.34644I$	$-3.33066 - 7.25011I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.823129 + 0.204152I$ $a = -1.60401 - 1.00000I$ $b = -0.56137 - 1.37914I$	$1.28021 + 7.17762I$	$8.76583 - 5.85883I$
$u = 0.823129 - 0.204152I$ $a = -1.60401 + 1.00000I$ $b = -0.56137 + 1.37914I$	$1.28021 - 7.17762I$	$8.76583 + 5.85883I$
$u = -0.765302 + 0.332337I$ $a = -1.36288 + 0.78683I$ $b = -0.45279 + 1.35433I$	$-3.33691 - 4.71601I$	$1.93926 + 4.79761I$
$u = -0.765302 - 0.332337I$ $a = -1.36288 - 0.78683I$ $b = -0.45279 - 1.35433I$	$-3.33691 + 4.71601I$	$1.93926 - 4.79761I$
$u = 0.709218 + 0.403703I$ $a = 1.139150 + 0.747614I$ $b = 0.018638 + 1.087730I$	$-4.06181 - 0.78432I$	$0.213330 + 0.601164I$
$u = 0.709218 - 0.403703I$ $a = 1.139150 - 0.747614I$ $b = 0.018638 - 1.087730I$	$-4.06181 + 0.78432I$	$0.213330 - 0.601164I$
$u = -0.330389 + 1.137220I$ $a = -0.553942 - 1.234000I$ $b = -0.941219 - 0.028962I$	$0.99595 + 2.18968I$	0
$u = -0.330389 - 1.137220I$ $a = -0.553942 + 1.234000I$ $b = -0.941219 + 0.028962I$	$0.99595 - 2.18968I$	0
$u = -0.761131 + 0.226648I$ $a = 1.29441 - 0.79477I$ $b = 0.146142 - 0.958477I$	$0.18029 - 1.72517I$	$6.96648 + 1.19694I$
$u = -0.761131 - 0.226648I$ $a = 1.29441 + 0.79477I$ $b = 0.146142 + 0.958477I$	$0.18029 + 1.72517I$	$6.96648 - 1.19694I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.769110 + 0.124508I$ $a = -2.01859 + 0.33682I$ $b = -1.140500 + 0.180943I$	$4.05517 - 6.19535I$	$11.24164 + 6.13913I$
$u = -0.769110 - 0.124508I$ $a = -2.01859 - 0.33682I$ $b = -1.140500 - 0.180943I$	$4.05517 + 6.19535I$	$11.24164 - 6.13913I$
$u = 0.220897 + 1.201700I$ $a = -0.221048 + 0.378026I$ $b = -0.755621 + 1.106820I$	$-1.01320 - 1.61452I$	0
$u = 0.220897 - 1.201700I$ $a = -0.221048 - 0.378026I$ $b = -0.755621 - 1.106820I$	$-1.01320 + 1.61452I$	0
$u = 0.763645 + 0.064433I$ $a = -1.96075 - 0.18144I$ $b = -1.126830 - 0.094815I$	$5.81886 + 1.20518I$	$14.4550 - 0.8575I$
$u = 0.763645 - 0.064433I$ $a = -1.96075 + 0.18144I$ $b = -1.126830 + 0.094815I$	$5.81886 - 1.20518I$	$14.4550 + 0.8575I$
$u = 0.327694 + 1.195580I$ $a = -0.696454 + 1.008560I$ $b = -1.033350 - 0.080637I$	$2.36178 + 2.75003I$	0
$u = 0.327694 - 1.195580I$ $a = -0.696454 - 1.008560I$ $b = -1.033350 + 0.080637I$	$2.36178 - 2.75003I$	0
$u = 0.147606 + 1.296040I$ $a = 1.63223 - 1.23495I$ $b = -0.037662 + 1.042620I$	$-3.72526 - 2.52051I$	0
$u = 0.147606 - 1.296040I$ $a = 1.63223 + 1.23495I$ $b = -0.037662 - 1.042620I$	$-3.72526 + 2.52051I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.049107 + 1.308430I$ $a = -0.502531 - 0.144008I$ $b = -0.949755 - 0.904347I$	$-4.24144 + 4.07906I$	0
$u = -0.049107 - 1.308430I$ $a = -0.502531 + 0.144008I$ $b = -0.949755 + 0.904347I$	$-4.24144 - 4.07906I$	0
$u = 0.670555 + 0.086690I$ $a = -2.05137 - 0.81648I$ $b = -0.613705 - 1.242710I$	$2.33556 + 4.87257I$	$10.70507 - 5.88102I$
$u = 0.670555 - 0.086690I$ $a = -2.05137 + 0.81648I$ $b = -0.613705 + 1.242710I$	$2.33556 - 4.87257I$	$10.70507 + 5.88102I$
$u = 0.315351 + 1.304030I$ $a = -0.921696 + 0.699551I$ $b = -1.203010 - 0.251403I$	$1.54253 + 5.09315I$	0
$u = 0.315351 - 1.304030I$ $a = -0.921696 - 0.699551I$ $b = -1.203010 + 0.251403I$	$1.54253 - 5.09315I$	0
$u = 0.266524 + 1.325000I$ $a = -1.62612 + 1.19602I$ $b = -0.51362 - 1.36083I$	$-2.10689 + 8.26650I$	0
$u = 0.266524 - 1.325000I$ $a = -1.62612 - 1.19602I$ $b = -0.51362 + 1.36083I$	$-2.10689 - 8.26650I$	0
$u = 0.585654 + 0.221603I$ $a = 1.32826 - 0.55799I$ $b = 0.211347 - 0.394465I$	$-0.36980 + 4.43761I$	$4.75087 - 6.66233I$
$u = 0.585654 - 0.221603I$ $a = 1.32826 + 0.55799I$ $b = 0.211347 + 0.394465I$	$-0.36980 - 4.43761I$	$4.75087 + 6.66233I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.121476 + 1.374030I$ $a = 0.776792 - 0.099407I$ $b = 0.497170 - 0.215952I$	$-7.00972 - 0.03580I$	0
$u = 0.121476 - 1.374030I$ $a = 0.776792 + 0.099407I$ $b = 0.497170 + 0.215952I$	$-7.00972 + 0.03580I$	0
$u = -0.319084 + 1.344980I$ $a = -1.014690 - 0.624204I$ $b = -1.275130 + 0.292082I$	$-0.57753 - 10.12060I$	0
$u = -0.319084 - 1.344980I$ $a = -1.014690 + 0.624204I$ $b = -1.275130 - 0.292082I$	$-0.57753 + 10.12060I$	0
$u = 0.245398 + 1.369620I$ $a = 0.722283 - 0.225370I$ $b = 0.505471 - 0.436922I$	$-5.38272 + 7.52809I$	0
$u = 0.245398 - 1.369620I$ $a = 0.722283 + 0.225370I$ $b = 0.505471 + 0.436922I$	$-5.38272 - 7.52809I$	0
$u = -0.31258 + 1.39281I$ $a = 1.48142 + 0.38881I$ $b = 0.264823 - 1.069660I$	$-4.95968 - 5.61831I$	0
$u = -0.31258 - 1.39281I$ $a = 1.48142 - 0.38881I$ $b = 0.264823 + 1.069660I$	$-4.95968 + 5.61831I$	0
$u = 0.34340 + 1.39206I$ $a = -1.60088 + 0.60509I$ $b = -0.56567 - 1.47569I$	$-3.78107 + 11.38600I$	0
$u = 0.34340 - 1.39206I$ $a = -1.60088 - 0.60509I$ $b = -0.56567 + 1.47569I$	$-3.78107 - 11.38600I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.02337+1.45374I$ $a=\ \ 0.149541-1.005020I$ $b=-0.150773+1.367660I$	$-8.93138-2.93585I$	0
$u=-0.02337-1.45374I$ $a=\ \ 0.149541+1.005020I$ $b=-0.150773-1.367660I$	$-8.93138+2.93585I$	0
$u=-0.29501+1.42781I$ $a=-1.30790-0.65861I$ $b=-0.49197+1.49263I$	$-8.94290-8.53329I$	0
$u=-0.29501-1.42781I$ $a=-1.30790+0.65861I$ $b=-0.49197-1.49263I$	$-8.94290+8.53329I$	0
$u=\ \ 0.34014+1.41816I$ $a=\ \ 1.45611-0.29908I$ $b=\ \ 0.319417+1.089870I$	$-7.36888+10.84370I$	0
$u=\ \ 0.34014-1.41816I$ $a=\ \ 1.45611+0.29908I$ $b=\ \ 0.319417-1.089870I$	$-7.36888-10.84370I$	0
$u=\ \ 0.25771+1.43558I$ $a=\ \ 1.292160-0.461107I$ $b=\ \ 0.212673+1.164040I$	$-9.91847+2.66208I$	0
$u=\ \ 0.25771-1.43558I$ $a=\ \ 1.292160+0.461107I$ $b=\ \ 0.212673-1.164040I$	$-9.91847-2.66208I$	0
$u=-0.36648+1.41215I$ $a=-1.59384-0.46201I$ $b=-0.58244+1.50990I$	$-6.1192-16.7066I$	0
$u=-0.36648-1.41215I$ $a=-1.59384+0.46201I$ $b=-0.58244-1.50990I$	$-6.1192+16.7066I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.267652 + 0.469417I$ $a = 1.287930 - 0.150939I$ $b = 0.155923 - 0.055103I$	$-1.47309 - 1.47748I$	$0.853173 + 0.501389I$
$u = 0.267652 - 0.469417I$ $a = 1.287930 + 0.150939I$ $b = 0.155923 + 0.055103I$	$-1.47309 + 1.47748I$	$0.853173 - 0.501389I$
$u = -0.03028 + 1.50039I$ $a = 0.383013 + 0.722409I$ $b = -0.053416 - 1.393890I$	$-12.59510 - 1.27716I$	0
$u = -0.03028 - 1.50039I$ $a = 0.383013 - 0.722409I$ $b = -0.053416 + 1.393890I$	$-12.59510 + 1.27716I$	0
$u = 0.07316 + 1.49993I$ $a = -0.118714 + 0.762219I$ $b = -0.18506 - 1.45576I$	$-12.4175 + 7.3131I$	0
$u = 0.07316 - 1.49993I$ $a = -0.118714 - 0.762219I$ $b = -0.18506 + 1.45576I$	$-12.4175 - 7.3131I$	0
$u = -0.410317 + 0.068593I$ $a = 0.076036 + 0.775710I$ $b = -0.417482 + 0.255970I$	$0.972335 - 0.113438I$	$11.49870 + 0.99619I$
$u = -0.410317 - 0.068593I$ $a = 0.076036 - 0.775710I$ $b = -0.417482 - 0.255970I$	$0.972335 + 0.113438I$	$11.49870 - 0.99619I$
$u = 0.168606 + 0.085574I$ $a = 1.38717 - 5.08704I$ $b = -0.501486 - 0.738647I$	$0.08992 + 4.10562I$	$9.80690 - 7.22475I$
$u = 0.168606 - 0.085574I$ $a = 1.38717 + 5.08704I$ $b = -0.501486 + 0.738647I$	$0.08992 - 4.10562I$	$9.80690 + 7.22475I$

II. $\boldsymbol{I_2^u = \langle -au + b + 1,\ a^2 + au - 1,\ u^2 + 1\rangle}$

(i) Arc colorings

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

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -au + 1 \\ u - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ au - a - 1 \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8au$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.866025 - 0.500000I$ $b = -0.500000 - 0.866025I$	$-1.64493 - 4.05977I$	$4.00000 + 6.92820I$
$u = 1.000000I$ $a = 0.866025 - 0.500000I$ $b = -0.500000 + 0.866025I$	$-1.64493 + 4.05977I$	$4.00000 - 6.92820I$
$u = -1.000000I$ $a = -0.866025 + 0.500000I$ $b = -0.500000 + 0.866025I$	$-1.64493 + 4.05977I$	$4.00000 - 6.92820I$
$u = -1.000000I$ $a = 0.866025 + 0.500000I$ $b = -0.500000 - 0.866025I$	$-1.64493 - 4.05977I$	$4.00000 + 6.92820I$

III. $\boldsymbol{I^u_3 = \langle -602a^4u^2 - 112a^3u^2 + \cdots - 678a + 1654,\ 2a^4u^2 - 8a^2u^2 + \cdots + 9a + 18,\ u^3 + u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -u^2 - u - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^2 + 1 \\ u^2 + u + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a \\ 0.523023a^4u^2 + 0.0973067a^3u^2 + \cdots + 0.589053a - 1.43701 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0225891a^4u^2 - 0.112076a^3u^2 + \cdots - 0.874891a + 2.13727 \\ 0.0816681a^4u^2 - 0.635969a^3u^2 + \cdots - 0.778454a + 2.03475 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.523023a^4u^2 - 0.0973067a^3u^2 + \cdots + 0.410947a + 1.43701 \\ 0.523023a^4u^2 + 0.0973067a^3u^2 + \cdots + 0.589053a - 1.43701 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.523023a^4u^2 - 0.0973067a^3u^2 + \cdots + 0.410947a + 1.43701 \\ 0.523023a^4u^2 + 0.0973067a^3u^2 + \cdots + 0.589053a - 1.43701 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.901825a^4u^2 + 0.320591a^3u^2 + \cdots - 0.148566a + 2.21199 \\ 0.960904a^4u^2 - 0.844483a^3u^2 + \cdots + 0.245004a - 2.31451 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0877498a^4u^2 + 0.295395a^3u^2 + \cdots + 0.716768a - 2.00521 \\ -0.435274a^4u^2 + 0.198089a^3u^2 + \cdots - 0.872285a - 0.568202 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^2 + 4u + 10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{15}+6u^{14}+\cdots+2u+1$
c_2, c_5, c_6 c_{11}	$u^{15}-3u^{13}+\cdots+u^2-1$
c_3	$(u^3+u^2-1)^5$
c_4, c_8, c_9	$(u^3-u^2+2u-1)^5$
c_7	$u^{15}-3u^{13}+\cdots+6u-1$
c_{10}, c_{12}	$u^{15}-6u^{14}+\cdots+2u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$y^{15} + 6y^{14} + \cdots - 6y - 1$
c_2, c_5, c_6 c_{11}	$y^{15} - 6y^{14} + \cdots + 2y - 1$
c_3	$(y^3 - y^2 + 2y - 1)^5$
c_4, c_8, c_9	$(y^3 + 3y^2 + 2y - 1)^5$
c_7	$y^{15} - 6y^{14} + \cdots + 26y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.743485-0.454988I$ $b=-1.099900+0.434905I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080+1.307140I$ $a=\ 0.667721+0.158832I$ $b=\ 0.386904+0.394695I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080+1.307140I$ $a=-0.393785-0.432427I$ $b=-0.88734-1.13381I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080+1.307140I$ $a=\ 1.68366+0.81495I$ $b=\ 0.067189-1.008200I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080+1.307140I$ $a=-1.45923-1.57609I$ $b=-0.466851+1.312400I$	$-3.02413-2.82812I$	$2.49024+2.97945I$
$u=-0.215080-1.307140I$ $a=-0.743485+0.454988I$ $b=-1.099900-0.434905I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=\ 0.667721-0.158832I$ $b=\ 0.386904-0.394695I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=-0.393785+0.432427I$ $b=-0.88734+1.13381I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=\ 1.68366-0.81495I$ $b=\ 0.067189+1.008200I$	$-3.02413+2.82812I$	$2.49024-2.97945I$
$u=-0.215080-1.307140I$ $a=-1.45923+1.57609I$ $b=-0.466851-1.312400I$	$-3.02413+2.82812I$	$2.49024-2.97945I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.569840$ $a = -1.17678$ $b = -0.803523$	1.11345	9.01950
$u = -0.569840$ $a = 1.32386 + 0.76221I$ $b = 0.045572 + 0.634784I$	1.11345	9.01950
$u = -0.569840$ $a = 1.32386 - 0.76221I$ $b = 0.045572 - 0.634784I$	1.11345	9.01950
$u = -0.569840$ $a = -2.49035 + 0.78497I$ $b = -0.643810 + 1.156050I$	1.11345	9.01950
$u = -0.569840$ $a = -2.49035 - 0.78497I$ $b = -0.643810 - 1.156050I$	1.11345	9.01950

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$(y^2+y+1)^2$
c_2, c_5, c_6 c_7, c_{11}	$(y^2-y+1)^2$
c_3	y^4
c_4, c_8, 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
$u = 1.000000I$ $a = -0.866025 - 0.500000I$ $b = -0.500000 + 0.866025I$	-1.64493	4.00000
$u = 1.000000I$ $a = 0.866025 - 0.500000I$ $b = -0.500000 - 0.866025I$	-1.64493	4.00000
$u = -1.000000I$ $a = -0.866025 + 0.500000I$ $b = -0.500000 - 0.866025I$	-1.64493	4.00000
$u = -1.000000I$ $a = 0.866025 + 0.500000I$ $b = -0.500000 + 0.866025I$	-1.64493	4.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{15}+6u^{14}+\cdots+2u+1)(u^{80}+39u^{79}+\cdots+6u+1)$
c_2, c_6	$((u^4-u^2+1)^2)(u^{15}-3u^{13}+\cdots+u^2-1)(u^{80}-u^{79}+\cdots-3u^2+1)$
c_3	$u^8(u^3+u^2-1)^5(u^{80}-4u^{79}+\cdots+16384u+1024)$
c_4, c_8, c_9	$((u^2+1)^4)(u^3-u^2+2u-1)^5(u^{80}+4u^{79}+\cdots+52u+4)$
c_5, c_{11}	$((u^4-u^2+1)^2)(u^{15}-3u^{13}+\cdots+u^2-1)(u^{80}-u^{79}+\cdots+6u+1)$
c_7	$((u^4-u^2+1)^2)(u^{15}-3u^{13}+\cdots+6u-1)$ $\cdot(u^{80}-3u^{79}+\cdots+1122u+989)$
c_{10}	$((u^2+u+1)^4)(u^{15}-6u^{14}+\cdots+2u-1)(u^{80}-27u^{79}+\cdots-22u+1)$
c_{12}	$((u^2-u+1)^4)(u^{15}-6u^{14}+\cdots+2u-1)(u^{80}-27u^{79}+\cdots-22u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{15}+6y^{14}+\cdots-6y-1)(y^{80}+9y^{79}+\cdots+18y+1)$
c_2, c_6	$((y^2-y+1)^4)(y^{15}-6y^{14}+\cdots+2y-1)(y^{80}-39y^{79}+\cdots-6y+1)$
c_3	$y^8(y^3-y^2+2y-1)^5(y^{80}-20y^{79}+\cdots-7.02546\times10^7y+1048576)$
c_4, c_8, c_9	$((y+1)^8)(y^3+3y^2+2y-1)^5(y^{80}+68y^{79}+\cdots-632y+16)$
c_5, c_{11}	$((y^2-y+1)^4)(y^{15}-6y^{14}+\cdots+2y-1)(y^{80}-27y^{79}+\cdots-22y+1)$
c_7	$((y^2-y+1)^4)(y^{15}-6y^{14}+\cdots+26y-1)$ $\cdot(y^{80}+21y^{79}+\cdots+14907310y+978121)$
c_{10}, c_{12}	$((y^2+y+1)^4)(y^{15}+6y^{14}+\cdots-6y-1)(y^{80}+57y^{79}+\cdots-54y+1)$