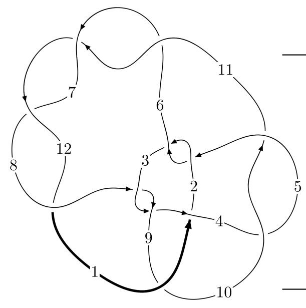
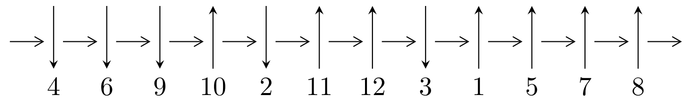
$12a_{0916}$ ($K12a_{0916}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.91980 \times 10^{108} u^{81} - 4.29606 \times 10^{108} u^{80} + \cdots + 1.92612 \times 10^{108} b + 3.19210 \times 10^{108},$$
$$- 5.04794 \times 10^{108} u^{81} - 7.50428 \times 10^{108} u^{80} + \cdots + 1.92612 \times 10^{108} a - 1.67695 \times 10^{109},$$
$$u^{82} + u^{81} + \cdots + 10u - 1 \rangle$$
$$I_2^u = \langle -u^{12} + 8u^{10} + 2u^9 - 23u^8 - 10u^7 + 27u^6 + 13u^5 - 11u^4 - u^3 + 4u^2 + b - 1,$$
$$- 2u^{13} + u^{12} + 20u^{11} - 5u^{10} - 80u^9 + u^8 + 158u^7 + 30u^6 - 150u^5 - 50u^4 + 53u^3 + 23u^2 + a - 4u - 8,$$
$$u^{14} - 10u^{12} - 2u^{11} + 39u^{10} + 15u^9 - 73u^8 - 40u^7 + 63u^6 + 44u^5 - 17u^4 - 18u^3 - 2u^2 + 4u + 1 \rangle$$
$$I_3^u = \langle u^2 + b,\ a - 1,\ u^6 + u^5 - 2u^4 - 2u^3 - 1 \rangle$$
$$I_4^u = \langle b + 1,\ a - 1,\ u - 1 \rangle$$
$$I_5^u = \langle b + a - 1,\ a^2 - a - 1,\ u - 1 \rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 105 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. $I_1^u = \langle -2.92 \times 10^{108} u^{81} - 4.30 \times 10^{108} u^{80} + \cdots + 1.93 \times 10^{108} b + 3.19 \times 10^{108},\ -5.05 \times 10^{108} u^{81} - 7.50 \times 10^{108} u^{80} + \cdots + 1.93 \times 10^{108} a - 1.68 \times 10^{109},\ u^{82} + u^{81} + \cdots + 10u - 1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 2.62078u^{81} + 3.89606u^{80} + \cdots - 39.6810u + 8.70635 \\ 1.51590u^{81} + 2.23043u^{80} + \cdots - 9.19417u - 1.65727 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -6.70590u^{81} - 12.1721u^{80} + \cdots + 90.0743u - 10.7546 \\ 2.72204u^{81} + 5.57368u^{80} + \cdots - 61.2733u + 9.72272 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 6.65029u^{81} + 6.12344u^{80} + \cdots - 81.0522u + 16.1926 \\ -3.69683u^{81} - 2.01061u^{80} + \cdots + 53.9722u - 8.26479 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 3.92048u^{81} + 5.03730u^{80} + \cdots - 55.4423u + 10.6962 \\ 0.216200u^{81} + 1.08919u^{80} + \cdots + 6.56719u - 3.64708 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 6.01645u^{81} + 9.73383u^{80} + \cdots - 69.8702u + 4.28812 \\ -2.02257u^{81} - 2.95608u^{80} + \cdots + 24.6648u - 4.64477 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -7.90580u^{81} - 13.4568u^{80} + \cdots + 100.376u - 9.65178 \\ 3.61742u^{81} + 6.47329u^{80} + \cdots - 70.8432u + 10.9055 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 36.4294u^{81} + 55.9906u^{80} + \cdots - 576.502u + 76.1479$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{82} - 3u^{81} + \cdots + 15u - 1$
c_2, c_5	$u^{82} + u^{81} + \cdots - 138u + 33$
c_3, c_8	$u^{82} - 22u^{80} + \cdots - 4101u - 607$
c_4, c_{10}	$u^{82} + 5u^{81} + \cdots + 112u - 8$
c_6, c_7, c_{11} c_{12}	$u^{82} + u^{81} + \cdots + 10u - 1$
c_9	$u^{82} - 2u^{81} + \cdots - 24u + 12$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{82} - 13y^{81} + \cdots - 27y + 1$
c_2, c_5	$y^{82} - 39y^{81} + \cdots - 42804y + 1089$
c_3, c_8	$y^{82} - 44y^{81} + \cdots - 14225097y + 368449$
c_4, c_{10}	$y^{82} - 51y^{81} + \cdots - 13728y + 64$
c_6, c_7, c_{11} c_{12}	$y^{82} - 101y^{81} + \cdots - 110y + 1$
c_9	$y^{82} - 8y^{81} + \cdots - 216y + 144$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.984782+0.188624I$ $a=-0.141871+0.097301I$ $b=-0.334414+0.658720I$	$5.90211-2.33787I$	0
$u=-0.984782-0.188624I$ $a=-0.141871-0.097301I$ $b=-0.334414-0.658720I$	$5.90211+2.33787I$	0
$u=\ \ 0.843614+0.550628I$ $a=\ \ 0.787898+0.115680I$ $b=\ \ 0.1163850-0.0010731I$	$2.79780-0.42396I$	0
$u=\ \ 0.843614-0.550628I$ $a=\ \ 0.787898-0.115680I$ $b=\ \ 0.1163850+0.0010731I$	$2.79780+0.42396I$	0
$u=-1.02284$ $a=\ \ 1.47383$ $b=-0.331000$	0.462297	0
$u=-0.783113+0.549508I$ $a=\ \ 0.0588211+0.1268950I$ $b=-0.86879-1.12637I$	$-4.73426-7.26403I$	0
$u=-0.783113-0.549508I$ $a=\ \ 0.0588211-0.1268950I$ $b=-0.86879+1.12637I$	$-4.73426+7.26403I$	0
$u=\ \ 0.887115+0.337671I$ $a=\ \ 0.155583-0.193486I$ $b=\ \ 1.042270-0.535647I$	$-3.35923+0.42248I$	0
$u=\ \ 0.887115-0.337671I$ $a=\ \ 0.155583+0.193486I$ $b=\ \ 1.042270+0.535647I$	$-3.35923-0.42248I$	0
$u=\ \ 0.811426+0.677149I$ $a=\ \ 0.0288692+0.0472312I$ $b=-0.527577+1.199900I$	$-0.39025+13.28170I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.811426 - 0.677149I$ $a = 0.0288692 - 0.0472312I$ $b = -0.527577 - 1.199900I$	$-0.39025 - 13.28170I$	0
$u = 0.188934 + 0.907176I$ $a = -0.616856 + 0.715162I$ $b = -0.157446 + 0.338454I$	$-2.29134 - 8.09229I$	0
$u = 0.188934 - 0.907176I$ $a = -0.616856 - 0.715162I$ $b = -0.157446 - 0.338454I$	$-2.29134 + 8.09229I$	0
$u = 0.585370 + 0.706438I$ $a = 0.0863636 - 0.0965957I$ $b = 0.083043 - 1.114300I$	$2.00602 + 4.30322I$	0
$u = 0.585370 - 0.706438I$ $a = 0.0863636 + 0.0965957I$ $b = 0.083043 + 1.114300I$	$2.00602 - 4.30322I$	0
$u = -0.795599 + 0.407080I$ $a = -0.817039 + 0.266032I$ $b = -0.02769 - 1.43627I$	$3.45231 - 7.58300I$	0
$u = -0.795599 - 0.407080I$ $a = -0.817039 - 0.266032I$ $b = -0.02769 + 1.43627I$	$3.45231 + 7.58300I$	0
$u = 0.770296 + 0.366086I$ $a = -1.102450 - 0.449931I$ $b = 0.209050 - 0.713360I$	$2.67572 + 6.81110I$	0
$u = 0.770296 - 0.366086I$ $a = -1.102450 + 0.449931I$ $b = 0.209050 + 0.713360I$	$2.67572 - 6.81110I$	0
$u = 1.17627$ $a = 0.260420$ $b = 0.996259$	-3.39624	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.657045+0.470711I$ $a=-0.122567+0.464530I$ $b=\ \ 0.656971+1.206150I$	$-2.18416-4.72064I$	0
$u=-0.657045-0.470711I$ $a=-0.122567-0.464530I$ $b=\ \ 0.656971-1.206150I$	$-2.18416+4.72064I$	0
$u=\ \ 0.695887+0.178695I$ $a=\ \ 0.331121-1.049200I$ $b=-1.52202+1.38533I$	$-0.296974+0.337709I$	$-14.6453+19.7980I$
$u=\ \ 0.695887-0.178695I$ $a=\ \ 0.331121+1.049200I$ $b=-1.52202-1.38533I$	$-0.296974-0.337709I$	$-14.6453-19.7980I$
$u=-0.561252+0.447215I$ $a=-0.597055-0.069631I$ $b=\ \ 0.304635+0.996919I$	$-0.76027-3.85816I$	$0.+6.83350I$
$u=-0.561252-0.447215I$ $a=-0.597055+0.069631I$ $b=\ \ 0.304635-0.996919I$	$-0.76027+3.85816I$	$0.-6.83350I$
$u=-0.126025+0.701569I$ $a=-0.59662-1.32241I$ $b=\ \ 0.114296-0.377897I$	$-6.70258+3.06709I$	$-5.21302-2.47341I$
$u=-0.126025-0.701569I$ $a=-0.59662+1.32241I$ $b=\ \ 0.114296+0.377897I$	$-6.70258-3.06709I$	$-5.21302+2.47341I$
$u=-0.236388+0.598256I$ $a=\ \ 0.294774-0.609135I$ $b=\ \ 0.426322+1.024910I$	$-0.07658-4.13532I$	$0.75722+4.26107I$
$u=-0.236388-0.598256I$ $a=\ \ 0.294774+0.609135I$ $b=\ \ 0.426322-1.024910I$	$-0.07658+4.13532I$	$0.75722-4.26107I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.28955+0.58878I$ $a=-0.0523594+0.0124131I$ $b=\ \ 0.706077+0.030045I$	$2.14333+2.89478I$	0
$u=-1.28955-0.58878I$ $a=-0.0523594-0.0124131I$ $b=\ \ 0.706077-0.030045I$	$2.14333-2.89478I$	0
$u=\ \ 0.113038+0.567992I$ $a=-0.569049-0.821467I$ $b=-0.095569-0.935559I$	$0.88681+4.41440I$	$3.03410-4.57971I$
$u=\ \ 0.113038-0.567992I$ $a=-0.569049+0.821467I$ $b=-0.095569+0.935559I$	$0.88681-4.41440I$	$3.03410+4.57971I$
$u=\ \ 0.558549+0.147764I$ $a=\ \ 0.621866+0.196056I$ $b=-0.456183-0.414679I$	$0.998059+0.188402I$	$10.40306-0.95041I$
$u=\ \ 0.558549-0.147764I$ $a=\ \ 0.621866-0.196056I$ $b=-0.456183+0.414679I$	$0.998059-0.188402I$	$10.40306+0.95041I$
$u=-0.234783+0.515407I$ $a=\ \ 1.32426+1.53813I$ $b=\ \ 0.365229+0.093260I$	$-3.40619+1.28533I$	$-2.46945+0.12060I$
$u=-0.234783-0.515407I$ $a=\ \ 1.32426-1.53813I$ $b=\ \ 0.365229-0.093260I$	$-3.40619-1.28533I$	$-2.46945-0.12060I$
$u=\ \ 0.502065+0.126289I$ $a=-2.39872-0.92369I$ $b=\ \ 0.61945+1.69002I$	$-0.834967+0.544419I$	$-9.5439+23.8545I$
$u=\ \ 0.502065-0.126289I$ $a=-2.39872+0.92369I$ $b=\ \ 0.61945-1.69002I$	$-0.834967-0.544419I$	$-9.5439-23.8545I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.284642+0.381065I$ $a=\ \ 1.48853+0.50264I$ $b=\ \ 0.008733-0.426456I$	$-1.50630+0.84820I$	$-1.82690-0.01242I$
$u=-0.284642-0.381065I$ $a=\ \ 1.48853-0.50264I$ $b=\ \ 0.008733+0.426456I$	$-1.50630-0.84820I$	$-1.82690+0.01242I$
$u=-1.52579+0.01939I$ $a=-0.08285+2.43592I$ $b=-0.54993-3.11467I$	$6.46065-4.82598I$	0
$u=-1.52579-0.01939I$ $a=-0.08285-2.43592I$ $b=-0.54993+3.11467I$	$6.46065+4.82598I$	0
$u=\ \ 1.52787+0.06405I$ $a=\ \ 0.02483-2.22735I$ $b=\ \ 0.25321+2.46288I$	$5.88122+5.76712I$	0
$u=\ \ 1.52787-0.06405I$ $a=\ \ 0.02483+2.22735I$ $b=\ \ 0.25321-2.46288I$	$5.88122-5.76712I$	0
$u=\ \ 1.54225+0.03034I$ $a=\ \ 0.49740+1.73264I$ $b=-1.12629-2.23338I$	$4.80677-0.09764I$	0
$u=\ \ 1.54225-0.03034I$ $a=\ \ 0.49740-1.73264I$ $b=-1.12629+2.23338I$	$4.80677+0.09764I$	0
$u=\ \ 0.438034$ $a=\ \ 4.33297$ $b=\ \ 0.243064$	-5.42434	13.3340
$u=\ \ 1.55488+0.14908I$ $a=-0.15289-2.05569I$ $b=-0.07056+2.52598I$	$6.30459+6.05965I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.55488 - 0.14908I$ $a = -0.15289 + 2.05569I$ $b = -0.07056 - 2.52598I$	$6.30459 - 6.05965I$	0
$u = -1.56931 + 0.07915I$ $a = -0.504205 + 1.215630I$ $b = 0.11412 - 1.46849I$	$8.22114 - 1.25008I$	0
$u = -1.56931 - 0.07915I$ $a = -0.504205 - 1.215630I$ $b = 0.11412 + 1.46849I$	$8.22114 + 1.25008I$	0
$u = -1.57829 + 0.02432I$ $a = 0.83255 - 2.02283I$ $b = -0.10047 + 2.25438I$	$6.44108 - 1.01444I$	0
$u = -1.57829 - 0.02432I$ $a = 0.83255 + 2.02283I$ $b = -0.10047 - 2.25438I$	$6.44108 + 1.01444I$	0
$u = 1.59304 + 0.13349I$ $a = 0.48960 - 2.30928I$ $b = -1.09569 + 3.07315I$	$5.44937 + 6.93869I$	0
$u = 1.59304 - 0.13349I$ $a = 0.48960 + 2.30928I$ $b = -1.09569 - 3.07315I$	$5.44937 - 6.93869I$	0
$u = -1.61613 + 0.05731I$ $a = -0.86864 - 2.17772I$ $b = 1.34031 + 2.38505I$	$7.71340 - 1.27145I$	0
$u = -1.61613 - 0.05731I$ $a = -0.86864 + 2.17772I$ $b = 1.34031 - 2.38505I$	$7.71340 + 1.27145I$	0
$u = -1.60197 + 0.23933I$ $a = -0.21626 + 1.64990I$ $b = -0.42879 - 2.17532I$	$9.34734 - 7.89119I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.60197 - 0.23933I$ $a = -0.21626 - 1.64990I$ $b = -0.42879 + 2.17532I$	$9.34734 + 7.89119I$	0
$u = -1.62865 + 0.10885I$ $a = -0.27752 + 1.88885I$ $b = 0.60651 - 2.82092I$	$10.91440 - 8.63897I$	0
$u = -1.62865 - 0.10885I$ $a = -0.27752 - 1.88885I$ $b = 0.60651 + 2.82092I$	$10.91440 + 8.63897I$	0
$u = 1.63599 + 0.11853I$ $a = 0.13839 + 1.88321I$ $b = 0.63901 - 2.35405I$	$11.7947 + 9.5991I$	0
$u = 1.63599 - 0.11853I$ $a = 0.13839 - 1.88321I$ $b = 0.63901 + 2.35405I$	$11.7947 - 9.5991I$	0
$u = 1.63569 + 0.16394I$ $a = -0.60372 + 1.93511I$ $b = 1.25447 - 2.32571I$	$3.49190 + 9.98671I$	0
$u = 1.63569 - 0.16394I$ $a = -0.60372 - 1.93511I$ $b = 1.25447 + 2.32571I$	$3.49190 - 9.98671I$	0
$u = -1.64218 + 0.10635I$ $a = 1.02828 + 1.40183I$ $b = -1.70059 - 1.85899I$	$5.25941 - 2.18573I$	0
$u = -1.64218 - 0.10635I$ $a = 1.02828 - 1.40183I$ $b = -1.70059 + 1.85899I$	$5.25941 + 2.18573I$	0
$u = 1.64631 + 0.13035I$ $a = -0.166642 - 1.110980I$ $b = -0.64066 + 1.48754I$	$10.14690 + 2.43534I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.64631 - 0.13035I$ $a = -0.166642 + 1.110980I$ $b = -0.64066 - 1.48754I$	$10.14690 - 2.43534I$	0
$u = -1.64774 + 0.20688I$ $a = -0.28445 - 1.94616I$ $b = 1.02920 + 2.54457I$	$7.8970 - 16.6675I$	0
$u = -1.64774 - 0.20688I$ $a = -0.28445 + 1.94616I$ $b = 1.02920 - 2.54457I$	$7.8970 + 16.6675I$	0
$u = -1.65858 + 0.12298I$ $a = 0.110901 - 1.131240I$ $b = -0.41531 + 1.65555I$	$11.51240 - 2.00269I$	0
$u = -1.65858 - 0.12298I$ $a = 0.110901 + 1.131240I$ $b = -0.41531 - 1.65555I$	$11.51240 + 2.00269I$	0
$u = 1.68232 + 0.02867I$ $a = -0.34423 - 1.51184I$ $b = 0.47995 + 2.19462I$	$15.2504 + 3.0857I$	0
$u = 1.68232 - 0.02867I$ $a = -0.34423 + 1.51184I$ $b = 0.47995 - 2.19462I$	$15.2504 - 3.0857I$	0
$u = -0.232323 + 0.118937I$ $a = 2.05401 + 1.65947I$ $b = 0.558019 + 0.573483I$	$-1.47682 - 0.41930I$	$-7.12572 - 0.42040I$
$u = -0.232323 - 0.118937I$ $a = 2.05401 - 1.65947I$ $b = 0.558019 - 0.573483I$	$-1.47682 + 0.41930I$	$-7.12572 + 0.42040I$
$u = 0.139756 + 0.051773I$ $a = 5.40801 + 1.65564I$ $b = -0.39225 + 1.47645I$	$0.34771 - 4.65375I$	$6.29780 + 2.05720I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.139756 - 0.051773I$ $a = 5.40801 - 1.65564I$ $b = -0.39225 - 1.47645I$	$0.34771 + 4.65375I$	$6.29780 - 2.05720I$
$u = 1.88800$ $a = 0.440654$ $b = -0.742379$	14.6724	0

II.

$\boldsymbol{I_2^u = \langle -u^{12}+8u^{10}+\cdots+b-1,\ -2u^{13}+u^{12}+\cdots+a-8,\ u^{14}-10u^{12}+\cdots+4u+1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 2u^{13} - u^{12} + \cdots + 4u + 8 \\ u^{12} - 8u^{10} - 2u^9 + 23u^8 + 10u^7 - 27u^6 - 13u^5 + 11u^4 + u^3 - 4u^2 + 1 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 3u^{13} - u^{12} + \cdots + 6u + 11 \\ -u^{12} - u^{11} + \cdots + u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -u^{13} + 11u^{11} + \cdots + 19u^2 - 6 \\ -u^{13} + 9u^{11} + \cdots + 4u^2 + 2u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

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

$$a_2 = \begin{pmatrix} 2u^{13} - 20u^{11} + \cdots + 2u + 8 \\ -u^7 + 5u^5 + 2u^4 - 7u^3 - 5u^2 + 2u + 1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -4u^{13} + 40u^{11} + \cdots - 2u - 15 \\ -u^{13} + 9u^{11} + \cdots + 7u^2 - 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 3u^{13} - 2u^{12} + \cdots + 7u + 13 \\ u^3 - 2u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^{13} + 6u^{12} + 53u^{11} - 42u^{10} - 226u^9 + 93u^8 + 475u^7 - 51u^6 - 478u^5 - 45u^4 + 177u^3 + 40u^2 - 9u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 5u^{13} + \cdots + 8u - 1$
c_2	$u^{14} + 6u^{13} + \cdots + 6u + 1$
c_3	$u^{14} - 3u^{12} - u^{11} + u^{10} + 2u^9 + 4u^8 - 4u^6 - u^5 - u^4 + u^3 + 3u^2 - 1$
c_4	$u^{14} - 3u^{12} + u^{11} + u^{10} - u^9 + 4u^8 - 4u^6 + 2u^5 - u^4 - u^3 + 3u^2 - 1$
c_5	$u^{14} - 6u^{13} + \cdots - 6u + 1$
c_6, c_7	$u^{14} - 10u^{12} + \cdots - 4u + 1$
c_8	$u^{14} - 3u^{12} + u^{11} + u^{10} - 2u^9 + 4u^8 - 4u^6 + u^5 - u^4 - u^3 + 3u^2 - 1$
c_9	$u^{14} - 3u^{13} + \cdots + 9u + 5$
c_{10}	$u^{14} - 3u^{12} - u^{11} + u^{10} + u^9 + 4u^8 - 4u^6 - 2u^5 - u^4 + u^3 + 3u^2 - 1$
c_{11}, c_{12}	$u^{14} - 10u^{12} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - 7y^{13} + \cdots - 16y + 1$
c_2, c_5	$y^{14} - 14y^{13} + \cdots - 14y + 1$
c_3, c_8	$y^{14} - 6y^{13} + \cdots - 6y + 1$
c_4, c_{10}	$y^{14} - 6y^{13} + \cdots - 6y + 1$
c_6, c_7, c_{11} c_{12}	$y^{14} - 20y^{13} + \cdots - 20y + 1$
c_9	$y^{14} - 9y^{13} + \cdots - 381y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.22387$ $a=\ 0.572038$ $b=\ 0.757485$	-2.53458	6.54520
$u=-1.162790+0.439090I$ $a=\ 0.523471-0.653534I$ $b=-0.040336+0.575626I$	$2.80440+2.09868I$	$6.54061-1.90346I$
$u=-1.162790-0.439090I$ $a=\ 0.523471+0.653534I$ $b=-0.040336-0.575626I$	$2.80440-2.09868I$	$6.54061+1.90346I$
$u=\ 0.596998+0.186070I$ $a=\ 1.073280+0.589812I$ $b=\ 0.271776-1.277540I$	$-0.545174+0.639000I$	$3.99401+1.44845I$
$u=\ 0.596998-0.186070I$ $a=\ 1.073280-0.589812I$ $b=\ 0.271776+1.277540I$	$-0.545174-0.639000I$	$3.99401-1.44845I$
$u=-0.325168+0.425935I$ $a=-0.322223+0.016593I$ $b=\ 0.09995+1.63147I$	$0.08308-5.23699I$	$1.10474+13.13886I$
$u=-0.325168-0.425935I$ $a=-0.322223-0.016593I$ $b=\ 0.09995-1.63147I$	$0.08308+5.23699I$	$1.10474-13.13886I$
$u=\ 1.51899$ $a=\ 1.45349$ $b=-2.86372$	0.601067	-4.00870
$u=\ 1.54617+0.13024I$ $a=-0.06551-2.57810I$ $b=-0.34874+3.21051I$	$6.64288+7.22347I$	$7.90690-8.98242I$
$u=\ 1.54617-0.13024I$ $a=-0.06551+2.57810I$ $b=-0.34874-3.21051I$	$6.64288-7.22347I$	$7.90690+8.98242I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.59813 + 0.06557I$ $a = 0.15257 + 1.71766I$ $b = -0.75191 - 2.00442I$	$7.12099 - 1.61991I$	$3.99923 - 0.01293I$
$u = -1.59813 - 0.06557I$ $a = 0.15257 - 1.71766I$ $b = -0.75191 + 2.00442I$	$7.12099 + 1.61991I$	$3.99923 + 0.01293I$
$u = -0.270493$ $a = 6.33895$ $b = 0.754277$	-5.70613	-15.7570
$u = 1.86121$ $a = -0.0876364$ $b = -0.109531$	14.9057	23.1290

III. $I_3^u = \langle u^2 + b,\ a - 1,\ u^6 + u^5 - 2u^4 - 2u^3 - 1 \rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^4 + u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^5 - 2u^3 + u - 1 \\ 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^5 - 2u^3 + u \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 - y^5 + 8y^4 + 6y^3 - 12y^2 - 12y + 1$
c_2, c_5, c_9	$y^6 - 10y^5 + 33y^4 - 50y^3 + 46y^2 - 24y + 9$
c_3, c_6, c_7 c_8, c_{11}, c_{12}	$y^6 - 5y^5 + 8y^4 - 6y^3 + 4y^2 + 1$
c_4, c_{10}	$(y-1)^6$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.819901 + 0.541369I$ $a = 1.00000$ $b = -0.379157 + 0.887737I$	1.64493	6.00000
$u = -0.819901 - 0.541369I$ $a = 1.00000$ $b = -0.379157 - 0.887737I$	1.64493	6.00000
$u = 0.373850 + 0.559427I$ $a = 1.00000$ $b = 0.173195 - 0.418284I$	1.64493	6.00000
$u = 0.373850 - 0.559427I$ $a = 1.00000$ $b = 0.173195 + 0.418284I$	1.64493	6.00000
$u = 1.45970$ $a = 1.00000$ $b = -2.13072$	1.64493	6.00000
$u = -1.56760$ $a = 1.00000$ $b = -2.45736$	1.64493	6.00000

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

(i) Arc colorings

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

$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$

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

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

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

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

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

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_4	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.00000$ $b = -1.00000$	1.64493	6.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.618034$ $b = 1.61803$	0	-5.00000
$u = 1.00000$ $a = 1.61803$ $b = -0.618034$	0	-5.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u+1)(u^2-u-1)(u^6+u^5+\cdots-4u+1)(u^{14}-5u^{13}+\cdots+8u-1)$ $\cdot(u^{82}-3u^{81}+\cdots+15u-1)$
c_2	$u(u-1)^2(u^6-5u^4+\cdots+4u^2-3)(u^{14}+6u^{13}+\cdots+6u+1)$ $\cdot(u^{82}+u^{81}+\cdots-138u+33)$
c_3	$(u-1)(u^2+u-1)(u^6+u^5-2u^4-2u^3-1)$ $\cdot(u^{14}-3u^{12}-u^{11}+u^{10}+2u^9+4u^8-4u^6-u^5-u^4+u^3+3u^2-1)$ $\cdot(u^{82}-22u^{80}+\cdots-4101u-607)$
c_4	$(u-1)^7(u^2+u-1)$ $\cdot(u^{14}-3u^{12}+u^{11}+u^{10}-u^9+4u^8-4u^6+2u^5-u^4-u^3+3u^2-1)$ $\cdot(u^{82}+5u^{81}+\cdots+112u-8)$
c_5	$u(u+1)^2(u^6-5u^4+\cdots+4u^2-3)(u^{14}-6u^{13}+\cdots-6u+1)$ $\cdot(u^{82}+u^{81}+\cdots-138u+33)$
c_6, c_7	$(u-1)(u+1)^2(u^6+u^5+\cdots-2u^3-1)(u^{14}-10u^{12}+\cdots-4u+1)$ $\cdot(u^{82}+u^{81}+\cdots+10u-1)$
c_8	$(u-1)(u^2-u-1)(u^6+u^5-2u^4-2u^3-1)$ $\cdot(u^{14}-3u^{12}+u^{11}+u^{10}-2u^9+4u^8-4u^6+u^5-u^4-u^3+3u^2-1)$ $\cdot(u^{82}-22u^{80}+\cdots-4101u-607)$
c_9	$u^3(u^6-5u^4+\cdots+4u^2-3)(u^{14}-3u^{13}+\cdots+9u+5)$ $\cdot(u^{82}-2u^{81}+\cdots-24u+12)$
c_{10}	$(u-1)^7(u^2-u-1)$ $\cdot(u^{14}-3u^{12}-u^{11}+u^{10}+u^9+4u^8-4u^6-2u^5-u^4+u^3+3u^2-1)$ $\cdot(u^{82}+5u^{81}+\cdots+112u-8)$
c_{11}, c_{12}	$((u-1)^3)(u^6+u^5-2u^4-2u^3-1)(u^{14}-10u^{12}+\cdots+4u+1)$ $\cdot(u^{82}+u^{81}+\cdots+10u-1)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)(y^2-3y+1)(y^6-y^5+8y^4+6y^3-12y^2-12y+1)$ $\cdot(y^{14}-7y^{13}+\cdots-16y+1)(y^{82}-13y^{81}+\cdots-27y+1)$
c_2, c_5	$y(y-1)^2(y^6-10y^5+33y^4-50y^3+46y^2-24y+9)$ $\cdot(y^{14}-14y^{13}+\cdots-14y+1)(y^{82}-39y^{81}+\cdots-42804y+1089)$
c_3, c_8	$(y-1)(y^2-3y+1)(y^6-5y^5+8y^4-6y^3+4y^2+1)$ $\cdot(y^{14}-6y^{13}+\cdots-6y+1)(y^{82}-44y^{81}+\cdots-1.42251\times 10^7y+368449)$
c_4, c_{10}	$((y-1)^7)(y^2-3y+1)(y^{14}-6y^{13}+\cdots-6y+1)$ $\cdot(y^{82}-51y^{81}+\cdots-13728y+64)$
c_6, c_7, c_{11} c_{12}	$((y-1)^3)(y^6-5y^5+\cdots+4y^2+1)(y^{14}-20y^{13}+\cdots-20y+1)$ $\cdot(y^{82}-101y^{81}+\cdots-110y+1)$
c_9	$y^3(y^6-10y^5+33y^4-50y^3+46y^2-24y+9)$ $\cdot(y^{14}-9y^{13}+\cdots-381y+25)(y^{82}-8y^{81}+\cdots-216y+144)$