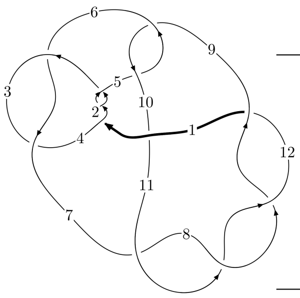
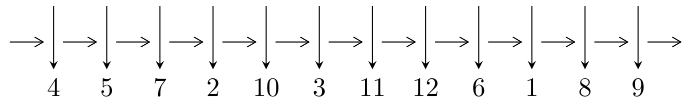
$12a_{0813}$ ($K12a_{0813}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -7.95449 \times 10^{20} u^{71} - 4.31806 \times 10^{21} u^{70} + \cdots + 1.48712 \times 10^{21} b - 3.47841 \times 10^{21},$$
$$1.07241 \times 10^{22} u^{71} + 2.56114 \times 10^{22} u^{70} + \cdots + 2.97424 \times 10^{21} a + 7.95838 \times 10^{21},\ u^{72} + 4u^{71} + \cdots + 4u + 1$$
$$I_2^u = \langle u^5 + u^4 - 3u^3 - u^2 + b + 2u - 2,\ u^5 + u^4 - 3u^3 - u^2 + a + 2u - 2,\ u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1 \rangle$$
$$I_3^u = \langle b - u - 2,\ a - u - 1,\ u^2 - u - 1 \rangle$$
$$I_4^u = \langle b + u + 2,\ a + 2u,\ u^2 - u - 1 \rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 82 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.

$\boldsymbol{I_1^u = \langle -7.95\times 10^{20}u^{71} - 4.32\times 10^{21}u^{70} + \cdots + 1.49\times 10^{21}b - 3.48\times 10^{21},\ 1.07\times 10^{22}u^{71} + 2.56\times 10^{22}u^{70} + \cdots + 2.97\times 10^{21}a + 7.96\times 10^{21},\ u^{72} + 4u^{71} + \cdots + 4u + 1\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -3.60565u^{71} - 8.61108u^{70} + \cdots - 3.99235u - 2.67577 \\ 0.534891u^{71} + 2.90363u^{70} + \cdots + 4.98903u + 2.33902 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -11.5779u^{71} - 28.0840u^{70} + \cdots - 20.0416u - 7.72322 \\ -7.43736u^{71} - 16.5693u^{70} + \cdots - 11.0602u - 2.70843 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 16.6166u^{71} + 39.8106u^{70} + \cdots + 30.7682u + 9.88627 \\ 14.7571u^{71} + 34.3253u^{70} + \cdots + 26.7496u + 6.90106 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2.38563u^{71} - 6.49739u^{70} + \cdots - 5.92951u - 3.30940 \\ 1.63521u^{71} + 4.28995u^{70} + \cdots + 4.95437u + 0.667990 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^6 + 3u^4 - 2u^2 + 1 \\ -u^8 + 4u^6 - 4u^4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 10.9945u^{71} + 25.9002u^{70} + \cdots + 23.1121u + 4.39475 \\ 12.8540u^{71} + 31.3855u^{70} + \cdots + 27.1307u + 7.37996 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{150126529301461580621605}{2974244354519536997566}u^{71} + \frac{259807076562668316197598}{1487122177259768498783}u^{70} + \cdots + \frac{302915952567745176733616}{1487122177259768498783}u + \frac{237828014772875129379223}{2974244354519536997566}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{72} - 9u^{71} + \cdots - 23u - 1$
c_3, c_6	$u^{72} + 3u^{71} + \cdots - 320u - 64$
c_5, c_9	$u^{72} + 2u^{71} + \cdots + 64u + 16$
c_7, c_8, c_{11} c_{12}	$u^{72} + 4u^{71} + \cdots + 4u + 1$
c_{10}	$u^{72} - 20u^{71} + \cdots - 3276u - 79$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{72} - 71y^{71} + \cdots - 369y + 1$
c_3, c_6	$y^{72} - 45y^{71} + \cdots - 241664y + 4096$
c_5, c_9	$y^{72} + 30y^{71} + \cdots - 3712y + 256$
c_7, c_8, c_{11} c_{12}	$y^{72} - 84y^{71} + \cdots - 20y + 1$
c_{10}	$y^{72} - 12y^{71} + \cdots - 11660268y + 6241$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.982343 + 0.346269I$ $a = 0.216789 - 0.337856I$ $b = 1.196170 + 0.510620I$	$-7.89851 - 4.44178I$	0
$u = -0.982343 - 0.346269I$ $a = 0.216789 + 0.337856I$ $b = 1.196170 - 0.510620I$	$-7.89851 + 4.44178I$	0
$u = 0.757927 + 0.551621I$ $a = -0.323743 - 0.008309I$ $b = -1.90119 + 0.21928I$	$-6.15007 - 12.15710I$	0
$u = 0.757927 - 0.551621I$ $a = -0.323743 + 0.008309I$ $b = -1.90119 - 0.21928I$	$-6.15007 + 12.15710I$	0
$u = -0.850217 + 0.222300I$ $a = -0.623196 + 0.202068I$ $b = -1.52408 - 0.38478I$	$-2.05877 - 1.35062I$	0
$u = -0.850217 - 0.222300I$ $a = -0.623196 - 0.202068I$ $b = -1.52408 + 0.38478I$	$-2.05877 + 1.35062I$	0
$u = 0.705422 + 0.506721I$ $a = 0.424505 + 0.257141I$ $b = 1.87330 - 0.07115I$	$-0.21486 - 7.76434I$	0
$u = 0.705422 - 0.506721I$ $a = 0.424505 - 0.257141I$ $b = 1.87330 + 0.07115I$	$-0.21486 + 7.76434I$	0
$u = -0.681164 + 0.507135I$ $a = -0.004024 - 0.372323I$ $b = -1.55030 - 0.84093I$	$-8.10918 + 5.48099I$	0
$u = -0.681164 - 0.507135I$ $a = -0.004024 + 0.372323I$ $b = -1.55030 + 0.84093I$	$-8.10918 - 5.48099I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.697751 + 0.460295I$ $a = -0.046939 - 0.942118I$ $b = 0.399029 + 0.513779I$	$-3.03405 - 5.33018I$	0
$u = 0.697751 - 0.460295I$ $a = -0.046939 + 0.942118I$ $b = 0.399029 - 0.513779I$	$-3.03405 + 5.33018I$	0
$u = 0.488900 + 0.673030I$ $a = 0.391172 - 0.358829I$ $b = -0.304669 + 0.448535I$	$0.24344 - 2.25273I$	0
$u = 0.488900 - 0.673030I$ $a = 0.391172 + 0.358829I$ $b = -0.304669 - 0.448535I$	$0.24344 + 2.25273I$	0
$u = -0.740284 + 0.298767I$ $a = 0.830320 + 1.049630I$ $b = 1.257810 - 0.028274I$	$-4.10061 + 0.49792I$	$-17.6259 + 0.I$
$u = -0.740284 - 0.298767I$ $a = 0.830320 - 1.049630I$ $b = 1.257810 + 0.028274I$	$-4.10061 - 0.49792I$	$-17.6259 + 0.I$
$u = 0.653152 + 0.419191I$ $a = -0.268386 - 0.707920I$ $b = -1.66871 - 0.10927I$	$-1.67645 - 2.50037I$	$-15.9818 + 5.1399I$
$u = 0.653152 - 0.419191I$ $a = -0.268386 + 0.707920I$ $b = -1.66871 + 0.10927I$	$-1.67645 + 2.50037I$	$-15.9818 - 5.1399I$
$u = 0.566256 + 0.518532I$ $a = 0.135073 + 0.566520I$ $b = -0.255171 - 0.370268I$	$2.61662 - 3.02816I$	$-7.67475 + 5.37656I$
$u = 0.566256 - 0.518532I$ $a = 0.135073 - 0.566520I$ $b = -0.255171 + 0.370268I$	$2.61662 + 3.02816I$	$-7.67475 - 5.37656I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.654003 + 0.367302I$ $a = 0.354913 + 0.490782I$ $b = 1.63048 + 0.78250I$	$-2.04063 + 2.41804I$	$-16.4783 - 6.4550I$
$u = -0.654003 - 0.367302I$ $a = 0.354913 - 0.490782I$ $b = 1.63048 - 0.78250I$	$-2.04063 - 2.41804I$	$-16.4783 + 6.4550I$
$u = 0.706946 + 0.176779I$ $a = -0.682322 + 0.627956I$ $b = 1.382590 - 0.098280I$	$-10.18240 - 0.21970I$	$-23.0944 + 10.0861I$
$u = 0.706946 - 0.176779I$ $a = -0.682322 - 0.627956I$ $b = 1.382590 + 0.098280I$	$-10.18240 + 0.21970I$	$-23.0944 - 10.0861I$
$u = 0.148844 + 0.693249I$ $a = -0.16677 - 1.81670I$ $b = 0.330588 + 0.107064I$	$-4.33570 + 7.98491I$	$-14.0293 - 4.5706I$
$u = 0.148844 - 0.693249I$ $a = -0.16677 + 1.81670I$ $b = 0.330588 - 0.107064I$	$-4.33570 - 7.98491I$	$-14.0293 + 4.5706I$
$u = 0.362499 + 0.542365I$ $a = -0.703035 - 0.020137I$ $b = 0.567304 + 0.021974I$	$3.20652 - 0.63611I$	$-6.08573 + 2.74041I$
$u = 0.362499 - 0.542365I$ $a = -0.703035 + 0.020137I$ $b = 0.567304 - 0.021974I$	$3.20652 + 0.63611I$	$-6.08573 - 2.74041I$
$u = 0.179620 + 0.596705I$ $a = 0.16130 + 1.98572I$ $b = -0.121937 + 0.128533I$	$1.32458 + 4.00559I$	$-9.89823 - 4.05878I$
$u = 0.179620 - 0.596705I$ $a = 0.16130 - 1.98572I$ $b = -0.121937 - 0.128533I$	$1.32458 - 4.00559I$	$-9.89823 + 4.05878I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.224967 + 0.575498I$ $a = 0.70393 + 1.64159I$ $b = 0.429947 - 0.451121I$	$-6.77156 - 1.76410I$	$-16.4390 - 0.3709I$
$u = -0.224967 - 0.575498I$ $a = 0.70393 - 1.64159I$ $b = 0.429947 + 0.451121I$	$-6.77156 + 1.76410I$	$-16.4390 + 0.3709I$
$u = 1.41016$ $a = -0.565928$ $b = 0.219603$	-11.4382	0
$u = -0.548767$ $a = -3.83647$ $b = -4.23596$	-2.45821	-112.620
$u = -1.45092 + 0.07467I$ $a = -0.908730 - 0.317137I$ $b = -1.41622 + 0.17108I$	$-2.53260 + 2.67846I$	0
$u = -1.45092 - 0.07467I$ $a = -0.908730 + 0.317137I$ $b = -1.41622 - 0.17108I$	$-2.53260 - 2.67846I$	0
$u = 0.147964 + 0.516203I$ $a = 1.105020 - 0.315921I$ $b = -0.893399 - 0.180647I$	$-1.46043 + 1.94339I$	$-11.45163 - 1.22090I$
$u = 0.147964 - 0.516203I$ $a = 1.105020 + 0.315921I$ $b = -0.893399 + 0.180647I$	$-1.46043 - 1.94339I$	$-11.45163 + 1.22090I$
$u = -1.46952 + 0.20603I$ $a = 0.346174 + 0.478606I$ $b = 0.971727 + 0.391726I$	$-6.09783 + 5.43700I$	0
$u = -1.46952 - 0.20603I$ $a = 0.346174 - 0.478606I$ $b = 0.971727 - 0.391726I$	$-6.09783 - 5.43700I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.49411 + 0.02315I$ $a = 1.74011 - 0.37479I$ $b = 2.31872 + 0.15589I$	$-6.25312 + 1.44485I$	0
$u = -1.49411 - 0.02315I$ $a = 1.74011 + 0.37479I$ $b = 2.31872 - 0.15589I$	$-6.25312 - 1.44485I$	0
$u = 0.253261 + 0.393389I$ $a = -0.05262 - 2.24609I$ $b = -0.451196 - 0.277085I$	$-0.487985 - 0.461323I$	$-11.73637 + 1.56029I$
$u = 0.253261 - 0.393389I$ $a = -0.05262 + 2.24609I$ $b = -0.451196 + 0.277085I$	$-0.487985 + 0.461323I$	$-11.73637 - 1.56029I$
$u = 1.54992 + 0.04257I$ $a = 0.513560 - 0.344106I$ $b = 0.309960 - 0.008693I$	$-7.50903 - 0.53436I$	0
$u = 1.54992 - 0.04257I$ $a = 0.513560 + 0.344106I$ $b = 0.309960 + 0.008693I$	$-7.50903 + 0.53436I$	0
$u = -1.55015 + 0.14465I$ $a = 0.338834 - 0.369514I$ $b = 0.302206 - 0.861493I$	$-4.45615 + 5.40578I$	0
$u = -1.55015 - 0.14465I$ $a = 0.338834 + 0.369514I$ $b = 0.302206 + 0.861493I$	$-4.45615 - 5.40578I$	0
$u = -0.433430$ $a = -0.914990$ $b = -0.390164$	-0.700979	-13.7250
$u = 1.59454 + 0.10539I$ $a = -2.49347 + 1.65768I$ $b = -3.18246 + 1.46944I$	$-9.72702 - 4.16869I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.59454 - 0.10539I$ $a = -2.49347 - 1.65768I$ $b = -3.18246 - 1.46944I$	$-9.72702 + 4.16869I$	0
$u = -1.59357 + 0.11931I$ $a = 3.10005 + 0.57745I$ $b = 3.92954 + 0.54344I$	$-9.33167 + 4.48353I$	0
$u = -1.59357 - 0.11931I$ $a = 3.10005 - 0.57745I$ $b = 3.92954 - 0.54344I$	$-9.33167 - 4.48353I$	0
$u = 1.60524$ $a = 4.54320$ $b = 4.85745$	-10.0666	0
$u = 1.59950 + 0.14775I$ $a = 2.05789 - 1.61299I$ $b = 2.91237 - 1.33358I$	$-15.8332 - 7.9107I$	0
$u = 1.59950 - 0.14775I$ $a = 2.05789 + 1.61299I$ $b = 2.91237 + 1.33358I$	$-15.8332 + 7.9107I$	0
$u = -1.60538 + 0.06802I$ $a = -2.79656 - 0.42280I$ $b = -3.85842 - 0.63401I$	$-18.1236 + 1.2636I$	0
$u = -1.60538 - 0.06802I$ $a = -2.79656 + 0.42280I$ $b = -3.85842 + 0.63401I$	$-18.1236 - 1.2636I$	0
$u = -1.60487 + 0.13290I$ $a = -0.380165 + 0.730302I$ $b = -0.24001 + 1.58204I$	$-10.86460 + 7.53927I$	0
$u = -1.60487 - 0.13290I$ $a = -0.380165 - 0.730302I$ $b = -0.24001 - 1.58204I$	$-10.86460 - 7.53927I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.60661 + 0.14847I$ $a = -2.97807 - 0.93378I$ $b = -3.79856 - 0.70427I$	$-8.05272 + 10.21100I$	0
$u = -1.60661 - 0.14847I$ $a = -2.97807 + 0.93378I$ $b = -3.79856 + 0.70427I$	$-8.05272 - 10.21100I$	0
$u = 1.61319 + 0.08752I$ $a = -1.025740 + 0.290343I$ $b = -0.954538 - 0.378372I$	$-12.16050 - 1.96894I$	0
$u = 1.61319 - 0.08752I$ $a = -1.025740 - 0.290343I$ $b = -0.954538 + 0.378372I$	$-12.16050 + 1.96894I$	0
$u = 1.62747 + 0.05876I$ $a = 2.88948 - 0.85424I$ $b = 3.47835 - 0.91637I$	$-10.52250 + 0.30794I$	0
$u = 1.62747 - 0.05876I$ $a = 2.88948 + 0.85424I$ $b = 3.47835 + 0.91637I$	$-10.52250 - 0.30794I$	0
$u = -1.62590 + 0.16520I$ $a = 2.71253 + 1.00812I$ $b = 3.59859 + 0.64474I$	$-14.2359 + 14.8752I$	0
$u = -1.62590 - 0.16520I$ $a = 2.71253 - 1.00812I$ $b = 3.59859 - 0.64474I$	$-14.2359 - 14.8752I$	0
$u = 1.68204 + 0.06795I$ $a = -2.19107 + 0.66703I$ $b = -2.98376 + 0.93026I$	$-17.1989 + 2.9520I$	0
$u = 1.68204 - 0.06795I$ $a = -2.19107 - 0.66703I$ $b = -2.98376 - 0.93026I$	$-17.1989 - 2.9520I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.217797 + 0.169704I$ $a = -1.98973 - 1.50144I$ $b = -0.509511 + 0.059295I$	$-0.769880 - 0.033097I$	$-11.72378 - 0.92219I$
$u = -0.217797 - 0.169704I$ $a = -1.98973 + 1.50144I$ $b = -0.509511 - 0.059295I$	$-0.769880 + 0.033097I$	$-11.72378 + 0.92219I$

II. $\boldsymbol{I_2^u = \langle u^5 + u^4 - 3u^3 - u^2 + b + 2u - 2,\ u^5 + u^4 - 3u^3 - u^2 + a + 2u - 2,\ u^6 + u^5 - 3u^4 - 2u^3 + 2u^2 - u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -10u^5 - 6u^4 + 30u^3 + 5u^2 - 17u + 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_6	y^6
c_5, c_9, c_{10}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$
c_7, c_8, c_{11} c_{12}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.493180 + 0.575288I$ $a = 0.228804 + 0.434483I$ $b = 0.228804 + 0.434483I$	$1.31531 - 1.97241I$	$-10.05095 + 2.83524I$
$u = 0.493180 - 0.575288I$ $a = 0.228804 - 0.434483I$ $b = 0.228804 - 0.434483I$	$1.31531 + 1.97241I$	$-10.05095 - 2.83524I$
$u = -0.483672$ $a = 2.83358$ $b = 2.83358$	-2.38379	12.9340
$u = -1.52087 + 0.16310I$ $a = -0.636388 + 0.565801I$ $b = -0.636388 + 0.565801I$	$-5.34051 + 4.59213I$	$-15.4320 - 0.4465I$
$u = -1.52087 - 0.16310I$ $a = -0.636388 - 0.565801I$ $b = -0.636388 - 0.565801I$	$-5.34051 - 4.59213I$	$-15.4320 + 0.4465I$
$u = 1.53904$ $a = -2.01841$ $b = -2.01841$	-9.30502	-17.9680

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -19$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = 0.381966$ $b = 1.38197$	-1.97392	-19.0000
$u = 1.61803$ $a = 2.61803$ $b = 3.61803$	-17.7653	-19.0000

IV. $I^u_4 = \langle b + u + 2,\ a + 2u,\ u^2 - u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = \quad 1.23607$ $b = -1.38197$	-9.86960	-4.00000
$u = \quad 1.61803$ $a = -3.23607$ $b = -3.61803$	-9.86960	-4.00000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^6)(u^2+u-1)^2(u^{72}-9u^{71}+\cdots-23u-1)$
c_3	$u^6(u^2+u-1)^2(u^{72}+3u^{71}+\cdots-320u-64)$
c_4	$((u+1)^6)(u^2-u-1)^2(u^{72}-9u^{71}+\cdots-23u-1)$
c_5	$u^4(u^6+u^5+\cdots+u-1)(u^{72}+2u^{71}+\cdots+64u+16)$
c_6	$u^6(u^2-u-1)^2(u^{72}+3u^{71}+\cdots-320u-64)$
c_7, c_8	$(u^2+u-1)^2(u^6-u^5-3u^4+2u^3+2u^2+u-1)$ $\cdot(u^{72}+4u^{71}+\cdots+4u+1)$
c_9	$u^4(u^6-u^5+\cdots-u-1)(u^{72}+2u^{71}+\cdots+64u+16)$
c_{10}	$(u^2+u-1)^2(u^6+u^5+3u^4+2u^3+2u^2+u-1)$ $\cdot(u^{72}-20u^{71}+\cdots-3276u-79)$
c_{11}, c_{12}	$(u^2-u-1)^2(u^6+u^5-3u^4-2u^3+2u^2-u-1)$ $\cdot(u^{72}+4u^{71}+\cdots+4u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^6)(y^2-3y+1)^2(y^{72}-71y^{71}+\cdots-369y+1)$
c_3, c_6	$y^6(y^2-3y+1)^2(y^{72}-45y^{71}+\cdots-241664y+4096)$
c_5, c_9	$y^4(y^6+5y^5+9y^4+4y^3-6y^2-5y+1)$ $\cdot(y^{72}+30y^{71}+\cdots-3712y+256)$
c_7, c_8, c_{11} c_{12}	$(y^2-3y+1)^2(y^6-7y^5+17y^4-16y^3+6y^2-5y+1)$ $\cdot(y^{72}-84y^{71}+\cdots-20y+1)$
c_{10}	$(y^2-3y+1)^2(y^6+5y^5+9y^4+4y^3-6y^2-5y+1)$ $\cdot(y^{72}-12y^{71}+\cdots-11660268y+6241)$