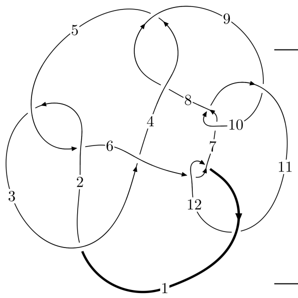
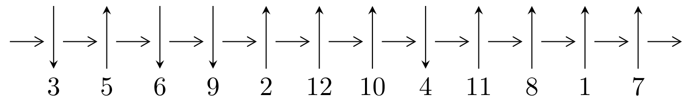
$12a_{0029}$ ($K12a_{0029}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 4.48200 \times 10^{61} u^{45} - 9.22155 \times 10^{61} u^{44} + \cdots + 1.04756 \times 10^{63} d - 1.67459 \times 10^{63}, \\
& 7.62250 \times 10^{61} u^{45} - 1.89258 \times 10^{62} u^{44} + \cdots + 2.09512 \times 10^{63} c - 3.36115 \times 10^{63}, \\
& 1.37141 \times 10^{61} u^{45} - 2.04563 \times 10^{61} u^{44} + \cdots + 1.04756 \times 10^{63} b - 1.27647 \times 10^{63}, \\
& 7.65358 \times 10^{61} u^{45} - 2.24209 \times 10^{62} u^{44} + \cdots + 1.04756 \times 10^{63} a - 1.33042 \times 10^{62},\ u^{46} - 3u^{45} + \cdots - 32u + \\
I_2^u = \langle & -5.05017 \times 10^{19} cu^{37} + 2.57220 \times 10^{19} u^{37} + \cdots + 1.77366 \times 10^{20} c + 1.40518 \times 10^{20}, \\
& -1.48141 \times 10^{20} cu^{37} + 8.78585 \times 10^{19} u^{37} + \cdots + 1.69449 \times 10^{19} c - 1.02888 \times 10^{20}, \\
& -3.80860 \times 10^{20} u^{37} - 1.22578 \times 10^{20} u^{36} + \cdots + 3.70123 \times 10^{20} b + 1.73663 \times 10^{21}, \\
& -9.01587 \times 10^{20} u^{37} - 1.40080 \times 10^{20} u^{36} + \cdots + 7.40247 \times 10^{20} a + 2.56553 \times 10^{21},\ u^{38} + u^{37} + \cdots + 4u -
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ d,\ c - v,\ b - v,\ v^2 - v + 1 \rangle \\
I_2^v &= \langle a,\ d - v + 1,\ -av + c + 1,\ b - v,\ v^2 - v + 1 \rangle \\
I_3^v &= \langle c,\ d - 1,\ b,\ a - 1,\ v + 1 \rangle \\
I_4^v &= \langle a,\ db + da - cb - d + b - 1,\ a^2 d - cba - da + cb + ba + d - c - a + 1,\ dv + 1,\ cv - ba - bv + b + a, \\
&\quad\ b^2 - b + 1 \rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 127 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $\boldsymbol{I^u_1 = \langle 4.48\times10^{61}u^{45} - 9.22\times10^{61}u^{44} + \cdots + 1.05\times10^{63}d - 1.67\times10^{63},\ 7.62\times10^{61}u^{45} - 1.89\times10^{62}u^{44} + \cdots + 2.10\times10^{63}c - 3.36\times10^{63},\ 1.37\times10^{61}u^{45} - 2.05\times10^{61}u^{44} + \cdots + 1.05\times10^{63}b - 1.28\times10^{63},\ 7.65\times10^{61}u^{45} - 2.24\times10^{62}u^{44} + \cdots + 1.05\times10^{63}a - 1.33\times10^{62},\ u^{46} - 3u^{45} + \cdots - 32u + 32\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} -0.0730608u^{45} + 0.214029u^{44} + \cdots - 11.1865u + 0.127001 \\ -0.0130915u^{45} + 0.0195275u^{44} + \cdots + 0.982266u + 1.21851 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.107506u^{45} + 0.286640u^{44} + \cdots - 12.3773u + 1.18060 \\ -0.0329822u^{45} + 0.0562768u^{44} + \cdots + 1.10132u + 2.20169 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0337179u^{45} + 0.143074u^{44} + \cdots - 8.46741u + 4.71002 \\ 0.0470900u^{45} - 0.103838u^{44} + \cdots + 1.16123u - 2.01452 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0363821u^{45} + 0.0903327u^{44} + \cdots - 1.88200u + 1.60427 \\ -0.0427850u^{45} + 0.0880286u^{44} + \cdots + 0.686956u + 1.59856 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0168951u^{45} + 0.0465535u^{44} + \cdots - 1.39848u + 0.915857 \\ -0.0232980u^{45} + 0.0442495u^{44} + \cdots + 1.17047u + 0.910145 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0808079u^{45} + 0.246912u^{44} + \cdots - 9.62863u + 6.72455 \\ -0.0570466u^{45} + 0.0968746u^{44} + \cdots + 1.56827u + 1.87088 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.00655998u^{45} - 0.0259377u^{44} + \cdots + 2.00677u - 0.607746 \\ -0.0298221u^{45} + 0.0643950u^{44} + \cdots + 0.124764u + 0.996524 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0639128u^{45} + 0.200359u^{44} + \cdots - 8.23015u + 5.80869 \\ -0.0337486u^{45} + 0.0526252u^{44} + \cdots + 1.39779u + 0.960739 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.247381u^{45} - 0.445802u^{44} + \cdots - 4.44172u - 0.790830$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{46} + 21u^{45} + \cdots - 40u + 16$
c_2, c_5	$u^{46} + u^{45} + \cdots - 4u + 4$
c_3	$u^{46} - u^{45} + \cdots - 2596u + 1252$
c_4, c_8	$u^{46} - 3u^{45} + \cdots - 32u + 32$
c_6, c_7, c_{10} c_{12}	$u^{46} + 5u^{45} + \cdots + 2u + 1$
c_9, c_{11}	$u^{46} - 21u^{45} + \cdots + 4u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{46} + 9y^{45} + \cdots - 5664y + 256$
c_2, c_5	$y^{46} + 21y^{45} + \cdots - 40y + 16$
c_3	$y^{46} - 3y^{45} + \cdots - 20408552y + 1567504$
c_4, c_8	$y^{46} - 15y^{45} + \cdots + 4096y + 1024$
c_6, c_7, c_{10} c_{12}	$y^{46} - 21y^{45} + \cdots + 4y + 1$
c_9, c_{11}	$y^{46} + 19y^{45} + \cdots - 72y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.248116 + 0.949341I$ $a = 0.659883 - 0.533852I$ $b = 0.16697 + 1.82340I$ $c = -0.570373 + 0.029986I$ $d = -0.088362 + 0.621385I$	$-1.66114 + 2.12776I$	$-0.422256 - 0.234121I$
$u = 0.248116 - 0.949341I$ $a = 0.659883 + 0.533852I$ $b = 0.16697 - 1.82340I$ $c = -0.570373 - 0.029986I$ $d = -0.088362 - 0.621385I$	$-1.66114 - 2.12776I$	$-0.422256 + 0.234121I$
$u = -0.642875 + 0.814816I$ $a = 0.006254 + 1.275600I$ $b = 0.634122 + 0.252731I$ $c = -1.335160 - 0.293800I$ $d = -0.362590 + 0.315550I$	$5.93091 - 3.99675I$	$10.51051 + 4.44974I$
$u = -0.642875 - 0.814816I$ $a = 0.006254 - 1.275600I$ $b = 0.634122 - 0.252731I$ $c = -1.335160 + 0.293800I$ $d = -0.362590 - 0.315550I$	$5.93091 + 3.99675I$	$10.51051 - 4.44974I$
$u = -0.046642 + 1.050320I$ $a = 0.666501 + 0.584237I$ $b = -0.27294 - 1.79729I$ $c = -0.807442 - 0.110962I$ $d = -0.214208 + 0.539648I$	$-2.04690 - 4.94372I$	$0.16550 + 7.58166I$
$u = -0.046642 - 1.050320I$ $a = 0.666501 - 0.584237I$ $b = -0.27294 + 1.79729I$ $c = -0.807442 + 0.110962I$ $d = -0.214208 - 0.539648I$	$-2.04690 + 4.94372I$	$0.16550 - 7.58166I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ 0.614432+0.696436I$ $a=-3.11307-1.54198I$ $b=\ 1.05080-1.50344I$ $c=\ 1.39259-0.38277I$ $d=\ 0.334763+0.277573I$	$4.70063-1.01560I$	$8.78023+1.30126I$
$u=\ 0.614432-0.696436I$ $a=-3.11307+1.54198I$ $b=\ 1.05080+1.50344I$ $c=\ 1.39259+0.38277I$ $d=\ 0.334763-0.277573I$	$4.70063+1.01560I$	$8.78023-1.30126I$
$u=\ 0.904459+0.035006I$ $a=\ 0.684510+0.349167I$ $b=\ 1.217210-0.498628I$ $c=\ 0.226719-0.709857I$ $d=\ 0.94895-1.25909I$	$0.23417-4.06154I$	$0.42563+7.90074I$
$u=\ 0.904459-0.035006I$ $a=\ 0.684510-0.349167I$ $b=\ 1.217210+0.498628I$ $c=\ 0.226719+0.709857I$ $d=\ 0.94895+1.25909I$	$0.23417+4.06154I$	$0.42563-7.90074I$
$u=\ 0.517103+1.038360I$ $a=\ 0.728606+0.786743I$ $b=-1.25298-0.96152I$ $c=\ 1.178790-0.188129I$ $d=\ 0.361203+0.412386I$	$0.12548+4.11136I$	$2.46017-3.87123I$
$u=\ 0.517103-1.038360I$ $a=\ 0.728606-0.786743I$ $b=-1.25298+0.96152I$ $c=\ 1.178790+0.188129I$ $d=\ 0.361203-0.412386I$	$0.12548-4.11136I$	$2.46017+3.87123I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.017678 + 0.820472I$ $a = 0.853788 + 0.005623I$ $b = -0.0664210 + 0.0072212I$ $c = 0.617736 - 0.298148I$ $d = 0.123361 + 0.470883I$	$0.79101 + 1.46703I$	$5.32252 - 4.75359I$
$u = 0.017678 - 0.820472I$ $a = 0.853788 - 0.005623I$ $b = -0.0664210 - 0.0072212I$ $c = 0.617736 + 0.298148I$ $d = 0.123361 - 0.470883I$	$0.79101 - 1.46703I$	$5.32252 + 4.75359I$
$u = 1.006520 + 0.624064I$ $a = 0.618102 - 0.412984I$ $b = 1.58573 + 1.52879I$ $c = 0.186343 - 1.252860I$ $d = 0.75459 - 2.11694I$	$3.52144 - 4.08819I$	$5.82465 + 4.54278I$
$u = 1.006520 - 0.624064I$ $a = 0.618102 + 0.412984I$ $b = 1.58573 - 1.52879I$ $c = 0.186343 + 1.252860I$ $d = 0.75459 + 2.11694I$	$3.52144 + 4.08819I$	$5.82465 - 4.54278I$
$u = -1.071740 + 0.508840I$ $a = 0.249412 + 0.451516I$ $b = -0.037567 + 0.421763I$ $c = 0.237093 + 0.582132I$ $d = -0.291926 + 1.082080I$	$-1.98761 + 2.55534I$	$0.98949 - 1.01939I$
$u = -1.071740 - 0.508840I$ $a = 0.249412 - 0.451516I$ $b = -0.037567 - 0.421763I$ $c = 0.237093 - 0.582132I$ $d = -0.291926 - 1.082080I$	$-1.98761 - 2.55534I$	$0.98949 + 1.01939I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.807683 + 0.082878I$ $a = \ \ 0.701991 - 0.351361I$ $b = \ \ 1.056930 + 0.488868I$ $c = -0.192599 + 0.514963I$ $d = -0.891839 + 0.948808I$	$0.274017 + 1.087600I$	$-0.651009 + 0.594713I$
$u = -0.807683 - 0.082878I$ $a = \ \ 0.701991 + 0.351361I$ $b = \ \ 1.056930 - 0.488868I$ $c = -0.192599 - 0.514963I$ $d = -0.891839 - 0.948808I$	$0.274017 - 1.087600I$	$-0.651009 - 0.594713I$
$u = -0.668777 + 1.013930I$ $a = \ \ 0.733154 - 0.148233I$ $b = \ \ 0.143797 - 0.527077I$ $c = -1.276030 - 0.170948I$ $d = -0.403997 + 0.376312I$	$4.90536 - 6.51831I$	$8.90536 + 4.64881I$
$u = -0.668777 - 1.013930I$ $a = \ \ 0.733154 + 0.148233I$ $b = \ \ 0.143797 + 0.527077I$ $c = -1.276030 + 0.170948I$ $d = -0.403997 - 0.376312I$	$4.90536 + 6.51831I$	$8.90536 - 4.64881I$
$u = -1.035500 + 0.682470I$ $a = \ \ 0.691378 - 0.235874I$ $b = \ \ 0.882817 - 0.508436I$ $c = -0.156215 - 1.277950I$ $d = -0.69298 - 2.14399I$	$4.70874 + 9.62616I$	$7.79470 - 8.99124I$
$u = -1.035500 - 0.682470I$ $a = \ \ 0.691378 + 0.235874I$ $b = \ \ 0.882817 + 0.508436I$ $c = -0.156215 + 1.277950I$ $d = -0.69298 + 2.14399I$	$4.70874 - 9.62616I$	$7.79470 + 8.99124I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.224990 + 0.226721I$ $a = 0.253462 - 0.169367I$ $b = -0.320531 - 0.225417I$ $c = 0.050461 - 0.989550I$ $d = 0.63809 - 1.66040I$	$-3.57586 - 5.30392I$	$1.93777 + 5.96454I$
$u = 1.224990 - 0.226721I$ $a = 0.253462 + 0.169367I$ $b = -0.320531 + 0.225417I$ $c = 0.050461 + 0.989550I$ $d = 0.63809 + 1.66040I$	$-3.57586 + 5.30392I$	$1.93777 - 5.96454I$
$u = 1.195740 + 0.364671I$ $a = 0.44005 + 1.75493I$ $b = -1.22042 + 1.50844I$ $c = -0.186101 + 0.688056I$ $d = 0.356273 + 1.213420I$	$-6.39735 + 0.44189I$	$-4.43091 - 2.06201I$
$u = 1.195740 - 0.364671I$ $a = 0.44005 - 1.75493I$ $b = -1.22042 - 1.50844I$ $c = -0.186101 - 0.688056I$ $d = 0.356273 - 1.213420I$	$-6.39735 - 0.44189I$	$-4.43091 + 2.06201I$
$u = 0.687704 + 1.079720I$ $a = 0.598930 - 0.485617I$ $b = 0.89116 + 2.33948I$ $c = 1.270960 - 0.132505I$ $d = 0.421173 + 0.392926I$	$2.74057 + 11.63170I$	$5.60201 - 8.64749I$
$u = 0.687704 - 1.079720I$ $a = 0.598930 + 0.485617I$ $b = 0.89116 - 2.33948I$ $c = 1.270960 + 0.132505I$ $d = 0.421173 - 0.392926I$	$2.74057 - 11.63170I$	$5.60201 + 8.64749I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.158970 + 0.578549I$ $a = -1.27784 - 1.84483I$ $b = 0.63049 - 2.44257I$ $c = -0.292580 + 0.618138I$ $d = 0.226552 + 1.126520I$	$-4.42926 - 7.47789I$	$-1.74286 + 4.84208I$
$u = 1.158970 - 0.578549I$ $a = -1.27784 + 1.84483I$ $b = 0.63049 + 2.44257I$ $c = -0.292580 - 0.618138I$ $d = 0.226552 - 1.126520I$	$-4.42926 + 7.47789I$	$-1.74286 - 4.84208I$
$u = -1.311140 + 0.102134I$ $a = 0.00268 - 1.92087I$ $b = -0.86720 - 2.10727I$ $c = 0.030662 - 0.940031I$ $d = -0.53344 - 1.57008I$	$-7.51022 + 1.50301I$	$-3.10935 - 2.27720I$
$u = -1.311140 - 0.102134I$ $a = 0.00268 + 1.92087I$ $b = -0.86720 + 2.10727I$ $c = 0.030662 + 0.940031I$ $d = -0.53344 + 1.57008I$	$-7.51022 - 1.50301I$	$-3.10935 + 2.27720I$
$u = -0.435796 + 0.485308I$ $a = 0.873003 - 0.355186I$ $b = 0.215705 + 0.325189I$ $c = 0.168435 + 0.132484I$ $d = -0.223442 + 0.550785I$	$-0.084212 + 1.381070I$	$-0.30299 - 4.86269I$
$u = -0.435796 - 0.485308I$ $a = 0.873003 + 0.355186I$ $b = 0.215705 - 0.325189I$ $c = 0.168435 - 0.132484I$ $d = -0.223442 - 0.550785I$	$-0.084212 - 1.381070I$	$-0.30299 + 4.86269I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.316840+0.304432I$ $a=-0.68441+1.94019I$ $b=-0.04666+2.56224I$ $c=-0.010549-1.050770I$ $d=-0.56280-1.73815I$	$-6.69471+9.89538I$	$-1.12698-9.02462I$
$u=-1.316840-0.304432I$ $a=-0.68441-1.94019I$ $b=-0.04666-2.56224I$ $c=-0.010549+1.050770I$ $d=-0.56280+1.73815I$	$-6.69471-9.89538I$	$-1.12698+9.02462I$
$u=-1.118430+0.781907I$ $a=\quad 0.006550+0.558246I$ $b=\quad 0.136959+0.741041I$ $c=-0.096143-1.306940I$ $d=-0.58055-2.15879I$	$3.44989+13.07100I$	$7.52581-7.90184I$
$u=-1.118430-0.781907I$ $a=\quad 0.006550-0.558246I$ $b=\quad 0.136959-0.741041I$ $c=-0.096143+1.306940I$ $d=-0.58055+2.15879I$	$3.44989-13.07100I$	$7.52581+7.90184I$
$u=\quad 1.166960+0.709743I$ $a=\quad 0.55758+1.32715I$ $b=-1.85153+0.87351I$ $c=\quad 0.086648-1.266670I$ $d=\quad 0.58757-2.09046I$	$-1.96462-10.42030I$	$0.+7.01224I$
$u=\quad 1.166960-0.709743I$ $a=\quad 0.55758-1.32715I$ $b=-1.85153-0.87351I$ $c=\quad 0.086648+1.266670I$ $d=\quad 0.58757+2.09046I$	$-1.96462+10.42030I$	$0.-7.01224I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.144720 + 0.813548I$ $a = -1.46199 - 1.44274I$ $b = 1.12386 - 2.52551I$ $c = 0.079457 - 1.315210I$ $d = 0.54947 - 2.16215I$	$1.2351 - 18.4885I$	$4.00000 + 11.60486I$
$u = 1.144720 - 0.813548I$ $a = -1.46199 + 1.44274I$ $b = 1.12386 + 2.52551I$ $c = 0.079457 + 1.315210I$ $d = 0.54947 + 2.16215I$	$1.2351 + 18.4885I$	$4.00000 - 11.60486I$
$u = 0.068034 + 0.485475I$ $a = -3.28852 - 7.48764I$ $b = 0.699694 + 0.686768I$ $c = 0.39729 - 1.46311I$ $d = 0.044140 + 0.259666I$	$2.91211 + 2.24138I$	$11.31463 - 3.80305I$
$u = 0.068034 - 0.485475I$ $a = -3.28852 + 7.48764I$ $b = 0.699694 - 0.686768I$ $c = 0.39729 + 1.46311I$ $d = 0.044140 - 0.259666I$	$2.91211 - 2.24138I$	$11.31463 + 3.80305I$

II. $\boldsymbol{I_2^u = \langle -5.05\times 10^{19}cu^{37} + 2.57\times 10^{19}u^{37} + \cdots + 1.77\times 10^{20}c + 1.41\times 10^{20},\ -1.48\times 10^{20}cu^{37} + 8.79\times 10^{19}u^{37} + \cdots + 1.69\times 10^{19}c - 1.03\times 10^{20},\ -3.81\times 10^{20}u^{37} - 1.23\times 10^{20}u^{36} + \cdots + 3.70\times 10^{20}b + 1.74\times 10^{21},\ -9.02\times 10^{20}u^{37} - 1.40\times 10^{20}u^{36} + \cdots + 7.40\times 10^{20}a + 2.57\times 10^{21},\ u^{38} + u^{37} + \cdots + 4u - 4\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1.21795u^{37} + 0.189235u^{36} + \cdots + 8.79024u - 3.46578\\1.02901u^{37} + 0.331181u^{36} + \cdots + 9.83857u - 4.69204\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}1.53590u^{37} + 0.295833u^{36} + \cdots + 9.64211u - 4.04294\\1.20001u^{37} + 0.438425u^{36} + \cdots + 11.9557u - 5.53741\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.904497u^{37} - 0.262263u^{36} + \cdots + 5.27517u - 2.04692\\0.358591u^{37} - 0.434315u^{36} + \cdots + 1.07020u - 1.14792\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}c\\0.272891cu^{37} - 0.138991u^{37} + \cdots - 0.958415c - 0.759301\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.395649cu^{37} + 0.295906u^{37} + \cdots + 3.20198c - 1.89901\\-0.122758cu^{37} + 0.156914u^{37} + \cdots + 1.24357c - 2.65831\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.545906u^{37} + 0.172052u^{36} + \cdots + 4.20498u - 0.899010\\-0.0826896u^{37} + 0.291100u^{36} + \cdots + 2.60884u - 0.347500\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.272891cu^{37} - 0.138991u^{37} + \cdots - 1.95842c - 0.759301\\0.272891cu^{37} - 0.138991u^{37} + \cdots - 0.958415c - 0.759301\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.373854cu^{37} + 1.39231u^{37} + \cdots - 1.18362c - 3.88958\\-0.100899cu^{37} + 0.624721u^{37} + \cdots - 0.627657c - 4.09737\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{125334397169543797937}{92530874909565185306}u^{37} - \frac{144830212205814099033}{92530874909565185306}u^{36} + \cdots - \frac{34223567447539124627}{92530874909565185306}u + \frac{228286816014379276432}{46265437454782592653}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{38}+18u^{37}+\cdots-5u+1)^2$
c_2	$(u^{38}+2u^{37}+\cdots+5u+1)^2$
c_3	$(u^{38}-2u^{37}+\cdots-37u+17)^2$
c_4	$(u^{38}+u^{37}+\cdots+4u-4)^2$
c_5	$(u^{38}-2u^{37}+\cdots-5u+1)^2$
c_6, c_7	$u^{76}+3u^{75}+\cdots-104u-16$
c_8	$(u^{38}-u^{37}+\cdots-4u-4)^2$
c_9	$u^{76}-43u^{75}+\cdots-800u+256$
c_{10}, c_{12}	$-u^{76}+3u^{75}+\cdots-104u+16$
c_{11}	$u^{76}+43u^{75}+\cdots+800u+256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{38} + 6y^{37} + \cdots - 61y + 1)^2$
c_2, c_5	$(y^{38} + 18y^{37} + \cdots - 5y + 1)^2$
c_3	$(y^{38} - 6y^{37} + \cdots - 6333y + 289)^2$
c_4, c_8	$(y^{38} - 15y^{37} + \cdots - 72y + 16)^2$
c_6, c_7, c_{10} c_{12}	$y^{76} - 43y^{75} + \cdots - 800y + 256$
c_9, c_{11}	$y^{76} - 23y^{75} + \cdots - 1516032y + 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.718175+0.689913I$ $a=\ \ 0.759326-0.224057I$ $b=\ \ 0.474987-0.230385I$ $c=-0.31772-1.41713I$ $d=-0.91042-2.46929I$	$6.09366+1.46931I$	$10.87065-3.08473I$
$u=-0.718175+0.689913I$ $a=\ \ 0.759326-0.224057I$ $b=\ \ 0.474987-0.230385I$ $c=-1.44823-0.31091I$ $d=-0.371242+0.261333I$	$6.09366+1.46931I$	$10.87065-3.08473I$
$u=-0.718175-0.689913I$ $a=\ \ 0.759326+0.224057I$ $b=\ \ 0.474987+0.230385I$ $c=-0.31772+1.41713I$ $d=-0.91042+2.46929I$	$6.09366-1.46931I$	$10.87065+3.08473I$
$u=-0.718175-0.689913I$ $a=\ \ 0.759326+0.224057I$ $b=\ \ 0.474987+0.230385I$ $c=-1.44823+0.31091I$ $d=-0.371242-0.261333I$	$6.09366-1.46931I$	$10.87065+3.08473I$
$u=-0.257524+0.984493I$ $a=\ \ 0.730146-0.660359I$ $b=-0.70295+1.28730I$ $c=-0.967410-0.240606I$ $d=-0.263329+0.455019I$	$-1.60581+0.49664I$	$-0.272784-1.115032I$
$u=-0.257524+0.984493I$ $a=\ \ 0.730146-0.660359I$ $b=-0.70295+1.28730I$ $c=\ \ 0.593095+0.049873I$ $d=\ \ 0.100752+0.635092I$	$-1.60581+0.49664I$	$-0.272784-1.115032I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.257524-0.984493I$ $a=\ \ 0.730146+0.660359I$ $b=-0.70295-1.28730I$ $c=-0.967410+0.240606I$ $d=-0.263329-0.455019I$	$-1.60581-0.49664I$	$-0.272784+1.115032I$
$u=-0.257524-0.984493I$ $a=\ \ 0.730146+0.660359I$ $b=-0.70295-1.28730I$ $c=\ \ 0.593095-0.049873I$ $d=\ \ 0.100752-0.635092I$	$-1.60581-0.49664I$	$-0.272784+1.115032I$
$u=-0.924425+0.450549I$ $a=-1.61291+2.52841I$ $b=\ \ 0.52794+1.92562I$ $c=\ \ 0.171561+0.498961I$ $d=-0.364946+0.973548I$	$0.88516+3.95746I$	$1.72480-4.57056I$
$u=-0.924425+0.450549I$ $a=-1.61291+2.52841I$ $b=\ \ 0.52794+1.92562I$ $c=-1.63227-0.20134I$ $d=-0.419779+0.157998I$	$0.88516+3.95746I$	$1.72480-4.57056I$
$u=-0.924425-0.450549I$ $a=-1.61291-2.52841I$ $b=\ \ 0.52794-1.92562I$ $c=\ \ 0.171561-0.498961I$ $d=-0.364946-0.973548I$	$0.88516-3.95746I$	$1.72480+4.57056I$
$u=-0.924425-0.450549I$ $a=-1.61291-2.52841I$ $b=\ \ 0.52794-1.92562I$ $c=-1.63227+0.20134I$ $d=-0.419779-0.157998I$	$0.88516-3.95746I$	$1.72480+4.57056I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.531079 + 0.883531I$ $a = 0.779777 + 0.149134I$ $b = 0.134208 + 0.296022I$ $c = 1.227900 - 0.296771I$ $d = 0.335612 + 0.358410I$	$2.26472 + 1.90334I$	$6.18021 - 1.07076I$
$u = 0.531079 + 0.883531I$ $a = 0.779777 + 0.149134I$ $b = 0.134208 + 0.296022I$ $c = -0.458700 + 0.220577I$ $d = 0.014532 + 0.739994I$	$2.26472 + 1.90334I$	$6.18021 - 1.07076I$
$u = 0.531079 - 0.883531I$ $a = 0.779777 - 0.149134I$ $b = 0.134208 - 0.296022I$ $c = 1.227900 + 0.296771I$ $d = 0.335612 - 0.358410I$	$2.26472 - 1.90334I$	$6.18021 + 1.07076I$
$u = 0.531079 - 0.883531I$ $a = 0.779777 - 0.149134I$ $b = 0.134208 - 0.296022I$ $c = -0.458700 - 0.220577I$ $d = 0.014532 - 0.739994I$	$2.26472 - 1.90334I$	$6.18021 + 1.07076I$
$u = -0.860778 + 0.429023I$ $a = 0.649690 + 0.406518I$ $b = 1.31432 - 1.20770I$ $c = -0.351705 - 1.146920I$ $d = -1.07373 - 1.99897I$	$1.135440 - 0.390890I$	$2.15175 - 1.14697I$
$u = -0.860778 + 0.429023I$ $a = 0.649690 + 0.406518I$ $b = 1.31432 - 1.20770I$ $c = 0.145196 + 0.457097I$ $d = -0.391254 + 0.916323I$	$1.135440 - 0.390890I$	$2.15175 - 1.14697I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.860778 - 0.429023I$ $a = 0.649690 - 0.406518I$ $b = 1.31432 + 1.20770I$ $c = -0.351705 + 1.146920I$ $d = -1.07373 + 1.99897I$	$1.135440 + 0.390890I$	$2.15175 + 1.14697I$
$u = -0.860778 - 0.429023I$ $a = 0.649690 - 0.406518I$ $b = 1.31432 + 1.20770I$ $c = 0.145196 - 0.457097I$ $d = -0.391254 - 0.916323I$	$1.135440 + 0.390890I$	$2.15175 + 1.14697I$
$u = 0.959864 + 0.423605I$ $a = 0.91740 + 1.74027I$ $b = -0.949339 + 0.978173I$ $c = 0.262143 - 1.119880I$ $d = 0.93067 - 1.92567I$	$0.93346 - 1.43399I$	$1.64648 + 2.88902I$
$u = 0.959864 + 0.423605I$ $a = 0.91740 + 1.74027I$ $b = -0.949339 + 0.978173I$ $c = 1.64185 - 0.17843I$ $d = 0.430009 + 0.146452I$	$0.93346 - 1.43399I$	$1.64648 + 2.88902I$
$u = 0.959864 - 0.423605I$ $a = 0.91740 - 1.74027I$ $b = -0.949339 - 0.978173I$ $c = 0.262143 + 1.119880I$ $d = 0.93067 + 1.92567I$	$0.93346 + 1.43399I$	$1.64648 - 2.88902I$
$u = 0.959864 - 0.423605I$ $a = 0.91740 - 1.74027I$ $b = -0.949339 - 0.978173I$ $c = 1.64185 + 0.17843I$ $d = 0.430009 - 0.146452I$	$0.93346 + 1.43399I$	$1.64648 - 2.88902I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.590924 + 0.743055I$ $a = 0.647196 - 0.465482I$ $b = 0.84895 + 1.68623I$ $c = 1.344230 - 0.369647I$ $d = 0.333035 + 0.298147I$	$4.63851 + 3.34557I$	$8.53398 - 2.94107I$
$u = 0.590924 + 0.743055I$ $a = 0.647196 - 0.465482I$ $b = 0.84895 + 1.68623I$ $c = 0.32357 - 1.52942I$ $d = 0.87033 - 2.69031I$	$4.63851 + 3.34557I$	$8.53398 - 2.94107I$
$u = 0.590924 - 0.743055I$ $a = 0.647196 + 0.465482I$ $b = 0.84895 - 1.68623I$ $c = 1.344230 + 0.369647I$ $d = 0.333035 - 0.298147I$	$4.63851 - 3.34557I$	$8.53398 + 2.94107I$
$u = 0.590924 - 0.743055I$ $a = 0.647196 + 0.465482I$ $b = 0.84895 - 1.68623I$ $c = 0.32357 + 1.52942I$ $d = 0.87033 + 2.69031I$	$4.63851 - 3.34557I$	$8.53398 + 2.94107I$
$u = -0.944268 + 0.080074I$ $a = 0.47872 - 2.76266I$ $b = -0.35670 - 1.46996I$ $c = -0.105277 + 0.649327I$ $d = -0.762060 + 1.161940I$	$-0.25240 - 2.75914I$	$-1.19764 + 4.35912I$
$u = -0.944268 + 0.080074I$ $a = 0.47872 - 2.76266I$ $b = -0.35670 - 1.46996I$ $c = -1.77987 - 0.04841I$ $d = -0.411287 + 0.028167I$	$-0.25240 - 2.75914I$	$-1.19764 + 4.35912I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.944268-0.080074I$ $a=\ \ 0.47872+2.76266I$ $b=-0.35670+1.46996I$ $c=-0.105277-0.649327I$ $d=-0.762060-1.161940I$	$-0.25240+2.75914I$	$-1.19764-4.35912I$
$u=-0.944268-0.080074I$ $a=\ \ 0.47872+2.76266I$ $b=-0.35670+1.46996I$ $c=-1.77987+0.04841I$ $d=-0.411287-0.028167I$	$-0.25240+2.75914I$	$-1.19764-4.35912I$
$u=\ \ 0.932230+0.544110I$ $a=\ \ 0.711056+0.261382I$ $b=\ \ 0.873920+0.226986I$ $c=\ \ 0.256252-1.221400I$ $d=\ \ 0.88507-2.09363I$	$2.05024-4.86305I$	$4.53119+6.13263I$
$u=\ \ 0.932230+0.544110I$ $a=\ \ 0.711056+0.261382I$ $b=\ \ 0.873920+0.226986I$ $c=-0.235604+0.489367I$ $d=\ \ 0.285549+0.970591I$	$2.05024-4.86305I$	$4.53119+6.13263I$
$u=\ \ 0.932230-0.544110I$ $a=\ \ 0.711056-0.261382I$ $b=\ \ 0.873920-0.226986I$ $c=\ \ 0.256252+1.221400I$ $d=\ \ 0.88507+2.09363I$	$2.05024+4.86305I$	$4.53119-6.13263I$
$u=\ \ 0.932230-0.544110I$ $a=\ \ 0.711056-0.261382I$ $b=\ \ 0.873920-0.226986I$ $c=-0.235604-0.489367I$ $d=\ \ 0.285549-0.970591I$	$2.05024+4.86305I$	$4.53119-6.13263I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.708662 + 0.534244I$		
$a = 0.675134 - 0.882504I$		
$b = 0.244504 - 0.127412I$	$2.72088 + 0.47986I$	$5.93461 + 0.48126I$
$c = -0.208049 + 0.334490I$		
$d = 0.283657 + 0.784026I$		
$u = 0.708662 + 0.534244I$		
$a = 0.675134 - 0.882504I$		
$b = 0.244504 - 0.127412I$	$2.72088 + 0.47986I$	$5.93461 + 0.48126I$
$c = 1.57174 - 0.36447I$		
$d = 0.350066 + 0.206079I$		
$u = 0.708662 - 0.534244I$		
$a = 0.675134 + 0.882504I$		
$b = 0.244504 + 0.127412I$	$2.72088 - 0.47986I$	$5.93461 - 0.48126I$
$c = -0.208049 - 0.334490I$		
$d = 0.283657 - 0.784026I$		
$u = 0.708662 - 0.534244I$		
$a = 0.675134 + 0.882504I$		
$b = 0.244504 + 0.127412I$	$2.72088 - 0.47986I$	$5.93461 - 0.48126I$
$c = 1.57174 + 0.36447I$		
$d = 0.350066 - 0.206079I$		
$u = -0.947945 + 0.635897I$		
$a = 0.229415 + 0.658277I$		
$b = 0.175268 + 0.437196I$	$5.38662 + 3.65224I$	$8.95361 - 3.74887I$
$c = -0.217424 - 1.276340I$		
$d = -0.79602 - 2.17049I$		
$u = -0.947945 + 0.635897I$		
$a = 0.229415 + 0.658277I$		
$b = 0.175268 + 0.437196I$	$5.38662 + 3.65224I$	$8.95361 - 3.74887I$
$c = -1.53314 - 0.18806I$		
$d = -0.442998 + 0.217877I$		

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.947945 - 0.635897I$ $a = 0.229415 - 0.658277I$ $b = 0.175268 - 0.437196I$ $c = -0.217424 + 1.276340I$ $d = -0.79602 + 2.17049I$	$5.38662 - 3.65224I$	$8.95361 + 3.74887I$
$u = -0.947945 - 0.635897I$ $a = 0.229415 - 0.658277I$ $b = 0.175268 - 0.437196I$ $c = -1.53314 + 0.18806I$ $d = -0.442998 - 0.217877I$	$5.38662 - 3.65224I$	$8.95361 + 3.74887I$
$u = -0.538756 + 1.020250I$ $a = 0.619031 + 0.499374I$ $b = 0.63204 - 2.14935I$ $c = -1.196440 - 0.196554I$ $d = -0.364434 + 0.402323I$	$0.15070 - 6.61979I$	$2.54938 + 5.39938I$
$u = -0.538756 + 1.020250I$ $a = 0.619031 + 0.499374I$ $b = 0.63204 - 2.14935I$ $c = 0.545739 + 0.245695I$ $d = 0.052704 + 0.770717I$	$0.15070 - 6.61979I$	$2.54938 + 5.39938I$
$u = -0.538756 - 1.020250I$ $a = 0.619031 - 0.499374I$ $b = 0.63204 + 2.14935I$ $c = -1.196440 + 0.196554I$ $d = -0.364434 - 0.402323I$	$0.15070 + 6.61979I$	$2.54938 - 5.39938I$
$u = -0.538756 - 1.020250I$ $a = 0.619031 - 0.499374I$ $b = 0.63204 + 2.14935I$ $c = 0.545739 - 0.245695I$ $d = 0.052704 - 0.770717I$	$0.15070 + 6.61979I$	$2.54938 - 5.39938I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.20232$ $a = \ \ 0.295778$ $b = -0.330847$ $c = \ \ 0.007353 + 0.846402I$ $d = -0.58336 + 1.44227I$	-4.04432	0.509520
$u = -1.20232$ $a = \ \ 0.295778$ $b = -0.330847$ $c = \ \ 0.007353 - 0.846402I$ $d = -0.58336 - 1.44227I$	-4.04432	0.509520
$u = \ \ 1.034470 + 0.639555I$ $a = -1.59290 - 1.84692I$ $b = \ \ 0.81702 - 2.22810I$ $c = \ \ 0.166717 - 1.255100I$ $d = \ \ 0.72123 - 2.11158I$	$3.29566 - 8.62980I$	$5.39171 + 7.80256I$
$u = \ \ 1.034470 + 0.639555I$ $a = -1.59290 - 1.84692I$ $b = \ \ 0.81702 - 2.22810I$ $c = \ \ 1.53962 - 0.14913I$ $d = \ \ 0.470945 + 0.211132I$	$3.29566 - 8.62980I$	$5.39171 + 7.80256I$
$u = \ \ 1.034470 - 0.639555I$ $a = -1.59290 + 1.84692I$ $b = \ \ 0.81702 + 2.22810I$ $c = \ \ 0.166717 + 1.255100I$ $d = \ \ 0.72123 + 2.11158I$	$3.29566 + 8.62980I$	$5.39171 - 7.80256I$
$u = \ \ 1.034470 - 0.639555I$ $a = -1.59290 + 1.84692I$ $b = \ \ 0.81702 + 2.22810I$ $c = \ \ 1.53962 + 0.14913I$ $d = \ \ 0.470945 - 0.211132I$	$3.29566 + 8.62980I$	$5.39171 - 7.80256I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.106900 + 0.677869I$		
$a = 0.097757 - 0.529135I$		
$b = 0.057337 - 0.616881I$	$0.49001 - 7.69321I$	$4.38087 + 4.90752I$
$c = 0.120703 - 1.260900I$		
$d = 0.64408 - 2.09872I$		
$u = 1.106900 + 0.677869I$		
$a = 0.097757 - 0.529135I$		
$b = 0.057337 - 0.616881I$	$0.49001 - 7.69321I$	$4.38087 + 4.90752I$
$c = -0.338125 + 0.575068I$		
$d = 0.173339 + 1.077430I$		
$u = 1.106900 - 0.677869I$		
$a = 0.097757 + 0.529135I$		
$b = 0.057337 + 0.616881I$	$0.49001 + 7.69321I$	$4.38087 - 4.90752I$
$c = 0.120703 + 1.260900I$		
$d = 0.64408 + 2.09872I$		
$u = 1.106900 - 0.677869I$		
$a = 0.097757 + 0.529135I$		
$b = 0.057337 + 0.616881I$	$0.49001 + 7.69321I$	$4.38087 - 4.90752I$
$c = -0.338125 - 0.575068I$		
$d = 0.173339 - 1.077430I$		
$u = -1.174770 + 0.565730I$		
$a = 0.54948 - 1.48780I$		
$b = -1.57912 - 1.14053I$	$-4.51708 + 4.93169I$	$-1.83206 - 3.23906I$
$c = -0.099407 - 1.192690I$		
$d = -0.64241 - 1.98202I$		
$u = -1.174770 + 0.565730I$		
$a = 0.54948 - 1.48780I$		
$b = -1.57912 - 1.14053I$	$-4.51708 + 4.93169I$	$-1.83206 - 3.23906I$
$c = 0.288625 + 0.628881I$		
$d = -0.231233 + 1.139200I$		

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.174770 - 0.565730I$		
$a = \quad 0.54948 + 1.48780I$		
$b = -1.57912 + 1.14053I$	$-4.51708 - 4.93169I$	$-1.83206 + 3.23906I$
$c = -0.099407 + 1.192690I$		
$d = -0.64241 + 1.98202I$		
$u = -1.174770 - 0.565730I$		
$a = \quad 0.54948 + 1.48780I$		
$b = -1.57912 + 1.14053I$	$-4.51708 - 4.93169I$	$-1.83206 + 3.23906I$
$c = \quad 0.288625 - 0.628881I$		
$d = -0.231233 - 1.139200I$		
$u = \quad 1.307610 + 0.109024I$		
$a = -0.34714 - 2.01472I$		
$b = -0.43751 - 2.35043I$	$-7.49754 - 4.17106I$	$-3.10533 + 3.69910I$
$c = -0.026803 - 0.942642I$		
$d = \quad 0.53828 - 1.57459I$		
$u = \quad 1.307610 + 0.109024I$		
$a = -0.34714 - 2.01472I$		
$b = -0.43751 - 2.35043I$	$-7.49754 - 4.17106I$	$-3.10533 + 3.69910I$
$c = -0.104395 + 0.836665I$		
$d = \quad 0.45070 + 1.41497I$		
$u = \quad 1.307610 - 0.109024I$		
$a = -0.34714 + 2.01472I$		
$b = -0.43751 + 2.35043I$	$-7.49754 + 4.17106I$	$-3.10533 - 3.69910I$
$c = -0.026803 + 0.942642I$		
$d = \quad 0.53828 + 1.57459I$		
$u = \quad 1.307610 - 0.109024I$		
$a = -0.34714 + 2.01472I$		
$b = -0.43751 + 2.35043I$	$-7.49754 + 4.17106I$	$-3.10533 - 3.69910I$
$c = -0.104395 - 0.836665I$		
$d = \quad 0.45070 - 1.41497I$		

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.155970 + 0.720501I$ $a = -1.40371 + 1.59813I$ $b = 0.92356 + 2.51029I$ $c = -0.090116 - 1.273270I$ $d = -0.58952 - 2.10255I$	$-1.81705 + 12.92960I$	$1.59130 - 8.57718I$
$u = -1.155970 + 0.720501I$ $a = -1.40371 + 1.59813I$ $b = 0.92356 + 2.51029I$ $c = 0.366569 + 0.595652I$ $d = -0.141563 + 1.100900I$	$-1.81705 + 12.92960I$	$1.59130 - 8.57718I$
$u = -1.155970 - 0.720501I$ $a = -1.40371 - 1.59813I$ $b = 0.92356 - 2.51029I$ $c = -0.090116 + 1.273270I$ $d = -0.58952 + 2.10255I$	$-1.81705 - 12.92960I$	$1.59130 + 8.57718I$
$u = -1.155970 - 0.720501I$ $a = -1.40371 - 1.59813I$ $b = 0.92356 - 2.51029I$ $c = 0.366569 - 0.595652I$ $d = -0.141563 - 1.100900I$	$-1.81705 - 12.92960I$	$1.59130 + 8.57718I$
$u = 0.620359$ $a = 0.850291$ $b = -0.0134746$ $c = 0.526910$ $d = 1.44852$	2.31973	2.07640
$u = 0.620359$ $a = 0.850291$ $b = -0.0134746$ $c = 2.14922$ $d = 0.287912$	2.31973	2.07640

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.141853+0.491513I$		
$a=$	$0.789501+0.479357I$		
$b=$	$0.173722-0.874524I$	$2.95645-1.74546I$	$9.67431+3.49934I$
$c=$	$0.76489-1.34869I$		
$d=$	$0.089447+0.255868I$		
$u=$	$0.141853+0.491513I$		
$a=$	$0.789501+0.479357I$		
$b=$	$0.173722-0.874524I$	$2.95645-1.74546I$	$9.67431+3.49934I$
$c=$	$0.43488-2.33014I$		
$d=$	$0.93136-4.42466I$		
$u=$	$0.141853-0.491513I$		
$a=$	$0.789501-0.479357I$		
$b=$	$0.173722+0.874524I$	$2.95645+1.74546I$	$9.67431-3.49934I$
$c=$	$0.76489+1.34869I$		
$d=$	$0.089447-0.255868I$		
$u=$	$0.141853-0.491513I$		
$a=$	$0.789501-0.479357I$		
$b=$	$0.173722+0.874524I$	$2.95645+1.74546I$	$9.67431-3.49934I$
$c=$	$0.43488+2.33014I$		
$d=$	$0.93136+4.42466I$		

III. $I_1^v = \langle a,\ d,\ c - v,\ b - v,\ v^2 - v + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	$0.500000 + 0.866025I$		
$a =$	0		
$b =$	$0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$c =$	$0.500000 + 0.866025I$		
$d =$	0		
$v =$	$0.500000 - 0.866025I$		
$a =$	0		
$b =$	$0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$
$c =$	$0.500000 - 0.866025I$		
$d =$	0		

IV. $I_2^v = \langle a,\ d - v + 1,\ -av + c + 1,\ b - v,\ v^2 - v + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v + 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$ $c = -1.00000$ $d = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$v = 0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$ $c = -1.00000$ $d = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$

V. $I_3^v = \langle c,\ d-1,\ b,\ a-1,\ v+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 1.00000$ $b = 0$ $c = 0$ $d = 1.00000$	3.28987	12.0000

VI. $\boldsymbol{I_4^v =}$
$\boldsymbol{\langle a,\ db{+}da{+}\cdots{+}b{-}1,\ a^2d{-}da{+}\cdots{-}a{+}1,\ dv{+}1,\ cv{-}ba{-}bv{+}b{+}a,\ b^2{-}b{+}1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -c^2b + 2cb + v^2 - 2c - 4b + 13$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	$3.28987 - 2.02988I$	$8.56933 + 3.58827I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2-u+1)^2(u^{46}+21u^{45}+\cdots-40u+16)$
c_2	$u(u^2+u+1)^2(u^{46}+u^{45}+\cdots-4u+4)$
c_3	$u(u^2-u+1)^2(u^{46}-u^{45}+\cdots-2596u+1252)$
c_4, c_8	$u^5(u^{46}-3u^{45}+\cdots-32u+32)$
c_5	$u(u^2-u+1)^2(u^{46}+u^{45}+\cdots-4u+4)$
c_6	$u^2(u-1)(u+1)^2(u^{46}+5u^{45}+\cdots+2u+1)$
c_7	$u^2(u+1)^3(u^{46}+5u^{45}+\cdots+2u+1)$
c_9, c_{11}	$u^2(u+1)^3(u^{46}-21u^{45}+\cdots+4u+1)$
c_{10}	$u^2(u-1)^3(u^{46}+5u^{45}+\cdots+2u+1)$
c_{12}	$u^2(u-1)^2(u+1)(u^{46}+5u^{45}+\cdots+2u+1)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2+y+1)^2(y^{46}+9y^{45}+\cdots-5664y+256)$
c_2, c_5	$y(y^2+y+1)^2(y^{46}+21y^{45}+\cdots-40y+16)$
c_3	$y(y^2+y+1)^2(y^{46}-3y^{45}+\cdots-2.04086\times10^7y+1567504)$
c_4, c_8	$y^5(y^{46}-15y^{45}+\cdots+4096y+1024)$
c_6, c_7, c_{10} c_{12}	$y^2(y-1)^3(y^{46}-21y^{45}+\cdots+4y+1)$
c_9, c_{11}	$y^2(y-1)^3(y^{46}+19y^{45}+\cdots-72y+1)$