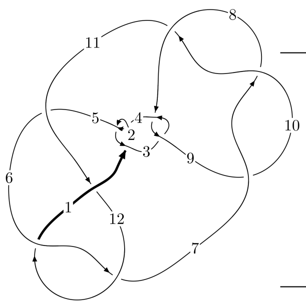
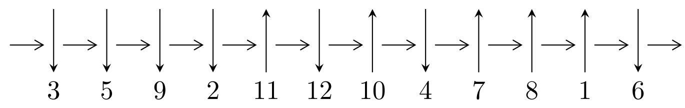
$12a_{0157}$ ($K12a_{0157}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & -6.07617 \times 10^{162} u^{76} - 1.59683 \times 10^{163} u^{75} + \cdots + 1.45795 \times 10^{166} d + 6.24229 \times 10^{165},\\
& -7.60333 \times 10^{161} u^{76} + 1.20057 \times 10^{161} u^{75} + \cdots + 3.64487 \times 10^{165} c + 3.09611 \times 10^{165},\\
& -3.42640 \times 10^{161} u^{76} + 2.87429 \times 10^{161} u^{75} + \cdots + 2.56564 \times 10^{164} b + 1.17150 \times 10^{165},\\
& 6.98505 \times 10^{162} u^{76} + 6.83866 \times 10^{162} u^{75} + \cdots + 1.02626 \times 10^{165} a - 1.03017 \times 10^{166},\\
& u^{77} + 2u^{76} + \cdots + 2560u^2 + 512\rangle\\
I_2^u = \langle & u^3a^2 - a^2u^2 - u^3a + a^2u + 2u^3 + au + d - 4a + 4,\ u^3a^2 - 2u^3a + a^2u + 2u^3 + au + c - 2a + 2,\\
& a^2u^2 + b + 2a - 2,\ 2u^3a^2 - 2a^2u^2 - 3u^3a + a^3 + 2a^2u + 3u^2a + u^3 - 3au - u^2 + u,\ u^4 + u^2 + u + 1\rangle\\
I_3^u = \langle & u^5a^2 - 4u^5a + 2u^3a^2 + 4u^4a + 4u^5 - 5u^3a - 4u^4 + 2a^2u + 8u^2a + 6u^3 - 3au - 8u^2 + d + 8a + 4u - 8,\\
& -2u^5a + u^3a^2 + 2u^4a + 2u^5 - 4u^3a - 2u^4 + a^2u + 4u^2a + 4u^3 - au - 4u^2 + c + 4a + 2u - 4,\\
& a^2u^2 + b + 2a - 2,\ -4u^5a^2 + 6u^5a + \cdots - 6a + 2,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle
\end{aligned}
$$

$$
\begin{aligned}
I_1^v &= \langle c,\ d - v - 1,\ b,\ a - 1,\ v^2 + v + 1\rangle\\
I_2^v &= \langle a,\ d,\ c - v,\ b - 1,\ v^2 - v + 1\rangle\\
I_3^v &= \langle a,\ d + 1,\ c + a,\ b - 1,\ v - 1\rangle\\
I_4^v &= \langle a,\ a^2d - c^2v - 2ca + cv + a - v,\ dv + 1,\ c^2v^2 + 2cav - v^2c + a^2 - av + v^2,\ b - 1\rangle
\end{aligned}
$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 112 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`).

I. $I^u_1 =$
$\langle -6.08\times10^{162}u^{76}-1.60\times10^{163}u^{75}+\cdots+1.46\times10^{166}d+6.24\times10^{165},\ -7.60\times10^{161}u^{76}+1.20\times10^{161}u^{75}+\cdots+3.64\times10^{165}c+3.10\times10^{165},\ -3.43\times10^{161}u^{76}+2.87\times10^{161}u^{75}+\cdots+2.57\times10^{164}b+1.17\times10^{165},\ 6.99\times10^{162}u^{76}+6.84\times10^{162}u^{75}+\cdots+1.03\times10^{165}a-1.03\times10^{166},\ u^{77}+2u^{76}+\cdots+2560u^2+512\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.00680634u^{76}-0.00666370u^{75}+\cdots-13.3533u+10.0381\\0.00133550u^{76}-0.00112030u^{75}+\cdots+4.56543u-4.56612\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0.000208604u^{76}-0.0000329385u^{75}+\cdots-1.00214u-0.849444\\0.000416762u^{76}+0.00109526u^{75}+\cdots+0.259754u-0.428156\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.00584350u^{76}-0.00606296u^{75}+\cdots-10.5775u+9.19500\\-0.000891648u^{76}-0.00576153u^{75}+\cdots+4.16493u-3.32748\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.00680634u^{76}-0.00666370u^{75}+\cdots-13.3533u+10.0381\\0.000152722u^{76}+0.00152555u^{75}+\cdots-1.08059u+1.00825\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-0.00665361u^{76}-0.00513815u^{75}+\cdots-14.4339u+11.0464\\0.000152722u^{76}+0.00152555u^{75}+\cdots-1.08059u+1.00825\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.0000869789u^{76}-0.000560439u^{75}+\cdots-0.853173u-0.579783\\0.000218526u^{76}+0.000662503u^{75}+\cdots+0.560059u-0.191092\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.000290951u^{76}+0.00110858u^{75}+\cdots+1.36870u+0.190813\\0.000499554u^{76}+0.00107564u^{75}+\cdots+0.366559u-0.658630\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.00628963u^{76}+0.0183729u^{75}+\cdots+6.15552u+8.93643\\-0.00429774u^{76}-0.00774981u^{75}+\cdots-6.38490u-0.700057\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0221138u^{76}-0.0478032u^{75}+\cdots-21.6023u+0.388088$

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{77} + 34u^{76} + \cdots + 1568u + 256$
c_2, c_4	$u^{77} - 8u^{76} + \cdots - 72u + 16$
c_3, c_8	$u^{77} + 2u^{76} + \cdots + 2560u^2 + 512$
c_5	$u^{77} + 2u^{76} + \cdots + 351912u + 66564$
c_6, c_{12}	$u^{77} - 2u^{76} + \cdots - 27u^2 + 4$
c_7, c_9, c_{10}	$u^{77} + 8u^{76} + \cdots - 72u + 16$
c_{11}	$u^{77} - 36u^{76} + \cdots + 216u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{77} + 26y^{76} + \cdots + 3416576y - 65536$
c_2, c_4	$y^{77} - 34y^{76} + \cdots + 1568y - 256$
c_3, c_8	$y^{77} + 30y^{76} + \cdots - 2621440y - 262144$
c_5	$y^{77} - 12y^{76} + \cdots + 120020616504y - 4430766096$
c_6, c_{12}	$y^{77} + 36y^{76} + \cdots + 216y - 16$
c_7, c_9, c_{10}	$y^{77} - 74y^{76} + \cdots + 7712y - 256$
c_{11}	$y^{77} + 12y^{76} + \cdots + 84256y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.508886 + 0.845592I$ $a = 0.440978 - 0.047456I$ $b = 1.241720 + 0.241243I$ $c = 1.093870 + 0.364160I$ $d = 0.443416 - 0.224335I$	$-2.40889 + 4.27390I$	$-3.74115 - 6.44221I$
$u = -0.508886 - 0.845592I$ $a = 0.440978 + 0.047456I$ $b = 1.241720 - 0.241243I$ $c = 1.093870 - 0.364160I$ $d = 0.443416 + 0.224335I$	$-2.40889 - 4.27390I$	$-3.74115 + 6.44221I$
$u = 0.848496 + 0.585068I$ $a = 0.460618 + 0.092632I$ $b = 1.086610 - 0.419625I$ $c = -0.531801 + 1.113610I$ $d = -1.32944 + 1.48023I$	$-3.78378 + 2.11500I$	$-7.65464 - 1.99007I$
$u = 0.848496 - 0.585068I$ $a = 0.460618 - 0.092632I$ $b = 1.086610 + 0.419625I$ $c = -0.531801 - 1.113610I$ $d = -1.32944 - 1.48023I$	$-3.78378 - 2.11500I$	$-7.65464 + 1.99007I$
$u = 0.990280 + 0.319237I$ $a = 0.580990 - 0.275212I$ $b = 0.405766 + 0.665904I$ $c = 0.427768 - 0.711040I$ $d = 0.003575 - 0.815149I$	$2.98745 + 0.86657I$	0
$u = 0.990280 - 0.319237I$ $a = 0.580990 + 0.275212I$ $b = 0.405766 - 0.665904I$ $c = 0.427768 + 0.711040I$ $d = 0.003575 + 0.815149I$	$2.98745 - 0.86657I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.617221 + 0.733532I$ $a = 0.450662 + 0.060640I$ $b = 1.179500 - 0.293267I$ $c = -0.865693 + 0.615479I$ $d = -0.818586 + 0.224399I$	$-4.09446 + 0.35704I$	$-8.04104 + 0.70386I$
$u = 0.617221 - 0.733532I$ $a = 0.450662 - 0.060640I$ $b = 1.179500 + 0.293267I$ $c = -0.865693 - 0.615479I$ $d = -0.818586 - 0.224399I$	$-4.09446 - 0.35704I$	$-8.04104 - 0.70386I$
$u = -0.517431 + 0.792256I$ $a = -0.31513 - 2.57319I$ $b = -1.046890 + 0.382880I$ $c = 0.979361 + 0.392885I$ $d = 0.491329 - 0.041258I$	$-2.57405 - 0.08416I$	$-4.54592 - 2.74373I$
$u = -0.517431 - 0.792256I$ $a = -0.31513 + 2.57319I$ $b = -1.046890 - 0.382880I$ $c = 0.979361 - 0.392885I$ $d = 0.491329 + 0.041258I$	$-2.57405 + 0.08416I$	$-4.54592 + 2.74373I$
$u = 0.082487 + 0.936352I$ $a = 0.92003 - 1.14713I$ $b = -0.574527 + 0.530498I$ $c = 1.17847 - 0.94179I$ $d = -0.290045 + 0.776854I$	$1.72016 + 1.41215I$	$1.65188 - 3.77223I$
$u = 0.082487 - 0.936352I$ $a = 0.92003 + 1.14713I$ $b = -0.574527 - 0.530498I$ $c = 1.17847 + 0.94179I$ $d = -0.290045 - 0.776854I$	$1.72016 - 1.41215I$	$1.65188 + 3.77223I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.582500 + 0.889546I$ $a = -0.41276 + 2.17080I$ $b = -1.084530 - 0.444586I$ $c = -1.204890 + 0.519522I$ $d = -0.720160 - 0.450817I$	$-3.62010 - 5.07823I$	$-6.10660 + 7.37918I$
$u = \quad 0.582500 - 0.889546I$ $a = -0.41276 - 2.17080I$ $b = -1.084530 + 0.444586I$ $c = -1.204890 - 0.519522I$ $d = -0.720160 + 0.450817I$	$-3.62010 + 5.07823I$	$-6.10660 - 7.37918I$
$u = -0.228301 + 1.040040I$ $a = \quad 0.723676 + 0.951160I$ $b = -0.493370 - 0.665886I$ $c = -0.513216 - 0.329220I$ $d = -0.312338 - 0.999680I$	$3.92825 - 1.69884I$	$4.65730 + 2.32962I$
$u = -0.228301 - 1.040040I$ $a = \quad 0.723676 - 0.951160I$ $b = -0.493370 + 0.665886I$ $c = -0.513216 + 0.329220I$ $d = -0.312338 + 0.999680I$	$3.92825 + 1.69884I$	$4.65730 - 2.32962I$
$u = -0.782003 + 0.468875I$ $a = \quad 0.479369 - 0.088840I$ $b = \quad 1.016810 + 0.373767I$ $c = -0.789013 - 1.040910I$ $d = -0.598791 - 0.392671I$	$-0.65497 - 3.51390I$	$-3.54011 + 4.44478I$
$u = -0.782003 - 0.468875I$ $a = \quad 0.479369 + 0.088840I$ $b = \quad 1.016810 - 0.373767I$ $c = -0.789013 + 1.040910I$ $d = -0.598791 + 0.392671I$	$-0.65497 + 3.51390I$	$-3.54011 - 4.44478I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.374962 + 1.039940I$ $a = 0.679703 - 0.804881I$ $b = -0.387561 + 0.725229I$ $c = 0.822403 - 0.322418I$ $d = 0.559284 - 0.573519I$	$3.38837 - 3.78470I$	0
$u = 0.374962 - 1.039940I$ $a = 0.679703 + 0.804881I$ $b = -0.387561 - 0.725229I$ $c = 0.822403 + 0.322418I$ $d = 0.559284 + 0.573519I$	$3.38837 + 3.78470I$	0
$u = -0.965284 + 0.548957I$ $a = 0.458449 - 0.109175I$ $b = 1.064210 + 0.491568I$ $c = 0.42927 + 1.36968I$ $d = 1.62931 + 2.26420I$	$-1.81197 - 6.85619I$	0
$u = -0.965284 - 0.548957I$ $a = 0.458449 + 0.109175I$ $b = 1.064210 - 0.491568I$ $c = 0.42927 - 1.36968I$ $d = 1.62931 - 2.26420I$	$-1.81197 + 6.85619I$	0
$u = -0.288832 + 1.092220I$ $a = 0.655250 + 0.897222I$ $b = -0.469158 - 0.726873I$ $c = -1.39360 - 1.30383I$ $d = 0.03743 + 1.65696I$	$4.40655 + 2.61636I$	0
$u = -0.288832 - 1.092220I$ $a = 0.655250 - 0.897222I$ $b = -0.469158 + 0.726873I$ $c = -1.39360 + 1.30383I$ $d = 0.03743 - 1.65696I$	$4.40655 - 2.61636I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.815552+0.276755I$ $a=\ \ 0.510621-0.104384I$ $b=\ \ 0.879842+0.384286I$ $c=-0.134802+0.964627I$ $d=-0.35977+2.02275I$	$0.065597-0.205341I$	$-1.21551+1.86968I$
$u=-0.815552-0.276755I$ $a=\ \ 0.510621+0.104384I$ $b=\ \ 0.879842-0.384286I$ $c=-0.134802-0.964627I$ $d=-0.35977-2.02275I$	$0.065597+0.205341I$	$-1.21551-1.86968I$
$u=\ \ 0.008067+1.164640I$ $a=\ \ 0.524425+1.231070I$ $b=-0.707115-0.687536I$ $c=-1.63638-0.81487I$ $d=\ \ 1.18786+0.86080I$	$4.97078-4.99360I$	0
$u=\ \ 0.008067-1.164640I$ $a=\ \ 0.524425-1.231070I$ $b=-0.707115+0.687536I$ $c=-1.63638+0.81487I$ $d=\ \ 1.18786-0.86080I$	$4.97078+4.99360I$	0
$u=-1.177360+0.140655I$ $a=\ \ 0.514925+0.236545I$ $b=\ \ 0.603622-0.736667I$ $c=-0.027412-0.316988I$ $d=\ \ 1.016250-0.656214I$	$6.72367+2.38646I$	0
$u=-1.177360-0.140655I$ $a=\ \ 0.514925-0.236545I$ $b=\ \ 0.603622+0.736667I$ $c=-0.027412+0.316988I$ $d=\ \ 1.016250+0.656214I$	$6.72367-2.38646I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 0.516220 + 1.088150I$ $a = -0.14742 + 1.74242I$ $b = -1.048210 - 0.569836I$ $c = \ \ 1.105030 - 0.234332I$ $d = \ \ 0.652838 + 0.110822I$	$2.28765 - 3.11487I$	0
$u = \ \ 0.516220 - 1.088150I$ $a = -0.14742 - 1.74242I$ $b = -1.048210 + 0.569836I$ $c = \ \ 1.105030 + 0.234332I$ $d = \ \ 0.652838 - 0.110822I$	$2.28765 + 3.11487I$	0
$u = -1.143240 + 0.423905I$ $a = \ \ 0.533939 + 0.311288I$ $b = \ \ 0.397778 - 0.814910I$ $c = -0.113421 - 0.926777I$ $d = -0.01193 - 1.62150I$	$5.54743 - 5.38085I$	0
$u = -1.143240 - 0.423905I$ $a = \ \ 0.533939 - 0.311288I$ $b = \ \ 0.397778 + 0.814910I$ $c = -0.113421 + 0.926777I$ $d = -0.01193 + 1.62150I$	$5.54743 + 5.38085I$	0
$u = -1.079500 + 0.575143I$ $a = \ \ 0.447329 - 0.120477I$ $b = \ \ 1.084300 + 0.561354I$ $c = -0.260355 - 1.216300I$ $d = -0.90050 - 1.58646I$	$1.00971 - 5.65602I$	0
$u = -1.079500 - 0.575143I$ $a = \ \ 0.447329 + 0.120477I$ $b = \ \ 1.084300 - 0.561354I$ $c = -0.260355 + 1.216300I$ $d = -0.90050 + 1.58646I$	$1.00971 + 5.65602I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.163010 + 0.411297I$ $a = 0.457972 + 0.144139I$ $b = 0.986739 - 0.625293I$ $c = 0.071233 - 0.902749I$ $d = -0.10463 - 1.67523I$	$5.58247 + 2.79509I$	0
$u = 1.163010 - 0.411297I$ $a = 0.457972 - 0.144139I$ $b = 0.986739 + 0.625293I$ $c = 0.071233 + 0.902749I$ $d = -0.10463 + 1.67523I$	$5.58247 - 2.79509I$	0
$u = -0.530613 + 1.137340I$ $a = -0.16592 - 1.65105I$ $b = -1.060260 + 0.599620I$ $c = 1.76242 + 0.34399I$ $d = -0.11353 - 1.60654I$	$2.68982 + 5.10175I$	0
$u = -0.530613 - 1.137340I$ $a = -0.16592 + 1.65105I$ $b = -1.060260 - 0.599620I$ $c = 1.76242 - 0.34399I$ $d = -0.11353 + 1.60654I$	$2.68982 - 5.10175I$	0
$u = -0.601554 + 1.104580I$ $a = -0.29797 - 1.68572I$ $b = -1.101680 + 0.575244I$ $c = -1.271520 - 0.218579I$ $d = -0.788648 + 0.590297I$	$1.29562 + 8.75795I$	0
$u = -0.601554 - 1.104580I$ $a = -0.29797 + 1.68572I$ $b = -1.101680 - 0.575244I$ $c = -1.271520 + 0.218579I$ $d = -0.788648 - 0.590297I$	$1.29562 - 8.75795I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.666542 + 1.084300I$ $a = -0.41901 + 1.68178I$ $b = -1.139490 - 0.559856I$ $c = -1.67095 + 0.67803I$ $d = -0.92819 - 1.72084I$	$-2.21245 - 7.79054I$	0
$u = 0.666542 - 1.084300I$ $a = -0.41901 - 1.68178I$ $b = -1.139490 + 0.559856I$ $c = -1.67095 - 0.67803I$ $d = -0.92819 + 1.72084I$	$-2.21245 + 7.79054I$	0
$u = 0.620529 + 0.325559I$ $a = 0.505847 + 0.065088I$ $b = 0.944687 - 0.250227I$ $c = 1.17082 - 0.90601I$ $d = 0.328371 - 0.105641I$	$0.115678 - 1.341920I$	$-2.41782 + 1.83708I$
$u = 0.620529 - 0.325559I$ $a = 0.505847 - 0.065088I$ $b = 0.944687 + 0.250227I$ $c = 1.17082 + 0.90601I$ $d = 0.328371 + 0.105641I$	$0.115678 + 1.341920I$	$-2.41782 - 1.83708I$
$u = 1.161000 + 0.625559I$ $a = 0.435979 + 0.124995I$ $b = 1.119470 - 0.607651I$ $c = 0.116799 - 1.332580I$ $d = 1.12055 - 2.13672I$	$3.39852 + 10.69180I$	0
$u = 1.161000 - 0.625559I$ $a = 0.435979 - 0.124995I$ $b = 1.119470 + 0.607651I$ $c = 0.116799 + 1.332580I$ $d = 1.12055 + 2.13672I$	$3.39852 - 10.69180I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.423653 + 0.527399I$ $a = 0.911492 - 0.383290I$ $b = -0.067745 + 0.392021I$ $c = 1.10825 - 1.37074I$ $d = 0.418849 + 0.237150I$	$1.92120 + 0.81846I$	$4.58107 + 0.87681I$
$u = 0.423653 - 0.527399I$ $a = 0.911492 + 0.383290I$ $b = -0.067745 - 0.392021I$ $c = 1.10825 + 1.37074I$ $d = 0.418849 - 0.237150I$	$1.92120 - 0.81846I$	$4.58107 - 0.87681I$
$u = 0.662834 + 0.003253I$ $a = 0.620162 + 0.068360I$ $b = 0.593125 - 0.175609I$ $c = 0.844082 + 0.426336I$ $d = 2.08843 + 0.88000I$	$0.58945 + 2.77011I$	$-1.22579 - 6.61866I$
$u = 0.662834 - 0.003253I$ $a = 0.620162 - 0.068360I$ $b = 0.593125 + 0.175609I$ $c = 0.844082 - 0.426336I$ $d = 2.08843 - 0.88000I$	$0.58945 - 2.77011I$	$-1.22579 + 6.61866I$
$u = -0.703559 + 1.143570I$ $a = -0.43434 - 1.56703I$ $b = -1.164260 + 0.592620I$ $c = 1.82114 + 0.75444I$ $d = 1.05029 - 2.27985I$	$0.07596 + 12.98220I$	0
$u = -0.703559 - 1.143570I$ $a = -0.43434 + 1.56703I$ $b = -1.164260 - 0.592620I$ $c = 1.82114 - 0.75444I$ $d = 1.05029 + 2.27985I$	$0.07596 - 12.98220I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.624723 + 1.201920I$ $a = 0.513586 - 0.684350I$ $b = -0.298481 + 0.934769I$ $c = 1.343470 - 0.036213I$ $d = 0.266666 + 0.986054I$	$5.70918 - 6.67323I$	0
$u = 0.624723 - 1.201920I$ $a = 0.513586 + 0.684350I$ $b = -0.298481 - 0.934769I$ $c = 1.343470 + 0.036213I$ $d = 0.266666 - 0.986054I$	$5.70918 + 6.67323I$	0
$u = -0.127875 + 0.624992I$ $a = 0.463873 - 0.011490I$ $b = 1.154440 + 0.053363I$ $c = 0.435762 - 0.358619I$ $d = -0.038269 + 0.332638I$	$-0.93270 - 1.56780I$	$1.99036 - 0.81001I$
$u = -0.127875 - 0.624992I$ $a = 0.463873 + 0.011490I$ $b = 1.154440 - 0.053363I$ $c = 0.435762 + 0.358619I$ $d = -0.038269 - 0.332638I$	$-0.93270 + 1.56780I$	$1.99036 + 0.81001I$
$u = 0.115044 + 1.357830I$ $a = 0.267455 + 1.195870I$ $b = -0.821892 - 0.796376I$ $c = 0.264755 + 0.381750I$ $d = -0.286633 - 1.330580I$	$9.14335 - 2.92995I$	0
$u = 0.115044 - 1.357830I$ $a = 0.267455 - 1.195870I$ $b = -0.821892 + 0.796376I$ $c = 0.264755 - 0.381750I$ $d = -0.286633 + 1.330580I$	$9.14335 + 2.92995I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.518606+1.307430I$ $a=\ \ 0.471054+0.753719I$ $b=-0.403718-0.954094I$ $c=-1.155440+0.212036I$ $d=\ \ 0.575561+0.435533I$	$10.68990+3.50430I$	0
$u=-0.518606-1.307430I$ $a=\ \ 0.471054-0.753719I$ $b=-0.403718+0.954094I$ $c=-1.155440-0.212036I$ $d=\ \ 0.575561-0.435533I$	$10.68990-3.50430I$	0
$u=-0.758435+1.184640I$ $a=-0.47779-1.47703I$ $b=-1.198260+0.612902I$ $c=-1.59692-0.12137I$ $d=-0.81262+1.86068I$	$2.97939+12.30500I$	0
$u=-0.758435-1.184640I$ $a=-0.47779+1.47703I$ $b=-1.198260-0.612902I$ $c=-1.59692+0.12137I$ $d=-0.81262-1.86068I$	$2.97939-12.30500I$	0
$u=-0.69467+1.24791I$ $a=\ \ 0.480437+0.659159I$ $b=-0.277875-0.990754I$ $c=-1.49960+0.03004I$ $d=-0.12141+1.59948I$	$8.2281+11.9338I$	0
$u=-0.69467-1.24791I$ $a=\ \ 0.480437-0.659159I$ $b=-0.277875+0.990754I$ $c=-1.49960-0.03004I$ $d=-0.12141-1.59948I$	$8.2281-11.9338I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.043030+0.567805I$ $a=4.08839-1.11685I$ $b=-0.772390+0.062177I$ $c=0.144313-0.425715I$ $d=-0.013781+0.345769I$	$-0.91327+2.30980I$	$2.35018-5.72620I$
$u=-0.043030-0.567805I$ $a=4.08839+1.11685I$ $b=-0.772390-0.062177I$ $c=0.144313+0.425715I$ $d=-0.013781-0.345769I$	$-0.91327-2.30980I$	$2.35018+5.72620I$
$u=0.68480+1.26233I$ $a=-0.34737+1.42430I$ $b=-1.161620-0.662680I$ $c=1.48561+0.06309I$ $d=-0.01550+1.56219I$	$8.38263-9.37788I$	0
$u=0.68480-1.26233I$ $a=-0.34737-1.42430I$ $b=-1.161620+0.662680I$ $c=1.48561-0.06309I$ $d=-0.01550-1.56219I$	$8.38263+9.37788I$	0
$u=0.80648+1.20827I$ $a=-0.51585+1.41688I$ $b=-1.226880-0.623174I$ $c=1.70051-0.09972I$ $d=0.83764+2.32804I$	$5.3240-17.7550I$	0
$u=0.80648-1.20827I$ $a=-0.51585-1.41688I$ $b=-1.226880+0.623174I$ $c=1.70051+0.09972I$ $d=0.83764-2.32804I$	$5.3240+17.7550I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.00564 + 1.45291I$ $a = 0.279733 - 1.057890I$ $b = -0.766380 + 0.883500I$ $c = 0.013236 + 0.605297I$ $d = -0.02236 - 1.73200I$	$13.06970 - 1.34685I$	0
$u = 0.00564 - 1.45291I$ $a = 0.279733 + 1.057890I$ $b = -0.766380 - 0.883500I$ $c = 0.013236 - 0.605297I$ $d = -0.02236 + 1.73200I$	$13.06970 + 1.34685I$	0
$u = -0.22004 + 1.44810I$ $a = 0.134599 - 1.184980I$ $b = -0.905365 + 0.833146I$ $c = -0.514065 + 0.581969I$ $d = 0.82290 - 1.33139I$	$12.6554 + 7.5654I$	0
$u = -0.22004 - 1.44810I$ $a = 0.134599 + 1.184980I$ $b = -0.905365 - 0.833146I$ $c = -0.514065 - 0.581969I$ $d = 0.82290 + 1.33139I$	$12.6554 - 7.5654I$	0
$u = -0.499413$ $a = 0.544041$ $b = 0.838096$ $c = -0.278989$ $d = -0.886893$	-1.20722	-9.11790

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ -a^2u^2 - 2a + 2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^3a^2 + 2u^3a - a^2u - 2u^3 - au + 2a - 2 \\ -u^3a^2 + a^2u^2 + u^3a - a^2u - 2u^3 - au + 4a - 4 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^3a^2 - a^2u^2 - a^2u + 2u^2a - a^2 - 3au - 2u^2 + 2u \\ -u^3a^2 - a^2u^2 - 3u^3a + u^2a + 2u^3 - a^2 - 5au - 2u^2 - 3a + 4u + 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ a^2u^2 + u^2a + 2a - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} a^2u^2 + u^2a + 3a - 2 \\ a^2u^2 + u^2a + 2a - 2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 2u^3a - a^2u - 2u^3 + au + 2a - 2u - 2 \\ -u^3a^2 + 3u^3a - 2a^2u - 4u^3 + au + 4a - 2u - 4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 2u^3a - a^2u - 2u^3 + 2au + 2a - 2u - 2 \\ -u^3a^2 + 4u^3a - 2a^2u - 4u^3 + au + 4a - 2u - 4 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^3a^2 + a^2u^2 + 2u^3a - 2u^2a - 2u^3 + a^2 + 2u^2 + 3a - 2 \\ -u^3a^2 + 2a^2u^2 + u^3a - u^2a - 2u^3 + a^2 + 2u^2 + 5a - 4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 + 4u^2 - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{12} + 8u^{11} + \cdots - 5u + 1$
c_2, c_4, c_7 c_9, c_{10}	$u^{12} - 4u^{10} + 2u^9 + 6u^8 - 6u^7 - u^6 + 6u^5 - 5u^4 - u^3 + 3u^2 - u + 1$
c_3, c_6, c_8 c_{12}	$(u^4 + u^2 + u + 1)^3$
c_5	$(u^4 + 3u^3 + 4u^2 + 3u + 2)^3$
c_{11}	$(u^4 - 2u^3 + 3u^2 - u + 1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{12} - 8y^{11} + \cdots - 31y + 1$
c_2, c_4, c_7 c_9, c_{10}	$y^{12} - 8y^{11} + \cdots + 5y + 1$
c_3, c_6, c_8 c_{12}	$(y^4 + 2y^3 + 3y^2 + y + 1)^3$
c_5	$(y^4 - y^3 + 2y^2 + 7y + 4)^3$
c_{11}	$(y^4 + 2y^3 + 7y^2 + 5y + 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 0.585652I$ $a = 0.805204 + 0.420651I$ $b = -0.024351 - 0.509694I$ $c = 0.555240 + 0.479815I$ $d = 0.395109 + 0.559365I$	$-0.98010 + 1.39709I$	$-3.77019 - 3.86736I$
$u = -0.547424 + 0.585652I$ $a = 0.468622 - 0.054836I$ $b = 1.105090 + 0.246330I$ $c = -1.24165 - 1.00900I$ $d = -2.55169 - 1.38604I$	$-0.98010 + 1.39709I$	$-3.77019 - 3.86736I$
$u = -0.547424 + 0.585652I$ $a = -1.06407 - 3.47080I$ $b = -1.080740 + 0.263364I$ $c = -1.01721 - 1.29340I$ $d = -0.641886 + 0.175397I$	$-0.98010 + 1.39709I$	$-3.77019 - 3.86736I$
$u = -0.547424 - 0.585652I$ $a = 0.805204 - 0.420651I$ $b = -0.024351 + 0.509694I$ $c = 0.555240 - 0.479815I$ $d = 0.395109 - 0.559365I$	$-0.98010 - 1.39709I$	$-3.77019 + 3.86736I$
$u = -0.547424 - 0.585652I$ $a = 0.468622 + 0.054836I$ $b = 1.105090 - 0.246330I$ $c = -1.24165 + 1.00900I$ $d = -2.55169 + 1.38604I$	$-0.98010 - 1.39709I$	$-3.77019 + 3.86736I$
$u = -0.547424 - 0.585652I$ $a = -1.06407 + 3.47080I$ $b = -1.080740 - 0.263364I$ $c = -1.01721 + 1.29340I$ $d = -0.641886 - 0.175397I$	$-0.98010 - 1.39709I$	$-3.77019 + 3.86736I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.547424 + 1.120870I$ $a = 0.573365 - 0.708694I$ $b = -0.310026 + 0.852826I$ $c = -1.72860 + 0.38800I$ $d = -0.04577 - 1.58115I$	$2.62503 - 7.64338I$	$1.77019 + 6.51087I$
$u = 0.547424 + 1.120870I$ $a = 0.415110 + 0.046138I$ $b = 1.379600 - 0.264482I$ $c = 1.170990 - 0.175799I$ $d = 0.561298 + 0.342574I$	$2.62503 - 7.64338I$	$1.77019 + 6.51087I$
$u = 0.547424 + 1.120870I$ $a = -0.19823 + 1.67624I$ $b = -1.069580 - 0.588344I$ $c = 1.26123 - 1.65288I$ $d = 1.28293 + 2.03964I$	$2.62503 - 7.64338I$	$1.77019 + 6.51087I$
$u = 0.547424 - 1.120870I$ $a = 0.573365 + 0.708694I$ $b = -0.310026 - 0.852826I$ $c = -1.72860 - 0.38800I$ $d = -0.04577 + 1.58115I$	$2.62503 + 7.64338I$	$1.77019 - 6.51087I$
$u = 0.547424 - 1.120870I$ $a = 0.415110 - 0.046138I$ $b = 1.379600 + 0.264482I$ $c = 1.170990 + 0.175799I$ $d = 0.561298 - 0.342574I$	$2.62503 + 7.64338I$	$1.77019 - 6.51087I$
$u = 0.547424 - 1.120870I$ $a = -0.19823 - 1.67624I$ $b = -1.069580 + 0.588344I$ $c = 1.26123 + 1.65288I$ $d = 1.28293 - 2.03964I$	$2.62503 + 7.64338I$	$1.77019 - 6.51087I$

III. $\boldsymbol{I_3^u = \langle u^5a^2 - 4u^5a + \cdots + 8a - 8,\ -2u^5a + 2u^5 + \cdots + 4a - 4,\ a^2u^2 + b + 2a - 2,\ -4u^5a^2 + 6u^5a + \cdots - 6a + 2,\ u^6 - u^5 + \cdots - 2u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ -a^2u^2 - 2a + 2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2u^5a - 2u^5 + \cdots - 4a + 4 \\ -u^5a^2 + 4u^5a + \cdots - 8a + 8 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^5a^2 + 2u^3a^2 + 3u^4a - a^2u^2 - 2u^4 + 2a^2u + 5u^2a - a^2 - 4u^2 + 3a - 2 \\ 2u^5a^2 + 3u^5a + \cdots - 2a^2 - a \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ a^2u^2 + u^2a + 2a - 2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a^2u^2 + u^2a + 3a - 2 \\ a^2u^2 + u^2a + 2a - 2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2u^5a - 2u^5 + \cdots - 4a + 4 \\ 4u^5a - 4u^5 + \cdots - 8a + 8 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2u^5a - 2u^5 + \cdots - 4a + 4 \\ 4u^5a - 4u^5 + \cdots - 8a + 8 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 5u^5a - 4u^5 + \cdots - 5a + 4 \\ -u^5a^2 + 6u^5a + \cdots - 9a + 8 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^3 - 4u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18}+12u^{17}+\cdots+8u^2+1$
c_2, c_4, c_7 c_9, c_{10}	$u^{18}-6u^{16}+\cdots-2u^3+1$
c_3, c_6, c_8 c_{12}	$(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^3$
c_5	$(u^3-u^2+1)^6$
c_{11}	$(u^6-3u^5+4u^4-2u^3+1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 12y^{17} + \cdots + 16y + 1$
c_2, c_4, c_7 c_9, c_{10}	$y^{18} - 12y^{17} + \cdots + 8y^2 + 1$
c_3, c_6, c_8 c_{12}	$(y^6 + 3y^5 + 4y^4 + 2y^3 + 1)^3$
c_5	$(y^3 - y^2 + 2y - 1)^6$
c_{11}	$(y^6 - y^5 + 4y^4 - 2y^3 + 8y^2 + 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.498832+1.001300I$ $a=\quad 0.661188+0.699980I$ $b=-0.286853-0.754987I$ $c=\quad 1.44004+0.30697I$ $d=\quad 0.171485-0.832500I$	$0.26574+2.82812I$	$-1.50976-2.97945I$
$u=-0.498832+1.001300I$ $a=\quad 0.426451-0.044014I$ $b=\quad 1.320220+0.239468I$ $c=-1.064340-0.398265I$ $d=-0.994564-0.186619I$	$0.26574+2.82812I$	$-1.50976-2.97945I$
$u=-0.498832+1.001300I$ $a=-0.12503-1.93170I$ $b=-1.033370+0.515520I$ $c=-1.17291-1.50894I$ $d=-0.97180+1.42148I$	$0.26574+2.82812I$	$-1.50976-2.97945I$
$u=-0.498832-1.001300I$ $a=\quad 0.661188-0.699980I$ $b=-0.286853+0.754987I$ $c=\quad 1.44004-0.30697I$ $d=\quad 0.171485+0.832500I$	$0.26574-2.82812I$	$-1.50976+2.97945I$
$u=-0.498832-1.001300I$ $a=\quad 0.426451+0.044014I$ $b=\quad 1.320220-0.239468I$ $c=-1.064340+0.398265I$ $d=-0.994564+0.186619I$	$0.26574-2.82812I$	$-1.50976+2.97945I$
$u=-0.498832-1.001300I$ $a=-0.12503+1.93170I$ $b=-1.033370-0.515520I$ $c=-1.17291+1.50894I$ $d=-0.97180-1.42148I$	$0.26574-2.82812I$	$-1.50976+2.97945I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.284920 + 1.115140I$ $a = 0.633702 - 0.904691I$ $b = -0.480591 + 0.741524I$ $c = -1.63240 - 0.20951I$ $d = 0.919012 - 0.439251I$	4.40332	$5.01951 + 0.I$
$u = 0.284920 + 1.115140I$ $a = 0.419155 + 0.023943I$ $b = 1.377990 - 0.135834I$ $c = 0.633400 - 0.165486I$ $d = 0.184355 - 0.759840I$	4.40332	$5.01951 + 0.I$
$u = 0.284920 + 1.115140I$ $a = 0.27186 + 1.60496I$ $b = -0.897403 - 0.605690I$ $c = 1.42916 - 1.30860I$ $d = -0.10337 + 1.74578I$	4.40332	$5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0.633702 + 0.904691I$ $b = -0.480591 - 0.741524I$ $c = -1.63240 + 0.20951I$ $d = 0.919012 + 0.439251I$	4.40332	$5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0.419155 - 0.023943I$ $b = 1.377990 + 0.135834I$ $c = 0.633400 + 0.165486I$ $d = 0.184355 + 0.759840I$	4.40332	$5.01951 + 0.I$
$u = 0.284920 - 1.115140I$ $a = 0.27186 - 1.60496I$ $b = -0.897403 + 0.605690I$ $c = 1.42916 + 1.30860I$ $d = -0.10337 - 1.74578I$	4.40332	$5.01951 + 0.I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.713912 + 0.305839I$ $a = 0.699357 - 0.245678I$ $b = 0.272813 + 0.447127I$ $c = 0.033182 + 0.755013I$ $d = 0.26687 + 1.47455I$	$0.26574 + 2.82812I$	$-1.50976 - 2.97945I$
$u = 0.713912 + 0.305839I$ $a = 0.509246 + 0.082706I$ $b = 0.913222 - 0.310725I$ $c = 1.33201 - 0.98810I$ $d = 3.24106 - 1.64838I$	$0.26574 + 2.82812I$	$-1.50976 - 2.97945I$
$u = 0.713912 + 0.305839I$ $a = -3.49593 + 2.56326I$ $b = -1.186030 - 0.136403I$ $c = 1.001860 - 0.780958I$ $d = 0.286941 - 0.228535I$	$0.26574 + 2.82812I$	$-1.50976 - 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0.699357 + 0.245678I$ $b = 0.272813 - 0.447127I$ $c = 0.033182 - 0.755013I$ $d = 0.26687 - 1.47455I$	$0.26574 - 2.82812I$	$-1.50976 + 2.97945I$
$u = 0.713912 - 0.305839I$ $a = 0.509246 - 0.082706I$ $b = 0.913222 + 0.310725I$ $c = 1.33201 + 0.98810I$ $d = 3.24106 + 1.64838I$	$0.26574 - 2.82812I$	$-1.50976 + 2.97945I$
$u = 0.713912 - 0.305839I$ $a = -3.49593 - 2.56326I$ $b = -1.186030 + 0.136403I$ $c = 1.001860 + 0.780958I$ $d = 0.286941 + 0.228535I$	$0.26574 - 2.82812I$	$-1.50976 + 2.97945I$

IV. $\boldsymbol{I_1^v = \langle c,\ d - v - 1,\ b,\ a - 1,\ v^2 + v + 1\rangle}$

(i) Arc colorings

$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

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

$a_{12} = \begin{pmatrix} v + 1 \\ v + 1 \end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 1.00000$ $b = 0$ $c = 0$ $d = 0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 1.00000$ $b = 0$ $c = 0$ $d = 0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$

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

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_5 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	$0.500000 + 0.866025I$		
$a =$	0		
$b =$	1.00000	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$
$c =$	$0.500000 + 0.866025I$		
$d =$	0		
$v =$	$0.500000 - 0.866025I$		
$a =$	0		
$b =$	1.00000	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$
$c =$	$0.500000 - 0.866025I$		
$d =$	0		

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

(i) Arc colorings

$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$

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

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

$a_5 = \begin{pmatrix}0\\1\end{pmatrix}$

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

$a_6 = \begin{pmatrix}0\\1\end{pmatrix}$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VII.

$\boldsymbol{I_4^v = \langle a,\ -c^2v + cv + \cdots - 2ca + a,\ dv + 1,\ c^2v^2 - v^2c + \cdots + a^2 - av,\ b - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= d^2 + v^2 - 4c$

(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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	$-2.02988I$	$0.19616 + 2.89071I$

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u-1)^3(u^{12}+8u^{11}+\cdots-5u+1)(u^{18}+12u^{17}+\cdots+8u^2+1)$ $\cdot(u^{77}+34u^{76}+\cdots+1568u+256)$
c_2	$u^2(u-1)^3$ $\cdot(u^{12}-4u^{10}+2u^9+6u^8-6u^7-u^6+6u^5-5u^4-u^3+3u^2-u+1)$ $\cdot(u^{18}-6u^{16}+\cdots-2u^3+1)(u^{77}-8u^{76}+\cdots-72u+16)$
c_3, c_8	$u^5(u^4+u^2+u+1)^3(u^6-u^5+2u^4-2u^3+2u^2-2u+1)^3$ $\cdot(u^{77}+2u^{76}+\cdots+2560u^2+512)$
c_4	$u^2(u+1)^3$ $\cdot(u^{12}-4u^{10}+2u^9+6u^8-6u^7-u^6+6u^5-5u^4-u^3+3u^2-u+1)$ $\cdot(u^{18}-6u^{16}+\cdots-2u^3+1)(u^{77}-8u^{76}+\cdots-72u+16)$
c_5	$u(u^2-u+1)(u^2+u+1)(u^3-u^2+1)^6(u^4+3u^3+4u^2+3u+2)^3$ $\cdot(u^{77}+2u^{76}+\cdots+351912u+66564)$
c_6, c_{12}	$u(u^2-u+1)(u^2+u+1)(u^4+u^2+u+1)^3$ $\cdot((u^6-u^5+2u^4-2u^3+2u^2-2u+1)^3)(u^{77}-2u^{76}+\cdots-27u^2+4)$
c_7	$u^2(u+1)^3$ $\cdot(u^{12}-4u^{10}+2u^9+6u^8-6u^7-u^6+6u^5-5u^4-u^3+3u^2-u+1)$ $\cdot(u^{18}-6u^{16}+\cdots-2u^3+1)(u^{77}+8u^{76}+\cdots-72u+16)$
c_9, c_{10}	$u^2(u-1)^3$ $\cdot(u^{12}-4u^{10}+2u^9+6u^8-6u^7-u^6+6u^5-5u^4-u^3+3u^2-u+1)$ $\cdot(u^{18}-6u^{16}+\cdots-2u^3+1)(u^{77}+8u^{76}+\cdots-72u+16)$
c_{11}	$u(u^2+u+1)^2(u^4-2u^3+3u^2-u+1)^3(u^6-3u^5+4u^4-2u^3+1)^3$ $\cdot(u^{77}-36u^{76}+\cdots+216u+16)$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots-31y+1)(y^{18}-12y^{17}+\cdots+16y+1)$ $\cdot(y^{77}+26y^{76}+\cdots+3416576y-65536)$
c_2, c_4	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots+5y+1)(y^{18}-12y^{17}+\cdots+8y^2+1)$ $\cdot(y^{77}-34y^{76}+\cdots+1568y-256)$
c_3, c_8	$y^5(y^4+2y^3+3y^2+y+1)^3(y^6+3y^5+4y^4+2y^3+1)^3$ $\cdot(y^{77}+30y^{76}+\cdots-2621440y-262144)$
c_5	$y(y^2+y+1)^2(y^3-y^2+2y-1)^6(y^4-y^3+2y^2+7y+4)^3$ $\cdot(y^{77}-12y^{76}+\cdots+120020616504y-4430766096)$
c_6, c_{12}	$y(y^2+y+1)^2(y^4+2y^3+3y^2+y+1)^3(y^6+3y^5+4y^4+2y^3+1)^3$ $\cdot(y^{77}+36y^{76}+\cdots+216y-16)$
c_7, c_9, c_{10}	$y^2(y-1)^3(y^{12}-8y^{11}+\cdots+5y+1)(y^{18}-12y^{17}+\cdots+8y^2+1)$ $\cdot(y^{77}-74y^{76}+\cdots+7712y-256)$
c_{11}	$y(y^2+y+1)^2(y^4+2y^3+7y^2+5y+1)^3$ $\cdot((y^6-y^5+4y^4-2y^3+8y^2+1)^3)(y^{77}+12y^{76}+\cdots+84256y-256)$