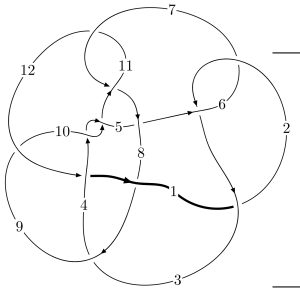
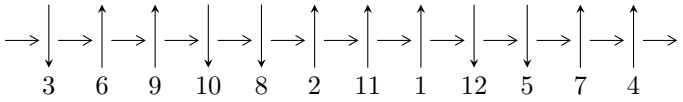
$12a_{0387}$ $(K12a_{0387})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -1.05426 \times 10^{408} u^{149} + 3.71855 \times 10^{408} u^{148} + \cdots + 2.44889 \times 10^{408} b + 3.85948 \times 10^{410}, \\
&\quad - 9.91717 \times 10^{409} u^{149} + 3.49642 \times 10^{410} u^{148} + \cdots + 1.29791 \times 10^{410} a + 9.21565 \times 10^{412}, \\
&\quad u^{150} - 4u^{149} + \cdots - 3712u + 424 \rangle \\
I_2^u &= \langle 4985116807 u^{41} - 10536935014 u^{40} + \cdots + 1443471113 b - 1825302319, \\
&\quad - 2939589314 u^{41} + 8863014375 u^{40} + \cdots + 1443471113 a + 1681161226, \\
&\quad u^{42} - 2u^{41} + \cdots + 8u^2 + 1 \rangle \\
I_3^u &= \langle -63975 a^5 u + 71430 a^4 u + \cdots - 875339 a - 403473, \\
&\quad a^6 - 3a^5 u - 4a^5 - 4a^4 u - 7a^4 + 41 a^3 u + 16 a^3 - 35 a^2 u + 19 a^2 - 8au - 19a + 7u - 5,\ u^2 + u + 1 \rangle \\
I_4^u &= \langle b + u + 1,\ a + u + 2,\ u^2 + u + 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 206 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. $\boldsymbol{I_1^u = \langle -1.05 \times 10^{408} u^{149} + 3.72 \times 10^{408} u^{148} + \cdots + 2.45 \times 10^{408} b + 3.86 \times 10^{410},\ -9.92 \times 10^{409} u^{149} + 3.50 \times 10^{410} u^{148} + \cdots + 1.30 \times 10^{410} a + 9.22 \times 10^{412},\ u^{150} - 4u^{149} + \cdots - 3712u + 424 \rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.764087u^{149} - 2.69388u^{148} + \cdots + 5171.06u - 710.037 \\ 0.430506u^{149} - 1.51846u^{148} + \cdots + 1279.29u - 157.601 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.333581u^{149} - 1.17542u^{148} + \cdots + 3891.77u - 552.435 \\ 0.430506u^{149} - 1.51846u^{148} + \cdots + 1279.29u - 157.601 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.314943u^{149} - 2.08245u^{148} + \cdots + 6240.60u - 840.864 \\ -0.496159u^{149} + 1.65502u^{148} + \cdots - 532.595u + 2.94029 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0170775u^{149} - 0.874147u^{148} + \cdots + 5648.81u - 793.205 \\ -0.197127u^{149} + 0.554592u^{148} + \cdots + 953.099u - 169.611 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.227733u^{149} + 0.363072u^{148} + \cdots - 256.972u + 20.5049 \\ 0.000513385u^{149} + 0.280826u^{148} + \cdots - 1172.62u + 165.784 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.520345u^{149} - 2.09639u^{148} + \cdots + 2703.19u - 367.651 \\ -0.0869827u^{149} + 0.484600u^{148} + \cdots - 1601.48u + 211.163 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.285141u^{149} - 0.818613u^{148} + \cdots + 3065.62u - 383.741 \\ 0.373127u^{149} - 1.54301u^{148} + \cdots + 2854.14u - 378.233 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.85672u^{149} - 10.8672u^{148} + \cdots + 14010.5u - 1820.76$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{150} + 60u^{149} + \cdots + 4386912u + 179776$
c_2, c_6	$u^{150} + 4u^{149} + \cdots + 3712u + 424$
c_3	$u^{150} + u^{149} + \cdots + 3141u + 999$
c_4, c_{10}	$u^{150} - u^{149} + \cdots - 106584u + 13207$
c_5	$u^{150} - 5u^{149} + \cdots - 8572569048u + 1134809017$
c_7, c_{11}	$u^{150} - 3u^{149} + \cdots + 655668u + 223897$
c_8	$u^{150} - 9u^{149} + \cdots + 12351u + 1427$
c_9	$u^{150} - 17u^{149} + \cdots - 14918u + 1267$
c_{12}	$u^{150} + 13u^{149} + \cdots + 14298u + 1369$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{150} + 52y^{149} + \cdots + 1711720099328y + 32319410176$
c_2, c_6	$y^{150} + 60y^{149} + \cdots + 4386912y + 179776$
c_3	$y^{150} - 17y^{149} + \cdots - 155034567y + 998001$
c_4, c_{10}	$y^{150} - 125y^{149} + \cdots + 19096275918y + 174424849$
c_5	$y^{150} - 35y^{149} + \cdots - 7.46 \times 10^{19}y + 1.29 \times 10^{18}$
c_7, c_{11}	$y^{150} + 105y^{149} + \cdots + 298851072020y + 50129866609$
c_8	$y^{150} + y^{149} + \cdots - 5825915y + 2036329$
c_9	$y^{150} - 27y^{149} + \cdots + 113839242y + 1605289$
c_{12}	$y^{150} + 27y^{149} + \cdots + 47287964y + 1874161$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.650950+0.755793I$ $a=-0.44599-2.08696I$ $b=-0.411761-0.718357I$	$0.99424+1.29069I$	0
$u=-0.650950-0.755793I$ $a=-0.44599+2.08696I$ $b=-0.411761+0.718357I$	$0.99424-1.29069I$	0
$u=\ \ 0.621403+0.786918I$ $a=-0.856285+1.117390I$ $b=-0.999949+0.281513I$	$3.39719+0.83657I$	0
$u=\ \ 0.621403-0.786918I$ $a=-0.856285-1.117390I$ $b=-0.999949-0.281513I$	$3.39719-0.83657I$	0
$u=\ \ 0.114917+1.008940I$ $a=-0.382018-0.545706I$ $b=\ \ 0.610476-0.043028I$	$-6.67344-0.00875I$	0
$u=\ \ 0.114917-1.008940I$ $a=-0.382018+0.545706I$ $b=\ \ 0.610476+0.043028I$	$-6.67344+0.00875I$	0
$u=\ \ 0.831449+0.585500I$ $a=\ \ 1.275070-0.064925I$ $b=\ \ 0.713685+0.361887I$	$3.76191-3.62939I$	0
$u=\ \ 0.831449-0.585500I$ $a=\ \ 1.275070+0.064925I$ $b=\ \ 0.713685-0.361887I$	$3.76191+3.62939I$	0
$u=-0.825173+0.532123I$ $a=-0.102577+0.528319I$ $b=-0.151141+0.842921I$	$0.161939-1.273430I$	0
$u=-0.825173-0.532123I$ $a=-0.102577-0.528319I$ $b=-0.151141-0.842921I$	$0.161939+1.273430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.726183+0.722324I$ $a=\ \ 0.873867+0.265574I$ $b=\ \ 0.757927+0.274626I$	$-0.967754-0.375779I$	0
$u=-0.726183-0.722324I$ $a=\ \ 0.873867-0.265574I$ $b=\ \ 0.757927-0.274626I$	$-0.967754+0.375779I$	0
$u=-0.824969+0.494654I$ $a=-1.98368-0.36932I$ $b=-1.143490+0.137954I$	$-0.56940+7.88106I$	0
$u=-0.824969-0.494654I$ $a=-1.98368+0.36932I$ $b=-1.143490-0.137954I$	$-0.56940-7.88106I$	0
$u=-0.831057+0.622360I$ $a=\ \ 1.48914+0.17063I$ $b=\ \ 0.681374-0.497323I$	$3.40903-3.07032I$	0
$u=-0.831057-0.622360I$ $a=\ \ 1.48914-0.17063I$ $b=\ \ 0.681374+0.497323I$	$3.40903+3.07032I$	0
$u=-0.774546+0.695772I$ $a=\ \ 0.109303+0.971349I$ $b=\ \ 0.012048+0.882612I$	$0.266192-1.288680I$	0
$u=-0.774546-0.695772I$ $a=\ \ 0.109303-0.971349I$ $b=\ \ 0.012048-0.882612I$	$0.266192+1.288680I$	0
$u=\ \ 0.290064+0.898956I$ $a=\ \ 1.44191+0.49857I$ $b=\ \ 0.560825+0.278835I$	$-2.66861-2.39206I$	0
$u=\ \ 0.290064-0.898956I$ $a=\ \ 1.44191-0.49857I$ $b=\ \ 0.560825-0.278835I$	$-2.66861+2.39206I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.713200 + 0.791127I$ $a = -2.62672 - 0.39456I$ $b = -0.659778 - 0.741783I$	$-0.14769 + 5.52578I$	0
$u = 0.713200 - 0.791127I$ $a = -2.62672 + 0.39456I$ $b = -0.659778 + 0.741783I$	$-0.14769 - 5.52578I$	0
$u = 0.582752 + 0.729911I$ $a = -0.659704 + 0.827879I$ $b = -0.631795 + 1.018940I$	$1.27517 - 1.70404I$	0
$u = 0.582752 - 0.729911I$ $a = -0.659704 - 0.827879I$ $b = -0.631795 - 1.018940I$	$1.27517 + 1.70404I$	0
$u = 0.985549 + 0.417985I$ $a = -0.75578 + 1.24311I$ $b = -0.54984 + 1.37863I$	$-1.71146 - 5.79968I$	0
$u = 0.985549 - 0.417985I$ $a = -0.75578 - 1.24311I$ $b = -0.54984 - 1.37863I$	$-1.71146 + 5.79968I$	0
$u = -0.275656 + 0.887326I$ $a = -1.57663 - 0.50483I$ $b = 0.31725 + 1.54240I$	$-6.73260 + 4.81037I$	0
$u = -0.275656 - 0.887326I$ $a = -1.57663 + 0.50483I$ $b = 0.31725 - 1.54240I$	$-6.73260 - 4.81037I$	0
$u = -0.061811 + 1.070180I$ $a = 0.456316 - 0.345619I$ $b = 0.506918 + 0.009288I$	$-2.42430 - 2.76345I$	0
$u = -0.061811 - 1.070180I$ $a = 0.456316 + 0.345619I$ $b = 0.506918 - 0.009288I$	$-2.42430 + 2.76345I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.041663+1.072690I$ $a=-0.29566-1.72481I$ $b=\ \ 0.243974+1.295210I$	$-10.69020+2.88193I$	0
$u=-0.041663-1.072690I$ $a=-0.29566+1.72481I$ $b=\ \ 0.243974-1.295210I$	$-10.69020-2.88193I$	0
$u=\ \ 0.531037+0.933853I$ $a=\ \ 1.148340+0.581571I$ $b=\ \ 0.288731-0.872686I$	$-1.47947+7.40469I$	0
$u=\ \ 0.531037-0.933853I$ $a=\ \ 1.148340-0.581571I$ $b=\ \ 0.288731+0.872686I$	$-1.47947-7.40469I$	0
$u=-0.722429+0.576440I$ $a=\ \ 0.749423+0.528782I$ $b=\ \ 0.428522+1.299240I$	$-5.52036+3.96191I$	0
$u=-0.722429-0.576440I$ $a=\ \ 0.749423-0.528782I$ $b=\ \ 0.428522-1.299240I$	$-5.52036-3.96191I$	0
$u=\ \ 0.383504+1.006110I$ $a=-0.611075+0.283529I$ $b=\ \ 0.51502-1.34591I$	$-8.29483+0.76226I$	0
$u=\ \ 0.383504-1.006110I$ $a=-0.611075-0.283529I$ $b=\ \ 0.51502+1.34591I$	$-8.29483-0.76226I$	0
$u=-0.588937+0.708986I$ $a=\ \ 0.397719+1.079340I$ $b=\ \ 0.65335+1.38329I$	$-3.99681+5.06430I$	0
$u=-0.588937-0.708986I$ $a=\ \ 0.397719-1.079340I$ $b=\ \ 0.65335-1.38329I$	$-3.99681-5.06430I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.493151+0.774656I$		
$a=$	$1.58068-2.20767I$	$-0.91992-3.22167I$	0
$b=$	$0.022793+0.937822I$		
$u=$	$0.493151-0.774656I$		
$a=$	$1.58068+2.20767I$	$-0.91992+3.22167I$	0
$b=$	$0.022793-0.937822I$		
$u=$	$0.978308+0.473054I$		
$a=$	$0.739734-0.456668I$	$1.55723-8.02675I$	0
$b=$	$0.444904-1.083800I$		
$u=$	$0.978308-0.473054I$		
$a=$	$0.739734+0.456668I$	$1.55723+8.02675I$	0
$b=$	$0.444904+1.083800I$		
$u=$	$0.494537+0.967703I$		
$a=$	$2.47444-0.63695I$	$-7.72315+4.99312I$	0
$b=$	$0.789877+1.164020I$		
$u=$	$0.494537-0.967703I$		
$a=$	$2.47444+0.63695I$	$-7.72315-4.99312I$	0
$b=$	$0.789877-1.164020I$		
$u=$	$0.621848+0.892751I$		
$a=$	$-1.43500+0.37567I$	$3.06867+4.05325I$	0
$b=$	$-0.983201-0.454241I$		
$u=$	$0.621848-0.892751I$		
$a=$	$-1.43500-0.37567I$	$3.06867-4.05325I$	0
$b=$	$-0.983201+0.454241I$		
$u=$	$0.757337+0.790337I$		
$a=$	$-0.46674-2.05983I$	$-1.13396-3.55942I$	0
$b=$	$0.034037-1.003050I$		
$u=$	$0.757337-0.790337I$		
$a=$	$-0.46674+2.05983I$	$-1.13396+3.55942I$	0
$b=$	$0.034037+1.003050I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.592903 + 0.922265I$ $a = -2.14985 + 0.57649I$ $b = -0.559444 - 1.141470I$	$0.68849 + 6.39957I$	0
$u = 0.592903 - 0.922265I$ $a = -2.14985 - 0.57649I$ $b = -0.559444 + 1.141470I$	$0.68849 - 6.39957I$	0
$u = -0.977164 + 0.531187I$ $a = -0.927771 - 1.027930I$ $b = -0.58404 - 1.34138I$	$-4.4056 + 13.9896I$	0
$u = -0.977164 - 0.531187I$ $a = -0.927771 + 1.027930I$ $b = -0.58404 + 1.34138I$	$-4.4056 - 13.9896I$	0
$u = -0.585919 + 0.958362I$ $a = 2.24941 + 0.52148I$ $b = 0.64230 - 1.51457I$	$-4.78169 - 9.74906I$	0
$u = -0.585919 - 0.958362I$ $a = 2.24941 - 0.52148I$ $b = 0.64230 + 1.51457I$	$-4.78169 + 9.74906I$	0
$u = -0.625189 + 0.938877I$ $a = -1.98223 + 0.76413I$ $b = -0.533832 + 0.743511I$	$0.41871 - 6.27820I$	0
$u = -0.625189 - 0.938877I$ $a = -1.98223 - 0.76413I$ $b = -0.533832 - 0.743511I$	$0.41871 + 6.27820I$	0
$u = 0.810088 + 0.800939I$ $a = -0.223635 + 0.414429I$ $b = 0.066297 + 0.944285I$	$-4.87474 + 3.08619I$	0
$u = 0.810088 - 0.800939I$ $a = -0.223635 - 0.414429I$ $b = 0.066297 - 0.944285I$	$-4.87474 - 3.08619I$	0

	Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.540746+1.004720I$		
$a=$	$0.604989-0.987701I$	$-4.31926+5.98167I$	0
$b=$	$0.926149-0.025919I$		
$u=$	$0.540746-1.004720I$		
$a=$	$0.604989+0.987701I$	$-4.31926-5.98167I$	0
$b=$	$0.926149+0.025919I$		
$u=$	$0.413846+0.750680I$		
$a=$	$0.70316-2.01829I$	$-6.90497-1.16927I$	0
$b=$	$0.722478-0.919669I$		
$u=$	$0.413846-0.750680I$		
$a=$	$0.70316+2.01829I$	$-6.90497+1.16927I$	0
$b=$	$0.722478+0.919669I$		
$u=$	$-0.272092+0.809969I$		
$a=$	$-1.040330+0.672728I$	$-1.90581+1.97647I$	0
$b=$	$-0.496985-1.005560I$		
$u=$	$-0.272092-0.809969I$		
$a=$	$-1.040330-0.672728I$	$-1.90581-1.97647I$	0
$b=$	$-0.496985+1.005560I$		
$u=$	$0.136984+1.152860I$		
$a=$	$0.753093-1.067520I$	$-6.51856-0.37911I$	0
$b=$	$0.133213+1.247890I$		
$u=$	$0.136984-1.152860I$		
$a=$	$0.753093+1.067520I$	$-6.51856+0.37911I$	0
$b=$	$0.133213-1.247890I$		
$u=$	$0.713406+0.927737I$		
$a=$	$1.21139+1.69226I$	$-1.56011+9.13779I$	0
$b=$	$0.138195+0.969854I$		
$u=$	$0.713406-0.927737I$		
$a=$	$1.21139-1.69226I$	$-1.56011-9.13779I$	0
$b=$	$0.138195-0.969854I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.061121+1.178270I$ $a=-0.509371-0.330189I$ $b=-1.229600-0.240758I$	$-6.31401+5.88115I$	0
$u=-0.061121-1.178270I$ $a=-0.509371+0.330189I$ $b=-1.229600+0.240758I$	$-6.31401-5.88115I$	0
$u=-0.809128+0.117810I$ $a=-1.05186+1.59195I$ $b=-0.38320+1.40861I$	$-5.90630+2.54128I$	0
$u=-0.809128-0.117810I$ $a=-1.05186-1.59195I$ $b=-0.38320-1.40861I$	$-5.90630-2.54128I$	0
$u=0.765197+0.905133I$ $a=-1.20307+1.47877I$ $b=-0.758829+0.845689I$	$-0.465950+0.095991I$	0
$u=0.765197-0.905133I$ $a=-1.20307-1.47877I$ $b=-0.758829-0.845689I$	$-0.465950-0.095991I$	0
$u=-0.711895+0.956815I$ $a=0.932444+0.558381I$ $b=0.626586-0.432443I$	$-1.65089-5.10684I$	0
$u=-0.711895-0.956815I$ $a=0.932444-0.558381I$ $b=0.626586+0.432443I$	$-1.65089+5.10684I$	0
$u=1.136500+0.382656I$ $a=-0.613173-0.907338I$ $b=-0.274027-1.296790I$	$-5.20724+7.78112I$	0
$u=1.136500-0.382656I$ $a=-0.613173+0.907338I$ $b=-0.274027+1.296790I$	$-5.20724-7.78112I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.074900+0.535039I$ $a=\ \ 0.572072+0.589261I$ $b=\ \ 0.347227+1.067570I$	$1.63852+0.87299I$	0
$u=-1.074900-0.535039I$ $a=\ \ 0.572072-0.589261I$ $b=\ \ 0.347227-1.067570I$	$1.63852-0.87299I$	0
$u=-0.723079+0.962153I$ $a=\ \ 1.38564-0.68408I$ $b=\ \ 0.189428-0.925376I$	$-0.48629-4.36459I$	0
$u=-0.723079-0.962153I$ $a=\ \ 1.38564+0.68408I$ $b=\ \ 0.189428+0.925376I$	$-0.48629+4.36459I$	0
$u=\ \ 0.192422+1.188850I$ $a=-0.304068+0.939254I$ $b=\ \ 0.341009-1.251710I$	$-10.67590-3.59088I$	0
$u=\ \ 0.192422-1.188850I$ $a=-0.304068-0.939254I$ $b=\ \ 0.341009+1.251710I$	$-10.67590+3.59088I$	0
$u=\ \ 0.595979+1.050260I$ $a=-1.252900+0.541350I$ $b=-0.139471-1.324330I$	$-3.60547+7.44738I$	0
$u=\ \ 0.595979-1.050260I$ $a=-1.252900-0.541350I$ $b=-0.139471+1.324330I$	$-3.60547-7.44738I$	0
$u=-0.647017+1.031450I$ $a=\ \ 2.09180+0.64795I$ $b=\ \ 0.42011-1.37358I$	$-6.85865-9.22521I$	0
$u=-0.647017-1.031450I$ $a=\ \ 2.09180-0.64795I$ $b=\ \ 0.42011+1.37358I$	$-6.85865+9.22521I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.468310+1.125850I$ $a=-0.998152-0.988097I$ $b=-0.271389+1.144420I$	$-3.70741-4.72354I$	0
$u=-0.468310-1.125850I$ $a=-0.998152+0.988097I$ $b=-0.271389-1.144420I$	$-3.70741+4.72354I$	0
$u=0.581506+1.082150I$ $a=2.05829-0.79525I$ $b=0.515155+1.284370I$	$-8.11659+11.17000I$	0
$u=0.581506-1.082150I$ $a=2.05829+0.79525I$ $b=0.515155-1.284370I$	$-8.11659-11.17000I$	0
$u=-0.502774+1.121860I$ $a=0.832395-0.342287I$ $b=-0.26050-1.63306I$	$-8.82750-7.10674I$	0
$u=-0.502774-1.121860I$ $a=0.832395+0.342287I$ $b=-0.26050+1.63306I$	$-8.82750+7.10674I$	0
$u=0.666100+0.336129I$ $a=1.046180-0.481645I$ $b=0.477078-1.218250I$	$-6.09544-6.32924I$	0
$u=0.666100-0.336129I$ $a=1.046180+0.481645I$ $b=0.477078+1.218250I$	$-6.09544+6.32924I$	0
$u=0.680060+1.058250I$ $a=0.652114-0.693106I$ $b=0.811675-0.272700I$	$2.32250+9.27951I$	0
$u=0.680060-1.058250I$ $a=0.652114+0.693106I$ $b=0.811675+0.272700I$	$2.32250-9.27951I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.693006+1.052260I$ $a=\ \ 0.772413+0.692159I$ $b=\ \ 0.793311+0.470919I$	$2.08595-2.62528I$	0
$u=-0.693006-1.052260I$ $a=\ \ 0.772413-0.692159I$ $b=\ \ 0.793311-0.470919I$	$2.08595+2.62528I$	0
$u=\ \ 0.618538+0.393981I$ $a=\ \ 0.557185+0.370260I$ $b=-0.141671+1.154780I$	$-1.88431-2.63251I$	0
$u=\ \ 0.618538-0.393981I$ $a=\ \ 0.557185-0.370260I$ $b=-0.141671-1.154780I$	$-1.88431+2.63251I$	0
$u=\ \ 0.536784+1.148870I$ $a=-1.11407+1.08513I$ $b=-1.52251+0.35434I$	$-0.09056+4.18471I$	0
$u=\ \ 0.536784-1.148870I$ $a=-1.11407-1.08513I$ $b=-1.52251-0.35434I$	$-0.09056-4.18471I$	0
$u=-1.261540+0.133024I$ $a=\ \ 0.197607-0.212360I$ $b=\ \ 0.035794-0.956224I$	$0.868836-0.257459I$	0
$u=-1.261540-0.133024I$ $a=\ \ 0.197607+0.212360I$ $b=\ \ 0.035794+0.956224I$	$0.868836+0.257459I$	0
$u=\ \ 0.761715+1.020310I$ $a=-1.42624-0.03076I$ $b=-0.024599-1.073280I$	$-5.56602+2.91772I$	0
$u=\ \ 0.761715-1.020310I$ $a=-1.42624+0.03076I$ $b=-0.024599+1.073280I$	$-5.56602-2.91772I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.651941+1.094300I$ $a=-1.13866-1.07029I$ $b=-1.300600-0.162937I$	$-2.36595-13.40950I$	0
$u=-0.651941-1.094300I$ $a=-1.13866+1.07029I$ $b=-1.300600+0.162937I$	$-2.36595+13.40950I$	0
$u=-0.280043+1.263290I$ $a=-1.152490-0.363033I$ $b=-0.64298+1.54653I$	$-10.36940-1.32994I$	0
$u=-0.280043-1.263290I$ $a=-1.152490+0.363033I$ $b=-0.64298-1.54653I$	$-10.36940+1.32994I$	0
$u=0.087934+1.321040I$ $a=-0.485989+0.597999I$ $b=-0.44106-1.43842I$	$-11.7739+11.5393I$	0
$u=0.087934-1.321040I$ $a=-0.485989-0.597999I$ $b=-0.44106+1.43842I$	$-11.7739-11.5393I$	0
$u=-0.788952+1.066170I$ $a=0.556902-0.062106I$ $b=0.051172-0.733929I$	$-1.44150-4.85210I$	0
$u=-0.788952-1.066170I$ $a=0.556902+0.062106I$ $b=0.051172+0.733929I$	$-1.44150+4.85210I$	0
$u=0.693021+1.149290I$ $a=1.67113-0.49046I$ $b=0.484683+1.184340I$	$-0.52663+14.08750I$	0
$u=0.693021-1.149290I$ $a=1.67113+0.49046I$ $b=0.484683-1.184340I$	$-0.52663-14.08750I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.714398+1.137700I$ $a=-2.04445-0.22489I$ $b=-0.63841+1.38263I$	$-6.2951-20.1515I$	0
$u=-0.714398-1.137700I$ $a=-2.04445+0.22489I$ $b=-0.63841-1.38263I$	$-6.2951+20.1515I$	0
$u=-0.725520+1.139120I$ $a=\ 1.65930+0.26547I$ $b=\ 0.450946-1.158360I$	$-0.29198-7.24361I$	0
$u=-0.725520-1.139120I$ $a=\ 1.65930-0.26547I$ $b=\ 0.450946+1.158360I$	$-0.29198+7.24361I$	0
$u=\ 0.684601+1.171970I$ $a=-1.90470+0.10444I$ $b=-0.68210-1.44306I$	$-4.01000+11.84820I$	0
$u=\ 0.684601-1.171970I$ $a=-1.90470-0.10444I$ $b=-0.68210+1.44306I$	$-4.01000-11.84820I$	0
$u=\ 0.536805+0.352824I$ $a=\ 1.153040-0.032500I$ $b=\ 0.785953+0.066946I$	$-2.69886-1.68877I$	0
$u=\ 0.536805-0.352824I$ $a=\ 1.153040+0.032500I$ $b=\ 0.785953-0.066946I$	$-2.69886+1.68877I$	0
$u=\ 0.525980+0.367283I$ $a=-1.45876-2.26168I$ $b=-0.313122-0.123679I$	$-0.68433+5.18324I$	$7.31593-7.24109I$
$u=\ 0.525980-0.367283I$ $a=-1.45876+2.26168I$ $b=-0.313122+0.123679I$	$-0.68433-5.18324I$	$7.31593+7.24109I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.186049 + 0.608710I$ $a = 1.12188 - 0.95562I$ $b = -0.314400 + 1.060000I$	$-1.64492 - 2.67203I$	$-4.50874 + 6.35714I$
$u = 0.186049 - 0.608710I$ $a = 1.12188 + 0.95562I$ $b = -0.314400 - 1.060000I$	$-1.64492 + 2.67203I$	$-4.50874 - 6.35714I$
$u = -0.082572 + 1.370880I$ $a = 0.322643 + 0.757160I$ $b = 0.181283 - 1.141450I$	$-5.68035 - 5.08287I$	0
$u = -0.082572 - 1.370880I$ $a = 0.322643 - 0.757160I$ $b = 0.181283 + 1.141450I$	$-5.68035 + 5.08287I$	0
$u = 0.468808 + 0.378093I$ $a = -2.69092 + 1.38331I$ $b = -1.087480 - 0.243844I$	$2.31321 + 0.20343I$	$4.06423 + 2.59642I$
$u = 0.468808 - 0.378093I$ $a = -2.69092 - 1.38331I$ $b = -1.087480 + 0.243844I$	$2.31321 - 0.20343I$	$4.06423 - 2.59642I$
$u = -0.64713 + 1.27358I$ $a = -0.772154 - 0.487196I$ $b = -0.153719 + 1.035400I$	$-2.78167 - 5.98666I$	0
$u = -0.64713 - 1.27358I$ $a = -0.772154 + 0.487196I$ $b = -0.153719 - 1.035400I$	$-2.78167 + 5.98666I$	0
$u = 0.52603 + 1.32883I$ $a = 0.618820 + 0.111020I$ $b = -0.098842 + 1.403380I$	$-8.60944 - 1.41407I$	0
$u = 0.52603 - 1.32883I$ $a = 0.618820 - 0.111020I$ $b = -0.098842 - 1.403380I$	$-8.60944 + 1.41407I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.330520+0.429626I$ $a=\ \ 0.162968+0.244649I$ $b=-0.312965+0.661779I$	$-0.01282-1.45694I$	$0.38060+6.10159I$
$u=-0.330520-0.429626I$ $a=\ \ 0.162968-0.244649I$ $b=-0.312965-0.661779I$	$-0.01282+1.45694I$	$0.38060-6.10159I$
$u=-0.536611+0.015304I$ $a=\ \ 0.393454+1.063740I$ $b=-0.242688-0.183585I$	$1.41121+0.62377I$	$8.27435-2.69030I$
$u=-0.536611-0.015304I$ $a=\ \ 0.393454-1.063740I$ $b=-0.242688+0.183585I$	$1.41121-0.62377I$	$8.27435+2.69030I$
$u=\ \ 0.026522+0.533125I$ $a=\ \ 2.01961-0.20416I$ $b=\ \ 0.431731-1.206400I$	$-5.64221-6.25406I$	$-8.25817+6.27799I$
$u=\ \ 0.026522-0.533125I$ $a=\ \ 2.01961+0.20416I$ $b=\ \ 0.431731+1.206400I$	$-5.64221+6.25406I$	$-8.25817-6.27799I$
$u=\ \ 0.421867+0.305654I$ $a=\ \ 1.400930-0.053754I$ $b=\ \ 0.439158+1.177830I$	$-6.30041+2.49529I$	$-1.95483-4.20336I$
$u=\ \ 0.421867-0.305654I$ $a=\ \ 1.400930+0.053754I$ $b=\ \ 0.439158-1.177830I$	$-6.30041-2.49529I$	$-1.95483+4.20336I$
$u=\ \ 0.19473+1.47216I$ $a=\ \ 0.215349+0.094681I$ $b=-0.15322+1.63264I$	$-8.19244-1.90575I$	0
$u=\ \ 0.19473-1.47216I$ $a=\ \ 0.215349-0.094681I$ $b=-0.15322-1.63264I$	$-8.19244+1.90575I$	0

II.

$\boldsymbol{I_2^u = \langle 4.99\times 10^9 u^{41} - 1.05\times 10^{10} u^{40} + \cdots + 1.44\times 10^9 b - 1.83\times 10^9,\ -2.94\times 10^9 u^{41} + 8.86\times 10^9 u^{40} + \cdots + 1.44\times 10^9 a + 1.68\times 10^9,\ u^{42} - 2u^{41} + \cdots + 8u^2 + 1\rangle}$

(i) Arc colorings

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

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

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 2.03647u^{41} - 6.14007u^{40} + \cdots + 0.294353u - 1.16467 \\ -3.45356u^{41} + 7.29972u^{40} + \cdots + 0.277538u + 1.26452 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 5.49003u^{41} - 13.4398u^{40} + \cdots + 0.0168151u - 2.42919 \\ -3.45356u^{41} + 7.29972u^{40} + \cdots + 0.277538u + 1.26452 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 2.44073u^{41} - 3.20079u^{40} + \cdots - 1.23471u + 1.49892 \\ 2.53676u^{41} - 5.93263u^{40} + \cdots + 0.411471u + 6.19167 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 4.17302u^{41} - 9.82550u^{40} + \cdots - 0.687428u + 0.762912 \\ 4.07913u^{41} - 10.4201u^{40} + \cdots + 2.61627u + 6.01857 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.168715u^{41} + 3.30722u^{40} + \cdots - 3.61210u + 6.73805 \\ -0.877766u^{41} + 2.09580u^{40} + \cdots - 2.06402u + 2.05482 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -1.60134u^{41} + 0.345280u^{40} + \cdots + 8.71410u - 7.76523 \\ -0.00256400u^{41} - 5.35337u^{40} + \cdots - 2.57193u - 4.36596 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 3.54154u^{41} - 8.38095u^{40} + \cdots + 11.4661u - 5.28746 \\ -1.25171u^{41} + 8.20323u^{40} + \cdots - 0.240313u + 7.62073 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{22920229274}{1443471113}u^{41} + \frac{53144557383}{1443471113}u^{40} + \cdots - \frac{33448926037}{1443471113}u - \frac{35384393588}{1443471113}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{42} - 18u^{41} + \cdots - 16u + 1$
c_2	$u^{42} + 2u^{41} + \cdots + 8u^2 + 1$
c_3	$u^{42} - 5u^{40} + \cdots - u + 1$
c_4	$u^{42} - 15u^{40} + \cdots + 4u + 1$
c_5	$u^{42} - 8u^{41} + \cdots - 330u + 47$
c_6	$u^{42} - 2u^{41} + \cdots + 8u^2 + 1$
c_7	$u^{42} - 2u^{41} + \cdots + 6u + 1$
c_8	$u^{42} - 14u^{40} + \cdots + 7u + 1$
c_9	$u^{42} - 6u^{41} + \cdots + 4u + 1$
c_{10}	$u^{42} - 15u^{40} + \cdots - 4u + 1$
c_{11}	$u^{42} + 2u^{41} + \cdots - 6u + 1$
c_{12}	$u^{42} - 2u^{41} + \cdots + 4u^2 + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{42} + 10y^{41} + \cdots + 28y + 1$
c_2, c_6	$y^{42} + 18y^{41} + \cdots + 16y + 1$
c_3	$y^{42} - 10y^{41} + \cdots + 5y + 1$
c_4, c_{10}	$y^{42} - 30y^{41} + \cdots - 46y + 1$
c_5	$y^{42} + 4y^{41} + \cdots - 10388y + 2209$
c_7, c_{11}	$y^{42} + 20y^{41} + \cdots + 32y + 1$
c_8	$y^{42} - 28y^{41} + \cdots + 5y + 1$
c_9	$y^{42} - 20y^{41} + \cdots + 14y + 1$
c_{12}	$y^{42} - 6y^{41} + \cdots + 8y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.668980+0.746785I$ $a=-0.26873-2.39343I$ $b=-0.100408-0.500254I$	$0.26686+3.49917I$	$5.05003-3.52736I$
$u=-0.668980-0.746785I$ $a=-0.26873+2.39343I$ $b=-0.100408+0.500254I$	$0.26686-3.49917I$	$5.05003+3.52736I$
$u=-0.072131+1.010250I$ $a=-1.006950+0.269966I$ $b=-0.307642-0.610628I$	$-3.83734+3.39804I$	$-6.86003-4.68663I$
$u=-0.072131-1.010250I$ $a=-1.006950-0.269966I$ $b=-0.307642+0.610628I$	$-3.83734-3.39804I$	$-6.86003+4.68663I$
$u=\ \ 0.716187+0.782798I$ $a=-1.04246+1.28429I$ $b=-0.461399+0.803820I$	$1.46626+0.53989I$	$6.34425+0.30945I$
$u=\ \ 0.716187-0.782798I$ $a=-1.04246-1.28429I$ $b=-0.461399-0.803820I$	$1.46626-0.53989I$	$6.34425-0.30945I$
$u=\ \ 0.005540+1.090300I$ $a=\ \ 0.350296-1.327730I$ $b=\ \ 0.433643+1.302730I$	$-9.25446+2.41186I$	$-5.38071-0.94658I$
$u=\ \ 0.005540-1.090300I$ $a=\ \ 0.350296+1.327730I$ $b=\ \ 0.433643-1.302730I$	$-9.25446-2.41186I$	$-5.38071+0.94658I$
$u=\ \ 0.545157+0.723604I$ $a=-0.98891+1.51723I$ $b=-0.920613-0.011611I$	$2.46945+1.21894I$	$3.99365-4.54689I$
$u=\ \ 0.545157-0.723604I$ $a=-0.98891-1.51723I$ $b=-0.920613+0.011611I$	$2.46945-1.21894I$	$3.99365+4.54689I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.542897+0.723418I$ $a=\ \ 1.58247+1.21492I$ $b=\ \ 1.43732-0.01985I$	$0.453394-1.223000I$	$5.75986-3.06388I$
$u=-0.542897-0.723418I$ $a=\ \ 1.58247-1.21492I$ $b=\ \ 1.43732+0.01985I$	$0.453394+1.223000I$	$5.75986+3.06388I$
$u=\ \ 0.679374+0.887369I$ $a=-2.20399-0.31407I$ $b=-0.547469-0.853500I$	$1.17196+4.81355I$	$5.57781-4.97249I$
$u=\ \ 0.679374-0.887369I$ $a=-2.20399+0.31407I$ $b=-0.547469+0.853500I$	$1.17196-4.81355I$	$5.57781+4.97249I$
$u=-0.543847+0.646326I$ $a=\ \ 0.274707+0.479999I$ $b=\ \ 0.49535+1.37649I$	$-4.73190+5.30532I$	$-3.32438-5.31978I$
$u=-0.543847-0.646326I$ $a=\ \ 0.274707-0.479999I$ $b=\ \ 0.49535-1.37649I$	$-4.73190-5.30532I$	$-3.32438+5.31978I$
$u=-0.657391+0.958299I$ $a=-1.38471+1.36044I$ $b=-0.146961+0.476169I$	$-0.39493-8.65858I$	$2.00000+8.82377I$
$u=-0.657391-0.958299I$ $a=-1.38471-1.36044I$ $b=-0.146961-0.476169I$	$-0.39493+8.65858I$	$2.00000-8.82377I$
$u=\ \ 1.168860+0.024718I$ $a=-0.248697+0.195315I$ $b=-0.138684+0.952566I$	$0.885425-0.582210I$	$2.00000+12.70845I$
$u=\ \ 1.168860-0.024718I$ $a=-0.248697-0.195315I$ $b=-0.138684-0.952566I$	$0.885425+0.582210I$	$2.00000-12.70845I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.576437+1.023220I$ $a=\ 1.17698+1.21539I$ $b=\ 1.44302+0.12078I$	$-0.56233-3.27870I$	$-1.62228+3.98871I$
$u=-0.576437-1.023220I$ $a=\ 1.17698-1.21539I$ $b=\ 1.44302-0.12078I$	$-0.56233+3.27870I$	$-1.62228-3.98871I$
$u=\ 0.582542+1.019780I$ $a=-1.118980+0.390629I$ $b=-0.911532+0.114113I$	$1.46323+3.30959I$	$2.00000-6.00311I$
$u=\ 0.582542-1.019780I$ $a=-1.118980-0.390629I$ $b=-0.911532-0.114113I$	$1.46323-3.30959I$	$2.00000+6.00311I$
$u=-0.591735+1.026700I$ $a=\ 1.89865+0.63558I$ $b=\ 0.46169-1.46601I$	$-5.99007-9.94125I$	$-3.07782+10.24571I$
$u=-0.591735-1.026700I$ $a=\ 1.89865-0.63558I$ $b=\ 0.46169+1.46601I$	$-5.99007+9.94125I$	$-3.07782-10.24571I$
$u=-0.661653+0.463053I$ $a=\ 1.16137-1.23170I$ $b=\ 0.355215-1.251660I$	$-4.59954-6.54293I$	$0.09554+6.69604I$
$u=-0.661653-0.463053I$ $a=\ 1.16137+1.23170I$ $b=\ 0.355215+1.251660I$	$-4.59954+6.54293I$	$0.09554-6.69604I$
$u=\ 0.336834+0.667049I$ $a=\ 0.002611-1.130640I$ $b=-0.417950+1.045410I$	$-1.14667-2.08905I$	$4.14089-0.05151I$
$u=\ 0.336834-0.667049I$ $a=\ 0.002611+1.130640I$ $b=-0.417950-1.045410I$	$-1.14667+2.08905I$	$4.14089+0.05151I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.551737 + 0.494020I$ $a = 1.177980 - 0.441105I$ $b = -0.157573 - 0.773273I$	$0.301803 + 0.460767I$	$0.55810 + 2.83627I$
$u = 0.551737 - 0.494020I$ $a = 1.177980 + 0.441105I$ $b = -0.157573 + 0.773273I$	$0.301803 - 0.460767I$	$0.55810 - 2.83627I$
$u = 0.045395 + 0.725493I$ $a = -0.41437 - 1.46339I$ $b = 0.560179 - 0.915201I$	$-7.67302 - 2.07638I$	$-8.91086 + 3.44130I$
$u = 0.045395 - 0.725493I$ $a = -0.41437 + 1.46339I$ $b = 0.560179 + 0.915201I$	$-7.67302 + 2.07638I$	$-8.91086 - 3.44130I$
$u = 0.553166 + 1.178270I$ $a = -0.853079 + 0.625874I$ $b = -0.179788 - 1.126630I$	$-3.36715 + 5.69492I$	0
$u = 0.553166 - 1.178270I$ $a = -0.853079 - 0.625874I$ $b = -0.179788 + 1.126630I$	$-3.36715 - 5.69492I$	0
$u = 0.746428 + 1.099660I$ $a = 0.810028 + 0.173242I$ $b = 0.039744 + 0.817813I$	$-1.70968 + 5.05030I$	0
$u = 0.746428 - 1.099660I$ $a = 0.810028 - 0.173242I$ $b = 0.039744 - 0.817813I$	$-1.70968 - 5.05030I$	0
$u = -0.338196 + 0.495506I$ $a = 2.48027 - 2.39218I$ $b = -0.039408 + 0.639259I$	$-1.28715 - 5.04654I$	$-6.04910 + 4.21122I$
$u = -0.338196 - 0.495506I$ $a = 2.48027 + 2.39218I$ $b = -0.039408 - 0.639259I$	$-1.28715 + 5.04654I$	$-6.04910 - 4.21122I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.27796+1.44321I$ $a=-0.384488+0.069317I$ $b=\ \ 0.10326+1.57295I$	$-8.33736+2.03035I$	0
$u=-0.27796-1.44321I$ $a=-0.384488-0.069317I$ $b=\ \ 0.10326-1.57295I$	$-8.33736-2.03035I$	0

III. $I_3^u = \langle -6.40 \times 10^4 a^5 u + 7.14 \times 10^4 a^4 u + \cdots - 8.75 \times 10^5 a - 4.03 \times 10^5,\ -3a^5 u - 4a^4 u + \cdots - 19a - 5,\ u^2 + u + 1 \rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} u \\ u+1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} a \\ 0.206517a^5u - 0.230582a^4u + \cdots + 2.82567a + 1.30245 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.206517a^5u + 0.230582a^4u + \cdots - 1.82567a - 1.30245 \\ 0.206517a^5u - 0.230582a^4u + \cdots + 2.82567a + 1.30245 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0118051a^5u - 0.287874a^4u + \cdots + 0.819062a + 0.993637 \\ -0.272554a^5u + 0.216624a^4u + \cdots - 2.42273a - 1.95330 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.284359a^5u - 0.0712503a^4u + \cdots - 1.60367a - 0.959659 \\ -0.272554a^5u + 0.216624a^4u + \cdots - 2.42273a - 1.95330 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0956805a^5u + 0.216734a^4u + \cdots - 1.13727a + 0.922774 \\ 0.245483a^5u - 0.468228a^4u + \cdots + 2.69335a + 1.75659 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.149803a^5u - 0.684961a^4u + \cdots + 3.83062a + 0.833815 \\ -0.245483a^5u + 0.468228a^4u + \cdots - 2.69335a - 1.75659 \end{pmatrix}$$

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^2+u+1)^6$
c_2, c_6	$(u^2-u+1)^6$
c_3, c_5	$u^{12}-3u^{11}+5u^9+2u^8-3u^7-9u^6-u^5+10u^4+2u^3-4u^2+1$
c_4, c_{10}, c_{12}	$u^{12}-u^{11}-2u^{10}+3u^9-3u^7+u^6+u^5+1$
c_7, c_9, c_{11}	$u^{12}+5u^{11}+10u^{10}+13u^9+16u^8+15u^7+9u^6+5u^5-2u^3+1$
c_8	$u^{12}+5u^{11}+\cdots-14u^3+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$(y^2+y+1)^6$
c_3, c_5	$y^{12}-9y^{11}+\cdots-8y+1$
c_4, c_{10}, c_{12}	$y^{12}-5y^{11}+10y^{10}-13y^9+16y^8-15y^7+9y^6-5y^5+2y^3+1$
c_7, c_9, c_{11}	$y^{12}-5y^{11}+\cdots+14y^3+1$
c_8	$y^{12}-21y^{11}+\cdots+104y^2+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=\ 0.949962+0.143883I$ $b=\ 0.308364+0.675304I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000+0.866025I$ $a=-0.371048+0.067739I$ $b=-0.515160+0.230998I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000+0.866025I$ $a=\ 1.63642+0.82261I$ $b=\ 1.41623-0.24154I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000+0.866025I$ $a=\ 0.96730+1.76069I$ $b=\ 1.59474+0.15052I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000+0.866025I$ $a=\ 2.12452+1.26649I$ $b=\ 0.056726-0.962344I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000+0.866025I$ $a=-2.80716-1.46333I$ $b=-0.360901+1.013090I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000-0.866025I$ $a=\ 0.949962-0.143883I$ $b=\ 0.308364-0.675304I$	$2.02988I$	$0.-3.46410I$
$u=-0.500000-0.866025I$ $a=-0.371048-0.067739I$ $b=-0.515160-0.230998I$	$2.02988I$	$0.-3.46410I$
$u=-0.500000-0.866025I$ $a=\ 1.63642-0.82261I$ $b=\ 1.41623+0.24154I$	$2.02988I$	$0.-3.46410I$
$u=-0.500000-0.866025I$ $a=\ 0.96730-1.76069I$ $b=\ 1.59474-0.15052I$	$2.02988I$	$0.-3.46410I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000-0.866025I$		
$a=\ \ 2.12452-1.26649I$	$2.02988I$	$0.-3.46410I$
$b=\ \ 0.056726+0.962344I$		
$u=-0.500000-0.866025I$		
$a=-2.80716+1.46333I$	$2.02988I$	$0.-3.46410I$
$b=-0.360901-1.013090I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_6, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$y^2 + y + 1$
c_3, c_5	$y^2 - 3y + 9$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-1.50000-0.86603I$ $b=-0.500000-0.866025I$	$-2.02988I$	$0.+3.46410I$
$u=-0.500000-0.866025I$ $a=-1.50000+0.86603I$ $b=-0.500000+0.866025I$	$2.02988I$	$0.-3.46410I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2+u+1)^7)(u^{42}-18u^{41}+\cdots-16u+1)$ $\cdot(u^{150}+60u^{149}+\cdots+4386912u+179776)$
c_2	$((u^2-u+1)^7)(u^{42}+2u^{41}+\cdots+8u^2+1)$ $\cdot(u^{150}+4u^{149}+\cdots+3712u+424)$
c_3	(u^2+3u+3) $\cdot(u^{12}-3u^{11}+5u^9+2u^8-3u^7-9u^6-u^5+10u^4+2u^3-4u^2+1)$ $\cdot(u^{42}-5u^{40}+\cdots-u+1)(u^{150}+u^{149}+\cdots+3141u+999)$
c_4	$(u^2+u+1)(u^{12}-u^{11}-2u^{10}+3u^9-3u^7+u^6+u^5+1)$ $\cdot(u^{42}-15u^{40}+\cdots+4u+1)(u^{150}-u^{149}+\cdots-106584u+13207)$
c_5	(u^2+3u+3) $\cdot(u^{12}-3u^{11}+5u^9+2u^8-3u^7-9u^6-u^5+10u^4+2u^3-4u^2+1)$ $\cdot(u^{42}-8u^{41}+\cdots-330u+47)$ $\cdot(u^{150}-5u^{149}+\cdots-8572569048u+1134809017)$
c_6	$((u^2-u+1)^7)(u^{42}-2u^{41}+\cdots+8u^2+1)$ $\cdot(u^{150}+4u^{149}+\cdots+3712u+424)$
c_7	(u^2-u+1) $\cdot(u^{12}+5u^{11}+10u^{10}+13u^9+16u^8+15u^7+9u^6+5u^5-2u^3+1)$ $\cdot(u^{42}-2u^{41}+\cdots+6u+1)(u^{150}-3u^{149}+\cdots+655668u+223897)$
c_8	$(u^2-u+1)(u^{12}+5u^{11}+\cdots-14u^3+1)(u^{42}-14u^{40}+\cdots+7u+1)$ $\cdot(u^{150}-9u^{149}+\cdots+12351u+1427)$
c_9	(u^2-u+1) $\cdot(u^{12}+5u^{11}+10u^{10}+13u^9+16u^8+15u^7+9u^6+5u^5-2u^3+1)$ $\cdot(u^{42}-6u^{41}+\cdots+4u+1)(u^{150}-17u^{149}+\cdots-14918u+1267)$
c_{10}	$(u^2+u+1)(u^{12}-u^{11}-2u^{10}+3u^9-3u^7+u^6+u^5+1)$ $\cdot(u^{42}-15u^{40}+\cdots-4u+1)(u^{150}-u^{149}+\cdots-106584u+13207)$
c_{11}	(u^2-u+1) $\cdot(u^{12}+5u^{11}+10u^{10}+13u^9+16u^8+15u^7+9u^6+5u^5-2u^3+1)$ $\cdot(u^{42}+2u^{41}+\cdots-630u+1)(u^{150}-3u^{149}+\cdots+655668u+223897)$
c_{12}	$(u^2+u+1)(u^{12}-u^{11}-2u^{10}+3u^9-3u^7+u^6+u^5+1)$ $\cdot(u^{42}-2u^{41}+\cdots+4u^2+1)(u^{150}+13u^{149}+\cdots+14298u+1369)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^7)(y^{42}+10y^{41}+\cdots+28y+1)$ $\cdot(y^{150}+52y^{149}+\cdots+1711720099328y+32319410176)$
c_2, c_6	$((y^2+y+1)^7)(y^{42}+18y^{41}+\cdots+16y+1)$ $\cdot(y^{150}+60y^{149}+\cdots+4386912y+179776)$
c_3	$(y^2-3y+9)(y^{12}-9y^{11}+\cdots-8y+1)(y^{42}-10y^{41}+\cdots+5y+1)$ $\cdot(y^{150}-17y^{149}+\cdots-155034567y+998001)$
c_4, c_{10}	(y^2+y+1) $\cdot(y^{12}-5y^{11}+10y^{10}-13y^9+16y^8-15y^7+9y^6-5y^5+2y^3+1)$ $\cdot(y^{42}-30y^{41}+\cdots-46y+1)$ $\cdot(y^{150}-125y^{149}+\cdots+19096275918y+174424849)$
c_5	$(y^2-3y+9)(y^{12}-9y^{11}+\cdots-8y+1)$ $\cdot(y^{42}+4y^{41}+\cdots-10388y+2209)$ $\cdot(y^{150}-35y^{149}+\cdots-7.46\times10^{19}y+1.29\times10^{18})$
c_7, c_{11}	$(y^2+y+1)(y^{12}-5y^{11}+\cdots+14y^3+1)(y^{42}+20y^{41}+\cdots+32y+1)$ $\cdot(y^{150}+105y^{149}+\cdots+298851072020y+50129866609)$
c_8	$(y^2+y+1)(y^{12}-21y^{11}+\cdots+104y^2+1)(y^{42}-28y^{41}+\cdots+5y+1)$ $\cdot(y^{150}+y^{149}+\cdots-5825915y+2036329)$
c_9	$(y^2+y+1)(y^{12}-5y^{11}+\cdots+14y^3+1)(y^{42}-20y^{41}+\cdots+14y+1)$ $\cdot(y^{150}-27y^{149}+\cdots+113839242y+1605289)$
c_{12}	(y^2+y+1) $\cdot(y^{12}-5y^{11}+10y^{10}-13y^9+16y^8-15y^7+9y^6-5y^5+2y^3+1)$ $\cdot(y^{42}-6y^{41}+\cdots+8y+1)$ $\cdot(y^{150}+27y^{149}+\cdots+47287964y+1874161)$