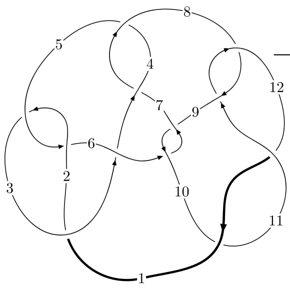
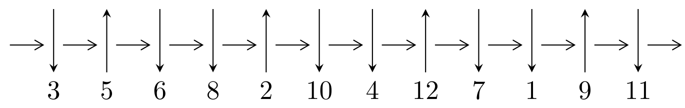
$12a_{0005}$ $(K12a_{0005})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -3.83259 \times 10^{67} u^{116} - 1.82204 \times 10^{70} u^{115} + \cdots + 8.69873 \times 10^{68} b + 1.33324 \times 10^{70},$$
$$1.23817 \times 10^{66} u^{116} - 2.75088 \times 10^{67} u^{115} + \cdots + 1.86668 \times 10^{66} a + 2.43651 \times 10^{67},\ u^{117} - 7u^{116} + \cdots + 2u$$
$$I_2^u = \langle b - a,\ -u^4 a + u^3 a - 2u^4 - u^2 a + 2u^3 + a^2 - 2u^2 + a - u + 2,\ u^5 - u^4 + 2u^3 - u^2 + u - 1\rangle$$
$$I_3^u = \langle a^3 u + a^3 - 2a^2 - 3au + b - a + u + 1,\ a^4 + 2a^3 u - 3a^2 u - 3a^2 + a + u,\ u^2 + u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 135 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $I^u_1 = \langle -3.83 \times 10^{67} u^{116} - 1.82 \times 10^{70} u^{115} + \cdots + 8.70 \times 10^{68} b + 1.33 \times 10^{70},\ 1.24 \times 10^{66} u^{116} - 2.75 \times 10^{67} u^{115} + \cdots + 1.87 \times 10^{66} a + 2.44 \times 10^{67},\ u^{117} - 7u^{116} + \cdots + 2u - 1 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.663298u^{116} + 14.7367u^{115} + \cdots + 13.8589u - 13.0526 \\ 0.0440592u^{116} + 20.9461u^{115} + \cdots + 23.6452u - 15.3268 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 2.35575u^{116} - 24.2437u^{115} + \cdots - 23.3034u + 10.4991 \\ 5.54126u^{116} - 59.4144u^{115} + \cdots - 31.4570u + 17.5214 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.226928u^{116} - 3.84631u^{115} + \cdots - 16.0087u + 7.28280 \\ 9.37936u^{116} - 80.9730u^{115} + \cdots - 36.3781u + 19.4890 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.645907u^{116} + 15.9064u^{115} + \cdots + 11.8738u - 13.0533 \\ -0.477605u^{116} + 28.9600u^{115} + \cdots + 28.1091u - 17.8115 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1.40166u^{116} + 21.6224u^{115} + \cdots + 23.6425u - 15.1337 \\ -3.20159u^{116} + 49.5014u^{115} + \cdots + 34.8907u - 20.7044 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1.10727u^{116} + 8.57956u^{115} + \cdots + 12.9847u - 2.44428 \\ 2.05987u^{116} - 13.3894u^{115} + \cdots - 1.35478u + 2.83905 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -17.0712u^{116} + 107.696u^{115} + \cdots - 8.94784u - 8.30782$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{117}+57u^{116}+\cdots-52u-1$
c_2, c_5	$u^{117}+7u^{116}+\cdots+2u+1$
c_3	$u^{117}-7u^{116}+\cdots-2123180u+148289$
c_4, c_7	$u^{117}+3u^{116}+\cdots+384u+256$
c_6, c_9	$u^{117}-3u^{116}+\cdots-6144u+1024$
c_8, c_{11}	$u^{117}+8u^{116}+\cdots+5u+1$
c_{10}, c_{12}	$u^{117}+38u^{116}+\cdots-199u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{117} + 13y^{116} + \cdots - 1116y - 1$
c_2, c_5	$y^{117} + 57y^{116} + \cdots - 52y - 1$
c_3	$y^{117} - 31y^{116} + \cdots - 741103690564y - 21989627521$
c_4, c_7	$y^{117} - 55y^{116} + \cdots + 245760y - 65536$
c_6, c_9	$y^{117} + 65y^{116} + \cdots - 33554432y - 1048576$
c_8, c_{11}	$y^{117} + 38y^{116} + \cdots - 199y - 1$
c_{10}, c_{12}	$y^{117} + 90y^{116} + \cdots + 15017y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.788050 + 0.643963I$ $a = 0.441133 - 0.436719I$ $b = -0.030091 + 0.782506I$	$6.38871 - 3.43951I$	0
$u = -0.788050 - 0.643963I$ $a = 0.441133 + 0.436719I$ $b = -0.030091 - 0.782506I$	$6.38871 + 3.43951I$	0
$u = -0.436106 + 0.936175I$ $a = 0.78008 + 3.14764I$ $b = 0.51824 + 3.56972I$	$-0.482514 + 0.107557I$	0
$u = -0.436106 - 0.936175I$ $a = 0.78008 - 3.14764I$ $b = 0.51824 - 3.56972I$	$-0.482514 - 0.107557I$	0
$u = -0.650362 + 0.706698I$ $a = -0.958278 - 0.474899I$ $b = -0.59593 - 1.35751I$	$-0.40559 - 4.29098I$	0
$u = -0.650362 - 0.706698I$ $a = -0.958278 + 0.474899I$ $b = -0.59593 + 1.35751I$	$-0.40559 + 4.29098I$	0
$u = -0.459329 + 0.839596I$ $a = -2.18263 - 3.06586I$ $b = -1.97132 - 3.38773I$	$-0.15385 - 3.78902I$	0
$u = -0.459329 - 0.839596I$ $a = -2.18263 + 3.06586I$ $b = -1.97132 + 3.38773I$	$-0.15385 + 3.78902I$	0
$u = -0.795690 + 0.676627I$ $a = -0.258135 + 0.303256I$ $b = 0.139411 - 0.928846I$	$5.60113 - 9.33628I$	0
$u = -0.795690 - 0.676627I$ $a = -0.258135 - 0.303256I$ $b = 0.139411 + 0.928846I$	$5.60113 + 9.33628I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.622734+0.853712I$ $a=1.130780+0.426011I$ $b=0.368893+0.451916I$	$-0.816274-0.627025I$	0
$u=-0.622734-0.853712I$ $a=1.130780-0.426011I$ $b=0.368893-0.451916I$	$-0.816274+0.627025I$	0
$u=-0.387152+0.859674I$ $a=0.438751-0.612774I$ $b=0.142021-0.759816I$	$-0.34124-1.65771I$	0
$u=-0.387152-0.859674I$ $a=0.438751+0.612774I$ $b=0.142021+0.759816I$	$-0.34124+1.65771I$	0
$u=0.863128+0.357713I$ $a=-1.87347-0.80598I$ $b=-0.646595+0.167847I$	$3.70909-12.80720I$	0
$u=0.863128-0.357713I$ $a=-1.87347+0.80598I$ $b=-0.646595-0.167847I$	$3.70909+12.80720I$	0
$u=0.842943+0.374277I$ $a=1.75421+0.78574I$ $b=0.544568-0.230616I$	$4.83595-6.78698I$	0
$u=0.842943-0.374277I$ $a=1.75421-0.78574I$ $b=0.544568+0.230616I$	$4.83595+6.78698I$	0
$u=0.259158+1.065270I$ $a=0.375121+0.409369I$ $b=-0.662192+0.708860I$	$-2.20289-1.03572I$	0
$u=0.259158-1.065270I$ $a=0.375121-0.409369I$ $b=-0.662192-0.708860I$	$-2.20289+1.03572I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.495668 + 0.977957I$ $a = 0.395468 - 0.391923I$ $b = -1.047470 - 0.895669I$	$6.56810 - 0.57006I$	0
$u = 0.495668 - 0.977957I$ $a = 0.395468 + 0.391923I$ $b = -1.047470 + 0.895669I$	$6.56810 + 0.57006I$	0
$u = 0.291276 + 1.064330I$ $a = -0.066879 + 1.287670I$ $b = 0.18397 + 2.32609I$	$-2.46003 + 2.02278I$	0
$u = 0.291276 - 1.064330I$ $a = -0.066879 - 1.287670I$ $b = 0.18397 - 2.32609I$	$-2.46003 - 2.02278I$	0
$u = 0.887934 + 0.028589I$ $a = -0.175661 + 1.187160I$ $b = -0.064609 + 0.239852I$	$-1.47278 + 2.54621I$	0
$u = 0.887934 - 0.028589I$ $a = -0.175661 - 1.187160I$ $b = -0.064609 - 0.239852I$	$-1.47278 - 2.54621I$	0
$u = 0.520884 + 0.991503I$ $a = -0.319131 + 0.493403I$ $b = 1.02158 + 1.13380I$	$6.78221 + 5.92923I$	0
$u = 0.520884 - 0.991503I$ $a = -0.319131 - 0.493403I$ $b = 1.02158 - 1.13380I$	$6.78221 - 5.92923I$	0
$u = -0.558143 + 0.981636I$ $a = 0.06180 - 1.84492I$ $b = -0.36559 - 2.44954I$	$0.918923 - 0.592170I$	0
$u = -0.558143 - 0.981636I$ $a = 0.06180 + 1.84492I$ $b = -0.36559 + 2.44954I$	$0.918923 + 0.592170I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.241670+1.106980I$ $a=-0.03421-1.53422I$ $b=-0.36187-2.52798I$	$-3.52324-3.49244I$	0
$u=\ \ 0.241670-1.106980I$ $a=-0.03421+1.53422I$ $b=-0.36187+2.52798I$	$-3.52324+3.49244I$	0
$u=-0.636348+0.587639I$ $a=\ \ 1.65981+0.37698I$ $b=\ \ 0.754385-0.268951I$	$2.08032-4.09466I$	0
$u=-0.636348-0.587639I$ $a=\ \ 1.65981-0.37698I$ $b=\ \ 0.754385+0.268951I$	$2.08032+4.09466I$	0
$u=-0.402200+1.067810I$ $a=\ \ 0.43074+1.47123I$ $b=\ \ 1.16303+1.75138I$	$-2.93679-1.28935I$	0
$u=-0.402200-1.067810I$ $a=\ \ 0.43074-1.47123I$ $b=\ \ 1.16303-1.75138I$	$-2.93679+1.28935I$	0
$u=\ \ 0.331096+1.100150I$ $a=-0.854097-0.483958I$ $b=\ \ 0.097301-0.669536I$	$-4.41468+3.80335I$	0
$u=\ \ 0.331096-1.100150I$ $a=-0.854097+0.483958I$ $b=\ \ 0.097301+0.669536I$	$-4.41468-3.80335I$	0
$u=\ \ 0.788143+0.307476I$ $a=-1.78183-0.40923I$ $b=-0.723918+0.564808I$	$-2.40584-6.41831I$	0
$u=\ \ 0.788143-0.307476I$ $a=-1.78183+0.40923I$ $b=-0.723918-0.564808I$	$-2.40584+6.41831I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.597169 + 0.597551I$ $a = 0.836553 + 0.317154I$ $b = -0.300337 - 1.081280I$	$7.95045 - 1.49171I$	0
$u = 0.597169 - 0.597551I$ $a = 0.836553 - 0.317154I$ $b = -0.300337 + 1.081280I$	$7.95045 + 1.49171I$	0
$u = -0.562393 + 1.012380I$ $a = -0.04278 - 1.50341I$ $b = 0.59004 - 2.01129I$	$1.40553 - 3.26753I$	0
$u = -0.562393 - 1.012380I$ $a = -0.04278 + 1.50341I$ $b = 0.59004 + 2.01129I$	$1.40553 + 3.26753I$	0
$u = 0.552045 + 0.635041I$ $a = -0.777686 - 0.173295I$ $b = 0.343721 + 1.274540I$	$7.59257 + 4.78397I$	0
$u = 0.552045 - 0.635041I$ $a = -0.777686 + 0.173295I$ $b = 0.343721 - 1.274540I$	$7.59257 - 4.78397I$	0
$u = -0.642479 + 0.537916I$ $a = 1.50891 - 0.45918I$ $b = 0.760280 + 0.486993I$	$2.80307 - 1.45282I$	0
$u = -0.642479 - 0.537916I$ $a = 1.50891 + 0.45918I$ $b = 0.760280 - 0.486993I$	$2.80307 + 1.45282I$	0
$u = -0.241010 + 1.137390I$ $a = -0.994770 - 0.885964I$ $b = -1.94230 - 0.88243I$	$2.14923 - 2.38133I$	0
$u = -0.241010 - 1.137390I$ $a = -0.994770 + 0.885964I$ $b = -1.94230 + 0.88243I$	$2.14923 + 2.38133I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.536282 + 1.031720I$ $a = 0.03646 + 1.86790I$ $b = 0.60835 + 2.44313I$	$0.57777 - 5.74969I$	0
$u = -0.536282 - 1.031720I$ $a = 0.03646 - 1.86790I$ $b = 0.60835 - 2.44313I$	$0.57777 + 5.74969I$	0
$u = -0.749091 + 0.335717I$ $a = 1.67621 - 1.39851I$ $b = 0.630951 - 0.165919I$	$6.64713 + 0.36834I$	0
$u = -0.749091 - 0.335717I$ $a = 1.67621 + 1.39851I$ $b = 0.630951 + 0.165919I$	$6.64713 - 0.36834I$	0
$u = 0.743090 + 0.344565I$ $a = -1.37666 + 0.62863I$ $b = -0.296731 - 0.415869I$	$0.90323 - 6.10586I$	0
$u = 0.743090 - 0.344565I$ $a = -1.37666 - 0.62863I$ $b = -0.296731 + 0.415869I$	$0.90323 + 6.10586I$	0
$u = -0.498147 + 1.077050I$ $a = -0.51304 + 2.12295I$ $b = -1.01752 + 2.82627I$	$-2.25240 - 5.67314I$	0
$u = -0.498147 - 1.077050I$ $a = -0.51304 - 2.12295I$ $b = -1.01752 - 2.82627I$	$-2.25240 + 5.67314I$	0
$u = -0.286372 + 1.155600I$ $a = 1.03487 + 1.11825I$ $b = 1.99849 + 1.20360I$	$1.61709 + 3.18256I$	0
$u = -0.286372 - 1.155600I$ $a = 1.03487 - 1.11825I$ $b = 1.99849 - 1.20360I$	$1.61709 - 3.18256I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.242947 + 1.167530I$ $a = -0.213044 - 1.030830I$ $b = 0.73246 - 1.40141I$	$-7.04923 - 3.39820I$	0
$u = 0.242947 - 1.167530I$ $a = -0.213044 + 1.030830I$ $b = 0.73246 + 1.40141I$	$-7.04923 + 3.39820I$	0
$u = -0.751272 + 0.284916I$ $a = -1.80885 + 1.49561I$ $b = -0.698513 + 0.241621I$	$5.93364 + 6.27192I$	0
$u = -0.751272 - 0.284916I$ $a = -1.80885 - 1.49561I$ $b = -0.698513 - 0.241621I$	$5.93364 - 6.27192I$	0
$u = -0.714184 + 0.960943I$ $a = 0.217324 + 0.091526I$ $b = -0.810052 + 0.410513I$	$4.75806 + 3.70162I$	0
$u = -0.714184 - 0.960943I$ $a = 0.217324 - 0.091526I$ $b = -0.810052 - 0.410513I$	$4.75806 - 3.70162I$	0
$u = 0.714416 + 0.366021I$ $a = 1.43841 + 0.41582I$ $b = 0.399059 - 0.722002I$	$2.01022 - 3.40590I$	0
$u = 0.714416 - 0.366021I$ $a = 1.43841 - 0.41582I$ $b = 0.399059 + 0.722002I$	$2.01022 + 3.40590I$	0
$u = 0.784133 + 0.167033I$ $a = -0.946265 + 0.770926I$ $b = -0.220586 - 0.048660I$	$-4.22647 - 1.60861I$	0
$u = 0.784133 - 0.167033I$ $a = -0.946265 - 0.770926I$ $b = -0.220586 + 0.048660I$	$-4.22647 + 1.60861I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.694981 + 0.982159I$ $a = -0.073453 - 0.271762I$ $b = 0.906822 - 0.651608I$	$5.38630 - 2.11378I$	0
$u = -0.694981 - 0.982159I$ $a = -0.073453 + 0.271762I$ $b = 0.906822 + 0.651608I$	$5.38630 + 2.11378I$	0
$u = 0.152478 + 1.194550I$ $a = -0.423715 + 0.926756I$ $b = -1.43935 + 1.33380I$	$-0.47338 - 3.99674I$	0
$u = 0.152478 - 1.194550I$ $a = -0.423715 - 0.926756I$ $b = -1.43935 - 1.33380I$	$-0.47338 + 3.99674I$	0
$u = 0.436147 + 1.131570I$ $a = 0.042081 + 0.819809I$ $b = -0.08366 + 1.52333I$	$-4.67639 + 3.90668I$	0
$u = 0.436147 - 1.131570I$ $a = 0.042081 - 0.819809I$ $b = -0.08366 - 1.52333I$	$-4.67639 - 3.90668I$	0
$u = -0.601257 + 0.504673I$ $a = -1.71238 - 0.62803I$ $b = -0.829199 + 0.215477I$	$2.13316 + 1.22336I$	0
$u = -0.601257 - 0.504673I$ $a = -1.71238 + 0.62803I$ $b = -0.829199 - 0.215477I$	$2.13316 - 1.22336I$	0
$u = 0.523972 + 1.106740I$ $a = 0.64089 - 1.39244I$ $b = -0.13170 - 1.98598I$	$-3.09840 + 3.62785I$	0
$u = 0.523972 - 1.106740I$ $a = 0.64089 + 1.39244I$ $b = -0.13170 + 1.98598I$	$-3.09840 - 3.62785I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.549843 + 1.100120I$ $a = -0.132774 + 1.076900I$ $b = -0.84858 + 1.88003I$	$-0.67169 + 5.16920I$	0
$u = 0.549843 - 1.100120I$ $a = -0.132774 - 1.076900I$ $b = -0.84858 - 1.88003I$	$-0.67169 - 5.16920I$	0
$u = 0.681708 + 0.356666I$ $a = 1.32997 - 0.53776I$ $b = 0.160489 + 0.459931I$	$1.48482 - 0.40443I$	0
$u = 0.681708 - 0.356666I$ $a = 1.32997 + 0.53776I$ $b = 0.160489 - 0.459931I$	$1.48482 + 0.40443I$	0
$u = 0.345072 + 1.184100I$ $a = -0.471587 - 1.087290I$ $b = -0.76488 - 1.84916I$	$-8.31174 + 2.09718I$	0
$u = 0.345072 - 1.184100I$ $a = -0.471587 + 1.087290I$ $b = -0.76488 + 1.84916I$	$-8.31174 - 2.09718I$	0
$u = 0.170264 + 1.223690I$ $a = 0.439760 - 1.157850I$ $b = 1.44857 - 1.59171I$	$-1.64372 - 9.78312I$	0
$u = 0.170264 - 1.223690I$ $a = 0.439760 + 1.157850I$ $b = 1.44857 + 1.59171I$	$-1.64372 + 9.78312I$	0
$u = 0.561453 + 1.104500I$ $a = -0.18042 + 1.42465I$ $b = 0.60353 + 2.19281I$	$-0.14818 + 8.29193I$	0
$u = 0.561453 - 1.104500I$ $a = -0.18042 - 1.42465I$ $b = 0.60353 - 2.19281I$	$-0.14818 - 8.29193I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.565539 + 1.117910I$ $a = 0.205821 - 1.138550I$ $b = 0.99445 - 1.86392I$	$-1.36213 + 11.07080I$	0
$u = 0.565539 - 1.117910I$ $a = 0.205821 + 1.138550I$ $b = 0.99445 + 1.86392I$	$-1.36213 - 11.07080I$	0
$u = -0.567660 + 1.120280I$ $a = 0.92774 - 1.58823I$ $b = 1.61984 - 2.36858I$	$4.35518 - 5.35177I$	0
$u = -0.567660 - 1.120280I$ $a = 0.92774 + 1.58823I$ $b = 1.61984 + 2.36858I$	$4.35518 + 5.35177I$	0
$u = -0.112035 + 0.733492I$ $a = -0.252312 - 0.649208I$ $b = -0.801580 + 0.061448I$	$-0.98803 - 1.33457I$	0
$u = -0.112035 - 0.733492I$ $a = -0.252312 + 0.649208I$ $b = -0.801580 - 0.061448I$	$-0.98803 + 1.33457I$	0
$u = -0.553058 + 1.137830I$ $a = -1.04926 + 1.73476I$ $b = -1.71134 + 2.56327I$	$3.44904 - 11.19340I$	0
$u = -0.553058 - 1.137830I$ $a = -1.04926 - 1.73476I$ $b = -1.71134 - 2.56327I$	$3.44904 + 11.19340I$	0
$u = 0.567903 + 1.141310I$ $a = 0.05003 - 1.87100I$ $b = -0.57280 - 2.68050I$	$-4.86384 + 11.49110I$	0
$u = 0.567903 - 1.141310I$ $a = 0.05003 + 1.87100I$ $b = -0.57280 + 2.68050I$	$-4.86384 - 11.49110I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.510014 + 1.175500I$ $a = 0.392295 - 0.764542I$ $b = 0.93895 - 1.16346I$	$-7.19643 + 6.38755I$	0
$u = 0.510014 - 1.175500I$ $a = 0.392295 + 0.764542I$ $b = 0.93895 + 1.16346I$	$-7.19643 - 6.38755I$	0
$u = 0.606775 + 1.139680I$ $a = 0.39981 + 1.72045I$ $b = 1.05381 + 2.69039I$	$2.54035 + 12.16610I$	0
$u = 0.606775 - 1.139680I$ $a = 0.39981 - 1.72045I$ $b = 1.05381 - 2.69039I$	$2.54035 - 12.16610I$	0
$u = 0.608130 + 1.152820I$ $a = -0.46729 - 1.85484I$ $b = -1.07127 - 2.83937I$	$1.3174 + 18.2419I$	0
$u = 0.608130 - 1.152820I$ $a = -0.46729 + 1.85484I$ $b = -1.07127 + 2.83937I$	$1.3174 - 18.2419I$	0
$u = 0.627397 + 0.276713I$ $a = -1.306950 - 0.118664I$ $b = -0.472407 + 1.076420I$	$-0.769601 + 0.898386I$	$-2.60850 + 0.I$
$u = 0.627397 - 0.276713I$ $a = -1.306950 + 0.118664I$ $b = -0.472407 - 1.076420I$	$-0.769601 - 0.898386I$	$-2.60850 + 0.I$
$u = 0.427334 + 1.247820I$ $a = -0.888943 - 0.363772I$ $b = -1.37018 - 0.74441I$	$-5.43715 + 7.16206I$	0
$u = 0.427334 - 1.247820I$ $a = -0.888943 + 0.363772I$ $b = -1.37018 + 0.74441I$	$-5.43715 - 7.16206I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.461672 + 1.241970I$ $a = 0.833419 - 0.024090I$ $b = 1.352030 + 0.152225I$	$-5.20525 + 2.24961I$	0
$u = 0.461672 - 1.241970I$ $a = 0.833419 + 0.024090I$ $b = 1.352030 - 0.152225I$	$-5.20525 - 2.24961I$	0
$u = 0.621668$ $a = 1.04985$ $b = -0.0115780$	-1.62182	-5.59140
$u = -0.438939 + 0.373264I$ $a = -2.41763 + 0.85684I$ $b = -1.131840 + 0.153994I$	$-0.20699 + 1.55538I$	$-2.49928 - 3.27405I$
$u = -0.438939 - 0.373264I$ $a = -2.41763 - 0.85684I$ $b = -1.131840 - 0.153994I$	$-0.20699 - 1.55538I$	$-2.49928 + 3.27405I$
$u = -0.076965 + 0.143848I$ $a = -4.44920 + 0.48531I$ $b = -0.585057 + 0.558252I$	$-0.32935 + 1.53120I$	$-2.54159 - 4.51341I$
$u = -0.076965 - 0.143848I$ $a = -4.44920 - 0.48531I$ $b = -0.585057 - 0.558252I$	$-0.32935 - 1.53120I$	$-2.54159 + 4.51341I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^4 a + u^3 a - u^4 - u^2 a + 3u^3 - 2au - 2u^2 - 2a - u - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.339110 + 0.822375I$ $a = -1.39836 - 1.74033I$ $b = -1.39836 - 1.74033I$	$-0.329100 + 0.499304I$	$1.93681 + 0.71136I$
$u = -0.339110 + 0.822375I$ $a = -0.80799 + 2.08118I$ $b = -0.80799 + 2.08118I$	$-0.32910 - 3.56046I$	$-7.97351 + 2.70956I$
$u = -0.339110 - 0.822375I$ $a = -1.39836 + 1.74033I$ $b = -1.39836 + 1.74033I$	$-0.329100 - 0.499304I$	$1.93681 - 0.71136I$
$u = -0.339110 - 0.822375I$ $a = -0.80799 - 2.08118I$ $b = -0.80799 - 2.08118I$	$-0.32910 + 3.56046I$	$-7.97351 - 2.70956I$
$u = 0.766826$ $a = -0.258559 + 0.447838I$ $b = -0.258559 + 0.447838I$	$-2.40108 + 2.02988I$	$-6.80799 - 1.95361I$
$u = 0.766826$ $a = -0.258559 - 0.447838I$ $b = -0.258559 - 0.447838I$	$-2.40108 - 2.02988I$	$-6.80799 + 1.95361I$
$u = 0.455697 + 1.200150I$ $a = -0.556121 - 0.280562I$ $b = -0.556121 - 0.280562I$	$-5.87256 + 2.37095I$	$-12.81148 - 1.72217I$
$u = 0.455697 + 1.200150I$ $a = 0.521035 - 0.341334I$ $b = 0.521035 - 0.341334I$	$-5.87256 + 6.43072I$	$-8.34383 - 2.96651I$
$u = 0.455697 - 1.200150I$ $a = -0.556121 + 0.280562I$ $b = -0.556121 + 0.280562I$	$-5.87256 - 2.37095I$	$-12.81148 + 1.72217I$
$u = 0.455697 - 1.200150I$ $a = 0.521035 + 0.341334I$ $b = 0.521035 + 0.341334I$	$-5.87256 - 6.43072I$	$-8.34383 + 2.96651I$

III.
$$\boldsymbol{I_3^u = \langle a^3u+a^3-2a^2-3au+b-a+u+1,\ a^4+2a^3u-3a^2u-3a^2+a+u,\ u^2+u+1\rangle}$$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= a^3u + 3a^3 + 3a^2u - a^2 - 8au - 5a - u - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = 0.576953 + 0.283088I$ $b = -0.819983 + 0.968508I$	$6.79074 - 5.19385I$	$-4.47320 + 2.03656I$
$u = -0.500000 + 0.866025I$ $a = -0.533637 - 0.358112I$ $b = 0.75842 - 1.22518I$	$6.79074 + 1.13408I$	$-1.68800 - 4.61015I$
$u = -0.500000 + 0.866025I$ $a = -0.58443 - 1.44211I$ $b = -0.34305 - 2.03771I$	$-0.21101 - 3.44499I$	$-3.64182 + 2.68374I$
$u = -0.500000 + 0.866025I$ $a = 1.54112 - 0.21492I$ $b = 0.904615 - 0.303685I$	$-0.211005 - 0.614778I$	$1.30302 - 4.44028I$
$u = -0.500000 - 0.866025I$ $a = 0.576953 - 0.283088I$ $b = -0.819983 - 0.968508I$	$6.79074 + 5.19385I$	$-4.47320 - 2.03656I$
$u = -0.500000 - 0.866025I$ $a = -0.533637 + 0.358112I$ $b = 0.75842 + 1.22518I$	$6.79074 - 1.13408I$	$-1.68800 + 4.61015I$
$u = -0.500000 - 0.866025I$ $a = -0.58443 + 1.44211I$ $b = -0.34305 + 2.03771I$	$-0.21101 + 3.44499I$	$-3.64182 - 2.68374I$
$u = -0.500000 - 0.866025I$ $a = 1.54112 + 0.21492I$ $b = 0.904615 + 0.303685I$	$-0.211005 + 0.614778I$	$1.30302 + 4.44028I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^4(u^5-3u^4+4u^3-u^2-u+1)^2$ $\cdot(u^{117}+57u^{116}+\cdots-52u-1)$
c_2	$((u^2+u+1)^4)(u^5-u^4+\cdots+u-1)^2(u^{117}+7u^{116}+\cdots+2u+1)$
c_3	$(u^2-u+1)^4(u^5+u^4-2u^3-u^2+u-1)^2$ $\cdot(u^{117}-7u^{116}+\cdots-2123180u+148289)$
c_4	$u^8(u^5+u^4+\cdots+u-1)^2(u^{117}+3u^{116}+\cdots+384u+256)$
c_5	$((u^2-u+1)^4)(u^5+u^4+\cdots+u+1)^2(u^{117}+7u^{116}+\cdots+2u+1)$
c_6	$u^{10}(u^4-u^3+3u^2-2u+1)^2(u^{117}-3u^{116}+\cdots-6144u+1024)$
c_7	$u^8(u^5-u^4+\cdots+u+1)^2(u^{117}+3u^{116}+\cdots+384u+256)$
c_8	$((u^2+u+1)^5)(u^4-u^3+u^2+1)^2(u^{117}+8u^{116}+\cdots+5u+1)$
c_9	$u^{10}(u^4+u^3+3u^2+2u+1)^2(u^{117}-3u^{116}+\cdots-6144u+1024)$
c_{10}	$((u^2-u+1)^5)(u^4-u^3+3u^2-2u+1)^2(u^{117}+38u^{116}+\cdots-199u-1)$
c_{11}	$((u^2-u+1)^5)(u^4+u^3+u^2+1)^2(u^{117}+8u^{116}+\cdots+5u+1)$
c_{12}	$((u^2+u+1)^5)(u^4+u^3+3u^2+2u+1)^2(u^{117}+38u^{116}+\cdots-199u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^4(y^5-y^4+8y^3-3y^2+3y-1)^2$ $\cdot(y^{117}+13y^{116}+\cdots-1116y-1)$
c_2, c_5	$(y^2+y+1)^4(y^5+3y^4+4y^3+y^2-y-1)^2$ $\cdot(y^{117}+57y^{116}+\cdots-52y-1)$
c_3	$(y^2+y+1)^4(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^{117}-31y^{116}+\cdots-741103690564y-21989627521)$
c_4, c_7	$y^8(y^5-5y^4+8y^3-3y^2-y-1)^2$ $\cdot(y^{117}-55y^{116}+\cdots+245760y-65536)$
c_6, c_9	$y^{10}(y^4+5y^3+7y^2+2y+1)^2$ $\cdot(y^{117}+65y^{116}+\cdots-33554432y-1048576)$
c_8, c_{11}	$((y^2+y+1)^5)(y^4+y^3+3y^2+2y+1)^2(y^{117}+38y^{116}+\cdots-199y-1)$
c_{10}, c_{12}	$(y^2+y+1)^5(y^4+5y^3+7y^2+2y+1)^2$ $\cdot(y^{117}+90y^{116}+\cdots+15017y-1)$