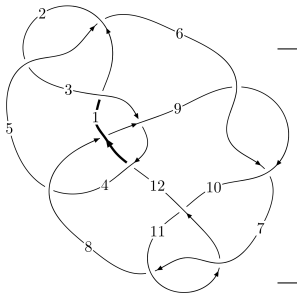
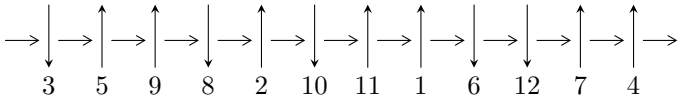
$12a_{0189}$ $(K12a_{0189})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$I_1^u = \langle 9.58442 \times 10^{202} u^{115} - 4.19364 \times 10^{203} u^{114} + \cdots + 1.60073 \times 10^{204} b + 2.97710 \times 10^{203},$
$7.26221 \times 10^{203} u^{115} - 2.06580 \times 10^{204} u^{114} + \cdots + 8.00367 \times 10^{203} a - 3.78417 \times 10^{204},\ u^{116} - 3u^{115} + \cdots +$

$I_2^u = \langle b + 2u + 2,\ a + u + 2,\ u^2 + u + 1 \rangle$

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

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 120 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. $\boldsymbol{I_1^u = \langle 9.58 \times 10^{202} u^{115} - 4.19 \times 10^{203} u^{114} + \cdots + 1.60 \times 10^{204} b + 2.98 \times 10^{203},\ 7.26 \times 10^{203} u^{115} - 2.07 \times 10^{204} u^{114} + \cdots + 8.00 \times 10^{203} a - 3.78 \times 10^{204},\ u^{116} - 3u^{115} + \cdots + 2u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.907360u^{115} + 2.58106u^{114} + \cdots - 44.6961u + 4.72805 \\ -0.0598752u^{115} + 0.261982u^{114} + \cdots - 4.69798u - 0.185983 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.373553u^{115} - 1.05557u^{114} + \cdots + 3.05131u + 4.40925 \\ -0.0574361u^{115} + 0.427091u^{114} + \cdots - 0.705757u + 0.556895 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -0.579574u^{115} + 2.08631u^{114} + \cdots - 43.4018u + 4.95142 \\ 0.267911u^{115} - 0.232768u^{114} + \cdots - 3.40374u + 0.0373916 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.347099u^{115} + 0.843729u^{114} + \cdots + 0.329330u - 4.71183 \\ -0.978083u^{115} + 2.09051u^{114} + \cdots + 2.73850u - 0.265630 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ -u^4 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.609059u^{115} + 1.74035u^{114} + \cdots - 39.7192u + 4.90364 \\ 0.472186u^{115} - 1.17053u^{114} + \cdots - 5.34613u - 0.562955 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0341312u^{115} - 0.0138481u^{114} + \cdots - 4.87772u + 2.57110 \\ 0.171988u^{115} - 0.197880u^{114} + \cdots - 0.274653u + 0.227357 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0990931u^{115} + 0.174632u^{114} + \cdots - 38.4334u + 4.70463 \\ -1.61684u^{115} + 2.77771u^{114} + \cdots - 6.68015u - 0.578114 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.83036u^{115} - 6.91712u^{114} + \cdots + 32.6663u - 0.776136$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{116} + 51u^{115} + \cdots + 90u + 1$
c_2, c_5	$u^{116} + 3u^{115} + \cdots - 2u + 1$
c_3	$u^{116} - 56u^{114} + \cdots - 1192u + 608$
c_4	$u^{116} + 2u^{115} + \cdots - 20233u - 2189$
c_6, c_9	$u^{116} + 3u^{115} + \cdots + 493u + 578$
c_7, c_{11}	$u^{116} - 3u^{115} + \cdots - 8u + 1$
c_8	$u^{116} - 3u^{115} + \cdots - 2u + 1$
c_{10}	$u^{116} + 63u^{115} + \cdots - 2u + 1$
c_{12}	$u^{116} + 11u^{115} + \cdots + 48u + 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{116} + 31y^{115} + \cdots + 9626y + 1$
c_2, c_5	$y^{116} + 51y^{115} + \cdots + 90y + 1$
c_3	$y^{116} - 112y^{115} + \cdots + 12874432y + 369664$
c_4	$y^{116} - 140y^{115} + \cdots - 610858605y + 4791721$
c_6, c_9	$y^{116} - 97y^{115} + \cdots + 5595907y + 334084$
c_7, c_{11}	$y^{116} + 63y^{115} + \cdots - 2y + 1$
c_8	$y^{116} - 9y^{115} + \cdots - 2y + 1$
c_{10}	$y^{116} - 17y^{115} + \cdots + 154y + 1$
c_{12}	$y^{116} + 25y^{115} + \cdots + 7552y + 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.999176+0.073817I$ $a=-1.158200+0.036546I$ $b=\ \ 0.186255-0.167090I$	$-2.03780+4.18277I$	0
$u=-0.999176-0.073817I$ $a=-1.158200-0.036546I$ $b=\ \ 0.186255+0.167090I$	$-2.03780-4.18277I$	0
$u=\ \ 0.920845+0.376102I$ $a=\ \ 0.83921-1.20374I$ $b=-0.413762-0.802174I$	$-5.71061-3.88667I$	0
$u=\ \ 0.920845-0.376102I$ $a=\ \ 0.83921+1.20374I$ $b=-0.413762+0.802174I$	$-5.71061+3.88667I$	0
$u=\ \ 0.924268+0.411448I$ $a=-0.94680+1.15560I$ $b=\ \ 0.460141+0.963298I$	$-1.55371-8.03241I$	0
$u=\ \ 0.924268-0.411448I$ $a=-0.94680-1.15560I$ $b=\ \ 0.460141-0.963298I$	$-1.55371+8.03241I$	0
$u=\ \ 0.421700+0.925453I$ $a=-1.92345+0.70480I$ $b=-0.97816+1.68161I$	$-0.71802+4.11793I$	0
$u=\ \ 0.421700-0.925453I$ $a=-1.92345-0.70480I$ $b=-0.97816-1.68161I$	$-0.71802-4.11793I$	0
$u=-0.514672+0.835355I$ $a=-2.38620-2.63903I$ $b=-1.70821-2.74409I$	$-0.071703-0.449560I$	0
$u=-0.514672-0.835355I$ $a=-2.38620+2.63903I$ $b=-1.70821+2.74409I$	$-0.071703+0.449560I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.522133+0.877863I$ $a=\ \ 2.24240+2.97424I$ $b=\ \ 1.90261+3.57304I$	$-0.21332-3.74883I$	0
$u=-0.522133-0.877863I$ $a=\ \ 2.24240-2.97424I$ $b=\ \ 1.90261-3.57304I$	$-0.21332+3.74883I$	0
$u=\ \ 0.839409+0.494565I$ $a=-1.045040+0.780335I$ $b=\ \ 0.067833+1.333700I$	$2.46054-7.61264I$	0
$u=\ \ 0.839409-0.494565I$ $a=-1.045040-0.780335I$ $b=\ \ 0.067833-1.333700I$	$2.46054+7.61264I$	0
$u=-0.878140+0.408645I$ $a=\ \ 0.852110-0.076165I$ $b=\ \ 0.325025+0.552285I$	$2.68929+0.25500I$	0
$u=-0.878140-0.408645I$ $a=\ \ 0.852110+0.076165I$ $b=\ \ 0.325025-0.552285I$	$2.68929-0.25500I$	0
$u=\ \ 0.948659+0.414465I$ $a=\ \ 0.99590-1.22076I$ $b=-0.583121-0.960239I$	$-4.76188-12.96690I$	0
$u=\ \ 0.948659-0.414465I$ $a=\ \ 0.99590+1.22076I$ $b=-0.583121+0.960239I$	$-4.76188+12.96690I$	0
$u=-0.006481+0.960054I$ $a=\ \ 0.396095-1.053930I$ $b=-0.177120-0.492167I$	$-1.96858-1.97750I$	0
$u=-0.006481-0.960054I$ $a=\ \ 0.396095+1.053930I$ $b=-0.177120+0.492167I$	$-1.96858+1.97750I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.898263+0.550730I$ $a=-0.646075+0.173708I$ $b=-0.505703-0.604282I$	$2.55387-3.56596I$	0
$u=-0.898263-0.550730I$ $a=-0.646075-0.173708I$ $b=-0.505703+0.604282I$	$2.55387+3.56596I$	0
$u=-0.486090+0.945475I$ $a=\ \ 1.95773+2.14041I$ $b=\ \ 2.41861+3.20916I$	$-2.64076-2.51596I$	0
$u=-0.486090-0.945475I$ $a=\ \ 1.95773-2.14041I$ $b=\ \ 2.41861-3.20916I$	$-2.64076+2.51596I$	0
$u=\ \ 0.302821+1.020470I$ $a=\ \ 0.129693+0.508484I$ $b=\ \ 0.787123-0.928929I$	$-9.27722-3.99137I$	0
$u=\ \ 0.302821-1.020470I$ $a=\ \ 0.129693-0.508484I$ $b=\ \ 0.787123+0.928929I$	$-9.27722+3.99137I$	0
$u=\ \ 0.776802+0.518793I$ $a=\ \ 1.015560-0.567370I$ $b=\ \ 0.204586-1.364390I$	$3.39422-3.00637I$	0
$u=\ \ 0.776802-0.518793I$ $a=\ \ 1.015560+0.567370I$ $b=\ \ 0.204586+1.364390I$	$3.39422+3.00637I$	0
$u=\ \ 0.359469+0.860704I$ $a=\ \ 1.66643-1.09222I$ $b=\ \ 0.41232-1.47680I$	$-0.359640-0.841106I$	0
$u=\ \ 0.359469-0.860704I$ $a=\ \ 1.66643+1.09222I$ $b=\ \ 0.41232+1.47680I$	$-0.359640+0.841106I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.344814 + 1.011520I$ $a = -0.014959 - 0.630159I$ $b = -0.674659 + 0.692719I$	$-5.70935 + 0.95306I$	0
$u = 0.344814 - 1.011520I$ $a = -0.014959 + 0.630159I$ $b = -0.674659 - 0.692719I$	$-5.70935 - 0.95306I$	0
$u = -0.469947 + 0.964016I$ $a = -1.97650 - 1.92488I$ $b = -2.68528 - 3.02412I$	$-6.22272 + 1.80974I$	0
$u = -0.469947 - 0.964016I$ $a = -1.97650 + 1.92488I$ $b = -2.68528 + 3.02412I$	$-6.22272 - 1.80974I$	0
$u = -0.413064 + 0.829110I$ $a = 0.77676 + 1.50532I$ $b = 1.30264 + 1.62629I$	$-0.811819 - 0.337167I$	0
$u = -0.413064 - 0.829110I$ $a = 0.77676 - 1.50532I$ $b = 1.30264 - 1.62629I$	$-0.811819 + 0.337167I$	0
$u = -0.622446 + 0.880279I$ $a = 0.568985 - 0.163247I$ $b = 0.283062 - 0.213587I$	$0.60755 - 2.45684I$	0
$u = -0.622446 - 0.880279I$ $a = 0.568985 + 0.163247I$ $b = 0.283062 + 0.213587I$	$0.60755 + 2.45684I$	0
$u = -0.503225 + 0.958571I$ $a = -2.14933 - 2.14897I$ $b = -2.56067 - 3.44707I$	$-6.03961 - 7.01535I$	0
$u = -0.503225 - 0.958571I$ $a = -2.14933 + 2.14897I$ $b = -2.56067 + 3.44707I$	$-6.03961 + 7.01535I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.540140 + 0.972262I$ $a = 0.91775 - 1.34992I$ $b = -0.382108 - 1.078750I$	$0.159951 + 1.001520I$	0
$u = 0.540140 - 0.972262I$ $a = 0.91775 + 1.34992I$ $b = -0.382108 + 1.078750I$	$0.159951 - 1.001520I$	0
$u = 0.364288 + 1.052870I$ $a = -0.152278 + 0.524830I$ $b = 0.353280 - 0.740875I$	$-9.79216 + 5.52663I$	0
$u = 0.364288 - 1.052870I$ $a = -0.152278 - 0.524830I$ $b = 0.353280 + 0.740875I$	$-9.79216 - 5.52663I$	0
$u = 0.216355 + 1.098250I$ $a = -0.934801 + 0.417662I$ $b = -0.740885 + 0.207706I$	$-6.10304 - 0.25139I$	0
$u = 0.216355 - 1.098250I$ $a = -0.934801 - 0.417662I$ $b = -0.740885 - 0.207706I$	$-6.10304 + 0.25139I$	0
$u = 0.564834 + 0.664610I$ $a = -1.104790 - 0.262157I$ $b = -1.10291 + 1.29255I$	$1.11308 + 3.43678I$	0
$u = 0.564834 - 0.664610I$ $a = -1.104790 + 0.262157I$ $b = -1.10291 - 1.29255I$	$1.11308 - 3.43678I$	0
$u = -0.864925$ $a = 1.12947$ $b = 0.0590391$	1.15090	0
$u = 0.634001 + 0.579385I$ $a = 0.972987 - 0.075164I$ $b = 0.73859 - 1.29757I$	$2.80840 - 1.23277I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.634001 - 0.579385I$ $a = 0.972987 + 0.075164I$ $b = 0.73859 + 1.29757I$	$2.80840 + 1.23277I$	0
$u = -0.424391 + 1.064250I$ $a = -0.804446 - 0.658783I$ $b = -1.053830 - 0.611339I$	$-1.61821 - 2.77049I$	0
$u = -0.424391 - 1.064250I$ $a = -0.804446 + 0.658783I$ $b = -1.053830 + 0.611339I$	$-1.61821 + 2.77049I$	0
$u = 0.496996 + 1.048050I$ $a = -1.78524 + 0.10263I$ $b = -1.89932 + 1.40555I$	$-4.68200 + 5.54586I$	0
$u = 0.496996 - 1.048050I$ $a = -1.78524 - 0.10263I$ $b = -1.89932 - 1.40555I$	$-4.68200 - 5.54586I$	0
$u = 0.576297 + 1.006970I$ $a = -1.14686 + 1.15350I$ $b = -0.082280 + 1.271190I$	$1.53237 + 5.99820I$	0
$u = 0.576297 - 1.006970I$ $a = -1.14686 - 1.15350I$ $b = -0.082280 - 1.271190I$	$1.53237 - 5.99820I$	0
$u = -0.495476 + 0.676963I$ $a = 1.35903 + 3.12852I$ $b = 0.14569 + 2.00460I$	$-5.17764 + 2.89665I$	0
$u = -0.495476 - 0.676963I$ $a = 1.35903 - 3.12852I$ $b = 0.14569 - 2.00460I$	$-5.17764 - 2.89665I$	0
$u = -0.054161 + 1.167310I$ $a = -0.098432 + 0.478297I$ $b = 0.446919 - 0.165131I$	$-3.65497 - 5.87029I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.054161-1.167310I$ $a=-0.098432-0.478297I$ $b=\ 0.446919+0.165131I$	$-3.65497+5.87029I$	0
$u=\ 0.469726+1.082720I$ $a=\ 1.66244-0.08554I$ $b=\ 1.92404-1.13006I$	$-9.06972+1.47220I$	0
$u=\ 0.469726-1.082720I$ $a=\ 1.66244+0.08554I$ $b=\ 1.92404+1.13006I$	$-9.06972-1.47220I$	0
$u=-0.424271+0.698754I$ $a=-1.09326-2.76432I$ $b=-0.39351-1.66424I$	$-1.86322-1.38201I$	0
$u=-0.424271-0.698754I$ $a=-1.09326+2.76432I$ $b=-0.39351+1.66424I$	$-1.86322+1.38201I$	0
$u=\ 0.523478+1.060820I$ $a=\ 1.80466-0.02934I$ $b=\ 2.06619-1.46486I$	$-7.81039+10.63470I$	0
$u=\ 0.523478-1.060820I$ $a=\ 1.80466+0.02934I$ $b=\ 2.06619+1.46486I$	$-7.81039-10.63470I$	0
$u=-0.912005+0.778203I$ $a=-0.223087+0.395516I$ $b=-0.815991-0.278111I$	$0.41964-3.21534I$	0
$u=-0.912005-0.778203I$ $a=-0.223087-0.395516I$ $b=-0.815991+0.278111I$	$0.41964+3.21534I$	0
$u=\ 0.557526+1.084810I$ $a=\ 1.122080-0.735761I$ $b=\ 0.780432-0.806136I$	$-3.94544+7.44938I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.557526 - 1.084810I$ $a = 1.122080 + 0.735761I$ $b = 0.780432 + 0.806136I$	$-3.94544 - 7.44938I$	0
$u = 0.628411 + 1.064180I$ $a = -1.43841 + 0.90795I$ $b = -0.79030 + 1.61396I$	$1.75781 + 8.31581I$	0
$u = 0.628411 - 1.064180I$ $a = -1.43841 - 0.90795I$ $b = -0.79030 - 1.61396I$	$1.75781 - 8.31581I$	0
$u = -0.713776 + 1.019460I$ $a = 0.535297 + 0.394961I$ $b = 0.061365 + 0.653781I$	$1.16025 - 2.35383I$	0
$u = -0.713776 - 1.019460I$ $a = 0.535297 - 0.394961I$ $b = 0.061365 - 0.653781I$	$1.16025 + 2.35383I$	0
$u = -0.976305 + 0.778911I$ $a = 0.294860 - 0.522815I$ $b = 1.004610 + 0.376001I$	$-2.76590 - 7.61812I$	0
$u = -0.976305 - 0.778911I$ $a = 0.294860 + 0.522815I$ $b = 1.004610 - 0.376001I$	$-2.76590 + 7.61812I$	0
$u = 0.661618 + 0.345676I$ $a = -0.343334 + 0.497854I$ $b = -0.413165 + 0.801179I$	$-1.87219 - 2.71430I$	$-2.15624 + 3.40858I$
$u = 0.661618 - 0.345676I$ $a = -0.343334 - 0.497854I$ $b = -0.413165 - 0.801179I$	$-1.87219 + 2.71430I$	$-2.15624 - 3.40858I$
$u = -0.930176 + 0.855473I$ $a = 0.090059 - 0.524656I$ $b = 0.967564 + 0.038882I$	$-3.00978 + 0.86920I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.930176-0.855473I$ $a=\ 0.090059+0.524656I$ $b=\ 0.967564-0.038882I$	$-3.00978-0.86920I$	0
$u=\ 0.647248+1.091120I$ $a=\ 1.54881-0.80607I$ $b=\ 1.12488-1.75934I$	$0.65942+13.14560I$	0
$u=\ 0.647248-1.091120I$ $a=\ 1.54881+0.80607I$ $b=\ 1.12488+1.75934I$	$0.65942-13.14560I$	0
$u=-0.420362+0.597439I$ $a=\ 0.75687+3.23139I$ $b=\ 0.00025+1.49503I$	$-5.17136-5.62996I$	$-6.98138+7.29274I$
$u=-0.420362-0.597439I$ $a=\ 0.75687-3.23139I$ $b=\ 0.00025-1.49503I$	$-5.17136+5.62996I$	$-6.98138-7.29274I$
$u=-0.685146+1.118240I$ $a=-0.663844-0.514004I$ $b=-0.360299-1.095050I$	$0.60014-6.03677I$	0
$u=-0.685146-1.118240I$ $a=-0.663844+0.514004I$ $b=-0.360299+1.095050I$	$0.60014+6.03677I$	0
$u=\ 0.078696+1.309520I$ $a=-0.320794-0.023103I$ $b=-0.077459-1.076550I$	$-7.73229-4.97318I$	0
$u=\ 0.078696-1.309520I$ $a=-0.320794+0.023103I$ $b=-0.077459+1.076550I$	$-7.73229+4.97318I$	0
$u=\ 0.113739+1.314870I$ $a=\ 0.408360+0.075644I$ $b=\ 0.313958+1.140800I$	$-11.68010-0.62163I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.113739 - 1.314870I$ $a = 0.408360 - 0.075644I$ $b = 0.313958 - 1.140800I$	$-11.68010 + 0.62163I$	0
$u = 0.634925 + 1.162060I$ $a = -1.58272 + 0.47499I$ $b = -1.95419 + 1.42451I$	$-8.09691 + 9.56703I$	0
$u = 0.634925 - 1.162060I$ $a = -1.58272 - 0.47499I$ $b = -1.95419 - 1.42451I$	$-8.09691 - 9.56703I$	0
$u = 0.650233 + 1.153870I$ $a = 1.63967 - 0.53280I$ $b = 1.89314 - 1.64752I$	$-3.8142 + 13.7901I$	0
$u = 0.650233 - 1.153870I$ $a = 1.63967 + 0.53280I$ $b = 1.89314 + 1.64752I$	$-3.8142 - 13.7901I$	0
$u = 0.658855 + 1.162630I$ $a = -1.69005 + 0.50615I$ $b = -2.03122 + 1.73785I$	$-7.0523 + 18.8233I$	0
$u = 0.658855 - 1.162630I$ $a = -1.69005 - 0.50615I$ $b = -2.03122 - 1.73785I$	$-7.0523 - 18.8233I$	0
$u = 0.069241 + 1.336930I$ $a = 0.266026 + 0.085081I$ $b = -0.020149 + 1.252700I$	$-11.1249 - 9.7796I$	0
$u = 0.069241 - 1.336930I$ $a = 0.266026 - 0.085081I$ $b = -0.020149 - 1.252700I$	$-11.1249 + 9.7796I$	0
$u = 0.563092 + 0.341046I$ $a = -1.43179 + 1.54663I$ $b = 0.880338 + 0.871207I$	$-5.83568 - 6.26348I$	$-1.59821 + 4.73395I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.563092 - 0.341046I$ $a = -1.43179 - 1.54663I$ $b = \ 0.880338 - 0.871207I$	$-5.83568 + 6.26348I$	$-1.59821 - 4.73395I$
$u = -0.606585 + 1.237530I$ $a = -0.784889 - 0.529822I$ $b = -1.04510 - 1.38789I$	$-2.24365 - 5.42103I$	0
$u = -0.606585 - 1.237530I$ $a = -0.784889 + 0.529822I$ $b = -1.04510 + 1.38789I$	$-2.24365 + 5.42103I$	0
$u = -0.572210 + 1.264310I$ $a = \ 0.800242 + 0.504970I$ $b = \ 1.27443 + 1.34012I$	$-5.93009 - 1.25011I$	0
$u = -0.572210 - 1.264310I$ $a = \ 0.800242 - 0.504970I$ $b = \ 1.27443 - 1.34012I$	$-5.93009 + 1.25011I$	0
$u = \ 0.573192 + 0.185266I$ $a = -1.23660 + 1.28800I$ $b = \ 0.802556 + 0.630072I$	$-6.62393 + 2.58271I$	$-3.14755 - 2.46189I$
$u = \ 0.573192 - 0.185266I$ $a = -1.23660 - 1.28800I$ $b = \ 0.802556 - 0.630072I$	$-6.62393 - 2.58271I$	$-3.14755 + 2.46189I$
$u = -0.628406 + 1.264100I$ $a = \ 0.804235 + 0.548371I$ $b = \ 1.06633 + 1.58252I$	$-5.51709 - 10.01090I$	0
$u = -0.628406 - 1.264100I$ $a = \ 0.804235 - 0.548371I$ $b = \ 1.06633 - 1.58252I$	$-5.51709 + 10.01090I$	0
$u = -0.581537$ $a = \ 1.27604$ $b = \ 0.408004$	1.23744	8.91410

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.106400+0.554551I$ $a=-0.824685-0.958072I$ $b=-1.137570+0.007819I$	$-1.16097-2.29070I$	$-1.97588+5.36267I$
$u=-0.106400-0.554551I$ $a=-0.824685+0.958072I$ $b=-1.137570-0.007819I$	$-1.16097+2.29070I$	$-1.97588-5.36267I$
$u=0.482750+0.277517I$ $a=1.52345-1.38742I$ $b=-0.732770-0.792895I$	$-2.68789-1.48967I$	$0.84750+1.45711I$
$u=0.482750-0.277517I$ $a=1.52345+1.38742I$ $b=-0.732770+0.792895I$	$-2.68789+1.48967I$	$0.84750-1.45711I$
$u=-0.0578905+0.0907360I$ $a=3.75642-6.47146I$ $b=-0.108548-0.549278I$	$-0.05103-1.76225I$	$-0.21913+4.44953I$
$u=-0.0578905-0.0907360I$ $a=3.75642+6.47146I$ $b=-0.108548+0.549278I$	$-0.05103+1.76225I$	$-0.21913-4.44953I$

II. $I_2^u = \langle b + 2u + 2,\ a + u + 2,\ u^2 + u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8u + 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-1.50000-0.86603I$ $b=-1.00000-1.73205I$	$-4.05977I$	$3.00000+6.92820I$
$u=-0.500000-0.866025I$ $a=-1.50000+0.86603I$ $b=-1.00000+1.73205I$	$4.05977I$	$3.00000-6.92820I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$		
$a = \quad 1.50000 + 0.86603I$	0	0
$b = \quad 0.500000 + 0.866025I$		
$u = -0.500000 - 0.866025I$		
$a = \quad 1.50000 - 0.86603I$	0	0
$b = \quad 0.500000 - 0.866025I$		

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{116}+51u^{115}+\cdots+90u+1)$
c_2	$((u^2+u+1)^2)(u^{116}+3u^{115}+\cdots-2u+1)$
c_3	$((u+1)^2)(u^2-u+1)(u^{116}-56u^{114}+\cdots-1192u+608)$
c_4	$((u+1)^2)(u^2-u+1)(u^{116}+2u^{115}+\cdots-20233u-2189)$
c_5	$((u^2-u+1)^2)(u^{116}+3u^{115}+\cdots-2u+1)$
c_6	$((u^2-u+1)^2)(u^{116}+3u^{115}+\cdots+493u+578)$
c_7	$((u^2+u+1)^2)(u^{116}-3u^{115}+\cdots-8u+1)$
c_8	$((u^2-u+1)^2)(u^{116}-3u^{115}+\cdots-2u+1)$
c_9	$((u^2+u+1)^2)(u^{116}+3u^{115}+\cdots+493u+578)$
c_{10}	$((u^2-u+1)^2)(u^{116}+63u^{115}+\cdots-2u+1)$
c_{11}	$((u^2-u+1)^2)(u^{116}-3u^{115}+\cdots-8u+1)$
c_{12}	$u^4(u^{116}+11u^{115}+\cdots+48u+16)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{116}+31y^{115}+\cdots+9626y+1)$
c_2, c_5	$((y^2+y+1)^2)(y^{116}+51y^{115}+\cdots+90y+1)$
c_3	$((y-1)^2)(y^2+y+1)(y^{116}-112y^{115}+\cdots+1.28744\times 10^7 y+369664)$
c_4	$((y-1)^2)(y^2+y+1)(y^{116}-140y^{115}+\cdots-6.10859\times 10^8 y+4791721)$
c_6, c_9	$((y^2+y+1)^2)(y^{116}-97y^{115}+\cdots+5595907y+334084)$
c_7, c_{11}	$((y^2+y+1)^2)(y^{116}+63y^{115}+\cdots-2y+1)$
c_8	$((y^2+y+1)^2)(y^{116}-9y^{115}+\cdots-2y+1)$
c_{10}	$((y^2+y+1)^2)(y^{116}-17y^{115}+\cdots+154y+1)$
c_{12}	$y^4(y^{116}+25y^{115}+\cdots+7552y+256)$