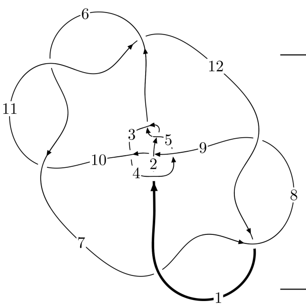
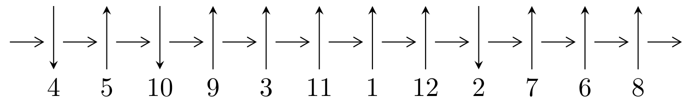
$12a_{0862}$ $(K12a_{0862})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -2.41366 \times 10^{15}u^{41} - 3.88647 \times 10^{15}u^{40} + \cdots + 2.70070 \times 10^{16}b - 2.38778 \times 10^{16},$$
$$3.90532 \times 10^{16}u^{41} + 4.65482 \times 10^{15}u^{40} + \cdots + 1.08028 \times 10^{17}a - 2.34376 \times 10^{17},\ u^{42} + u^{41} + \cdots + 5u + 1\rangle$$
$$I_2^u = \langle 5.71537 \times 10^{60}u^{59} + 9.40318 \times 10^{60}u^{58} + \cdots + 1.05278 \times 10^{62}b - 1.05491 \times 10^{62},$$
$$5.50355 \times 10^{62}u^{59} + 1.37835 \times 10^{63}u^{58} + \cdots + 1.78973 \times 10^{63}a + 1.81400 \times 10^{64},\ u^{60} + u^{59} + \cdots + 96u + 1$$
$$I_3^u = \langle -9a^4u + 137a^4 - 670a^3u - 515a^3 + 896a^2u - 428a^2 + 1221au + 725b - 703a - 211u + 1198,$$
$$a^5 - 5a^4u - 4a^4 + 9a^3u - 2a^3 + 6a^2u - 6au + 7a - 1,\ u^2 + 1\rangle$$
$$I_4^u = \langle b - 1,\ 4a + 3,\ u + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 113 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.
$\boldsymbol{I_1^u = \langle -2.41\times 10^{15}u^{41} - 3.89\times 10^{15}u^{40} + \cdots + 2.70\times 10^{16}b - 2.39\times 10^{16},\ 3.91\times 10^{16}u^{41} + 4.65\times 10^{15}u^{40} + \cdots + 1.08\times 10^{17}a - 2.34\times 10^{17},\ u^{42} + u^{41} + \cdots + 5u + 1\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.361511u^{41} - 0.0430891u^{40} + \cdots - 6.03379u + 2.16959 \\ 0.0893718u^{41} + 0.143906u^{40} + \cdots - 0.178892u + 0.884133 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.315904u^{41} + 0.0662626u^{40} + \cdots - 5.94901u + 3.22945 \\ 0.174739u^{41} + 0.111875u^{40} + \cdots + 0.0944736u + 0.995695 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0742984u^{41} - 0.106140u^{40} + \cdots + 2.43989u - 0.719779 \\ -0.188640u^{41} + 0.154687u^{40} + \cdots + 1.14048u + 0.0824999 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.155243u^{41} + 0.143329u^{40} + \cdots - 4.42970u + 2.56854 \\ -0.0568312u^{41} + 0.0634325u^{40} + \cdots - 1.67596u + 0.465338 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0312500u^{41} - 0.0312500u^{40} + \cdots - 0.156250u^2 - 2.03125u \\ -0.0312500u^{41} - 0.0312500u^{40} + \cdots - 0.156250u^2 - 1.03125u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.0312500u^{40} + 0.0312500u^{39} + \cdots + 0.156250u + 1.03125 \\ 0.0312500u^{40} + 0.0312500u^{39} + \cdots + 0.156250u + 0.0312500 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.0312500u^{40} + 0.0312500u^{39} + \cdots + 0.156250u + 1.03125 \\ 0.0312500u^{40} + 0.0312500u^{39} + \cdots + 0.156250u + 0.0312500 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$$-\frac{789866485036270413}{432111644840574976}u^{41} - \frac{31779616638456 13}{3375872225316992}u^{40} + \cdots - \frac{515566611610676781}{108027911210143744}u + \frac{1182572220834268723}{432111644840574976}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{42} - 7u^{41} + \cdots + 44u + 32$
c_2, c_5	$u^{42} + 2u^{41} + \cdots + 175u - 16$
c_3	$2(2u^{42} + 7u^{41} + \cdots + 62575u - 9794)$
c_4	$2(2u^{42} + 19u^{41} + \cdots + 6823u + 542)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{42} - u^{41} + \cdots - 5u + 1$
c_9	$u^{42} - 11u^{41} + \cdots + 12u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{42} + 3y^{41} + \cdots - 8784y + 1024$
c_2, c_5	$y^{42} - 30y^{41} + \cdots - 15201y + 256$
c_3	$4(4y^{42} - 101y^{41} + \cdots + 6.32683 \times 10^8 y + 9.59224 \times 10^7)$
c_4	$4(4y^{42} - 181y^{41} + \cdots - 8215501y + 293764)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{42} + 45y^{41} + \cdots + 11y + 1$
c_9	$y^{42} + 3y^{41} + \cdots + 40y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.848250 + 0.512070I$ $a = 0.207456 + 0.529240I$ $b = -1.095070 - 0.103799I$	$3.98284 - 0.00703I$	$16.2188 - 8.0603I$
$u = -0.848250 - 0.512070I$ $a = 0.207456 - 0.529240I$ $b = -1.095070 + 0.103799I$	$3.98284 + 0.00703I$	$16.2188 + 8.0603I$
$u = 0.800314 + 0.304736I$ $a = 0.829077 - 1.057030I$ $b = -1.330470 - 0.471690I$	$5.06478 + 9.22584I$	$10.05550 - 8.03379I$
$u = 0.800314 - 0.304736I$ $a = 0.829077 + 1.057030I$ $b = -1.330470 + 0.471690I$	$5.06478 - 9.22584I$	$10.05550 + 8.03379I$
$u = -1.14704$ $a = 0.588362$ $b = -0.957842$	3.16700	-41.0100
$u = -0.012618 + 1.267560I$ $a = -0.257462 - 0.166119I$ $b = -1.55639 - 0.20562I$	$1.02826 + 4.26198I$	0
$u = -0.012618 - 1.267560I$ $a = -0.257462 + 0.166119I$ $b = -1.55639 + 0.20562I$	$1.02826 - 4.26198I$	0
$u = -0.034204 + 0.691000I$ $a = -0.842871 + 0.389564I$ $b = -1.348420 + 0.231077I$	$3.66010 - 4.50065I$	$13.13111 + 5.04481I$
$u = -0.034204 - 0.691000I$ $a = -0.842871 - 0.389564I$ $b = -1.348420 - 0.231077I$	$3.66010 + 4.50065I$	$13.13111 - 5.04481I$
$u = 0.616502 + 0.228755I$ $a = -0.376552 + 0.322880I$ $b = 0.092715 + 0.998112I$	$0.67504 + 4.06826I$	$8.30605 - 8.37246I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.616502 - 0.228755I$ $a = -0.376552 - 0.322880I$ $b = 0.092715 - 0.998112I$	$0.67504 - 4.06826I$	$8.30605 + 8.37246I$
$u = 0.631212 + 0.066643I$ $a = -1.208440 + 0.639819I$ $b = 1.39513 + 0.51274I$	$4.64462 + 1.79449I$	$16.6728 - 4.4347I$
$u = 0.631212 - 0.066643I$ $a = -1.208440 - 0.639819I$ $b = 1.39513 - 0.51274I$	$4.64462 - 1.79449I$	$16.6728 + 4.4347I$
$u = -0.22206 + 1.39802I$ $a = 0.703692 - 0.255357I$ $b = 1.80328 + 0.31389I$	$-4.00787 - 4.08479I$	0
$u = -0.22206 - 1.39802I$ $a = 0.703692 + 0.255357I$ $b = 1.80328 - 0.31389I$	$-4.00787 + 4.08479I$	0
$u = -0.14844 + 1.41232I$ $a = 0.821579 + 1.118480I$ $b = 0.75327 + 1.20186I$	$-6.98470 - 0.19701I$	0
$u = -0.14844 - 1.41232I$ $a = 0.821579 - 1.118480I$ $b = 0.75327 - 1.20186I$	$-6.98470 + 0.19701I$	0
$u = -0.27736 + 1.41903I$ $a = 0.20943 - 1.78788I$ $b = 1.42598 - 0.91461I$	$-5.04656 - 8.51889I$	0
$u = -0.27736 - 1.41903I$ $a = 0.20943 + 1.78788I$ $b = 1.42598 + 0.91461I$	$-5.04656 + 8.51889I$	0
$u = 0.18419 + 1.44787I$ $a = 0.67100 - 1.30177I$ $b = 0.747156 - 0.401730I$	$-8.12596 + 3.90378I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.18419 - 1.44787I$ $a = 0.67100 + 1.30177I$ $b = 0.747156 + 0.401730I$	$-8.12596 - 3.90378I$	0
$u = 0.24426 + 1.44190I$ $a = -0.87161 + 1.77499I$ $b = 1.133290 + 0.182062I$	$-7.23578 + 5.67907I$	0
$u = 0.24426 - 1.44190I$ $a = -0.87161 - 1.77499I$ $b = 1.133290 - 0.182062I$	$-7.23578 - 5.67907I$	0
$u = -0.513585$ $a = -6.41966$ $b = 1.04008$	2.62940	-41.1690
$u = -0.491329 + 0.139176I$ $a = 0.845547 - 0.468260I$ $b = 0.133518 - 0.061566I$	$1.019720 - 0.352110I$	$10.07407 + 1.64611I$
$u = -0.491329 - 0.139176I$ $a = 0.845547 + 0.468260I$ $b = 0.133518 + 0.061566I$	$1.019720 + 0.352110I$	$10.07407 - 1.64611I$
$u = 0.41236 + 1.44280I$ $a = 0.077835 - 1.227670I$ $b = -1.175080 - 0.389371I$	$-7.08053 + 10.21340I$	0
$u = 0.41236 - 1.44280I$ $a = 0.077835 + 1.227670I$ $b = -1.175080 + 0.389371I$	$-7.08053 - 10.21340I$	0
$u = -0.32208 + 1.46578I$ $a = -0.67927 - 1.33639I$ $b = -0.074878 - 1.346880I$	$-10.3464 - 11.3808I$	0
$u = -0.32208 - 1.46578I$ $a = -0.67927 + 1.33639I$ $b = -0.074878 + 1.346880I$	$-10.3464 + 11.3808I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.39351 + 1.46640I$ $a = -0.02848 + 1.76784I$ $b = -1.40317 + 0.63323I$	$-6.1337 - 18.1779I$	0
$u = -0.39351 - 1.46640I$ $a = -0.02848 - 1.76784I$ $b = -1.40317 - 0.63323I$	$-6.1337 + 18.1779I$	0
$u = 0.28895 + 1.49339I$ $a = -0.022490 + 0.757026I$ $b = -0.100578 + 0.571615I$	$-10.21670 + 6.45809I$	0
$u = 0.28895 - 1.49339I$ $a = -0.022490 - 0.757026I$ $b = -0.100578 - 0.571615I$	$-10.21670 - 6.45809I$	0
$u = -0.05826 + 1.54611I$ $a = -0.015563 + 1.355460I$ $b = -0.615041 + 0.997986I$	$-14.1579 + 0.2551I$	0
$u = -0.05826 - 1.54611I$ $a = -0.015563 - 1.355460I$ $b = -0.615041 - 0.997986I$	$-14.1579 - 0.2551I$	0
$u = 0.040969 + 0.400596I$ $a = 1.18528 - 1.17600I$ $b = 0.058208 - 0.592373I$	$-0.83418 - 1.45922I$	$1.76553 + 2.89021I$
$u = 0.040969 - 0.400596I$ $a = 1.18528 + 1.17600I$ $b = 0.058208 + 0.592373I$	$-0.83418 + 1.45922I$	$1.76553 - 2.89021I$
$u = 0.07832 + 1.61476I$ $a = -0.500043 - 0.967191I$ $b = -0.946634 - 0.650726I$	$-13.0094 + 6.1124I$	0
$u = 0.07832 - 1.61476I$ $a = -0.500043 + 0.967191I$ $b = -0.946634 + 0.650726I$	$-13.0094 - 6.1124I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.158642 + 0.196779I$ $a = 3.79254 - 0.96883I$ $b = 1.062070 - 0.138328I$	$1.94125 - 0.63614I$	$4.59431 - 1.47794I$
$u = -0.158642 - 0.196779I$ $a = 3.79254 + 0.96883I$ $b = 1.062070 + 0.138328I$	$1.94125 + 0.63614I$	$4.59431 + 1.47794I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 5.72\times 10^{60}u^{59}+9.40\times 10^{60}u^{58}+\cdots+1.05\times 10^{62}b-1.05\times 10^{62},\ 5.50\times 10^{62}u^{59}+ 1.38\times 10^{63}u^{58}+\cdots+1.79\times 10^{63}a+1.81\times 10^{64},\ u^{60}+u^{59}+\cdots+96u+17\rangle}$

(i) Arc colorings

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.307507u^{59} - 0.770142u^{58} + \cdots - 49.2260u - 10.1356 \\ -0.0542882u^{59} - 0.0893173u^{58} + \cdots + 2.24063u + 1.00202 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.382515u^{59} - 0.936354u^{58} + \cdots - 63.3449u - 9.46810 \\ -0.0585416u^{59} - 0.182816u^{58} + \cdots - 4.28272u - 0.844920 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0101071u^{59} + 0.339015u^{58} + \cdots + 17.5516u - 0.691929 \\ -0.0532959u^{59} + 0.142074u^{58} + \cdots + 20.1016u + 4.81822 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0236180u^{59} - 0.317832u^{58} + \cdots - 34.8484u - 8.02920 \\ 0.163341u^{59} + 0.166411u^{58} + \cdots + 8.85766u + 1.75878 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0588235u^{59} - 0.0588235u^{58} + \cdots - 24.4706u - 5.64706 \\ -0.0164874u^{59} + 0.0949894u^{58} + \cdots + 14.0045u + 2.55342 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.261678u^{59} + 0.317843u^{58} + \cdots + 21.9887u + 0.695116 \\ 0.111477u^{59} + 0.151154u^{58} + \cdots + 4.13621u + 1.28029 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 0.150201u^{59} + 0.166689u^{58} + \cdots + 17.8524u + 0.414830 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0405567u^{59} - 1.24352u^{58} + \cdots - 113.006u - 12.8451$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{30} - 5u^{29} + \cdots - u + 1)^2$
c_2, c_5	$(u^{30} + u^{29} + \cdots + 5u + 1)^2$
c_3	$(u^{30} - u^{29} + \cdots + 11u + 1)^2$
c_4	$(u^{30} - 3u^{29} + \cdots - 9u + 1)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$u^{60} - u^{59} + \cdots - 96u + 17$
c_9	$(u^{30} + 3u^{29} + \cdots + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{30} - 3y^{29} + \cdots - 5y + 1)^2$
c_2, c_5	$(y^{30} - 19y^{29} + \cdots - 5y + 1)^2$
c_3	$(y^{30} - 23y^{29} + \cdots - 9y + 1)^2$
c_4	$(y^{30} - 27y^{29} + \cdots + 11y + 1)^2$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y^{60} + 47y^{59} + \cdots + 4928y + 289$
c_9	$(y^{30} + 5y^{29} + \cdots + 3y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.991061 + 0.204470I$ $a = 0.850800 - 0.328523I$ $b = -1.023220 - 0.279978I$	$-1.80983 + 5.18678I$	$4.12994 - 9.32507I$
$u = 0.991061 - 0.204470I$ $a = 0.850800 + 0.328523I$ $b = -1.023220 + 0.279978I$	$-1.80983 - 5.18678I$	$4.12994 + 9.32507I$
$u = -0.968951 + 0.296225I$ $a = 0.892006 + 0.785177I$ $b = -1.34417 + 0.57956I$	$-0.51273 - 13.28050I$	$5.34939 + 8.37714I$
$u = -0.968951 - 0.296225I$ $a = 0.892006 - 0.785177I$ $b = -1.34417 - 0.57956I$	$-0.51273 + 13.28050I$	$5.34939 - 8.37714I$
$u = -0.610673 + 0.831038I$ $a = 0.997321 + 0.562990I$ $b = -0.208936 + 0.974666I$	$-5.95506 + 2.12888I$	$-0.79788 - 2.27450I$
$u = -0.610673 - 0.831038I$ $a = 0.997321 - 0.562990I$ $b = -0.208936 - 0.974666I$	$-5.95506 - 2.12888I$	$-0.79788 + 2.27450I$
$u = -0.255815 + 0.892885I$ $a = 0.75843 - 1.65824I$ $b = 1.032550 + 0.425249I$	$-1.38618 + 1.10699I$	$5.88237 - 2.02123I$
$u = -0.255815 - 0.892885I$ $a = 0.75843 + 1.65824I$ $b = 1.032550 - 0.425249I$	$-1.38618 - 1.10699I$	$5.88237 + 2.02123I$
$u = 0.779625 + 0.477176I$ $a = 0.418708 + 0.094057I$ $b = -0.177816 + 0.275228I$	$-3.88720 + 2.56045I$	$1.25441 - 1.69203I$
$u = 0.779625 - 0.477176I$ $a = 0.418708 - 0.094057I$ $b = -0.177816 - 0.275228I$	$-3.88720 - 2.56045I$	$1.25441 + 1.69203I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.841780 + 0.356078I$ $a = -0.174629 - 0.117853I$ $b = -0.078191 - 1.171910I$	$-4.49543 - 7.17470I$	$2.59606 + 7.73482I$
$u = -0.841780 - 0.356078I$ $a = -0.174629 + 0.117853I$ $b = -0.078191 + 1.171910I$	$-4.49543 + 7.17470I$	$2.59606 - 7.73482I$
$u = 0.473196 + 0.770071I$ $a = -0.369077 - 0.309157I$ $b = -1.269270 + 0.312391I$	$3.46740 - 4.69908I$	$9.55546 + 4.95856I$
$u = 0.473196 - 0.770071I$ $a = -0.369077 + 0.309157I$ $b = -1.269270 - 0.312391I$	$3.46740 + 4.69908I$	$9.55546 - 4.95856I$
$u = 0.043711 + 1.116100I$ $a = 1.40757 - 0.86097I$ $b = 0.510011 - 0.672747I$	$-1.44331 - 1.46172I$	0
$u = 0.043711 - 1.116100I$ $a = 1.40757 + 0.86097I$ $b = 0.510011 + 0.672747I$	$-1.44331 + 1.46172I$	0
$u = 0.849843 + 0.794247I$ $a = 0.364459 - 0.460121I$ $b = -0.801824 - 0.262652I$	$-4.28958 + 3.02182I$	0
$u = 0.849843 - 0.794247I$ $a = 0.364459 + 0.460121I$ $b = -0.801824 + 0.262652I$	$-4.28958 - 3.02182I$	0
$u = -0.112252 + 1.159760I$ $a = 2.35715 - 2.72964I$ $b = 1.032550 - 0.425249I$	$-1.38618 - 1.10699I$	0
$u = -0.112252 - 1.159760I$ $a = 2.35715 + 2.72964I$ $b = 1.032550 + 0.425249I$	$-1.38618 + 1.10699I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.461020 + 1.082200I$ $a = 0.422805 - 0.279501I$ $b = -0.553288 + 0.271190I$	$-4.79896 + 0.09583I$	0
$u = 0.461020 - 1.082200I$ $a = 0.422805 + 0.279501I$ $b = -0.553288 - 0.271190I$	$-4.79896 - 0.09583I$	0
$u = 0.190114 + 1.210590I$ $a = 0.958702 + 0.424123I$ $b = 1.53378 - 0.27781I$	$1.23098 + 1.19841I$	0
$u = 0.190114 - 1.210590I$ $a = 0.958702 - 0.424123I$ $b = 1.53378 + 0.27781I$	$1.23098 - 1.19841I$	0
$u = -0.717388 + 0.278970I$ $a = -1.040930 - 0.324389I$ $b = 1.30395 - 0.73418I$	$0.39121 - 4.90989I$	$9.62064 + 7.63658I$
$u = -0.717388 - 0.278970I$ $a = -1.040930 + 0.324389I$ $b = 1.30395 + 0.73418I$	$0.39121 + 4.90989I$	$9.62064 - 7.63658I$
$u = -0.688281 + 1.026340I$ $a = -0.157425 + 0.115561I$ $b = -1.246260 - 0.540840I$	$-2.68700 + 7.55963I$	0
$u = -0.688281 - 1.026340I$ $a = -0.157425 - 0.115561I$ $b = -1.246260 + 0.540840I$	$-2.68700 - 7.55963I$	0
$u = -0.539357 + 0.517650I$ $a = 0.098498 + 1.185050I$ $b = -1.269270 + 0.312391I$	$3.46740 - 4.69908I$	$9.55546 + 4.95856I$
$u = -0.539357 - 0.517650I$ $a = 0.098498 - 1.185050I$ $b = -1.269270 - 0.312391I$	$3.46740 + 4.69908I$	$9.55546 - 4.95856I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.648036 + 0.369371I$ $a = -2.75583 + 2.43123I$ $b = 1.029960 + 0.111836I$	$-1.42704 + 2.41995I$	$-3.15050 + 13.44411I$
$u = 0.648036 - 0.369371I$ $a = -2.75583 - 2.43123I$ $b = 1.029960 - 0.111836I$	$-1.42704 - 2.41995I$	$-3.15050 - 13.44411I$
$u = -0.065126 + 1.259270I$ $a = 1.81529 + 2.04641I$ $b = 0.792720 + 0.092568I$	$-2.00607 - 1.43143I$	0
$u = -0.065126 - 1.259270I$ $a = 1.81529 - 2.04641I$ $b = 0.792720 - 0.092568I$	$-2.00607 + 1.43143I$	0
$u = 0.278588 + 1.276100I$ $a = 0.532780 - 0.956263I$ $b = -0.553288 - 0.271190I$	$-4.79896 - 0.09583I$	0
$u = 0.278588 - 1.276100I$ $a = 0.532780 + 0.956263I$ $b = -0.553288 + 0.271190I$	$-4.79896 + 0.09583I$	0
$u = -0.162713 + 1.297640I$ $a = -0.99110 - 3.07786I$ $b = 1.029960 - 0.111836I$	$-1.42704 - 2.41995I$	0
$u = -0.162713 - 1.297640I$ $a = -0.99110 + 3.07786I$ $b = 1.029960 + 0.111836I$	$-1.42704 + 2.41995I$	0
$u = 0.484916 + 0.493659I$ $a = -0.10085 - 1.86632I$ $b = 0.792720 - 0.092568I$	$-2.00607 + 1.43143I$	$8.72992 - 7.90920I$
$u = 0.484916 - 0.493659I$ $a = -0.10085 + 1.86632I$ $b = 0.792720 + 0.092568I$	$-2.00607 - 1.43143I$	$8.72992 + 7.90920I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.229241 + 1.298960I$ $a = 0.44871 + 2.20418I$ $b = 1.30395 + 0.73418I$	$0.39121 + 4.90989I$	0
$u = 0.229241 - 1.298960I$ $a = 0.44871 - 2.20418I$ $b = 1.30395 - 0.73418I$	$0.39121 - 4.90989I$	0
$u = -0.091635 + 1.374330I$ $a = -0.27154 - 1.82640I$ $b = -0.208936 - 0.974666I$	$-5.95506 - 2.12888I$	0
$u = -0.091635 - 1.374330I$ $a = -0.27154 + 1.82640I$ $b = -0.208936 + 0.974666I$	$-5.95506 + 2.12888I$	0
$u = -0.555876 + 0.230717I$ $a = -2.15514 + 0.60466I$ $b = 1.53378 + 0.27781I$	$1.23098 - 1.19841I$	$11.97414 + 1.50646I$
$u = -0.555876 - 0.230717I$ $a = -2.15514 - 0.60466I$ $b = 1.53378 - 0.27781I$	$1.23098 + 1.19841I$	$11.97414 - 1.50646I$
$u = -0.149055 + 1.397490I$ $a = 0.132759 - 0.477500I$ $b = -0.177816 - 0.275228I$	$-3.88720 - 2.56045I$	0
$u = -0.149055 - 1.397490I$ $a = 0.132759 + 0.477500I$ $b = -0.177816 + 0.275228I$	$-3.88720 + 2.56045I$	0
$u = 0.235520 + 1.390770I$ $a = -0.66856 + 1.59662I$ $b = -0.078191 + 1.171910I$	$-4.49543 + 7.17470I$	0
$u = 0.235520 - 1.390770I$ $a = -0.66856 - 1.59662I$ $b = -0.078191 - 1.171910I$	$-4.49543 - 7.17470I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.37960 + 1.41324I$ $a = 0.011937 + 1.072620I$ $b = -1.023220 + 0.279978I$	$-1.80983 - 5.18678I$	0
$u = -0.37960 - 1.41324I$ $a = 0.011937 - 1.072620I$ $b = -1.023220 - 0.279978I$	$-1.80983 + 5.18678I$	0
$u = -0.21964 + 1.45291I$ $a = -0.68408 + 1.69107I$ $b = -1.246260 + 0.540840I$	$-2.68700 - 7.55963I$	0
$u = -0.21964 - 1.45291I$ $a = -0.68408 - 1.69107I$ $b = -1.246260 - 0.540840I$	$-2.68700 + 7.55963I$	0
$u = 0.31770 + 1.43891I$ $a = -0.29445 - 1.87379I$ $b = -1.34417 - 0.57956I$	$-0.51273 + 13.28050I$	0
$u = 0.31770 - 1.43891I$ $a = -0.29445 + 1.87379I$ $b = -1.34417 + 0.57956I$	$-0.51273 - 13.28050I$	0
$u = 0.02424 + 1.52420I$ $a = -0.659012 + 0.360261I$ $b = -0.801824 + 0.262652I$	$-4.28958 - 3.02182I$	0
$u = 0.02424 - 1.52420I$ $a = -0.659012 - 0.360261I$ $b = -0.801824 - 0.262652I$	$-4.28958 + 3.02182I$	0
$u = -0.148665 + 0.269514I$ $a = -1.82178 - 1.54448I$ $b = 0.510011 + 0.672747I$	$-1.44331 + 1.46172I$	$7.40911 - 4.12645I$
$u = -0.148665 - 0.269514I$ $a = -1.82178 + 1.54448I$ $b = 0.510011 - 0.672747I$	$-1.44331 - 1.46172I$	$7.40911 + 4.12645I$

III.

$$\boldsymbol{I_3^u = \langle -9a^4u - 670a^3u + \cdots - 703a + 1198,\ -5a^4u + 9a^3u + \cdots + 7a - 1,\ u^2 + 1\rangle}$$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} a \\ 0.0124138a^4u + 0.924138a^3u + \cdots + 0.969655a - 1.65241 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0289655a^4u + 0.489655a^3u + \cdots - 0.404138a + 0.811034 \\ 0.131034a^4u - 1.48966a^3u + \cdots - 2.07586a + 2.26897 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.184828a^4u - 0.448276a^3u + \cdots + 0.140690a + 1.42483 \\ -0.00275862a^4u - 0.627586a^3u + \cdots - 0.571034a + 1.32276 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.0124138a^4u + 0.924138a^3u + \cdots + 1.96966a - 1.65241 \\ 0.0124138a^4u + 0.924138a^3u + \cdots + 0.969655a - 1.65241 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.194483a^4u - 0.544828a^3u + \cdots + 0.542069a + 0.354483 \\ -0.194483a^4u - 0.544828a^3u + \cdots + 0.542069a + 0.354483 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.293793a^4u - 2.26207a^3u + \cdots - 0.584828a + 1.82621 \\ 0.293793a^4u - 2.26207a^3u + \cdots - 0.584828a + 2.82621 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.293793a^4u - 2.26207a^3u + \cdots - 0.584828a + 2.82621 \\ 0.293793a^4u - 2.26207a^3u + \cdots - 0.584828a + 3.82621 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\tfrac{28}{725}a^4u + \tfrac{104}{725}a^4 - \tfrac{172}{145}a^3u - \tfrac{24}{145}a^3 - \tfrac{48}{725}a^2u - \tfrac{3136}{725}a^2 + \tfrac{3992}{725}au - \tfrac{1156}{725}a + \tfrac{2308}{725}u + \tfrac{3856}{725}$$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.927855 - 0.361438I$ $b = -1.41878 - 0.21917I$	$2.58269 + 4.40083I$	$4.74431 - 3.49859I$
$u = 1.000000I$ $a = 0.820551 + 0.331455I$ $b = 0.309916 - 0.549911I$	$-2.96077 - 1.53058I$	$0.51511 + 4.43065I$
$u = 1.000000I$ $a = 0.0902877 + 0.0768928I$ $b = -1.41878 + 0.21917I$	$2.58269 - 4.40083I$	$4.74431 + 3.49859I$
$u = 1.000000I$ $a = 1.79928 + 1.43128I$ $b = 0.309916 + 0.549911I$	$-2.96077 + 1.53058I$	$0.51511 - 4.43065I$
$u = 1.000000I$ $a = 2.21774 + 3.52181I$ $b = 1.21774$	-0.888787	$1.48114 + 0.I$
$u = -1.000000I$ $a = -0.927855 + 0.361438I$ $b = -1.41878 + 0.21917I$	$2.58269 - 4.40083I$	$4.74431 + 3.49859I$
$u = -1.000000I$ $a = 0.820551 - 0.331455I$ $b = 0.309916 + 0.549911I$	$-2.96077 + 1.53058I$	$0.51511 - 4.43065I$
$u = -1.000000I$ $a = 0.0902877 - 0.0768928I$ $b = -1.41878 - 0.21917I$	$2.58269 + 4.40083I$	$4.74431 - 3.49859I$
$u = -1.000000I$ $a = 1.79928 - 1.43128I$ $b = 0.309916 - 0.549911I$	$-2.96077 - 1.53058I$	$0.51511 + 4.43065I$
$u = -1.000000I$ $a = 2.21774 - 3.52181I$ $b = 1.21774$	-0.888787	$1.48114 + 0.I$

IV. $I_4^u = \langle b-1,\ 4a+3,\ u+1 \rangle$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -0.75 \\ 1 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.25 \\ 1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.25 \\ 0 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -1 \\ -2 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 26.0625$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -0.750000$ $b = 1.00000$	3.28987	26.0630

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^5+u^4+\cdots+u+1)^2(u^{30}-5u^{29}+\cdots-u+1)^2$ $\cdot(u^{42}-7u^{41}+\cdots+44u+32)$
c_2	$(u+1)(u^5-u^4+\cdots+u+1)^2(u^{30}+u^{29}+\cdots+5u+1)^2$ $\cdot(u^{42}+2u^{41}+\cdots+175u-16)$
c_3	$4(2u-1)(u^{10}+5u^8+\cdots-u^2+1)(u^{30}-u^{29}+\cdots+11u+1)^2$ $\cdot(2u^{42}+7u^{41}+\cdots+62575u-9794)$
c_4	$4(2u-1)(u^{10}-3u^8+\cdots-u^2+1)(u^{30}-3u^{29}+\cdots-9u+1)^2$ $\cdot(2u^{42}+19u^{41}+\cdots+6823u+542)$
c_5	$(u-1)(u^5+u^4+\cdots+u-1)^2(u^{30}+u^{29}+\cdots+5u+1)^2$ $\cdot(u^{42}+2u^{41}+\cdots+175u-16)$
c_6, c_7, c_8	$(u+1)(u^2+1)^5(u^{42}-u^{41}+\cdots-5u+1)(u^{60}-u^{59}+\cdots-96u+17)$
c_9	$(u+2)(u^{10}+u^8+\cdots+3u^2+1)(u^{30}+3u^{29}+\cdots+u+1)^2$ $\cdot(u^{42}-11u^{41}+\cdots+12u-4)$
c_{10}, c_{11}, c_{12}	$(u-1)(u^2+1)^5(u^{42}-u^{41}+\cdots-5u+1)(u^{60}-u^{59}+\cdots-96u+17)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^5+3y^4+\cdots-y-1)^2(y^{30}-3y^{29}+\cdots-5y+1)^2$ $\cdot\,(y^{42}+3y^{41}+\cdots-8784y+1024)$
c_2, c_5	$(y-1)(y^5-5y^4+\cdots-y-1)^2(y^{30}-19y^{29}+\cdots-5y+1)^2$ $\cdot\,(y^{42}-30y^{41}+\cdots-15201y+256)$
c_3	$16(4y-1)(y^5+5y^4+8y^3+3y^2-y+1)^2$ $\cdot\,(y^{30}-23y^{29}+\cdots-9y+1)^2$ $\cdot\,(4y^{42}-101y^{41}+\cdots+632683387y+95922436)$
c_4	$16(4y-1)(y^5-3y^4+4y^3-y^2-y+1)^2$ $\cdot\,(y^{30}-27y^{29}+\cdots+11y+1)^2$ $\cdot\,(4y^{42}-181y^{41}+\cdots-8215501y+293764)$
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$(y-1)(y+1)^{10}(y^{42}+45y^{41}+\cdots+11y+1)$ $\cdot\,(y^{60}+47y^{59}+\cdots+4928y+289)$
c_9	$(y-4)(y^5+y^4+\cdots+3y+1)^2(y^{30}+5y^{29}+\cdots+3y+1)^2$ $\cdot\,(y^{42}+3y^{41}+\cdots+40y+16)$