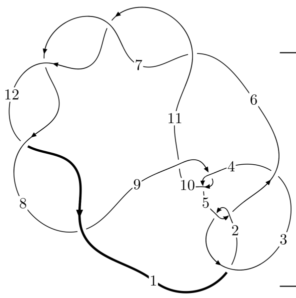
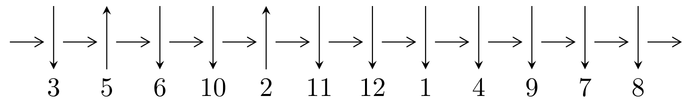
$12a_{0034}$ ($K12a_{0034}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -11u^{60} + 15u^{59} + \cdots + 2b + 7,\ -8u^{60} + 9u^{59} + \cdots + 2a + 7,\ u^{61} - 3u^{60} + \cdots + u + 1 \rangle$$
$$I_2^u = \langle au + b - a,\ a^2 + au + a + u + 2,\ u^2 + u - 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 65 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. $I_1^u = \langle -11u^{60}+15u^{59}+\cdots+2b+7,\ -8u^{60}+9u^{59}+\cdots+2a+7,\ u^{61}-3u^{60}+\cdots+u+1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 4u^{60} - \frac{9}{2}u^{59} + \cdots - 6u - \frac{7}{2} \\ \frac{11}{2}u^{60} - \frac{15}{2}u^{59} + \cdots - \frac{11}{2}u - \frac{7}{2} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{2}u^{59} + u^{58} + \cdots + 6u - \frac{1}{2} \\ -\frac{1}{2}u^{60} + \frac{1}{2}u^{59} + \cdots + \frac{5}{2}u + \frac{1}{2} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{19}{2}u^{60} - 12u^{59} + \cdots - \frac{21}{2}u - 6 \\ \frac{27}{2}u^{60} - 18u^{59} + \cdots - \frac{25}{2}u - 8 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -\frac{7}{2}u^{60} + 5u^{59} + \cdots + \frac{5}{2}u + 2 \\ -\frac{15}{2}u^{60} + 10u^{59} + \cdots + \frac{15}{2}u + 4 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^7 + 4u^5 - 4u^3 + 2u \\ -u^9 + 5u^7 - 7u^5 + 2u^3 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{5}{2}u^{60} + 95u^{58} + \cdots - \frac{29}{2}u - 5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{61} + 29u^{60} + \cdots + 23u - 1$
c_2, c_5	$u^{61} + 3u^{60} + \cdots + 9u + 1$
c_3	$u^{61} - 3u^{60} + \cdots - 129u + 241$
c_4, c_9	$u^{61} + u^{60} + \cdots - 48u - 16$
c_6, c_7, c_8 c_{11}, c_{12}	$u^{61} + 3u^{60} + \cdots + u - 1$
c_{10}	$u^{61} + 25u^{60} + \cdots + 2432u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{61}+9y^{60}+\cdots+707y-1$
c_2, c_5	$y^{61}+29y^{60}+\cdots+23y-1$
c_3	$y^{61}-11y^{60}+\cdots+2638239y-58081$
c_4, c_9	$y^{61}-25y^{60}+\cdots+2432y-256$
c_6, c_7, c_8 c_{11}, c_{12}	$y^{61}-79y^{60}+\cdots+19y-1$
c_{10}	$y^{61}+15y^{60}+\cdots+2564096y-65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.941549 + 0.362904I$ $a = -0.926027 - 0.288989I$ $b = 0.684803 + 0.361766I$	$-1.57693 + 6.68347I$	0
$u = -0.941549 - 0.362904I$ $a = -0.926027 + 0.288989I$ $b = 0.684803 - 0.361766I$	$-1.57693 - 6.68347I$	0
$u = -0.962161 + 0.388897I$ $a = 1.091940 + 0.880454I$ $b = -0.891980 - 0.179165I$	$-3.85828 + 11.82190I$	0
$u = -0.962161 - 0.388897I$ $a = 1.091940 - 0.880454I$ $b = -0.891980 + 0.179165I$	$-3.85828 - 11.82190I$	0
$u = -0.991302 + 0.313503I$ $a = -0.066752 + 0.371102I$ $b = -0.789116 - 0.780549I$	$-6.39349 + 4.01306I$	0
$u = -0.991302 - 0.313503I$ $a = -0.066752 - 0.371102I$ $b = -0.789116 + 0.780549I$	$-6.39349 - 4.01306I$	0
$u = 0.907581 + 0.284646I$ $a = -1.43188 + 0.77881I$ $b = 1.194390 - 0.037845I$	$-1.92448 - 5.85744I$	0
$u = 0.907581 - 0.284646I$ $a = -1.43188 - 0.77881I$ $b = 1.194390 + 0.037845I$	$-1.92448 + 5.85744I$	0
$u = -1.06207$ $a = -0.867883$ $b = 0.339270$	-5.58398	0
$u = 0.916155 + 0.124387I$ $a = -0.395310 + 0.861467I$ $b = 0.790911 - 1.053260I$	$-3.56819 + 0.84716I$	$-15.9906 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.916155 - 0.124387I$ $a = -0.395310 - 0.861467I$ $b = 0.790911 + 1.053260I$	$-3.56819 - 0.84716I$	$-15.9906 + 0.I$
$u = -0.858548 + 0.285771I$ $a = -0.240294 + 1.130700I$ $b = 0.426613 + 0.684373I$	$-0.14613 + 4.14771I$	$-8.00000 - 7.53022I$
$u = -0.858548 - 0.285771I$ $a = -0.240294 - 1.130700I$ $b = 0.426613 - 0.684373I$	$-0.14613 - 4.14771I$	$-8.00000 + 7.53022I$
$u = 0.833612 + 0.279640I$ $a = 1.133180 - 0.204262I$ $b = -0.769914 + 0.142240I$	$0.014847 - 1.230250I$	$-8.00000 + 2.00002I$
$u = 0.833612 - 0.279640I$ $a = 1.133180 + 0.204262I$ $b = -0.769914 - 0.142240I$	$0.014847 + 1.230250I$	$-8.00000 - 2.00002I$
$u = -1.138410 + 0.086480I$ $a = 0.760786 + 0.178531I$ $b = -0.780459 + 0.648714I$	$-8.82704 + 3.92280I$	0
$u = -1.138410 - 0.086480I$ $a = 0.760786 - 0.178531I$ $b = -0.780459 - 0.648714I$	$-8.82704 - 3.92280I$	0
$u = -0.819047 + 0.217033I$ $a = -0.57338 - 1.48189I$ $b = -0.544215 - 0.744173I$	$-1.09072 - 0.91618I$	$-13.20392 - 2.90788I$
$u = -0.819047 - 0.217033I$ $a = -0.57338 + 1.48189I$ $b = -0.544215 + 0.744173I$	$-1.09072 + 0.91618I$	$-13.20392 + 2.90788I$
$u = 0.651545 + 0.456443I$ $a = 0.43685 - 1.47583I$ $b = 0.607385 - 0.419645I$	$-2.01345 + 4.76879I$	$-12.80458 - 3.25405I$

	Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.651545-0.456443I$		
$a=$	$0.43685+1.47583I$	$-2.01345-4.76879I$	$-12.80458+3.25405I$
$b=$	$0.607385+0.419645I$		
$u=$	$0.672132+0.371659I$		
$a=$	$0.204778+0.807835I$	$0.006977+0.191932I$	$-9.14973+0.93355I$
$b=$	$-0.503235+0.231907I$		
$u=$	$0.672132-0.371659I$		
$a=$	$0.204778-0.807835I$	$0.006977-0.191932I$	$-9.14973-0.93355I$
$b=$	$-0.503235-0.231907I$		
$u=$	$0.486313+0.449825I$		
$a=$	$1.064050+0.128423I$	$-3.44842-2.18500I$	$-15.5614+4.6731I$
$b=$	$0.750517+0.088709I$		
$u=$	$0.486313-0.449825I$		
$a=$	$1.064050-0.128423I$	$-3.44842+2.18500I$	$-15.5614-4.6731I$
$b=$	$0.750517-0.088709I$		
$u=$	$0.142006+0.624563I$		
$a=$	$0.949731-0.841604I$	$-0.47167-8.39775I$	$-9.16009+8.05408I$
$b=$	$1.063740+0.386697I$		
$u=$	$0.142006-0.624563I$		
$a=$	$0.949731+0.841604I$	$-0.47167+8.39775I$	$-9.16009-8.05408I$
$b=$	$1.063740-0.386697I$		
$u=$	$0.119463+0.584881I$		
$a=$	$-0.402048+0.694739I$	$1.67223-3.47107I$	$-5.43201+4.12123I$
$b=$	$-0.574572-0.527063I$		
$u=$	$0.119463-0.584881I$		
$a=$	$-0.402048-0.694739I$	$1.67223+3.47107I$	$-5.43201-4.12123I$
$b=$	$-0.574572+0.527063I$		
$u=$	$0.222473+0.540240I$		
$a=$	$0.01204-1.43662I$	$-2.65865-1.12584I$	$-12.84225+3.10905I$
$b=$	$0.230433-0.262534I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.222473 - 0.540240I$ $a = 0.01204 + 1.43662I$ $b = 0.230433 + 0.262534I$	$-2.65865 + 1.12584I$	$-12.84225 - 3.10905I$
$u = 0.011799 + 0.502580I$ $a = 0.736143 + 0.780204I$ $b = 0.443073 - 0.686495I$	$2.47447 - 1.45390I$	$-2.95032 + 3.27697I$
$u = 0.011799 - 0.502580I$ $a = 0.736143 - 0.780204I$ $b = 0.443073 + 0.686495I$	$2.47447 + 1.45390I$	$-2.95032 - 3.27697I$
$u = -0.071181 + 0.471890I$ $a = -1.39302 - 1.27147I$ $b = -0.971413 + 0.506703I$	$1.06320 + 3.26175I$	$-5.16927 - 3.30010I$
$u = -0.071181 - 0.471890I$ $a = -1.39302 + 1.27147I$ $b = -0.971413 - 0.506703I$	$1.06320 - 3.26175I$	$-5.16927 + 3.30010I$
$u = 0.441573$ $a = 0.291655$ $b = -0.318830$	-0.703516	-13.9150
$u = -1.57089 + 0.05487I$ $a = -0.108181 - 0.454338I$ $b = -0.73199 - 1.31069I$	$-9.35339 - 3.05356I$	0
$u = -1.57089 - 0.05487I$ $a = -0.108181 + 0.454338I$ $b = -0.73199 + 1.31069I$	$-9.35339 + 3.05356I$	0
$u = -1.62164 + 0.05572I$ $a = -0.661023 + 0.422089I$ $b = -1.01599 + 1.16132I$	$-7.88099 + 1.12428I$	0
$u = -1.62164 - 0.05572I$ $a = -0.661023 - 0.422089I$ $b = -1.01599 - 1.16132I$	$-7.88099 - 1.12428I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.67660+0.06327I$ $a=-2.46813-0.26761I$ $b=-4.28495-0.21565I$	$-8.84015+2.47805I$	0
$u=-1.67660-0.06327I$ $a=-2.46813+0.26761I$ $b=-4.28495+0.21565I$	$-8.84015-2.47805I$	0
$u=1.67898+0.05115I$ $a=0.276936-0.341290I$ $b=0.80641-1.34802I$	$-9.96853-0.06844I$	0
$u=1.67898-0.05115I$ $a=0.276936+0.341290I$ $b=0.80641+1.34802I$	$-9.96853+0.06844I$	0
$u=1.68198+0.06781I$ $a=0.485407+0.293294I$ $b=0.76562+1.24151I$	$-9.10899-5.46550I$	0
$u=1.68198-0.06781I$ $a=0.485407-0.293294I$ $b=0.76562-1.24151I$	$-9.10899+5.46550I$	0
$u=-1.69350+0.07169I$ $a=3.58656+0.38893I$ $b=6.19427+0.54411I$	$-11.11280+7.23397I$	0
$u=-1.69350-0.07169I$ $a=3.58656-0.38893I$ $b=6.19427-0.54411I$	$-11.11280-7.23397I$	0
$u=-1.69643+0.03492I$ $a=2.03123+2.16248I$ $b=3.41894+3.43232I$	$-12.85740-0.20377I$	0
$u=-1.69643-0.03492I$ $a=2.03123-2.16248I$ $b=3.41894-3.43232I$	$-12.85740+0.20377I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.69964 + 0.09553I$ $a = 2.24617 - 0.46709I$ $b = 4.02268 - 0.47212I$	$-10.86090 - 8.49023I$	0
$u = 1.69964 - 0.09553I$ $a = 2.24617 + 0.46709I$ $b = 4.02268 + 0.47212I$	$-10.86090 + 8.49023I$	0
$u = 1.70503 + 0.10421I$ $a = -2.95201 + 0.71525I$ $b = -5.24696 + 1.06747I$	$-13.2248 - 13.7857I$	0
$u = 1.70503 - 0.10421I$ $a = -2.95201 - 0.71525I$ $b = -5.24696 - 1.06747I$	$-13.2248 + 13.7857I$	0
$u = 1.71354 + 0.08181I$ $a = -1.37523 + 1.51380I$ $b = -2.28865 + 2.24136I$	$-15.9607 - 5.5984I$	0
$u = 1.71354 - 0.08181I$ $a = -1.37523 - 1.51380I$ $b = -2.28865 - 2.24136I$	$-15.9607 + 5.5984I$	0
$u = 1.72573$ $a = 2.16104$ $b = 3.90890$	-15.5407	0
$u = 1.73947 + 0.01560I$ $a = -2.65245 - 0.84909I$ $b = -4.61334 - 1.29091I$	$-19.1104 - 4.2965I$	0
$u = 1.73947 - 0.01560I$ $a = -2.65245 + 0.84909I$ $b = -4.61334 + 1.29091I$	$-19.1104 + 4.2965I$	0
$u = -0.193073 + 0.125473I$ $a = -0.16246 - 3.64433I$ $b = -0.357674 - 0.618866I$	$-0.31183 - 1.80289I$	$-2.01842 + 2.61178I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.193073 - 0.125473I$ $a = -0.16246 + 3.64433I$ $b = -0.357674 + 0.618866I$	$-0.31183 + 1.80289I$	$-2.01842 - 2.61178I$

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

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} a \\ -au+a \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a+1 \\ -au+a+1 \end{pmatrix}$$

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

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

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

$$a_4 = \begin{pmatrix} au \\ au \end{pmatrix}$$

$$a_5 = \begin{pmatrix} au \\ au \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -3au - 2a - u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -0.80902 + 1.40126I$ $b = -0.309017 + 0.535233I$	$-0.98696 + 2.02988I$	$-13.5000 - 5.4006I$
$u = 0.618034$ $a = -0.80902 - 1.40126I$ $b = -0.309017 - 0.535233I$	$-0.98696 - 2.02988I$	$-13.5000 + 5.4006I$
$u = -1.61803$ $a = 0.309017 + 0.535233I$ $b = 0.80902 + 1.40126I$	$-8.88264 - 2.02988I$	$-13.50000 + 1.52761I$
$u = -1.61803$ $a = 0.309017 - 0.535233I$ $b = 0.80902 - 1.40126I$	$-8.88264 + 2.02988I$	$-13.50000 - 1.52761I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^2)(u^{61}+29u^{60}+\cdots+23u-1)$
c_2	$((u^2+u+1)^2)(u^{61}+3u^{60}+\cdots+9u+1)$
c_3	$((u^2-u+1)^2)(u^{61}-3u^{60}+\cdots-129u+241)$
c_4, c_9	$u^4(u^{61}+u^{60}+\cdots-48u-16)$
c_5	$((u^2-u+1)^2)(u^{61}+3u^{60}+\cdots+9u+1)$
c_6, c_7, c_8	$((u^2+u-1)^2)(u^{61}+3u^{60}+\cdots+u-1)$
c_{10}	$u^4(u^{61}+25u^{60}+\cdots+2432u+256)$
c_{11}, c_{12}	$((u^2-u-1)^2)(u^{61}+3u^{60}+\cdots+u-1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^2)(y^{61}+9y^{60}+\cdots+707y-1)$
c_2, c_5	$((y^2+y+1)^2)(y^{61}+29y^{60}+\cdots+23y-1)$
c_3	$((y^2+y+1)^2)(y^{61}-11y^{60}+\cdots+2638239y-58081)$
c_4, c_9	$y^4(y^{61}-25y^{60}+\cdots+2432y-256)$
c_6, c_7, c_8 c_{11}, c_{12}	$((y^2-3y+1)^2)(y^{61}-79y^{60}+\cdots+19y-1)$
c_{10}	$y^4(y^{61}+15y^{60}+\cdots+2564096y-65536)$