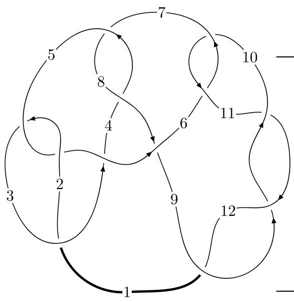
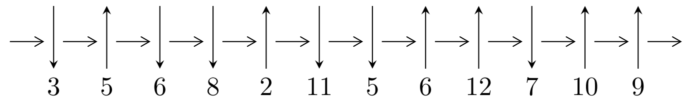
$12n_{0011}$ ($K12n_{0011}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -5.71616 \times 10^{69} u^{37} + 1.11175 \times 10^{70} u^{36} + \cdots + 3.33891 \times 10^{72} b + 1.88016 \times 10^{72},$$
$$4.07046 \times 10^{70} u^{37} - 5.21445 \times 10^{70} u^{36} + \cdots + 1.33556 \times 10^{73} a - 1.19377 \times 10^{73},$$
$$u^{38} - u^{37} + \cdots + 128u + 256 \rangle$$

$$I_1^v = \langle a,\ 18v^7 - 26v^6 + 12v^5 - 78v^4 + 71v^3 + 30v^2 + 19b + 6v - 2,\ v^8 - 2v^7 + v^6 - 4v^5 + 6v^4 + v^3 - 2v^2 - v + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 46 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. $\boldsymbol{I_1^u = \langle -5.72\times10^{69}u^{37} + 1.11\times10^{70}u^{36} + \cdots + 3.34\times10^{72}b + 1.88\times10^{72},\ 4.07\times10^{70}u^{37} - 5.21\times10^{70}u^{36} + \cdots + 1.34\times10^{73}a - 1.19\times10^{73},\ u^{38} - u^{37} + \cdots + 128u + 256\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.00304774u^{37} + 0.00390431u^{36} + \cdots - 2.13353u + 0.893835 \\ 0.00171198u^{37} - 0.00332968u^{36} + \cdots - 0.453692u - 0.563107 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.00130957u^{37} + 0.00189335u^{36} + \cdots - 1.90974u + 2.64338 \\ -0.00109847u^{37} + 0.00183184u^{36} + \cdots - 0.794202u - 0.211610 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.00359002u^{37} - 0.00745031u^{36} + \cdots + 4.56333u - 0.957202 \\ 0.00112443u^{37} - 0.000480799u^{36} + \cdots + 0.826261u + 0.801763 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.00359002u^{37} - 0.00745031u^{36} + \cdots + 4.56333u - 0.957202 \\ 0.00209211u^{37} - 0.000172711u^{36} + \cdots + 0.401334u + 1.79000 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.000952567u^{37} - 0.000976781u^{36} + \cdots + 1.86076u - 2.03505 \\ 0.000357004u^{37} + 0.000916565u^{36} + \cdots - 0.0489786u + 0.608337 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.00133576u^{37} + 0.000574632u^{36} + \cdots - 2.58722u + 0.330728 \\ 0.00171198u^{37} - 0.00332968u^{36} + \cdots - 0.453692u - 0.563107 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.000400109u^{37} + 0.00305192u^{36} + \cdots - 3.11755u + 1.84992 \\ 0.00136835u^{37} - 0.000426605u^{36} + \cdots - 0.970171u - 0.257429 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.00313189u^{37} + 0.00425632u^{36} + \cdots - 0.691749u + 0.425379 \\ -0.00175985u^{37} + 0.00256836u^{36} + \cdots + 0.691063u - 0.518052 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0107565u^{37} + 0.0115767u^{36} + \cdots - 16.3471u - 2.84993$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} + 9u^{37} + \cdots + 15u + 1$
c_2, c_5	$u^{38} + 5u^{37} + \cdots + 3u + 1$
c_3	$u^{38} - 5u^{37} + \cdots + 90147u + 15489$
c_4, c_7	$u^{38} - u^{37} + \cdots + 128u + 256$
c_6, c_{10}	$u^{38} + 3u^{37} + \cdots - u + 1$
c_8	$u^{38} + 3u^{37} + \cdots + u + 1$
c_9, c_{11}, c_{12}	$u^{38} - 11u^{37} + \cdots - 11u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38}+45y^{37}+\cdots+91y+1$
c_2, c_5	$y^{38}+9y^{37}+\cdots+15y+1$
c_3	$y^{38}+81y^{37}+\cdots+7556564583y+239909121$
c_4, c_7	$y^{38}+45y^{37}+\cdots+344064y+65536$
c_6, c_{10}	$y^{38}+11y^{37}+\cdots+11y+1$
c_8	$y^{38}-65y^{37}+\cdots+11y+1$
c_9, c_{11}, c_{12}	$y^{38}+35y^{37}+\cdots+131y+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.801035 + 0.695463I$ $a = 0.79350 - 1.46806I$ $b = 0.025706 + 0.900927I$	$2.72429 - 1.49580I$	$6.88383 + 3.00756I$
$u = 0.801035 - 0.695463I$ $a = 0.79350 + 1.46806I$ $b = 0.025706 - 0.900927I$	$2.72429 + 1.49580I$	$6.88383 - 3.00756I$
$u = -0.213839 + 1.135170I$ $a = -0.421285 - 0.668176I$ $b = 0.784497 + 0.822982I$	$-4.44084 + 0.93436I$	$-3.64457 - 1.20353I$
$u = -0.213839 - 1.135170I$ $a = -0.421285 + 0.668176I$ $b = 0.784497 - 0.822982I$	$-4.44084 - 0.93436I$	$-3.64457 + 1.20353I$
$u = -1.159340 + 0.148885I$ $a = -1.361450 + 0.030633I$ $b = -0.708036 + 0.833117I$	$-1.60611 - 0.16717I$	$-2.00112 - 0.51691I$
$u = -1.159340 - 0.148885I$ $a = -1.361450 - 0.030633I$ $b = -0.708036 - 0.833117I$	$-1.60611 + 0.16717I$	$-2.00112 + 0.51691I$
$u = -0.358418 + 0.734904I$ $a = 1.30197 + 2.31889I$ $b = -0.136751 - 0.822464I$	$1.16926 - 3.17447I$	$5.84543 + 3.28927I$
$u = -0.358418 - 0.734904I$ $a = 1.30197 - 2.31889I$ $b = -0.136751 + 0.822464I$	$1.16926 + 3.17447I$	$5.84543 - 3.28927I$
$u = 0.183194 + 1.207340I$ $a = 0.229775 + 1.020680I$ $b = 0.677081 - 0.878596I$	$-0.69910 + 2.61127I$	$1.65431 - 3.00859I$
$u = 0.183194 - 1.207340I$ $a = 0.229775 - 1.020680I$ $b = 0.677081 + 0.878596I$	$-0.69910 - 2.61127I$	$1.65431 + 3.00859I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.083408 + 1.218640I$ $a = 0.31884 - 1.60799I$ $b = 0.755833 + 0.932426I$	$-4.10208 - 6.74360I$	$-2.53206 + 6.49784I$
$u = 0.083408 - 1.218640I$ $a = 0.31884 + 1.60799I$ $b = 0.755833 - 0.932426I$	$-4.10208 + 6.74360I$	$-2.53206 - 6.49784I$
$u = 1.262280 + 0.110410I$ $a = -1.310290 + 0.231935I$ $b = -0.705134 - 0.909841I$	$-1.36537 - 5.58839I$	$-0.94341 + 6.04268I$
$u = 1.262280 - 0.110410I$ $a = -1.310290 - 0.231935I$ $b = -0.705134 + 0.909841I$	$-1.36537 + 5.58839I$	$-0.94341 - 6.04268I$
$u = -0.533596 + 0.416988I$ $a = -0.970594 - 0.091212I$ $b = -0.856400 + 0.889730I$	$-7.10344 + 1.95919I$	$-5.95273 - 5.24866I$
$u = -0.533596 - 0.416988I$ $a = -0.970594 + 0.091212I$ $b = -0.856400 - 0.889730I$	$-7.10344 - 1.95919I$	$-5.95273 + 5.24866I$
$u = 0.525705 + 0.422944I$ $a = -0.981407 - 0.165229I$ $b = -0.842922 + 0.929719I$	$-6.97962 + 4.35433I$	$-5.02974 + 0.36700I$
$u = 0.525705 - 0.422944I$ $a = -0.981407 + 0.165229I$ $b = -0.842922 - 0.929719I$	$-6.97962 - 4.35433I$	$-5.02974 - 0.36700I$
$u = -0.437849 + 0.512305I$ $a = 0.779426 + 0.427405I$ $b = 0.391315 - 0.479189I$	$-0.621022 + 1.245300I$	$-4.66633 - 4.67696I$
$u = -0.437849 - 0.512305I$ $a = 0.779426 - 0.427405I$ $b = 0.391315 + 0.479189I$	$-0.621022 - 1.245300I$	$-4.66633 + 4.67696I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.517700 + 0.295561I$ $a = 0.655146 + 0.862409I$ $b = 0.360279 - 0.813117I$	$0.31192 + 1.82341I$	$0.28789 - 3.69490I$
$u = 0.517700 - 0.295561I$ $a = 0.655146 - 0.862409I$ $b = 0.360279 + 0.813117I$	$0.31192 - 1.82341I$	$0.28789 + 3.69490I$
$u = -0.304409 + 0.498073I$ $a = 1.074620 - 0.335260I$ $b = -0.237341 - 0.266456I$	$-0.29515 + 1.55177I$	$-2.39420 - 5.36172I$
$u = -0.304409 - 0.498073I$ $a = 1.074620 + 0.335260I$ $b = -0.237341 + 0.266456I$	$-0.29515 - 1.55177I$	$-2.39420 + 5.36172I$
$u = -0.54647 + 1.64480I$ $a = 0.0641318 + 0.0863728I$ $b = 0.904591 + 0.748202I$	$3.59603 + 6.55252I$	0
$u = -0.54647 - 1.64480I$ $a = 0.0641318 - 0.0863728I$ $b = 0.904591 - 0.748202I$	$3.59603 - 6.55252I$	0
$u = 0.34197 + 1.69965I$ $a = 0.1067440 + 0.0256339I$ $b = 0.889409 - 0.715074I$	$4.26554 + 0.00326I$	0
$u = 0.34197 - 1.69965I$ $a = 0.1067440 - 0.0256339I$ $b = 0.889409 + 0.715074I$	$4.26554 - 0.00326I$	0
$u = -0.13035 + 1.76573I$ $a = -0.0597378 - 0.0404559I$ $b = -0.799015 - 0.032415I$	$8.11017 + 3.32648I$	0
$u = -0.13035 - 1.76573I$ $a = -0.0597378 + 0.0404559I$ $b = -0.799015 + 0.032415I$	$8.11017 - 3.32648I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.62652 + 1.70416I$ $a = 1.02467 - 1.15119I$ $b = 0.788823 + 1.027640I$	$4.47409 - 12.81500I$	0
$u = 0.62652 - 1.70416I$ $a = 1.02467 + 1.15119I$ $b = 0.788823 - 1.027640I$	$4.47409 + 12.81500I$	0
$u = -0.43365 + 1.79825I$ $a = 0.88940 + 1.14293I$ $b = 0.765371 - 1.032090I$	$5.25384 + 6.12703I$	0
$u = -0.43365 - 1.79825I$ $a = 0.88940 - 1.14293I$ $b = 0.765371 + 1.032090I$	$5.25384 - 6.12703I$	0
$u = 0.32788 + 1.90698I$ $a = -0.52275 + 1.62668I$ $b = -0.300160 - 1.097060I$	$11.67940 - 7.06576I$	0
$u = 0.32788 - 1.90698I$ $a = -0.52275 - 1.62668I$ $b = -0.300160 + 1.097060I$	$11.67940 + 7.06576I$	0
$u = -0.05179 + 1.95040I$ $a = -0.36069 - 1.63993I$ $b = -0.257145 + 1.102200I$	$11.94710 + 0.17151I$	0
$u = -0.05179 - 1.95040I$ $a = -0.36069 + 1.63993I$ $b = -0.257145 - 1.102200I$	$11.94710 - 0.17151I$	0

II.

$\boldsymbol{I_1^v = \langle a,\ 18v^7 - 26v^6 + \cdots + 19b - 2,\ v^8 - 2v^7 + v^6 - 4v^5 + 6v^4 + v^3 - 2v^2 - v + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ -0.947368v^7 + 1.36842v^6 + \cdots - 0.315789v + 0.105263 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ -1.26316v^7 + 2.15789v^6 + \cdots - 0.421053v + 1.47368 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.368421v^7 - 0.421053v^6 + \cdots + 0.789474v - 1.26316 \\ 0.263158v^7 - 0.157895v^6 + \cdots + 2.42105v - 0.473684 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0526316v^7 + 0.368421v^6 + \cdots + 0.684211v - 0.894737 \\ 0.263158v^7 - 0.157895v^6 + \cdots + 2.42105v - 0.473684 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 1.26316v^7 - 2.15789v^6 + \cdots + 0.421053v - 1.47368 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.947368v^7 + 1.36842v^6 + \cdots - 0.315789v + 0.105263 \\ -0.947368v^7 + 1.36842v^6 + \cdots - 0.315789v + 0.105263 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.789474v^7 + 1.47368v^6 + \cdots - 0.263158v + 2.42105 \\ -1.73684v^7 + 2.84211v^6 + \cdots - 0.578947v + 2.52632 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.26316v^7 - 2.15789v^6 + \cdots + 0.421053v - 0.473684 \\ 0.473684v^7 - 0.684211v^6 + \cdots + 0.157895v + 1.94737 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{23}{19}v^7 - \frac{9}{19}v^6 + \frac{67}{19}v^5 + \frac{49}{19}v^4 + \frac{94}{19}v^3 - \frac{298}{19}v^2 + \frac{43}{19}v + \frac{11}{19}$

(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	$(u^4 + u^3 + u^2 + 1)^2$
c_8, c_{11}, c_{12}	$(u^4 - u^3 + 3u^2 - 2u + 1)^2$
c_9	$(u^4 + u^3 + 3u^2 + 2u + 1)^2$
c_{10}	$(u^4 - u^3 + u^2 + 1)^2$

(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_{10}	$(y^4+y^3+3y^2+2y+1)^2$
c_8, c_9, c_{11} c_{12}	$(y^4+5y^3+7y^2+2y+1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.576953 + 0.283088I$ $a = 0$ $b = -0.851808 - 0.911292I$	$-6.79074 - 1.13408I$	$-2.09237 - 2.48762I$
$v = 0.576953 - 0.283088I$ $a = 0$ $b = -0.851808 + 0.911292I$	$-6.79074 + 1.13408I$	$-2.09237 + 2.48762I$
$v = -0.533637 + 0.358112I$ $a = 0$ $b = -0.851808 - 0.911292I$	$-6.79074 - 5.19385I$	$-2.75261 + 7.88731I$
$v = -0.533637 - 0.358112I$ $a = 0$ $b = -0.851808 + 0.911292I$	$-6.79074 + 5.19385I$	$-2.75261 - 7.88731I$
$v = 1.54112 + 0.21492I$ $a = 0$ $b = 0.351808 - 0.720342I$	$0.211005 - 0.614778I$	$2.55284 - 0.89520I$
$v = 1.54112 - 0.21492I$ $a = 0$ $b = 0.351808 + 0.720342I$	$0.211005 + 0.614778I$	$2.55284 + 0.89520I$
$v = -0.58443 + 1.44211I$ $a = 0$ $b = 0.351808 + 0.720342I$	$0.21101 - 3.44499I$	$-2.20786 + 6.97475I$
$v = -0.58443 - 1.44211I$ $a = 0$ $b = 0.351808 - 0.720342I$	$0.21101 + 3.44499I$	$-2.20786 - 6.97475I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^2-u+1)^4)(u^{38}+9u^{37}+\cdots+15u+1)$
c_2	$((u^2+u+1)^4)(u^{38}+5u^{37}+\cdots+3u+1)$
c_3	$((u^2-u+1)^4)(u^{38}-5u^{37}+\cdots+90147u+15489)$
c_4, c_7	$u^8(u^{38}-u^{37}+\cdots+128u+256)$
c_5	$((u^2-u+1)^4)(u^{38}+5u^{37}+\cdots+3u+1)$
c_6	$((u^4+u^3+u^2+1)^2)(u^{38}+3u^{37}+\cdots-u+1)$
c_8	$((u^4-u^3+3u^2-2u+1)^2)(u^{38}+3u^{37}+\cdots+u+1)$
c_9	$((u^4+u^3+3u^2+2u+1)^2)(u^{38}-11u^{37}+\cdots-11u+1)$
c_{10}	$((u^4-u^3+u^2+1)^2)(u^{38}+3u^{37}+\cdots-u+1)$
c_{11}, c_{12}	$((u^4-u^3+3u^2-2u+1)^2)(u^{38}-11u^{37}+\cdots-11u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^4)(y^{38}+45y^{37}+\cdots+91y+1)$
c_2, c_5	$((y^2+y+1)^4)(y^{38}+9y^{37}+\cdots+15y+1)$
c_3	$((y^2+y+1)^4)(y^{38}+81y^{37}+\cdots+7.55656\times 10^9 y+2.39909\times 10^8)$
c_4, c_7	$y^8(y^{38}+45y^{37}+\cdots+344064y+65536)$
c_6, c_{10}	$((y^4+y^3+3y^2+2y+1)^2)(y^{38}+11y^{37}+\cdots+11y+1)$
c_8	$((y^4+5y^3+7y^2+2y+1)^2)(y^{38}-65y^{37}+\cdots+11y+1)$
c_9, c_{11}, c_{12}	$((y^4+5y^3+7y^2+2y+1)^2)(y^{38}+35y^{37}+\cdots+131y+1)$