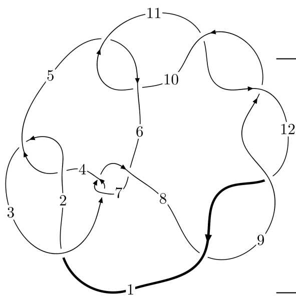
$12a_{0062}$ $(K12a_{0062})$



A knot diagram[1]

Linearized knot diagam

$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\uparrow$	$\uparrow$	$\uparrow$	$\downarrow$	$\downarrow$	$\uparrow$	$\downarrow$	$\downarrow$
3	5	7	2	11	8	4	1	12	6	10	9

Solving Sequence

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

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

$$I_1^u = \langle 4.34077 \times 10^{20} u^{67} - 5.64426 \times 10^{21} u^{66} + \cdots + 2.17039 \times 10^{21} b - 1.25825 \times 10^{18},$$
$$9.54970 \times 10^{20} u^{67} - 1.50190 \times 10^{22} u^{66} + \cdots + 2.17039 \times 10^{21} a - 1.96214 \times 10^{22},\ u^{68} - 14u^{67} + \cdots - 10u +$$
$$I_2^u = \langle b,\ -u^3 + u^2 + a - 3u + 2,\ u^4 - u^3 + 3u^2 - 2u + 1\rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 representations.

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[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. $\boldsymbol{I^u_1 =}$
$\boldsymbol{\langle 4.34\times10^{20}u^{67}-5.64\times10^{21}u^{66}+\cdots+2.17\times10^{21}b-1.26\times10^{18},\ 9.55\times10^{20}u^{67}-1.50\times10^{22}u^{66}+\cdots+2.17\times10^{21}a-1.96\times10^{22},\ u^{68}-14u^{67}+\cdots-10u+1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.440000u^{67}+6.91995u^{66}+\cdots-51.0249u+9.04053\\-0.200000u^{67}+2.60058u^{66}+\cdots-4.04580u+0.000579734\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.00405814u^{67}-0.343186u^{66}+\cdots-4.75480u-1.28000\\0.599983u^{67}-8.39976u^{66}+\cdots+5.88404u-0.600000\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-1.04000u^{67}+14.7200u^{66}+\cdots-67.3194u+10.4464\\-0.200000u^{67}+2.60638u^{66}+\cdots-5.50377u+0.00637708\end{pmatrix}$$
$$a_2 = \begin{pmatrix}0.240000u^{67}-4.32004u^{66}+\cdots+46.9162u-9.67830\\0.400000u^{67}-5.19826u^{66}+\cdots+5.86261u+0.00173920\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.604041u^{67}+8.05658u^{66}+\cdots-10.6388u-0.680000\\0.599983u^{67}-8.39976u^{66}+\cdots+5.88404u-0.600000\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u^2+1\\u^4+2u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}u^3+2u\\u^5+3u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-0.600000u^{67}+7.80002u^{66}+\cdots-15.7984u+0.115959\\0.400000u^{67}-5.20406u^{66}+\cdots+1.32058u-0.00405814\end{pmatrix}$$

(ii) Obstruction class $=-1$

(iii) Cusp Shapes $=-\frac{342052609378000335822661}{1085192982908851054063}u^{67}+\frac{480609961901858862286483}{1085192982908851054063}u^{66}+\cdots-\frac{551127030063593861295 01}{1085192982908851054063}u+\frac{338580210667561528866}{1085192982908851054063}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{68} + 35u^{67} + \cdots + 4u + 1$
c_2, c_4	$u^{68} - 5u^{67} + \cdots - 4u + 1$
c_3, c_7	$u^{68} - u^{67} + \cdots + 56u + 16$
c_5, c_{10}	$u^{68} - 2u^{67} + \cdots - 2u + 1$
c_6	$u^{68} - 27u^{67} + \cdots - 3136u + 256$
c_8, c_9, c_{11} c_{12}	$u^{68} + 14u^{67} + \cdots + 10u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{68} + y^{67} + \cdots + 28y + 1$
c_2, c_4	$y^{68} - 35y^{67} + \cdots - 4y + 1$
c_3, c_7	$y^{68} - 27y^{67} + \cdots - 3136y + 256$
c_5, c_{10}	$y^{68} + 14y^{67} + \cdots + 10y + 1$
c_6	$y^{68} + 21y^{67} + \cdots + 1159168y + 65536$
c_8, c_9, c_{11} c_{12}	$y^{68} + 82y^{67} + \cdots + 58y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.702330 + 0.719314I$ $a = 0.952126 + 0.378495I$ $b = 0.903771 + 0.568632I$	$-2.49105 + 1.44096I$	0
$u = 0.702330 - 0.719314I$ $a = 0.952126 - 0.378495I$ $b = 0.903771 - 0.568632I$	$-2.49105 - 1.44096I$	0
$u = 0.544234 + 0.823097I$ $a = -0.90860 - 1.80587I$ $b = 0.787095 - 0.580214I$	$-2.86875 - 3.13470I$	0
$u = 0.544234 - 0.823097I$ $a = -0.90860 + 1.80587I$ $b = 0.787095 + 0.580214I$	$-2.86875 + 3.13470I$	0
$u = 0.554678 + 0.885053I$ $a = 0.646033 + 0.891159I$ $b = 0.597107 + 0.903347I$	$-2.45632 - 5.69189I$	0
$u = 0.554678 - 0.885053I$ $a = 0.646033 - 0.891159I$ $b = 0.597107 - 0.903347I$	$-2.45632 + 5.69189I$	0
$u = 0.044041 + 0.938846I$ $a = -0.528628 + 0.575298I$ $b = 1.110590 + 0.020786I$	$4.84823 - 0.01751I$	0
$u = 0.044041 - 0.938846I$ $a = -0.528628 - 0.575298I$ $b = 1.110590 - 0.020786I$	$4.84823 + 0.01751I$	0
$u = 0.230283 + 1.041890I$ $a = 0.383940 + 0.200681I$ $b = -1.096910 + 0.163946I$	$4.52428 - 4.84320I$	0
$u = 0.230283 - 1.041890I$ $a = 0.383940 - 0.200681I$ $b = -1.096910 - 0.163946I$	$4.52428 + 4.84320I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.886908 + 0.130997I$ $a = 0.83919 - 1.48134I$ $b = 0.994696 - 0.657373I$	$-4.23343 - 6.61569I$	0
$u = 0.886908 - 0.130997I$ $a = 0.83919 + 1.48134I$ $b = 0.994696 + 0.657373I$	$-4.23343 + 6.61569I$	0
$u = 0.546801 + 0.959276I$ $a = 0.40211 + 1.46872I$ $b = -1.034870 + 0.568640I$	$1.73487 - 6.55266I$	0
$u = 0.546801 - 0.959276I$ $a = 0.40211 - 1.46872I$ $b = -1.034870 - 0.568640I$	$1.73487 + 6.55266I$	0
$u = 0.436383 + 0.725717I$ $a = -0.273836 - 0.549948I$ $b = -0.357436 - 0.624973I$	$-0.02388 - 1.90291I$	0
$u = 0.436383 - 0.725717I$ $a = -0.273836 + 0.549948I$ $b = -0.357436 + 0.624973I$	$-0.02388 + 1.90291I$	0
$u = 0.622290 + 0.972314I$ $a = -0.20600 - 1.69264I$ $b = 1.083880 - 0.702661I$	$-0.92862 - 11.62150I$	0
$u = 0.622290 - 0.972314I$ $a = -0.20600 + 1.69264I$ $b = 1.083880 + 0.702661I$	$-0.92862 + 11.62150I$	0
$u = 0.629333 + 0.462894I$ $a = -0.551587 + 0.229434I$ $b = -0.726711 - 0.032227I$	$-0.53973 - 2.02451I$	0
$u = 0.629333 - 0.462894I$ $a = -0.551587 - 0.229434I$ $b = -0.726711 + 0.032227I$	$-0.53973 + 2.02451I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.777439 + 0.035182I$ $a = 0.30993 + 1.86167I$ $b = 0.674208 + 0.749747I$	$-5.22617 - 1.25451I$	0
$u = 0.777439 - 0.035182I$ $a = 0.30993 - 1.86167I$ $b = 0.674208 - 0.749747I$	$-5.22617 + 1.25451I$	0
$u = 0.763667 + 0.147169I$ $a = -0.491078 + 1.269610I$ $b = -0.831426 + 0.522767I$	$-1.60097 - 2.14416I$	0
$u = 0.763667 - 0.147169I$ $a = -0.491078 - 1.269610I$ $b = -0.831426 - 0.522767I$	$-1.60097 + 2.14416I$	0
$u = 0.191467 + 0.685799I$ $a = 0.338418 - 0.572547I$ $b = 0.058134 - 0.732556I$	$0.37727 - 1.81277I$	0
$u = 0.191467 - 0.685799I$ $a = 0.338418 + 0.572547I$ $b = 0.058134 + 0.732556I$	$0.37727 + 1.81277I$	0
$u = -0.163052 + 0.684274I$ $a = -0.73814 + 2.00572I$ $b = 1.047110 + 0.475610I$	$2.97903 + 2.12216I$	0
$u = -0.163052 - 0.684274I$ $a = -0.73814 - 2.00572I$ $b = 1.047110 - 0.475610I$	$2.97903 - 2.12216I$	0
$u = -0.261785 + 0.643825I$ $a = 0.48024 - 2.41032I$ $b = -1.092870 - 0.650309I$	$0.60243 + 7.15138I$	0
$u = -0.261785 - 0.643825I$ $a = 0.48024 + 2.41032I$ $b = -1.092870 + 0.650309I$	$0.60243 - 7.15138I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.103387+0.574534I$ $a=-1.247280+0.459306I$ $b=-0.499622+0.853500I$	$-1.20136+1.57860I$	$-60.10-1.198988I$
$u=-0.103387-0.574534I$ $a=-1.247280-0.459306I$ $b=-0.499622-0.853500I$	$-1.20136-1.57860I$	$-60.10+1.198988I$
$u=\ 0.04488+1.47797I$ $a=-0.364667+0.130814I$ $b=-0.764119+0.387099I$	$5.14370-4.37032I$	0
$u=\ 0.04488-1.47797I$ $a=-0.364667-0.130814I$ $b=-0.764119-0.387099I$	$5.14370+4.37032I$	0
$u=\ 0.027008+0.463975I$ $a=\ 2.19954-2.38385I$ $b=-0.626899-0.429747I$	$-1.69854-0.64758I$	$-0.10952-1.43549I$
$u=\ 0.027008-0.463975I$ $a=\ 2.19954+2.38385I$ $b=-0.626899+0.429747I$	$-1.69854+0.64758I$	$-0.10952+1.43549I$
$u=-0.317474+0.289062I$ $a=-2.45267+0.04192I$ $b=-1.002640+0.554553I$	$-0.40550-4.98994I$	$1.72707+5.84738I$
$u=-0.317474-0.289062I$ $a=-2.45267-0.04192I$ $b=-1.002640-0.554553I$	$-0.40550+4.98994I$	$1.72707-5.84738I$
$u=\ 0.19316+1.55937I$ $a=\ 0.412184+0.175594I$ $b=\ 0.756526+0.443348I$	$4.94100-1.87633I$	0
$u=\ 0.19316-1.55937I$ $a=\ 0.412184-0.175594I$ $b=\ 0.756526-0.443348I$	$4.94100+1.87633I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.00476 + 1.59773I$ $a = 1.24296 - 1.15996I$ $b = -0.933945 - 0.461744I$	$5.74571 - 0.74218I$	0
$u = 0.00476 - 1.59773I$ $a = 1.24296 + 1.15996I$ $b = -0.933945 + 0.461744I$	$5.74571 + 0.74218I$	0
$u = -0.01744 + 1.60580I$ $a = -0.375999 + 0.526599I$ $b = -0.542055 + 1.027890I$	$6.47914 + 1.94271I$	0
$u = -0.01744 - 1.60580I$ $a = -0.375999 - 0.526599I$ $b = -0.542055 - 1.027890I$	$6.47914 - 1.94271I$	0
$u = -0.06295 + 1.61402I$ $a = 0.65465 - 1.29562I$ $b = -1.162570 - 0.721984I$	$8.46752 + 8.29030I$	0
$u = -0.06295 - 1.61402I$ $a = 0.65465 + 1.29562I$ $b = -1.162570 + 0.721984I$	$8.46752 - 8.29030I$	0
$u = 0.03545 + 1.61491I$ $a = 0.181990 - 0.502218I$ $b = 0.261706 - 0.934865I$	$8.32968 - 2.56431I$	0
$u = 0.03545 - 1.61491I$ $a = 0.181990 + 0.502218I$ $b = 0.261706 + 0.934865I$	$8.32968 + 2.56431I$	0
$u = -0.03641 + 1.62694I$ $a = -0.761180 + 1.108760I$ $b = 1.165390 + 0.579784I$	$11.07740 + 2.81168I$	0
$u = -0.03641 - 1.62694I$ $a = -0.761180 - 1.108760I$ $b = 1.165390 - 0.579784I$	$11.07740 - 2.81168I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.11902 + 1.64283I$ $a = -0.176746 - 0.516586I$ $b = -0.295103 - 0.928974I$	$8.22913 - 3.95284I$	0
$u = 0.11902 - 1.64283I$ $a = -0.176746 + 0.516586I$ $b = -0.295103 + 0.928974I$	$8.22913 + 3.95284I$	0
$u = 0.15043 + 1.64947I$ $a = -1.16212 - 1.17817I$ $b = 0.938536 - 0.488755I$	$5.56900 - 5.76525I$	0
$u = 0.15043 - 1.64947I$ $a = -1.16212 + 1.17817I$ $b = 0.938536 + 0.488755I$	$5.56900 + 5.76525I$	0
$u = 0.16104 + 1.66697I$ $a = 0.361534 + 0.570686I$ $b = 0.562537 + 1.028830I$	$6.26478 - 8.48321I$	0
$u = 0.16104 - 1.66697I$ $a = 0.361534 - 0.570686I$ $b = 0.562537 - 1.028830I$	$6.26478 + 8.48321I$	0
$u = 0.03764 + 1.68475I$ $a = -0.763999 + 0.214959I$ $b = 1.301930 + 0.098385I$	$14.11020 - 0.51006I$	0
$u = 0.03764 - 1.68475I$ $a = -0.763999 - 0.214959I$ $b = 1.301930 - 0.098385I$	$14.11020 + 0.51006I$	0
$u = 0.07476 + 1.69651I$ $a = 0.751083 + 0.197963I$ $b = -1.301690 + 0.120472I$	$14.0668 - 6.1535I$	0
$u = 0.07476 - 1.69651I$ $a = 0.751083 - 0.197963I$ $b = -1.301690 - 0.120472I$	$14.0668 + 6.1535I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.16337 + 1.69140I$ $a = 0.702842 + 1.097820I$ $b = -1.159200 + 0.597520I$	$10.8412 - 9.4077I$	0
$u = 0.16337 - 1.69140I$ $a = 0.702842 - 1.097820I$ $b = -1.159200 - 0.597520I$	$10.8412 + 9.4077I$	0
$u = 0.18858 + 1.69551I$ $a = -0.584714 - 1.275720I$ $b = 1.156880 - 0.733784I$	$8.1698 - 14.8801I$	0
$u = 0.18858 - 1.69551I$ $a = -0.584714 + 1.275720I$ $b = 1.156880 + 0.733784I$	$8.1698 + 14.8801I$	0
$u = -0.239700 + 0.139703I$ $a = 2.88439 + 0.40526I$ $b = 0.899390 - 0.264675I$	$1.51732 - 0.60877I$	$6.10463 + 0.93946I$
$u = -0.239700 - 0.139703I$ $a = 2.88439 - 0.40526I$ $b = 0.899390 + 0.264675I$	$1.51732 + 0.60877I$	$6.10463 - 0.93946I$
$u = 0.072254 + 0.180965I$ $a = 3.84410 - 2.82042I$ $b = -0.371430 - 0.477509I$	$-1.77855 - 0.66427I$	$-3.92098 - 1.34240I$
$u = 0.072254 - 0.180965I$ $a = 3.84410 + 2.82042I$ $b = -0.371430 + 0.477509I$	$-1.77855 + 0.66427I$	$-3.92098 + 1.34240I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 6u^3 - 6u^2 + 17u - 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.395123 + 0.506844I$ $a = -0.95668 + 1.22719I$ $b = 0$	$-1.85594 - 1.41510I$	$-5.13523 + 6.85627I$
$u = 0.395123 - 0.506844I$ $a = -0.95668 - 1.22719I$ $b = 0$	$-1.85594 + 1.41510I$	$-5.13523 - 6.85627I$
$u = 0.10488 + 1.55249I$ $a = -0.043315 + 0.641200I$ $b = 0$	$5.14581 - 3.16396I$	$0.63523 + 2.29471I$
$u = 0.10488 - 1.55249I$ $a = -0.043315 - 0.641200I$ $b = 0$	$5.14581 + 3.16396I$	$0.63523 - 2.29471I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{68}+35u^{67}+\cdots+4u+1)$
c_2	$((u-1)^4)(u^{68}-5u^{67}+\cdots-4u+1)$
c_3, c_7	$u^4(u^{68}-u^{67}+\cdots+56u+16)$
c_4	$((u+1)^4)(u^{68}-5u^{67}+\cdots-4u+1)$
c_5	$(u^4-u^3+u^2+1)(u^{68}-2u^{67}+\cdots-2u+1)$
c_6	$u^4(u^{68}-27u^{67}+\cdots-3136u+256)$
c_8, c_9	$(u^4-u^3+3u^2-2u+1)(u^{68}+14u^{67}+\cdots+10u+1)$
c_{10}	$(u^4+u^3+u^2+1)(u^{68}-2u^{67}+\cdots-2u+1)$
c_{11}, c_{12}	$(u^4+u^3+3u^2+2u+1)(u^{68}+14u^{67}+\cdots+10u+1)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^4)(y^{68}+y^{67}+\cdots+28y+1)$
c_2, c_4	$((y-1)^4)(y^{68}-35y^{67}+\cdots-4y+1)$
c_3, c_7	$y^4(y^{68}-27y^{67}+\cdots-3136y+256)$
c_5, c_{10}	$(y^4+y^3+3y^2+2y+1)(y^{68}+14y^{67}+\cdots+10y+1)$
c_6	$y^4(y^{68}+21y^{67}+\cdots+1159168y+65536)$
c_8, c_9, c_{11} c_{12}	$(y^4+5y^3+7y^2+2y+1)(y^{68}+82y^{67}+\cdots+58y+1)$