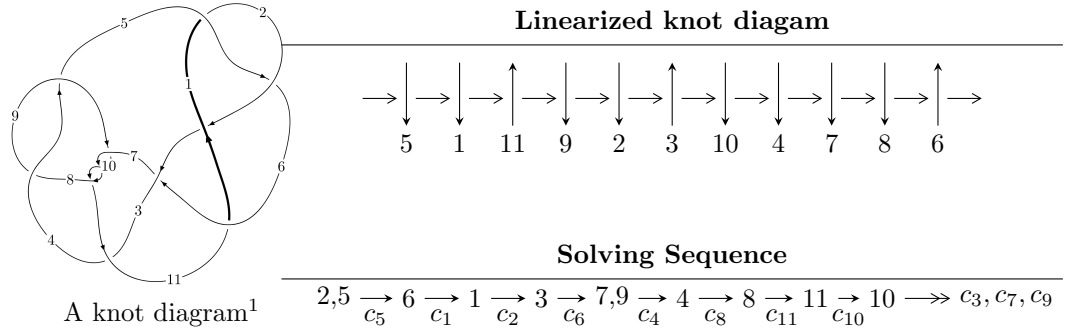


11a₈₃ (K11a₈₃)



Ideals for irreducible components² of X_{par}

$$I_1^u = \langle u^{61} + 2u^{60} + \dots + b + 1, u^{61} + u^{60} + \dots + a + 2, u^{62} + 2u^{61} + \dots + 5u + 1 \rangle$$

$$I_2^u = \langle b, -u^4 + u^3 + u^2 + a - u, u^6 - u^5 - u^4 + 2u^3 - u + 1 \rangle$$

* 2 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 68 representations.

¹The 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>).

²All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

$$I_1^u = \langle u^{61} + 2u^{60} + \dots + b + 1, u^{61} + u^{60} + \dots + a + 2, u^{62} + 2u^{61} + \dots + 5u + 1 \rangle \quad \mathbf{I.}$$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} u^8 - u^6 + u^4 + 1 \\ u^8 - 2u^6 + 2u^4 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^{61} - u^{60} + \dots - u - 2 \\ -u^{61} - 2u^{60} + \dots - 3u - 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u^{11} - 2u^9 + 2u^7 - u^3 \\ u^{13} - 3u^{11} + 5u^9 - 4u^7 + 2u^5 - u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{61} + u^{60} + \dots + 4u - 1 \\ u^{61} + 2u^{60} + \dots + 6u + 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{59} - u^{58} + \dots + u - 1 \\ u^{34} - 8u^{32} + \dots + u^2 + 2u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^{59} - u^{58} + \dots + u - 1 \\ u^{34} - 8u^{32} + \dots + u^2 + 2u \end{pmatrix}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes = $-8u^{61} - 10u^{60} + \dots - 32u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5	$u^{62} + 2u^{61} + \dots + 5u + 1$
c_2	$u^{62} + 30u^{61} + \dots + 9u + 1$
c_3	$u^{62} + 6u^{61} + \dots + 2661u + 145$
c_4, c_8	$u^{62} - u^{61} + \dots - 64u - 64$
c_6	$u^{62} - 2u^{61} + \dots - 55u + 25$
c_7, c_9, c_{10}	$u^{62} - 7u^{61} + \dots + 4u - 1$
c_{11}	$u^{62} + 6u^{61} + \dots + 15u - 53$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5	$y^{62} - 30y^{61} + \dots - 9y + 1$
c_2	$y^{62} + 6y^{61} + \dots - y + 1$
c_3	$y^{62} + 30y^{61} + \dots - 4814861y + 21025$
c_4, c_8	$y^{62} - 39y^{61} + \dots - 24576y + 4096$
c_6	$y^{62} - 6y^{61} + \dots - 21225y + 625$
c_7, c_9, c_{10}	$y^{62} - 61y^{61} + \dots - 2y + 1$
c_{11}	$y^{62} + 18y^{61} + \dots - 187845y + 2809$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.679176 + 0.662219I$ $a = -0.18999 - 1.63576I$ $b = -1.295360 + 0.556741I$	$-5.37098 + 7.45017I$	$-7.08441 - 6.24513I$
$u = -0.679176 - 0.662219I$ $a = -0.18999 + 1.63576I$ $b = -1.295360 - 0.556741I$	$-5.37098 - 7.45017I$	$-7.08441 + 6.24513I$
$u = -1.05421$ $a = 1.10748$ $b = 1.16790$	-6.55973	-13.9110
$u = -0.932912 + 0.505303I$ $a = -0.286341 - 0.182563I$ $b = -0.872270 - 0.423516I$	$-0.300969 + 0.586034I$	$-4.56074 + 0.I$
$u = -0.932912 - 0.505303I$ $a = -0.286341 + 0.182563I$ $b = -0.872270 + 0.423516I$	$-0.300969 - 0.586034I$	$-4.56074 + 0.I$
$u = -0.888402 + 0.597163I$ $a = -0.268028 + 0.435451I$ $b = 1.268860 + 0.490752I$	$-5.99141 - 2.56355I$	$-8.39249 + 0.I$
$u = -0.888402 - 0.597163I$ $a = -0.268028 - 0.435451I$ $b = 1.268860 - 0.490752I$	$-5.99141 + 2.56355I$	$-8.39249 + 0.I$
$u = -1.044380 + 0.283828I$ $a = -0.214117 + 0.472824I$ $b = -0.119180 + 0.531653I$	$-2.21180 + 0.64861I$	$-5.56487 + 0.I$
$u = -1.044380 - 0.283828I$ $a = -0.214117 - 0.472824I$ $b = -0.119180 - 0.531653I$	$-2.21180 - 0.64861I$	$-5.56487 + 0.I$
$u = 0.998620 + 0.452665I$ $a = 1.57838 - 1.39707I$ $b = 0.447746 + 0.704295I$	$-2.95435 - 2.01994I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.998620 - 0.452665I$ $a = 1.57838 + 1.39707I$ $b = 0.447746 - 0.704295I$	$-2.95435 + 2.01994I$	0
$u = 0.481047 + 0.736102I$ $a = 0.842249 - 0.094453I$ $b = -1.011210 + 0.071067I$	$-1.38122 + 1.31968I$	$-7.80241 - 0.73411I$
$u = 0.481047 - 0.736102I$ $a = 0.842249 + 0.094453I$ $b = -1.011210 - 0.071067I$	$-1.38122 - 1.31968I$	$-7.80241 + 0.73411I$
$u = -0.641660 + 0.597312I$ $a = 0.58108 + 1.47763I$ $b = 1.016340 - 0.406662I$	$0.53323 + 3.83893I$	$-3.44231 - 6.73024I$
$u = -0.641660 - 0.597312I$ $a = 0.58108 - 1.47763I$ $b = 1.016340 + 0.406662I$	$0.53323 - 3.83893I$	$-3.44231 + 6.73024I$
$u = -0.314518 + 0.789523I$ $a = -0.542467 + 1.246720I$ $b = -1.36124 - 0.62963I$	$-7.24174 - 9.68169I$	$-8.05456 + 5.30748I$
$u = -0.314518 - 0.789523I$ $a = -0.542467 - 1.246720I$ $b = -1.36124 + 0.62963I$	$-7.24174 + 9.68169I$	$-8.05456 - 5.30748I$
$u = -1.041180 + 0.492997I$ $a = 1.117260 + 0.139741I$ $b = 0.726241 + 0.454281I$	$-2.51432 + 4.16837I$	0
$u = -1.041180 - 0.492997I$ $a = 1.117260 - 0.139741I$ $b = 0.726241 - 0.454281I$	$-2.51432 - 4.16837I$	0
$u = 0.653736 + 0.523730I$ $a = 0.63997 - 1.29536I$ $b = -0.226464 + 0.938981I$	$-1.96315 - 1.86835I$	$-5.30999 + 3.44397I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.653736 - 0.523730I$ $a = 0.63997 + 1.29536I$ $b = -0.226464 - 0.938981I$	$-1.96315 + 1.86835I$	$-5.30999 - 3.44397I$
$u = 1.132590 + 0.263688I$ $a = -2.56165 + 0.11158I$ $b = -1.188730 + 0.323346I$	$-5.39540 + 2.71872I$	0
$u = 1.132590 - 0.263688I$ $a = -2.56165 - 0.11158I$ $b = -1.188730 - 0.323346I$	$-5.39540 - 2.71872I$	0
$u = 1.030730 + 0.541655I$ $a = -0.821984 + 0.953842I$ $b = -0.534592 - 0.594863I$	$0.73820 - 4.68678I$	0
$u = 1.030730 - 0.541655I$ $a = -0.821984 - 0.953842I$ $b = -0.534592 + 0.594863I$	$0.73820 + 4.68678I$	0
$u = 1.127010 + 0.311355I$ $a = 2.80083 - 0.32064I$ $b = 1.166360 + 0.082032I$	$-5.92111 - 2.41747I$	0
$u = 1.127010 - 0.311355I$ $a = 2.80083 + 0.32064I$ $b = 1.166360 - 0.082032I$	$-5.92111 + 2.41747I$	0
$u = -1.134480 + 0.286998I$ $a = 0.391333 - 1.078140I$ $b = 0.127006 - 1.226480I$	$-7.77591 - 0.20988I$	0
$u = -1.134480 - 0.286998I$ $a = 0.391333 + 1.078140I$ $b = 0.127006 + 1.226480I$	$-7.77591 + 0.20988I$	0
$u = 1.163140 + 0.238954I$ $a = 2.30064 - 0.28329I$ $b = 1.40475 - 0.59693I$	$-11.90540 + 6.70531I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.163140 - 0.238954I$ $a = 2.30064 + 0.28329I$ $b = 1.40475 + 0.59693I$	$-11.90540 - 6.70531I$	0
$u = -0.308882 + 0.748072I$ $a = 0.91507 - 1.12308I$ $b = 1.161680 + 0.400372I$	$-1.02712 - 5.59716I$	$-5.41314 + 5.44677I$
$u = -0.308882 - 0.748072I$ $a = 0.91507 + 1.12308I$ $b = 1.161680 - 0.400372I$	$-1.02712 + 5.59716I$	$-5.41314 - 5.44677I$
$u = 0.500918 + 0.616350I$ $a = -0.430610 + 0.666088I$ $b = 0.428614 - 0.571553I$	$2.29604 + 0.10479I$	$1.82899 - 0.07874I$
$u = 0.500918 - 0.616350I$ $a = -0.430610 - 0.666088I$ $b = 0.428614 + 0.571553I$	$2.29604 - 0.10479I$	$1.82899 + 0.07874I$
$u = 1.057630 + 0.597978I$ $a = 0.024817 - 1.263810I$ $b = 1.004900 + 0.137217I$	$-3.08504 - 6.39994I$	0
$u = 1.057630 - 0.597978I$ $a = 0.024817 + 1.263810I$ $b = 1.004900 - 0.137217I$	$-3.08504 + 6.39994I$	0
$u = 1.164990 + 0.345279I$ $a = -2.73197 + 0.41008I$ $b = -1.47526 - 0.42876I$	$-13.1853 - 5.6875I$	0
$u = 1.164990 - 0.345279I$ $a = -2.73197 - 0.41008I$ $b = -1.47526 + 0.42876I$	$-13.1853 + 5.6875I$	0
$u = 0.284471 + 0.730649I$ $a = 0.544524 + 0.656664I$ $b = -0.217691 - 1.178550I$	$-3.57456 + 3.20100I$	$-7.28225 - 2.52053I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.284471 - 0.730649I$ $a = 0.544524 - 0.656664I$ $b = -0.217691 + 1.178550I$	$-3.57456 - 3.20100I$	$-7.28225 + 2.52053I$
$u = 0.373838 + 0.680597I$ $a = -0.383069 - 0.431263I$ $b = 0.252931 + 0.605320I$	$1.74078 + 1.61529I$	$1.05360 - 1.69724I$
$u = 0.373838 - 0.680597I$ $a = -0.383069 + 0.431263I$ $b = 0.252931 - 0.605320I$	$1.74078 - 1.61529I$	$1.05360 + 1.69724I$
$u = 1.093600 + 0.552610I$ $a = 0.849609 + 0.340920I$ $b = -0.203226 + 0.645415I$	$-0.35142 - 6.38903I$	0
$u = 1.093600 - 0.552610I$ $a = 0.849609 - 0.340920I$ $b = -0.203226 - 0.645415I$	$-0.35142 + 6.38903I$	0
$u = -0.164713 + 0.739758I$ $a = 0.592183 - 0.152334I$ $b = 1.43644 - 0.36265I$	$-9.25615 + 2.11576I$	$-10.25958 - 1.04111I$
$u = -0.164713 - 0.739758I$ $a = 0.592183 + 0.152334I$ $b = 1.43644 + 0.36265I$	$-9.25615 - 2.11576I$	$-10.25958 + 1.04111I$
$u = -1.124020 + 0.532845I$ $a = 2.12343 + 1.58416I$ $b = 1.160650 - 0.052166I$	$-4.41765 + 5.31598I$	0
$u = -1.124020 - 0.532845I$ $a = 2.12343 - 1.58416I$ $b = 1.160650 + 0.052166I$	$-4.41765 - 5.31598I$	0
$u = 1.130270 + 0.545573I$ $a = -1.47482 - 0.61853I$ $b = 0.240687 - 1.232260I$	$-6.02650 - 8.03942I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.130270 - 0.545573I$ $a = -1.47482 + 0.61853I$ $b = 0.240687 + 1.232260I$	$-6.02650 + 8.03942I$	0
$u = -1.152310 + 0.504519I$ $a = -1.60293 - 1.74806I$ $b = -1.49016 - 0.33112I$	$-12.10490 + 2.50349I$	0
$u = -1.152310 - 0.504519I$ $a = -1.60293 + 1.74806I$ $b = -1.49016 + 0.33112I$	$-12.10490 - 2.50349I$	0
$u = -1.129340 + 0.556780I$ $a = -2.25146 - 1.88634I$ $b = -1.201730 + 0.414457I$	$-3.42397 + 10.52990I$	0
$u = -1.129340 - 0.556780I$ $a = -2.25146 + 1.88634I$ $b = -1.201730 - 0.414457I$	$-3.42397 - 10.52990I$	0
$u = -0.263424 + 0.692134I$ $a = -1.158110 + 0.521094I$ $b = -1.087530 - 0.017394I$	$-1.96243 - 0.62500I$	$-7.94260 - 0.21317I$
$u = -0.263424 - 0.692134I$ $a = -1.158110 - 0.521094I$ $b = -1.087530 + 0.017394I$	$-1.96243 + 0.62500I$	$-7.94260 + 0.21317I$
$u = -1.140580 + 0.570161I$ $a = 2.21593 + 2.00462I$ $b = 1.37560 - 0.65487I$	$-9.6807 + 14.7703I$	0
$u = -1.140580 - 0.570161I$ $a = 2.21593 - 2.00462I$ $b = 1.37560 + 0.65487I$	$-9.6807 - 14.7703I$	0
$u = -0.481620 + 0.441597I$ $a = -1.41313 - 0.85379I$ $b = -0.708754 + 0.202332I$	$-0.830855 - 0.117361I$	$-8.01128 - 1.52685I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.481620 - 0.441597I$		
$a = -1.41313 + 0.85379I$	$-0.830855 + 0.117361I$	$-8.01128 + 1.52685I$
$b = -0.708754 - 0.202332I$		
$u = -0.447785$		
$a = -1.48076$	-0.957809	-9.90970
$b = -0.618691$		

$$\text{II. } I_2^u = \langle b, -u^4 + u^3 + u^2 + a - u, u^6 - u^5 - u^4 + 2u^3 - u + 1 \rangle$$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u^3 \\ -u^5 + u^3 - u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^4 - u^3 - u^2 + u \\ 0 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^4 - u^3 - u^2 + u \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 - u^2 + u \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^4 - u^2 + u \\ u^5 - u^3 + u \end{pmatrix}$$

(ii) Obstruction class = 1

(iii) Cusp Shapes = $4u^4 - 5u^2 + 5u - 5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.002190 + 0.295542I$ $a = -0.685196 - 1.063260I$ $b = 0$	$-3.53554 + 0.92430I$	$-12.63596 + 0.09369I$
$u = -1.002190 - 0.295542I$ $a = -0.685196 + 1.063260I$ $b = 0$	$-3.53554 - 0.92430I$	$-12.63596 - 0.09369I$
$u = 0.428243 + 0.664531I$ $a = 0.917982 - 0.270708I$ $b = 0$	$0.245672 + 0.924305I$	$-2.59683 - 0.69886I$
$u = 0.428243 - 0.664531I$ $a = 0.917982 + 0.270708I$ $b = 0$	$0.245672 - 0.924305I$	$-2.59683 + 0.69886I$
$u = 1.073950 + 0.558752I$ $a = -0.732786 - 0.381252I$ $b = 0$	$-1.64493 - 5.69302I$	$-6.76721 + 4.86918I$
$u = 1.073950 - 0.558752I$ $a = -0.732786 + 0.381252I$ $b = 0$	$-1.64493 + 5.69302I$	$-6.76721 - 4.86918I$

III. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)(u^{62} + 2u^{61} + \dots + 5u + 1)$
c_2	$(u^6 + 3u^5 + 5u^4 + 4u^3 + 2u^2 + u + 1)(u^{62} + 30u^{61} + \dots + 9u + 1)$
c_3	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)(u^{62} + 6u^{61} + \dots + 2661u + 145)$
c_4, c_8	$u^6(u^{62} - u^{61} + \dots - 64u - 64)$
c_5	$(u^6 - u^5 - u^4 + 2u^3 - u + 1)(u^{62} + 2u^{61} + \dots + 5u + 1)$
c_6	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)(u^{62} - 2u^{61} + \dots - 55u + 25)$
c_7	$((u - 1)^6)(u^{62} - 7u^{61} + \dots + 4u - 1)$
c_9, c_{10}	$((u + 1)^6)(u^{62} - 7u^{61} + \dots + 4u - 1)$
c_{11}	$(u^6 + 3u^5 + 5u^4 + 4u^3 + 2u^2 + u + 1)(u^{62} + 6u^{61} + \dots + 15u - 53)$

IV. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_5	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)(y^{62} - 30y^{61} + \dots - 9y + 1)$
c_2	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)(y^{62} + 6y^{61} + \dots - y + 1)$
c_3	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)$ $\cdot (y^{62} + 30y^{61} + \dots - 4814861y + 21025)$
c_4, c_8	$y^6(y^{62} - 39y^{61} + \dots - 24576y + 4096)$
c_6	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)(y^{62} - 6y^{61} + \dots - 21225y + 625)$
c_7, c_9, c_{10}	$((y - 1)^6)(y^{62} - 61y^{61} + \dots - 2y + 1)$
c_{11}	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)(y^{62} + 18y^{61} + \dots - 187845y + 2809)$