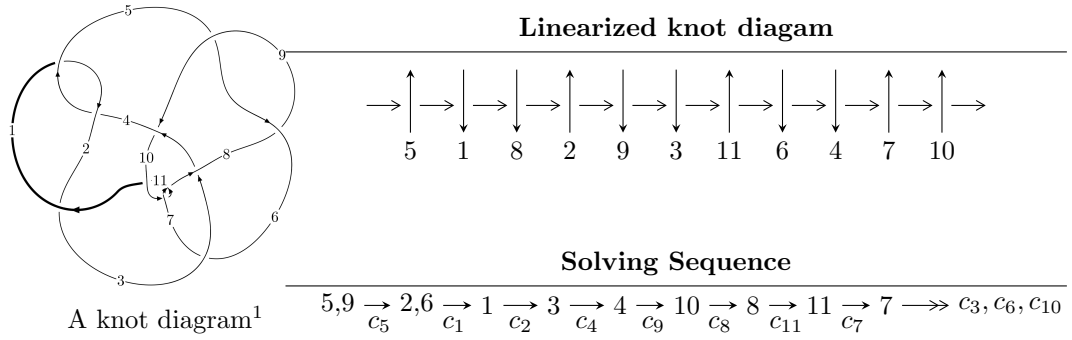


11a<sub>30</sub> (K11a<sub>30</sub>)



**Ideals for irreducible components<sup>2</sup> of  $X_{\text{par}}$**

$$I_1^u = \langle 7.58522 \times 10^{150} u^{73} + 3.69824 \times 10^{151} u^{72} + \dots + 2.11703 \times 10^{151} b - 1.30679 \times 10^{151}, \\ 1.34088 \times 10^{151} u^{73} + 4.14720 \times 10^{151} u^{72} + \dots + 2.11703 \times 10^{151} a - 7.19346 \times 10^{151}, u^{74} + 5u^{73} + \dots + 3u \rangle$$

\* 1 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 74 representations.

<sup>1</sup>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>).

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

$$\mathbf{I. } I_1^u = \langle 7.59 \times 10^{150} u^{73} + 3.70 \times 10^{151} u^{72} + \dots + 2.12 \times 10^{151} b - 1.31 \times 10^{151}, 1.34 \times 10^{151} u^{73} + 4.15 \times 10^{151} u^{72} + \dots + 2.12 \times 10^{151} a - 7.19 \times 10^{151}, u^{74} + 5u^{73} + \dots + 3u + 1 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_5 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.633380u^{73} - 1.95897u^{72} + \dots - 1.62167u + 3.39790 \\ -0.358296u^{73} - 1.74690u^{72} + \dots - 2.41832u + 0.617277 \end{pmatrix} \\ a_6 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.275084u^{73} - 0.212070u^{72} + \dots + 0.796648u + 2.78063 \\ -0.358296u^{73} - 1.74690u^{72} + \dots - 2.41832u + 0.617277 \end{pmatrix} \\ a_3 &= \begin{pmatrix} -1.99536u^{73} - 8.76954u^{72} + \dots - 4.79281u + 2.43887 \\ -0.179627u^{73} - 0.746401u^{72} + \dots - 1.87519u + 0.121634 \end{pmatrix} \\ a_4 &= \begin{pmatrix} -2.11453u^{73} - 9.34193u^{72} + \dots - 5.30085u + 1.98157 \\ -0.294975u^{73} - 1.37123u^{72} + \dots - 2.33439u - 0.359107 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -10.0014u^{73} - 53.9101u^{72} + \dots - 19.0788u - 3.70357 \\ 0.992329u^{73} + 5.03105u^{72} + \dots + 5.38895u + 0.998316 \end{pmatrix} \\ a_8 &= \begin{pmatrix} u \\ u^3 + u \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 7.15691u^{73} + 29.9861u^{72} + \dots - 18.6635u - 6.17364 \\ -1.14246u^{73} - 5.02812u^{72} + \dots - 5.85728u + 0.414142 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -2.25610u^{73} - 2.17362u^{72} + \dots + 32.2123u + 10.8684 \\ 0.846917u^{73} + 3.12950u^{72} + \dots + 2.74742u - 0.602325 \end{pmatrix} \\ a_7 &= \begin{pmatrix} -2.25610u^{73} - 2.17362u^{72} + \dots + 32.2123u + 10.8684 \\ 0.846917u^{73} + 3.12950u^{72} + \dots + 2.74742u - 0.602325 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

(iii) Cusp Shapes =  $1.48586u^{73} + 14.4117u^{72} + \dots + 21.1776u - 3.60826$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_4$	$u^{74} + u^{73} + \dots + u + 1$
$c_2$	$u^{74} + 29u^{73} + \dots + 57u + 1$
$c_3$	$u^{74} - u^{73} + \dots - 11u + 1$
$c_5, c_8$	$u^{74} - 5u^{73} + \dots - 3u + 1$
$c_6$	$u^{74} - 5u^{73} + \dots - 355u + 199$
$c_7, c_{10}$	$u^{74} - 5u^{73} + \dots - 3u + 1$
$c_9$	$u^{74} - 15u^{73} + \dots + 10283u + 547$
$c_{11}$	$u^{74} - 31u^{73} + \dots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4$	$y^{74} + 29y^{73} + \dots + 57y + 1$
$c_2$	$y^{74} + 33y^{73} + \dots - 859y + 1$
$c_3$	$y^{74} + 5y^{73} + \dots + 33y + 1$
$c_5, c_8$	$y^{74} + 53y^{73} + \dots + 5y + 1$
$c_6$	$y^{74} - 63y^{73} + \dots + 1039717y + 39601$
$c_7, c_{10}$	$y^{74} - 31y^{73} + \dots + 5y + 1$
$c_9$	$y^{74} + 105y^{73} + \dots - 37429635y + 299209$
$c_{11}$	$y^{74} + 25y^{73} + \dots + 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.625887 + 0.806388I$ $a = 0.250075 - 1.091350I$ $b = -0.155697 - 0.809103I$	$-1.13641 - 1.44571I$	0
$u = 0.625887 - 0.806388I$ $a = 0.250075 + 1.091350I$ $b = -0.155697 + 0.809103I$	$-1.13641 + 1.44571I$	0
$u = -0.948725 + 0.166866I$ $a = -0.188753 + 0.646780I$ $b = -0.755320 + 0.469376I$	$0.70694 + 6.29193I$	0
$u = -0.948725 - 0.166866I$ $a = -0.188753 - 0.646780I$ $b = -0.755320 - 0.469376I$	$0.70694 - 6.29193I$	0
$u = -0.018872 + 1.052340I$ $a = 0.07987 + 7.64537I$ $b = 0.488379 - 0.853979I$	$1.62217 + 0.05885I$	0
$u = -0.018872 - 1.052340I$ $a = 0.07987 - 7.64537I$ $b = 0.488379 + 0.853979I$	$1.62217 - 0.05885I$	0
$u = -0.212838 + 1.055230I$ $a = -1.05204 + 1.70067I$ $b = 0.448860 + 1.081110I$	$1.70570 + 3.66146I$	0
$u = -0.212838 - 1.055230I$ $a = -1.05204 - 1.70067I$ $b = 0.448860 - 1.081110I$	$1.70570 - 3.66146I$	0
$u = -0.046860 + 0.912129I$ $a = 1.70545 + 5.91576I$ $b = 0.473139 + 0.843516I$	$1.60692 + 3.97998I$	$10.4876 - 34.2104I$
$u = -0.046860 - 0.912129I$ $a = 1.70545 - 5.91576I$ $b = 0.473139 - 0.843516I$	$1.60692 - 3.97998I$	$10.4876 + 34.2104I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.837681 + 0.298700I$ $a = 0.88363 + 1.74577I$ $b = -0.196875 + 1.092950I$	$-5.52578 - 1.17971I$	$-8.59982 + 0.I$
$u = 0.837681 - 0.298700I$ $a = 0.88363 - 1.74577I$ $b = -0.196875 - 1.092950I$	$-5.52578 + 1.17971I$	$-8.59982 + 0.I$
$u = -1.134810 + 0.070313I$ $a = 0.13504 - 1.56031I$ $b = -0.625155 - 1.073360I$	$-1.05098 + 11.53100I$	0
$u = -1.134810 - 0.070313I$ $a = 0.13504 + 1.56031I$ $b = -0.625155 + 1.073360I$	$-1.05098 - 11.53100I$	0
$u = -0.187862 + 1.125480I$ $a = -1.08777 + 1.12032I$ $b = 0.613032 + 1.148640I$	$1.81406 + 3.75257I$	0
$u = -0.187862 - 1.125480I$ $a = -1.08777 - 1.12032I$ $b = 0.613032 - 1.148640I$	$1.81406 - 3.75257I$	0
$u = 0.100705 + 1.152450I$ $a = 0.772241 + 0.259406I$ $b = -0.044485 - 0.183329I$	$1.47076 - 2.21494I$	0
$u = 0.100705 - 1.152450I$ $a = 0.772241 - 0.259406I$ $b = -0.044485 + 0.183329I$	$1.47076 + 2.21494I$	0
$u = 0.818597 + 0.196251I$ $a = 0.063573 - 0.472652I$ $b = -0.564206 - 0.338491I$	$-1.47671 - 1.08782I$	$-3.50377 + 1.91086I$
$u = 0.818597 - 0.196251I$ $a = 0.063573 + 0.472652I$ $b = -0.564206 + 0.338491I$	$-1.47671 + 1.08782I$	$-3.50377 - 1.91086I$

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.173450 + 0.131654I$ $a = 0.26621 + 1.50343I$ $b = -0.558020 + 1.039770I$	$-3.26838 - 5.57628I$	0
$u = 1.173450 - 0.131654I$ $a = 0.26621 - 1.50343I$ $b = -0.558020 - 1.039770I$	$-3.26838 + 5.57628I$	0
$u = 0.430301 + 1.100860I$ $a = -0.329551 - 1.227650I$ $b = 0.002331 - 1.262770I$	$-3.04551 - 3.42311I$	0
$u = 0.430301 - 1.100860I$ $a = -0.329551 + 1.227650I$ $b = 0.002331 + 1.262770I$	$-3.04551 + 3.42311I$	0
$u = 0.040169 + 1.186910I$ $a = -0.363209 + 0.248191I$ $b = 0.812545 - 0.520379I$	$3.70932 - 1.58303I$	0
$u = 0.040169 - 1.186910I$ $a = -0.363209 - 0.248191I$ $b = 0.812545 + 0.520379I$	$3.70932 + 1.58303I$	0
$u = 0.120286 + 1.184310I$ $a = -0.825738 - 0.446465I$ $b = 0.905631 - 0.988625I$	$4.76292 - 2.16296I$	0
$u = 0.120286 - 1.184310I$ $a = -0.825738 + 0.446465I$ $b = 0.905631 + 0.988625I$	$4.76292 + 2.16296I$	0
$u = 0.186745 + 1.177800I$ $a = -0.819850 - 0.925557I$ $b = 0.76722 - 1.25365I$	$3.27619 - 7.91420I$	0
$u = 0.186745 - 1.177800I$ $a = -0.819850 + 0.925557I$ $b = 0.76722 + 1.25365I$	$3.27619 + 7.91420I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.392213 + 1.130490I$ $a = -0.437347 + 1.232360I$ $b = 0.076509 + 1.358080I$	$-1.83044 + 8.58305I$	0
$u = -0.392213 - 1.130490I$ $a = -0.437347 - 1.232360I$ $b = 0.076509 - 1.358080I$	$-1.83044 - 8.58305I$	0
$u = -0.757116 + 0.241853I$ $a = 1.02976 - 1.87392I$ $b = -0.088093 - 1.145910I$	$-4.54644 - 4.33882I$	$-6.72843 + 3.56231I$
$u = -0.757116 - 0.241853I$ $a = 1.02976 + 1.87392I$ $b = -0.088093 + 1.145910I$	$-4.54644 + 4.33882I$	$-6.72843 - 3.56231I$
$u = -0.067110 + 1.217550I$ $a = -0.391607 + 0.135020I$ $b = 1.109800 + 0.659392I$	$5.77201 + 4.94079I$	0
$u = -0.067110 - 1.217550I$ $a = -0.391607 - 0.135020I$ $b = 1.109800 - 0.659392I$	$5.77201 - 4.94079I$	0
$u = -0.024144 + 1.223960I$ $a = -0.163591 + 0.005366I$ $b = 1.121610 + 0.263459I$	$6.19874 - 1.17606I$	0
$u = -0.024144 - 1.223960I$ $a = -0.163591 - 0.005366I$ $b = 1.121610 - 0.263459I$	$6.19874 + 1.17606I$	0
$u = -1.284930 + 0.186322I$ $a = 0.105342 + 1.106140I$ $b = -0.611725 + 0.837729I$	$3.80887 - 2.41257I$	0
$u = -1.284930 - 0.186322I$ $a = 0.105342 - 1.106140I$ $b = -0.611725 - 0.837729I$	$3.80887 + 2.41257I$	0



Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.189587 + 0.598875I$ $a = 2.16432 + 1.10393I$ $b = 0.395146 + 0.549899I$	$1.52579 - 1.41180I$	$0.43215 + 2.14680I$
$u = 0.189587 - 0.598875I$ $a = 2.16432 - 1.10393I$ $b = 0.395146 - 0.549899I$	$1.52579 + 1.41180I$	$0.43215 - 2.14680I$
$u = 0.42111 + 1.36965I$ $a = 0.139491 + 0.258840I$ $b = -0.888102 - 0.494344I$	$3.37758 - 5.71754I$	0
$u = 0.42111 - 1.36965I$ $a = 0.139491 - 0.258840I$ $b = -0.888102 + 0.494344I$	$3.37758 + 5.71754I$	0
$u = -0.43876 + 1.36676I$ $a = 0.050379 - 0.285013I$ $b = -0.971458 + 0.512667I$	$5.45791 + 11.23760I$	0
$u = -0.43876 - 1.36676I$ $a = 0.050379 + 0.285013I$ $b = -0.971458 - 0.512667I$	$5.45791 - 11.23760I$	0
$u = -0.192289 + 0.521498I$ $a = 1.68589 + 0.46680I$ $b = 0.331910 + 0.162106I$	$1.59490 - 1.49760I$	$1.53502 + 0.67981I$
$u = -0.192289 - 0.521498I$ $a = 1.68589 - 0.46680I$ $b = 0.331910 - 0.162106I$	$1.59490 + 1.49760I$	$1.53502 - 0.67981I$
$u = -0.43660 + 1.41313I$ $a = 0.0966887 - 0.0595436I$ $b = -0.838266 + 0.662306I$	$9.17547 + 3.15433I$	0
$u = -0.43660 - 1.41313I$ $a = 0.0966887 + 0.0595436I$ $b = -0.838266 - 0.662306I$	$9.17547 - 3.15433I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.52442 + 1.38928I$ $a = 1.12438 - 1.24979I$ $b = -0.706951 - 1.138360I$	$3.5208 + 17.3478I$	0
$u = -0.52442 - 1.38928I$ $a = 1.12438 + 1.24979I$ $b = -0.706951 + 1.138360I$	$3.5208 - 17.3478I$	0
$u = 0.52458 + 1.40532I$ $a = 1.11916 + 1.19302I$ $b = -0.673568 + 1.112400I$	$1.50429 - 11.48100I$	0
$u = 0.52458 - 1.40532I$ $a = 1.11916 - 1.19302I$ $b = -0.673568 - 1.112400I$	$1.50429 + 11.48100I$	0
$u = -0.56997 + 1.40561I$ $a = 0.99031 - 1.17785I$ $b = -0.710205 - 1.019160I$	$8.07842 + 8.92677I$	0
$u = -0.56997 - 1.40561I$ $a = 0.99031 + 1.17785I$ $b = -0.710205 + 1.019160I$	$8.07842 - 8.92677I$	0
$u = -0.172386 + 0.392750I$ $a = 2.17729 + 1.53861I$ $b = 0.611740 + 0.677389I$	$1.44361 + 4.12461I$	$-1.60848 - 8.74026I$
$u = -0.172386 - 0.392750I$ $a = 2.17729 - 1.53861I$ $b = 0.611740 - 0.677389I$	$1.44361 - 4.12461I$	$-1.60848 + 8.74026I$
$u = -0.82422 + 1.34124I$ $a = 0.791277 - 1.047410I$ $b = -0.585176 - 0.803100I$	$3.48567 - 0.24626I$	0
$u = -0.82422 - 1.34124I$ $a = 0.791277 + 1.047410I$ $b = -0.585176 + 0.803100I$	$3.48567 + 0.24626I$	0

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.395918 + 0.044210I$		
$a = 1.82559 - 1.94480I$	$-1.13505 - 1.41023I$	$-4.53209 + 0.05631I$
$b = 0.427892 - 1.048720I$		
$u = -0.395918 - 0.044210I$		
$a = 1.82559 + 1.94480I$	$-1.13505 + 1.41023I$	$-4.53209 - 0.05631I$
$b = 0.427892 + 1.048720I$		
$u = 0.26620 + 1.58230I$		
$a = 0.535870 - 0.189293I$	$1.85423 - 1.80714I$	0
$b = -0.510315 - 0.716522I$		
$u = 0.26620 - 1.58230I$		
$a = 0.535870 + 0.189293I$	$1.85423 + 1.80714I$	0
$b = -0.510315 + 0.716522I$		
$u = 0.388854 + 0.067367I$		
$a = 1.98534 - 2.01885I$	$-0.22924 - 5.70067I$	$-3.12131 + 5.75856I$
$b = 0.549545 - 1.067760I$		
$u = 0.388854 - 0.067367I$		
$a = 1.98534 + 2.01885I$	$-0.22924 + 5.70067I$	$-3.12131 - 5.75856I$
$b = 0.549545 + 1.067760I$		
$u = -0.222996 + 0.282133I$		
$a = 1.85857 - 1.61104I$	$-0.30697 - 1.55903I$	$-1.96359 + 5.08447I$
$b = 0.372530 - 0.824350I$		
$u = -0.222996 - 0.282133I$		
$a = 1.85857 + 1.61104I$	$-0.30697 + 1.55903I$	$-1.96359 - 5.08447I$
$b = 0.372530 + 0.824350I$		
$u = 0.60524 + 1.54626I$		
$a = 0.948097 + 0.971022I$	$1.08144 - 6.25961I$	0
$b = -0.570967 + 0.950116I$		
$u = 0.60524 - 1.54626I$		
$a = 0.948097 - 0.971022I$	$1.08144 + 6.25961I$	0
$b = -0.570967 - 0.950116I$		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.241373 + 0.216455I$	$0.979140 - 0.794104I$	$-4.88709 - 0.51596I$
$a = 2.17068 - 1.78758I$		
$b = 0.636273 - 0.871096I$		
$u = 0.241373 - 0.216455I$	$0.979140 + 0.794104I$	$-4.88709 + 0.51596I$
$a = 2.17068 + 1.78758I$		
$b = 0.636273 + 0.871096I$		
$u = -0.61772 + 1.58812I$	$3.23570 - 4.91684I$	0
$a = 0.204945 + 0.462300I$		
$b = -0.589516 + 0.882245I$		
$u = -0.61772 - 1.58812I$	$3.23570 + 4.91684I$	0
$a = 0.204945 - 0.462300I$		
$b = -0.589516 - 0.882245I$		

## II. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1, c_4$	$u^{74} + u^{73} + \dots + u + 1$
$c_2$	$u^{74} + 29u^{73} + \dots + 57u + 1$
$c_3$	$u^{74} - u^{73} + \dots - 11u + 1$
$c_5, c_8$	$u^{74} - 5u^{73} + \dots - 3u + 1$
$c_6$	$u^{74} - 5u^{73} + \dots - 355u + 199$
$c_7, c_{10}$	$u^{74} - 5u^{73} + \dots - 3u + 1$
$c_9$	$u^{74} - 15u^{73} + \dots + 10283u + 547$
$c_{11}$	$u^{74} - 31u^{73} + \dots + 5u + 1$

### III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1, c_4$	$y^{74} + 29y^{73} + \dots + 57y + 1$
$c_2$	$y^{74} + 33y^{73} + \dots - 859y + 1$
$c_3$	$y^{74} + 5y^{73} + \dots + 33y + 1$
$c_5, c_8$	$y^{74} + 53y^{73} + \dots + 5y + 1$
$c_6$	$y^{74} - 63y^{73} + \dots + 1039717y + 39601$
$c_7, c_{10}$	$y^{74} - 31y^{73} + \dots + 5y + 1$
$c_9$	$y^{74} + 105y^{73} + \dots - 37429635y + 299209$
$c_{11}$	$y^{74} + 25y^{73} + \dots + 5y + 1$