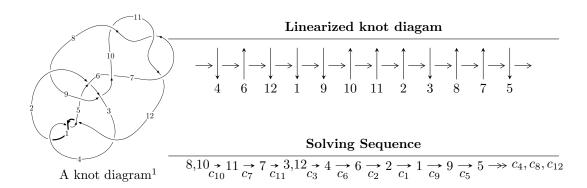
## $12a_{1008} (K12a_{1008})$



#### Ideals for irreducible components<sup>2</sup> of $X_{par}$

$$I_1^u = \langle -1.74164 \times 10^{99} u^{97} - 2.39833 \times 10^{99} u^{96} + \dots + 5.41171 \times 10^{99} b - 4.92742 \times 10^{99}, \\ -1.17514 \times 10^{100} u^{97} - 1.21460 \times 10^{100} u^{96} + \dots + 1.62351 \times 10^{100} a - 3.33497 \times 10^{100}, \ u^{98} + u^{97} + \dots + 7.000 + 1.00$$

\* 1 irreducible components of  $\dim_{\mathbb{C}} = 0$ , with total 98 representations.

<sup>&</sup>lt;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.

I. 
$$I_1^u = \langle -1.74 \times 10^{99} u^{97} - 2.40 \times 10^{99} u^{96} + \dots + 5.41 \times 10^{99} b - 4.93 \times 10^{99}, \ -1.18 \times 10^{100} u^{97} - 1.21 \times 10^{100} u^{96} + \dots + 1.62 \times 10^{100} a - 3.33 \times 10^{100}, \ u^{98} + u^{97} + \dots + 7u + 1 \rangle$$

(i) Arc colorings

$$a_{8} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_{7} = \begin{pmatrix} 0.723826u^{97} + 0.748131u^{96} + \dots + 9.72154u + 2.05417 \\ 0.321828u^{97} + 0.443174u^{96} + \dots + 2.19227u + 0.910511 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^{2} + 1 \\ -u^{4} - 2u^{2} \end{pmatrix}$$

$$a_{4} = \begin{pmatrix} 0.277264u^{97} + 0.211124u^{96} + \dots + 0.311999u - 0.131270 \\ 0.341983u^{97} + 0.481916u^{96} + \dots + 2.95324u + 1.11161 \end{pmatrix}$$

$$a_{6} = \begin{pmatrix} -u^{3} - 2u \\ u^{3} + u \end{pmatrix}$$

$$a_{2} = \begin{pmatrix} 0.584829u^{97} + 0.589965u^{96} + \dots + 8.85637u + 1.69336 \\ 0.177735u^{97} + 0.401736u^{96} + \dots + 2.77552u + 1.13266 \end{pmatrix}$$

$$a_{1} = \begin{pmatrix} 0.114232u^{97} + 0.167614u^{96} + \dots - 6.85932u + 0.337484 \\ 0.558912u^{97} + 0.496393u^{96} + \dots + 2.96597u + 0.396995 \end{pmatrix}$$

$$a_{9} = \begin{pmatrix} 0.372776u^{97} + 0.474477u^{96} + \dots - 13.0178u - 2.46360 \\ 0.0439798u^{97} - 0.196807u^{96} + \dots + 8.61268u + 0.546451 \end{pmatrix}$$

$$a_{5} = \begin{pmatrix} -0.188677u^{97} - 0.176374u^{96} + \dots - 10.6917u - 1.81247 \\ -0.102684u^{97} + 0.00278592u^{96} + \dots + 5.61235u + 0.465124 \end{pmatrix}$$

- (ii) Obstruction class = -1
- (iii) Cusp Shapes =  $3.08296u^{97} + 2.89378u^{96} + \cdots 32.7657u 10.5076$

#### (iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
$c_1, c_4, c_{12}$	$u^{98} - u^{97} + \dots - 7u + 1$
$c_2$	$u^{98} - 7u^{97} + \dots - u + 1$
$c_3$	$u^{98} + u^{97} + \dots - 1473u + 2657$
$c_5$	$u^{98} + 7u^{97} + \dots + u + 1$
$c_6$	$u^{98} - u^{97} + \dots + 1473u + 2657$
$c_7, c_{10}, c_{11}$	$u^{98} + u^{97} + \dots + 7u + 1$
c <sub>8</sub>	$u^{98} - u^{97} + \dots + 35u + 1$
<i>c</i> <sub>9</sub>	$u^{98} + u^{97} + \dots - 35u + 1$

# (v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
$c_1, c_4, c_7$ $c_{10}, c_{11}, c_{12}$	$y^{98} + 85y^{97} + \dots - 7y + 1$
$c_{2}, c_{5}$	$y^{98} - 7y^{97} + \dots - 7y + 1$
$c_3, c_6$	$y^{98} - 23y^{97} + \dots + 268190649y + 7059649$
$c_{8}, c_{9}$	$y^{98} + 109y^{97} + \dots + 105y + 1$

### (vi) Complex Volumes and Cusp Shapes

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = -0.491853 + 0.893635I		
a = -1.072020 + 0.324278I	3.33970 + 9.01230I	0
b = 0.929642 - 1.042110I		
u = -0.491853 - 0.893635I		
a = -1.072020 - 0.324278I	3.33970 - 9.01230I	0
b = 0.929642 + 1.042110I		
u = -0.444484 + 0.841841I		
a = 0.894161 - 0.134799I	-1.86918 + 5.22735I	0
b = -0.867284 + 0.915723I		
u = -0.444484 - 0.841841I		
a = 0.894161 + 0.134799I	-1.86918 - 5.22735I	0
b = -0.867284 - 0.915723I		
u = 0.925739 + 0.132292I		
a = 0.615421 + 0.470349I	6.47609 - 2.18771I	0
b = -0.146037 - 0.355716I		
u = 0.925739 - 0.132292I		
a = 0.615421 - 0.470349I	6.47609 + 2.18771I	0
b = -0.146037 + 0.355716I		
u = 0.859784 + 0.362587I		
a = -0.488034 - 1.051690I	6.05540 + 4.75636I	0
b = -0.031553 + 0.814056I		
u = 0.859784 - 0.362587I		
a = -0.488034 + 1.051690I	6.05540 - 4.75636I	0
b = -0.031553 - 0.814056I		
u = 0.615615 + 0.643904I		
a = -0.194810 - 0.998527I	5.01703 + 0.24238I	0
b = -0.344505 + 0.869009I		
u = 0.615615 - 0.643904I		
a = -0.194810 + 0.998527I	5.01703 - 0.24238I	0
b = -0.344505 - 0.869009I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = 0.404108 + 1.039140I		
a = 0.131418 - 0.338902I	-1.20967 + 4.26417I	0
b = -0.282590 + 0.595738I		
u = 0.404108 - 1.039140I		
a = 0.131418 + 0.338902I	-1.20967 - 4.26417I	0
b = -0.282590 - 0.595738I		
u = -0.324321 + 1.086230I		
a = 0.378494 - 0.891205I	6.66619 + 0.28302I	0
b = -0.476957 + 1.108320I		
u = -0.324321 - 1.086230I		
a = 0.378494 + 0.891205I	6.66619 - 0.28302I	0
b = -0.476957 - 1.108320I		
u = -0.823277 + 0.259534I		
a = 0.51125 + 2.25920I	5.3291 - 13.6594I	4.15756 + 8.91846I
b = -1.07954 - 1.22599I		
u = -0.823277 - 0.259534I		
a = 0.51125 - 2.25920I	5.3291 + 13.6594I	4.15756 - 8.91846I
b = -1.07954 + 1.22599I		
u = 0.529507 + 1.014770I		
a = -0.296000 + 0.544554I	3.75109 + 7.28743I	0
b = 0.462969 - 0.589380I		
u = 0.529507 - 1.014770I		
a = -0.296000 - 0.544554I	3.75109 - 7.28743I	0
b = 0.462969 + 0.589380I		
u = -0.791041 + 0.262127I		
a = -0.45282 - 2.07274I	-9.63418I	0. + 8.34982I
b = 1.06829 + 1.10332I		
u = -0.791041 - 0.262127I		
a = -0.45282 + 2.07274I	9.63418I	0 8.34982I
b = 1.06829 - 1.10332I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = -0.041265 + 0.825235I		
a = 0.111753 + 0.211346I	-0.00404 + 1.44418I	1.13532 - 1.46067I
b = 0.433665 - 0.812752I		
u = -0.041265 - 0.825235I		
a = 0.111753 - 0.211346I	-0.00404 - 1.44418I	1.13532 + 1.46067I
b = 0.433665 + 0.812752I		
u = 0.737032 + 0.343671I		
a = 0.332554 + 1.052110I	1.23192 + 2.00806I	5.65102 - 9.68372I
b = 0.186303 - 0.768333I		
u = 0.737032 - 0.343671I		
a = 0.332554 - 1.052110I	1.23192 - 2.00806I	5.65102 + 9.68372I
b = 0.186303 + 0.768333I		
u = -0.126983 + 1.213760I		
a = 1.68278 - 0.99045I	1.53901 + 3.15170I	0
b = -0.0803647 - 0.0485501I		
u = -0.126983 - 1.213760I		
a = 1.68278 + 0.99045I	1.53901 - 3.15170I	0
b = -0.0803647 + 0.0485501I		
u = -0.740426 + 0.239849I		
a = 0.21070 + 1.84366I	1.86918 - 5.22735I	2.60772 + 4.54430I
b = -0.964592 - 0.936497I		
u = -0.740426 - 0.239849I	4 00040 . F 00=0FT	2.00==2
a = 0.21070 - 1.84366I	1.86918 + 5.22735I	2.60772 - 4.54430I
b = -0.964592 + 0.936497I		
u = -0.763529 + 0.134041I		0 F0400 : F 000F0T
a = 0.29520 - 2.22646I	9.55575 - 4.27219I	8.58109 + 5.06376I
b = 0.589019 + 1.029750I		
u = -0.763529 - 0.134041I		0 50400 5 0005
a = 0.29520 + 2.22646I	9.55575 + 4.27219I	8.58109 - 5.06376I
b = 0.589019 - 1.029750I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = 0.759398 + 0.065192I		
a = 0.072398 - 0.348855I	1.79931 + 0.03648I	7.92424 + 1.99664I
b = -0.325726 + 0.222097I		
u = 0.759398 - 0.065192I		
a = 0.072398 + 0.348855I	1.79931 - 0.03648I	7.92424 - 1.99664I
b = -0.325726 - 0.222097I		
u = 0.214822 + 1.254110I		
a = 2.41307 + 0.74573I	0.711582 - 0.106264I	0
b = -0.01191 - 2.30223I		
u = 0.214822 - 1.254110I		
a = 2.41307 - 0.74573I	0.711582 + 0.106264I	0
b = -0.01191 + 2.30223I		
u = 0.179533 + 1.301260I		
a = -1.64385 - 0.90921I	-3.90106 + 2.22326I	0
b = -0.86058 + 1.67816I		
u = 0.179533 - 1.301260I		
a = -1.64385 + 0.90921I	-3.90106 - 2.22326I	0
b = -0.86058 - 1.67816I		
u = -0.130364 + 1.321870I		
a = 0.694450 + 0.523183I	-2.06229 + 2.57316I	0
b = 0.912458 - 0.693022I		
u = -0.130364 - 1.321870I		
a = 0.694450 - 0.523183I	-2.06229 - 2.57316I	0
b = 0.912458 + 0.693022I		
u = -0.119121 + 0.650491I		
a = 0.168707 - 0.156400I	1.43893I	0 1.86825I
b = 0.471898 - 0.684230I		
u = -0.119121 - 0.650491I		
a = 0.168707 + 0.156400I	-1.43893I	0. + 1.86825I
b = 0.471898 + 0.684230I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = -0.640284 + 0.152950I		
a = -0.93888 - 2.47544I	4.45798 - 5.89647I	4.64634 + 10.02185I
b = 0.352365 + 0.452218I		
u = -0.640284 - 0.152950I		
a = -0.93888 + 2.47544I	4.45798 + 5.89647I	4.64634 - 10.02185I
b = 0.352365 - 0.452218I		
u = 0.214030 + 1.327020I		
a = 2.17660 + 0.61903I	-4.39226 + 3.08452I	0
b = -0.33650 - 3.26712I		
u = 0.214030 - 1.327020I		
a = 2.17660 - 0.61903I	-4.39226 - 3.08452I	0
b = -0.33650 + 3.26712I		
u = -0.147885 + 1.336830I		
a = -1.00637 + 1.26279I	-5.01703 + 0.24238I	0
b = -0.399194 - 0.082160I		
u = -0.147885 - 1.336830I		
a = -1.00637 - 1.26279I	-5.01703 - 0.24238I	0
b = -0.399194 + 0.082160I		
u = 0.179239 + 1.335770I		
a = -1.44799 - 0.58902I	-0.711582 + 0.106264I	0
b = 0.06224 + 2.67019I		
u = 0.179239 - 1.335770I		
a = -1.44799 + 0.58902I	-0.711582 - 0.106264I	0
b = 0.06224 - 2.67019I		
u = 0.238733 + 1.326700I		
a = -2.39362 - 1.04411I	6.16223I	0
b = 0.14054 + 3.39407I		
u = 0.238733 - 1.326700I		
a = -2.39362 + 1.04411I	-6.16223I	0
b = 0.14054 - 3.39407I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = 0.407050 + 1.295550I		
a = -0.483654 - 0.252955I	2.06229 + 2.57316I	0
b = -0.0279211 + 0.0800526I		
u = 0.407050 - 1.295550I		
a = -0.483654 + 0.252955I	2.06229 - 2.57316I	0
b = -0.0279211 - 0.0800526I		
u = 0.271941 + 1.332540I		
a = 0.303666 + 0.763175I	-2.61445 + 3.62644I	0
b = 0.921025 - 0.196432I		
u = 0.271941 - 1.332540I		
a = 0.303666 - 0.763175I	-2.61445 - 3.62644I	0
b = 0.921025 + 0.196432I		
u = -0.186956 + 1.347380I		
a = -1.113010 - 0.157375I	-6.47609 - 2.18771I	0
b = -0.927277 + 0.209373I		
u = -0.186956 - 1.347380I		
a = -1.113010 + 0.157375I	-6.47609 + 2.18771I	0
b = -0.927277 - 0.209373I		
u = -0.239809 + 0.584484I		
a = -0.029496 - 0.515841I	0.00404 + 1.44418I	-1.13532 - 1.46067I
b = 0.553533 - 0.581287I		
u = -0.239809 - 0.584484I		
a = -0.029496 + 0.515841I	0.00404 - 1.44418I	-1.13532 + 1.46067I
b = 0.553533 + 0.581287I		
u = -0.216219 + 1.356030I		
a = 0.51352 - 1.71587I	-6.05540 - 4.75636I	0
b = 0.411531 + 0.436944I		
u = -0.216219 - 1.356030I		
a = 0.51352 + 1.71587I	-6.05540 + 4.75636I	0
b = 0.411531 - 0.436944I		

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = -0.258735 + 1.352590I		
a = -0.24119 + 1.74230I	-0.30461 - 9.18272I	0
b = -0.366526 - 0.691479I		
u = -0.258735 - 1.352590I		
a = -0.24119 - 1.74230I	-0.30461 + 9.18272I	0
b = -0.366526 + 0.691479I		
u = -0.313473 + 1.342640I		
a = -1.42543 + 1.24289I	4.90854 - 8.15583I	0
b = -0.673201 - 0.929889I		
u = -0.313473 - 1.342640I		
a = -1.42543 - 1.24289I	4.90854 + 8.15583I	0
b = -0.673201 + 0.929889I		
u = -0.579443 + 0.206889I		
a = -0.362023 + 0.973041I	1.20967 - 4.26417I	0.08812 + 10.07805I
b = -0.857221 - 0.465218I		
u = -0.579443 - 0.206889I		
a = -0.362023 - 0.973041I	1.20967 + 4.26417I	0.08812 - 10.07805I
b = -0.857221 + 0.465218I		
u = 0.611541 + 0.059110I		
a = -0.25353 + 5.90685I	4.39226 + 3.08452I	-13.5720 + 13.4593I
b = 0.18864 - 3.13222I		
u = 0.611541 - 0.059110I		
a = -0.25353 - 5.90685I	4.39226 - 3.08452I	-13.5720 - 13.4593I
b = 0.18864 + 3.13222I		
u = -0.237120 + 1.365180I		
a = 1.227450 - 0.550603I	-3.75109 - 7.28743I	0
b = 0.979542 + 0.307425I		
u = -0.237120 - 1.365180I		
a = 1.227450 + 0.550603I	-3.75109 + 7.28743I	0
b = 0.979542 - 0.307425I		
·		•

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = -0.30129 + 1.39827I		
a = 1.00627 - 1.19660I	-3.33970 - 9.01230I	0
b = 1.15721 + 0.94192I		
u = -0.30129 - 1.39827I		
a = 1.00627 + 1.19660I	-3.33970 + 9.01230I	0
b = 1.15721 - 0.94192I		
u = -0.32103 + 1.41287I		
a = -0.92973 + 1.37587I	-5.3291 - 13.6594I	0
b = -1.23582 - 1.14903I		
u = -0.32103 - 1.41287I		
a = -0.92973 - 1.37587I	-5.3291 + 13.6594I	0
b = -1.23582 + 1.14903I		
u = 0.548150 + 0.055238I		
a = -0.04072 - 5.03875I	0.300544I	0. + 22.0421I
b = 0.07612 + 2.55999I		
u = 0.548150 - 0.055238I		
a = -0.04072 + 5.03875I	-0.300544I	0 22.0421I
b = 0.07612 - 2.55999I		
u = -0.33662 + 1.41634I		
a = 0.93777 - 1.49938I	-17.8495I	0
b = 1.22307 + 1.29344I		
u = -0.33662 - 1.41634I		_
a = 0.93777 + 1.49938I	17.8495I	0
b = 1.22307 - 1.29344I		
u = -0.06444 + 1.45773I		_
a = -0.407673 + 0.574390I	-6.66619 + 0.28302I	0
b = -0.958355 + 0.252161I		
u = -0.06444 - 1.45773I	0.00010 0.00005	_
a = -0.407673 - 0.574390I	-6.66619 - 0.28302I	0
b = -0.958355 - 0.252161I		

$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$a = 0.51823 - 2.41670I$ $\left  -1.23192 + 2.00806I \right  -5.65102 - 9.68372I$
b = -0.309151 + 0.143004I
0 — 0.000101   0.1100011
u = 0.22495 + 1.45392I
$a = 0.556886 + 0.623730I \mid -1.53901 + 3.15170I \mid 0$
b = 0.803523 - 0.893568I
u = 0.22495 - 1.45392I
a = 0.556886 - 0.623730I - 1.53901 - 3.15170I
b = 0.803523 + 0.893568I
u = 0.31225 + 1.43920I
$a = -0.565517 - 0.656986I \mid -4.45798 + 5.89647I \mid 0$
b = -0.515398 + 0.774169I
u = 0.31225 - 1.43920I
$a = -0.565517 + 0.656986I \mid -4.45798 - 5.89647I \mid 0$
b = -0.515398 - 0.774169I
u = -0.02139 + 1.49276I
$a = 0.292535 - 0.309292I \mid -9.55575 + 4.27219I \mid 0$
b = 1.087210 - 0.444161I
u = -0.02139 - 1.49276I
$a = 0.292535 + 0.309292I \mid -9.55575 - 4.27219I \mid 0$
b = 1.087210 + 0.444161I
u = 0.35530 + 1.45139I
a = 0.625663 + 0.645751I  0.30461 + 9.18272I  0
b = 0.318307 - 0.814644I
u = 0.35530 - 1.45139I
a = 0.625663 - 0.645751I  0.30461 - 9.18272I  0
b = 0.318307 + 0.814644I

Solutions to $I_1^u$	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
u = 0.00920 + 1.51732I		
a = -0.217252 + 0.129601I	-4.90854 + 8.15583I	0
b = -1.158630 + 0.580121I		
u = 0.00920 - 1.51732I		
a = -0.217252 - 0.129601I	-4.90854 - 8.15583I	0
b = -1.158630 - 0.580121I		
u = 0.444457 + 0.136212I		
a = -1.13792 + 4.29178I	3.90106 - 2.22326I	3.17343 + 9.01181I
b = 0.59925 - 1.81081I		
u = 0.444457 - 0.136212I		
a = -1.13792 - 4.29178I	3.90106 + 2.22326I	3.17343 - 9.01181I
b = 0.59925 + 1.81081I		
u = -0.307396 + 0.134961I		
a = 1.163900 + 0.512937I	-1.79931 + 0.03648I	-7.92424 + 1.99664I
b = 0.852872 + 0.021588I		
u = -0.307396 - 0.134961I		
a = 1.163900 - 0.512937I	-1.79931 - 0.03648I	-7.92424 - 1.99664I
b = 0.852872 - 0.021588I		
u = -0.059630 + 0.321612I		
a = 0.30671 - 2.44133I	2.61445 + 3.62644I	-0.784461 - 0.771743I
b = -1.044390 + 0.280142I		
u = -0.059630 - 0.321612I		
a = 0.30671 + 2.44133I	2.61445 - 3.62644I	-0.784461 + 0.771743I
b = -1.044390 - 0.280142I		

II. u-Polynomials

Crossings	u-Polynomials at each crossing
$c_1, c_4, c_{12}$	$u^{98} - u^{97} + \dots - 7u + 1$
$c_2$	$u^{98} - 7u^{97} + \dots - u + 1$
$c_3$	$u^{98} + u^{97} + \dots - 1473u + 2657$
<i>C</i> 5	$u^{98} + 7u^{97} + \dots + u + 1$
$c_6$	$u^{98} - u^{97} + \dots + 1473u + 2657$
$c_7, c_{10}, c_{11}$	$u^{98} + u^{97} + \dots + 7u + 1$
C <sub>8</sub>	$u^{98} - u^{97} + \dots + 35u + 1$
<i>C</i> 9	$u^{98} + u^{97} + \dots - 35u + 1$

III. Riley Polynomials

Crossings	Riley Polynomials at each crossing
$c_1, c_4, c_7$ $c_{10}, c_{11}, c_{12}$	$y^{98} + 85y^{97} + \dots - 7y + 1$
$c_2, c_5$	$y^{98} - 7y^{97} + \dots - 7y + 1$
$c_3, c_6$	$y^{98} - 23y^{97} + \dots + 268190649y + 7059649$
$c_8,c_9$	$y^{98} + 109y^{97} + \dots + 105y + 1$