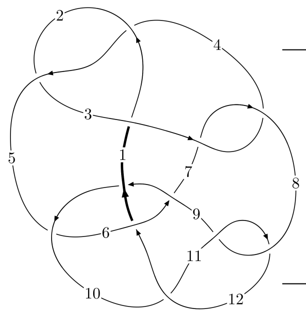
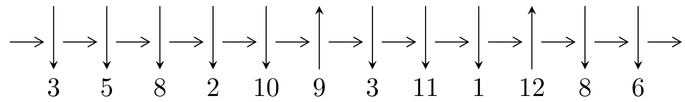
$12n_{0123}$ $(K12n_{0123})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 2.83838 \times 10^{326} u^{84} + 8.42548 \times 10^{326} u^{83} + \cdots + 2.68317 \times 10^{328} b + 9.17623 \times 10^{328}, \\
& 6.23802 \times 10^{326} u^{84} + 1.74819 \times 10^{327} u^{83} + \cdots + 5.36635 \times 10^{328} a - 1.85693 \times 10^{330}, \\
& u^{85} + 3u^{84} + \cdots + 2560u - 512 \rangle \\
I_2^u = \langle & 2au + b + a + 2u + 1,\ a^2 + 2au - a - 6u + 11,\ u^2 - u - 1 \rangle
\end{aligned}$$

$$I_1^v = \langle a,\ 59103v^8 + 362866v^7 + \cdots + 178147b + 551223,\ v^9 + 5v^8 + 10v^7 - v^5 + 37v^4 + 7v^3 + 12v^2 + v + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 98 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. $\boldsymbol{I_1^u = \langle 2.84 \times 10^{326} u^{84} + 8.43 \times 10^{326} u^{83} + \cdots + 2.68 \times 10^{328} b + 9.18 \times 10^{328},\ 6.24 \times 10^{326} u^{84} + 1.75 \times 10^{327} u^{83} + \cdots + 5.37 \times 10^{328} a - 1.86 \times 10^{330},\ u^{85} + 3u^{84} + \cdots + 2560u - 512 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0116243u^{84} - 0.0325769u^{83} + \cdots - 117.830u + 34.6031 \\ -0.0105784u^{84} - 0.0314011u^{83} + \cdots + 28.9627u - 3.41991 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0222028u^{84} - 0.0639781u^{83} + \cdots - 88.8676u + 31.1832 \\ -0.0105784u^{84} - 0.0314011u^{83} + \cdots + 28.9627u - 3.41991 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0236744u^{84} + 0.0791102u^{83} + \cdots - 302.193u + 68.4988 \\ -0.00106759u^{84} - 0.00464786u^{83} + \cdots - 28.9121u + 6.35083 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.105341u^{84} - 0.352596u^{83} + \cdots + 284.616u - 67.6484 \\ -0.000678367u^{84} + 0.00363661u^{83} + \cdots + 26.9996u - 3.21130 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00736711u^{84} - 0.0243363u^{83} + \cdots - 14.6299u + 2.91925 \\ -0.00493845u^{84} - 0.0150218u^{83} + \cdots - 12.8311u + 5.37028 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0322107u^{84} + 0.101321u^{83} + \cdots - 331.012u + 70.6299 \\ -0.00385472u^{84} - 0.0102384u^{83} + \cdots - 6.16248u + 2.58623 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0119640u^{84} - 0.0392482u^{83} + \cdots - 25.5114u + 7.14521 \\ 0.00459690u^{84} + 0.0149118u^{83} + \cdots + 10.8814u - 4.22596 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.00736711u^{84} - 0.0243363u^{83} + \cdots - 14.6299u + 2.91925 \\ -0.00459690u^{84} - 0.0149118u^{83} + \cdots - 10.8814u + 4.22596 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ -u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.381801u^{84} + 1.38285u^{83} + \cdots - 1273.67u + 380.918$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{85} + 38u^{84} + \cdots - 213u + 1$
c_2, c_4	$u^{85} - 12u^{84} + \cdots - u + 1$
c_3, c_7	$u^{85} - 3u^{84} + \cdots + 2560u + 512$
c_5	$u^{85} - u^{84} + \cdots + 28266u + 22877$
c_6	$u^{85} + 3u^{84} + \cdots + 112806u + 16279$
c_8, c_{11}	$u^{85} - 4u^{84} + \cdots + 7u + 1$
c_9	$u^{85} - 8u^{84} + \cdots + 192u + 16$
c_{10}	$u^{85} - 38u^{84} + \cdots + 27u + 1$
c_{12}	$u^{85} - 4u^{84} + \cdots - 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{85} + 30y^{84} + \cdots + 27491y - 1$
c_2, c_4	$y^{85} - 38y^{84} + \cdots - 213y - 1$
c_3, c_7	$y^{85} + 51y^{84} + \cdots - 3932160y - 262144$
c_5	$y^{85} - 57y^{84} + \cdots - 21266860578y - 523357129$
c_6	$y^{85} - 81y^{84} + \cdots + 5075593862y - 265005841$
c_8, c_{11}	$y^{85} + 38y^{84} + \cdots + 27y - 1$
c_9	$y^{85} + 20y^{84} + \cdots + 12160y - 256$
c_{10}	$y^{85} + 22y^{84} + \cdots + 1735y - 1$
c_{12}	$y^{85} - 22y^{84} + \cdots + 31y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.079250 + 0.084385I$ $a = 1.341430 + 0.023595I$ $b = -0.450037 - 0.371688I$	$-1.013250 + 0.170939I$	0
$u = 1.079250 - 0.084385I$ $a = 1.341430 - 0.023595I$ $b = -0.450037 + 0.371688I$	$-1.013250 - 0.170939I$	0
$u = -1.111280 + 0.071551I$ $a = 0.715294 + 0.590043I$ $b = -0.135819 - 1.144130I$	$3.33969 + 2.83227I$	0
$u = -1.111280 - 0.071551I$ $a = 0.715294 - 0.590043I$ $b = -0.135819 + 1.144130I$	$3.33969 - 2.83227I$	0
$u = -0.129045 + 1.113980I$ $a = -1.009610 - 0.472785I$ $b = 0.956465 + 0.931163I$	$0.094102 - 1.056740I$	0
$u = -0.129045 - 1.113980I$ $a = -1.009610 + 0.472785I$ $b = 0.956465 - 0.931163I$	$0.094102 + 1.056740I$	0
$u = -0.210154 + 1.114290I$ $a = 0.203823 - 0.103598I$ $b = -0.688869 - 0.426448I$	$-3.15620 + 2.51605I$	0
$u = -0.210154 - 1.114290I$ $a = 0.203823 + 0.103598I$ $b = -0.688869 + 0.426448I$	$-3.15620 - 2.51605I$	0
$u = 0.433540 + 1.050740I$ $a = 1.62226 - 0.79944I$ $b = -0.239254 - 1.010500I$	$0.982642 + 0.642938I$	0
$u = 0.433540 - 1.050740I$ $a = 1.62226 + 0.79944I$ $b = -0.239254 + 1.010500I$	$0.982642 - 0.642938I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.257695 + 1.109990I$ $a = -0.787822 - 0.341976I$ $b = 1.098020 + 0.136398I$	$-1.09681 + 2.37421I$	0
$u = -0.257695 - 1.109990I$ $a = -0.787822 + 0.341976I$ $b = 1.098020 - 0.136398I$	$-1.09681 - 2.37421I$	0
$u = 0.262541 + 1.168940I$ $a = -0.218677 - 0.885410I$ $b = 0.465838 + 0.484615I$	$2.10819 - 3.90878I$	0
$u = 0.262541 - 1.168940I$ $a = -0.218677 + 0.885410I$ $b = 0.465838 - 0.484615I$	$2.10819 + 3.90878I$	0
$u = 0.218930 + 1.186920I$ $a = -0.72368 + 1.66080I$ $b = 0.563973 - 0.682913I$	$2.18193 - 1.17088I$	0
$u = 0.218930 - 1.186920I$ $a = -0.72368 - 1.66080I$ $b = 0.563973 + 0.682913I$	$2.18193 + 1.17088I$	0
$u = -0.758522 + 0.188313I$ $a = -0.71807 - 1.77432I$ $b = 0.574022 + 1.099820I$	$-1.13123 - 4.17645I$	$-11.8176 + 9.1818I$
$u = -0.758522 - 0.188313I$ $a = -0.71807 + 1.77432I$ $b = 0.574022 - 1.099820I$	$-1.13123 + 4.17645I$	$-11.8176 - 9.1818I$
$u = -0.341078 + 1.170670I$ $a = -1.299470 + 0.134652I$ $b = 1.049370 - 0.766403I$	$-0.41725 + 6.01567I$	0
$u = -0.341078 - 1.170670I$ $a = -1.299470 - 0.134652I$ $b = 1.049370 + 0.766403I$	$-0.41725 - 6.01567I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.041071 + 1.235810I$ $a = -0.640152 + 0.371475I$ $b = 0.533714 + 1.299760I$	$3.32593 - 3.12666I$	0
$u = 0.041071 - 1.235810I$ $a = -0.640152 - 0.371475I$ $b = 0.533714 - 1.299760I$	$3.32593 + 3.12666I$	0
$u = -1.206060 + 0.339502I$ $a = 1.52169 - 0.13928I$ $b = -0.804789 + 0.394562I$	$-1.81678 - 5.27916I$	0
$u = -1.206060 - 0.339502I$ $a = 1.52169 + 0.13928I$ $b = -0.804789 - 0.394562I$	$-1.81678 + 5.27916I$	0
$u = -0.573407 + 0.367957I$ $a = 0.51933 - 3.19375I$ $b = 0.732207 + 0.631342I$	$-3.03530 - 2.32112I$	$-18.2811 + 2.9821I$
$u = -0.573407 - 0.367957I$ $a = 0.51933 + 3.19375I$ $b = 0.732207 - 0.631342I$	$-3.03530 + 2.32112I$	$-18.2811 - 2.9821I$
$u = 0.091692 + 1.317030I$ $a = -1.23007 - 1.63631I$ $b = 0.448877 - 0.989908I$	$3.52281 - 0.13174I$	0
$u = 0.091692 - 1.317030I$ $a = -1.23007 + 1.63631I$ $b = 0.448877 + 0.989908I$	$3.52281 + 0.13174I$	0
$u = -0.413209 + 1.277050I$ $a = -1.317440 - 0.293401I$ $b = 0.66453 - 1.29582I$	$2.39077 + 8.65291I$	0
$u = -0.413209 - 1.277050I$ $a = -1.317440 + 0.293401I$ $b = 0.66453 + 1.29582I$	$2.39077 - 8.65291I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.312068 + 1.307370I$ $a = -2.43711 + 1.16729I$ $b = 0.529124 + 0.972751I$	$3.08119 - 5.55867I$	0
$u = 0.312068 - 1.307370I$ $a = -2.43711 - 1.16729I$ $b = 0.529124 - 0.972751I$	$3.08119 + 5.55867I$	0
$u = -0.459021 + 0.459779I$ $a = -1.10908 - 1.88671I$ $b = 0.649790 - 0.402922I$	$-3.21369 + 0.63442I$	$-17.2881 - 6.4476I$
$u = -0.459021 - 0.459779I$ $a = -1.10908 + 1.88671I$ $b = 0.649790 + 0.402922I$	$-3.21369 - 0.63442I$	$-17.2881 + 6.4476I$
$u = 0.634951 + 0.073211I$ $a = 1.163640 + 0.016828I$ $b = 0.104936 - 0.148183I$	$-0.938890 - 0.000686I$	$-9.17733 + 0.04419I$
$u = 0.634951 - 0.073211I$ $a = 1.163640 - 0.016828I$ $b = 0.104936 + 0.148183I$	$-0.938890 + 0.000686I$	$-9.17733 - 0.04419I$
$u = 1.237320 + 0.581154I$ $a = 0.846750 - 0.577129I$ $b = -0.365370 + 1.037680I$	$1.88882 + 2.34511I$	0
$u = 1.237320 - 0.581154I$ $a = 0.846750 + 0.577129I$ $b = -0.365370 - 1.037680I$	$1.88882 - 2.34511I$	0
$u = -0.326856 + 1.339410I$ $a = 0.875245 + 0.373465I$ $b = -0.659177 - 0.135566I$	$4.34006 - 0.60753I$	0
$u = -0.326856 - 1.339410I$ $a = 0.875245 - 0.373465I$ $b = -0.659177 + 0.135566I$	$4.34006 + 0.60753I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.143186 + 1.381320I$ $a = 0.806814 + 0.741077I$ $b = -0.570387 + 1.078250I$	$-1.24862 + 7.38729I$	0
$u = -0.143186 - 1.381320I$ $a = 0.806814 - 0.741077I$ $b = -0.570387 - 1.078250I$	$-1.24862 - 7.38729I$	0
$u = 0.607638 + 0.026477I$ $a = -3.83486 - 6.56337I$ $b = 0.489160 - 0.868710I$	$-1.01649 + 2.08350I$	$-108.2002 - 27.5787I$
$u = 0.607638 - 0.026477I$ $a = -3.83486 + 6.56337I$ $b = 0.489160 + 0.868710I$	$-1.01649 - 2.08350I$	$-108.2002 + 27.5787I$
$u = 0.573976 + 0.144239I$ $a = -0.19466 - 6.06422I$ $b = 0.458798 + 0.876673I$	$-1.01583 - 1.80194I$	$-34.3945 + 9.4437I$
$u = 0.573976 - 0.144239I$ $a = -0.19466 + 6.06422I$ $b = 0.458798 - 0.876673I$	$-1.01583 + 1.80194I$	$-34.3945 - 9.4437I$
$u = 0.581059$ $a = 1.11628$ $b = 0.132880$	-0.943887	-9.70520
$u = 0.64849 + 1.26742I$ $a = 0.886065 - 0.572978I$ $b = -0.669667 + 0.411070I$	$2.43921 - 5.21595I$	0
$u = 0.64849 - 1.26742I$ $a = 0.886065 + 0.572978I$ $b = -0.669667 - 0.411070I$	$2.43921 + 5.21595I$	0
$u = -1.40213 + 0.33857I$ $a = 1.163050 + 0.534355I$ $b = -0.601473 - 1.118200I$	$0.33638 - 10.54090I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.40213-0.33857I$ $a=\quad 1.163050-0.534355I$ $b=-0.601473+1.118200I$	$0.33638+10.54090I$	0
$u=-0.056938+0.544127I$ $a=\quad 1.42278-0.39423I$ $b=-0.835208+0.748484I$	$-5.59621-1.18326I$	$-2.58478-2.54783I$
$u=-0.056938-0.544127I$ $a=\quad 1.42278+0.39423I$ $b=-0.835208-0.748484I$	$-5.59621+1.18326I$	$-2.58478+2.54783I$
$u=-0.188367+0.482280I$ $a=\quad 1.106380-0.209517I$ $b=\quad 0.251302+1.017870I$	$1.59907-2.42394I$	$-1.69948+4.54557I$
$u=-0.188367-0.482280I$ $a=\quad 1.106380+0.209517I$ $b=\quad 0.251302-1.017870I$	$1.59907+2.42394I$	$-1.69948-4.54557I$
$u=\quad 0.014000+0.513349I$ $a=\quad 1.38502+0.50649I$ $b=-0.752798-0.984184I$	$-4.86894-7.11123I$	$0.90699+6.44296I$
$u=\quad 0.014000-0.513349I$ $a=\quad 1.38502-0.50649I$ $b=-0.752798+0.984184I$	$-4.86894+7.11123I$	$0.90699-6.44296I$
$u=\quad 1.49443+0.02360I$ $a=\quad 1.103380+0.416439I$ $b=-0.508069-1.060060I$	$0.90720-4.33616I$	0
$u=\quad 1.49443-0.02360I$ $a=\quad 1.103380-0.416439I$ $b=-0.508069+1.060060I$	$0.90720+4.33616I$	0
$u=\quad 0.47007+1.42149I$ $a=\quad 0.766976-0.387618I$ $b=-0.930414+0.340544I$	$3.61530-5.88108I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.47007 - 1.42149I$ $a = 0.766976 + 0.387618I$ $b = -0.930414 - 0.340544I$	$3.61530 + 5.88108I$	0
$u = -0.129721 + 0.460651I$ $a = 0.38178 - 8.17649I$ $b = 0.586175 - 0.964824I$	$-2.08258 + 2.71217I$	$-0.93392 - 9.03807I$
$u = -0.129721 - 0.460651I$ $a = 0.38178 + 8.17649I$ $b = 0.586175 + 0.964824I$	$-2.08258 - 2.71217I$	$-0.93392 + 9.03807I$
$u = -0.69533 + 1.35551I$ $a = 0.839067 + 0.683647I$ $b = -0.987614 - 0.425089I$	$1.45650 + 12.12210I$	0
$u = -0.69533 - 1.35551I$ $a = 0.839067 - 0.683647I$ $b = -0.987614 + 0.425089I$	$1.45650 - 12.12210I$	0
$u = 0.20084 + 1.51437I$ $a = 0.196514 + 0.358472I$ $b = -0.152432 + 1.330190I$	$9.43138 - 2.34122I$	0
$u = 0.20084 - 1.51437I$ $a = 0.196514 - 0.358472I$ $b = -0.152432 - 1.330190I$	$9.43138 + 2.34122I$	0
$u = -0.51519 + 1.44160I$ $a = -0.278437 - 0.202187I$ $b = -0.053028 - 1.378990I$	$8.12807 + 8.74738I$	0
$u = -0.51519 - 1.44160I$ $a = -0.278437 + 0.202187I$ $b = -0.053028 + 1.378990I$	$8.12807 - 8.74738I$	0
$u = -0.67286 + 1.43031I$ $a = 1.382550 + 0.212615I$ $b = -0.465319 + 1.120770I$	$7.12915 + 3.60494I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.67286 - 1.43031I$ $a = 1.382550 - 0.212615I$ $b = -0.465319 - 1.120770I$	$7.12915 - 3.60494I$	0
$u = 0.83986 + 1.36381I$ $a = 1.58928 - 0.15583I$ $b = -0.569092 - 1.079590I$	$4.36978 - 10.04380I$	0
$u = 0.83986 - 1.36381I$ $a = 1.58928 + 0.15583I$ $b = -0.569092 + 1.079590I$	$4.36978 + 10.04380I$	0
$u = -0.76822 + 1.41143I$ $a = 1.68389 + 0.29933I$ $b = -0.675369 + 1.176190I$	$3.7759 + 18.1504I$	0
$u = -0.76822 - 1.41143I$ $a = 1.68389 - 0.29933I$ $b = -0.675369 - 1.176190I$	$3.7759 - 18.1504I$	0
$u = 0.56721 + 1.54481I$ $a = 1.362350 - 0.354229I$ $b = -0.623855 - 1.176920I$	$6.15588 - 11.53790I$	0
$u = 0.56721 - 1.54481I$ $a = 1.362350 + 0.354229I$ $b = -0.623855 + 1.176920I$	$6.15588 + 11.53790I$	0
$u = -1.64677 + 0.04569I$ $a = 1.117370 - 0.194170I$ $b = -0.479694 + 0.856026I$	$-8.84126 + 1.96210I$	0
$u = -1.64677 - 0.04569I$ $a = 1.117370 + 0.194170I$ $b = -0.479694 - 0.856026I$	$-8.84126 - 1.96210I$	0
$u = 0.49039 + 1.61919I$ $a = 0.298433 + 0.301314I$ $b = -0.239444 + 1.049820I$	$6.55517 - 3.11546I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.49039 - 1.61919I$ $a = 0.298433 - 0.301314I$ $b = -0.239444 - 1.049820I$	$6.55517 + 3.11546I$	0
$u = 0.225615 + 0.193490I$ $a = 0.929610 + 0.057774I$ $b = 0.607173 + 0.840075I$	$-0.60683 - 2.35987I$	$-1.70647 + 4.72969I$
$u = 0.225615 - 0.193490I$ $a = 0.929610 - 0.057774I$ $b = 0.607173 - 0.840075I$	$-0.60683 + 2.35987I$	$-1.70647 - 4.72969I$
$u = -0.22938 + 1.72989I$ $a = 0.510244 - 0.261796I$ $b = -0.372735 - 1.103380I$	$7.76106 - 3.97762I$	0
$u = -0.22938 - 1.72989I$ $a = 0.510244 + 0.261796I$ $b = -0.372735 + 1.103380I$	$7.76106 + 3.97762I$	0

II. $\boldsymbol{I_2^u = \langle 2au + b + a + 2u + 1,\ a^2 + 2au - a - 6u + 11,\ u^2 - u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -92au - 67a - 113u - 94$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{12}	$(u^2 - 3u + 1)^2$
c_2, c_3	$(u^2 + u - 1)^2$
c_4, c_7	$(u^2 - u - 1)^2$
c_5, c_6	$u^4 + 3u^3 + 8u^2 + 3u + 1$
c_8	$(u^2 - u + 1)^2$
c_9	u^4
c_{10}, c_{11}	$(u^2 + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{12}	$(y^2 - 7y + 1)^2$
c_2, c_3, c_4 c_7	$(y^2 - 3y + 1)^2$
c_5, c_6	$y^4 + 7y^3 + 48y^2 + 7y + 1$
c_8, c_{10}, c_{11}	$(y^2 + y + 1)^2$
c_9	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.618034$ $a = \ \ 1.11803 + 3.66854I$ $b = \ \ 0.500000 + 0.866025I$	$-0.98696 - 2.02988I$	$-35.5000 - 37.2022I$
$u = -0.618034$ $a = \ \ 1.11803 - 3.66854I$ $b = \ \ 0.500000 - 0.866025I$	$-0.98696 + 2.02988I$	$-35.5000 + 37.2022I$
$u = \ \ 1.61803$ $a = -1.118030 + 0.204441I$ $b = \ \ 0.500000 - 0.866025I$	$-8.88264 + 2.02988I$	$-35.5000 - 44.1304I$
$u = \ \ 1.61803$ $a = -1.118030 - 0.204441I$ $b = \ \ 0.500000 + 0.866025I$	$-8.88264 - 2.02988I$	$-35.5000 + 44.1304I$

III.

$\boldsymbol{I_1^v = \langle a,\ 59103v^8 + 362866v^7 + \cdots + 178147b + 551223,\ v^9 + 5v^8 + \cdots + v + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} 0 \\ -0.331765v^8 - 2.03689v^7 + \cdots - 3.64641v - 3.09420 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.331765v^8 - 2.03689v^7 + \cdots - 3.64641v - 3.09420 \\ -0.331765v^8 - 2.03689v^7 + \cdots - 3.64641v - 3.09420 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.727601v^8 + 4.15347v^7 + \cdots + 6.59548v + 4.24127 \\ 0.727601v^8 + 4.15347v^7 + \cdots + 6.59548v + 3.24127 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.704452v^8 + 3.76495v^7 + \cdots + 3.53747v + 0.954251 \\ -0.0231494v^8 - 0.388527v^7 + \cdots - 3.05801v - 3.28702 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.20067v^8 - 5.89924v^7 + \cdots - 2.68791v + 0.492840 \\ v^8 + 5v^7 + 10v^6 - v^4 + 37v^3 + 7v^2 + 12v + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.331765v^8 - 2.03689v^7 + \cdots - 3.64641v - 3.09420 \\ -1.07440v^8 - 6.00362v^7 + \cdots - 8.53879v - 3.73749 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1.20067v^8 + 5.89924v^7 + \cdots + 2.68791v - 0.492840 \\ -v^8 - 5v^7 - 10v^6 + v^4 - 37v^3 - 7v^2 - 12v - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.20067v^8 - 5.89924v^7 + \cdots - 1.68791v + 0.492840 \\ v^8 + 5v^7 + 10v^6 - v^4 + 37v^3 + 7v^2 + 12v + 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{279551}{178147}v^8 + \frac{1437368}{178147}v^7 + \frac{2978743}{178147}v^6 + \frac{272298}{178147}v^5 - \frac{682691}{178147}v^4 + \frac{9851898}{178147}v^3 + \frac{3817557}{178147}v^2 + \frac{3775595}{178147}v - \frac{3107095}{178147}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^9$
c_3, c_7	u^9
c_4	$(u+1)^9$
c_5, c_9	$u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1$
c_6, c_{10}	$u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1$
c_8	$u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1$
c_{11}	$u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1$
c_{12}	$u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^9$
c_3, c_7	y^9
c_5, c_9	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_6, c_{10}	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$
c_8, c_{11}	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_{12}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.939568 + 0.981640I$ $a = 0$ $b = 0.140343 + 0.966856I$	$0.13850 - 2.09337I$	$-7.58955 + 5.46639I$
$v = 0.939568 - 0.981640I$ $a = 0$ $b = 0.140343 - 0.966856I$	$0.13850 + 2.09337I$	$-7.58955 - 5.46639I$
$v = -0.119081 + 0.409451I$ $a = 0$ $b = -0.796005 + 0.733148I$	$-6.01628 - 1.33617I$	$-20.0794 + 3.5537I$
$v = -0.119081 - 0.409451I$ $a = 0$ $b = -0.796005 - 0.733148I$	$-6.01628 + 1.33617I$	$-20.0794 - 3.5537I$
$v = 0.016164 + 0.378317I$ $a = 0$ $b = -0.728966 - 0.986295I$	$-5.24306 - 7.08493I$	$-20.6685 + 5.3307I$
$v = 0.016164 - 0.378317I$ $a = 0$ $b = -0.728966 + 0.986295I$	$-5.24306 + 7.08493I$	$-20.6685 - 5.3307I$
$v = -2.14893$ $a = 0$ $b = 0.512358$	-2.84338	-11.8180
$v = -2.26219 + 2.13290I$ $a = 0$ $b = 0.628449 + 0.875112I$	$-2.26187 - 2.45442I$	$-9.75362 - 6.63381I$
$v = -2.26219 - 2.13290I$ $a = 0$ $b = 0.628449 - 0.875112I$	$-2.26187 + 2.45442I$	$-9.75362 + 6.63381I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^9)(u^2-3u+1)^2(u^{85}+38u^{84}+\cdots-213u+1)$
c_2	$((u-1)^9)(u^2+u-1)^2(u^{85}-12u^{84}+\cdots-u+1)$
c_3	$u^9(u^2+u-1)^2(u^{85}-3u^{84}+\cdots+2560u+512)$
c_4	$((u+1)^9)(u^2-u-1)^2(u^{85}-12u^{84}+\cdots-u+1)$
c_5	$(u^4+3u^3+8u^2+3u+1)(u^9+u^8+\cdots-u-1)$ $\cdot(u^{85}-u^{84}+\cdots+28266u+22877)$
c_6	$(u^4+3u^3+8u^2+3u+1)$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{85}+3u^{84}+\cdots+112806u+16279)$
c_7	$u^9(u^2-u-1)^2(u^{85}-3u^{84}+\cdots+2560u+512)$
c_8	$(u^2-u+1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)$ $\cdot(u^{85}-4u^{84}+\cdots+7u+1)$
c_9	$u^4(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)$ $\cdot(u^{85}-8u^{84}+\cdots+192u+16)$
c_{10}	$(u^2+u+1)^2$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)$ $\cdot(u^{85}-38u^{84}+\cdots+27u+1)$
c_{11}	$(u^2+u+1)^2(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)$ $\cdot(u^{85}-4u^{84}+\cdots+7u+1)$
c_{12}	$((u^2-3u+1)^2)(u^9+5u^8+\cdots+u+1)$ $\cdot(u^{85}-4u^{84}+\cdots-5u+1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^9)(y^2-7y+1)^2(y^{85}+30y^{84}+\cdots+27491y-1)$
c_2, c_4	$((y-1)^9)(y^2-3y+1)^2(y^{85}-38y^{84}+\cdots-213y-1)$
c_3, c_7	$y^9(y^2-3y+1)^2(y^{85}+51y^{84}+\cdots-3932160y-262144)$
c_5	$(y^4+7y^3+48y^2+7y+1)$ $\cdot(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{85}-57y^{84}+\cdots-21266860578y-523357129)$
c_6	$(y^4+7y^3+48y^2+7y+1)$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)$ $\cdot(y^{85}-81y^{84}+\cdots+5075593862y-265005841)$
c_8, c_{11}	$(y^2+y+1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)$ $\cdot(y^{85}+38y^{84}+\cdots+27y-1)$
c_9	$y^4(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot(y^{85}+20y^{84}+\cdots+12160y-256)$
c_{10}	$((y^2+y+1)^2)(y^9+7y^8+\cdots+13y-1)$ $\cdot(y^{85}+22y^{84}+\cdots+1735y-1)$
c_{12}	$(y^2-7y+1)^2(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)$ $\cdot(y^{85}-22y^{84}+\cdots+31y-1)$