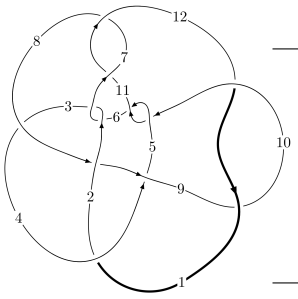
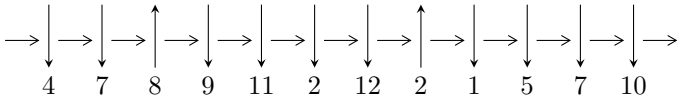
$12n_{0738}$ $(K12n_{0738})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -9.79475 \times 10^{256} u^{88} + 1.43387 \times 10^{257} u^{87} + \cdots + 1.05146 \times 10^{255} b + 1.97384 \times 10^{257},$$
$$1.78518 \times 10^{256} u^{88} - 1.84553 \times 10^{256} u^{87} + \cdots + 5.25732 \times 10^{254} a + 5.76703 \times 10^{255},\ u^{89} - 2u^{88} + \cdots - 14u$$
$$I_2^u = \langle -2542623226711 u^{21} - 5879535861531 u^{20} + \cdots + 4155085006409 b - 2615410115873,$$
$$6655009669836 u^{21} + 10389904986854 u^{20} + \cdots + 4155085006409 a + 4757958548853,$$
$$u^{22} + 2u^{21} + \cdots + u + 1\rangle$$
$$I_3^u = \langle b + 1,\ a^3 + a^2 + 1,\ u - 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 114 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. $\boldsymbol{I_1^u = \langle -9.79 \times 10^{256} u^{88} + 1.43 \times 10^{257} u^{87} + \cdots + 1.05 \times 10^{255} b + 1.97 \times 10^{257},\ 1.79 \times 10^{256} u^{88} - 1.85 \times 10^{256} u^{87} + \cdots + 5.26 \times 10^{254} a + 5.77 \times 10^{255},\ u^{89} - 2u^{88} + \cdots - 14u + 1 \rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -33.9561u^{88} + 35.1040u^{87} + \cdots - 18.7014u - 10.9695 \\ 93.1534u^{88} - 136.369u^{87} + \cdots + 2197.99u - 187.723 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 81.4663u^{88} - 132.400u^{87} + \cdots + 2604.65u - 231.500 \\ 128.707u^{88} - 187.467u^{87} + \cdots + 2969.35u - 251.064 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 59.1974u^{88} - 101.265u^{87} + \cdots + 2179.29u - 198.692 \\ 93.1534u^{88} - 136.369u^{87} + \cdots + 2197.99u - 187.723 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 75.1897u^{88} - 109.168u^{87} + \cdots + 1597.75u - 115.139 \\ -3.66417u^{88} + 10.3005u^{87} + \cdots - 159.896u + 11.8154 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 16.7378u^{88} - 44.3957u^{87} + \cdots + 1381.92u - 131.287 \\ -16.2704u^{88} + 14.4942u^{87} + \cdots + 69.9257u - 18.6626 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 62.4914u^{88} - 86.8598u^{87} + \cdots + 1097.29u - 65.6761 \\ 18.6435u^{88} - 21.1867u^{87} + \cdots + 311.334u - 26.3076 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 53.5827u^{88} - 71.8606u^{87} + \cdots + 832.817u - 43.6534 \\ 9.73484u^{88} - 6.18748u^{87} + \cdots + 46.8642u - 4.28488 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -50.5975u^{88} + 85.3027u^{87} + \cdots - 1981.82u + 202.076 \\ 63.8761u^{88} - 100.827u^{87} + \cdots + 1699.64u - 142.543 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 99.2749u^{88} - 167.730u^{87} + \cdots + 2872.55u - 234.918$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{89} - 2u^{88} + \cdots + 3224u - 173$
c_2, c_6	$u^{89} + 3u^{88} + \cdots + 2143u + 220$
c_3	$u^{89} + 2u^{88} + \cdots + 42280112u + 2904067$
c_4	$u^{89} + u^{88} + \cdots + 76u^2 + 16$
c_5, c_{10}	$u^{89} + u^{88} + \cdots - 1398u + 457$
c_7, c_{11}	$u^{89} - 2u^{88} + \cdots - 14u + 1$
c_8	$u^{89} + 3u^{88} + \cdots + 37920u + 3361$
c_9, c_{12}	$u^{89} + u^{88} + \cdots + 349u + 211$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{89} + 26y^{88} + \cdots + 2490152y - 29929$
c_2, c_6	$y^{89} + 63y^{88} + \cdots - 2481871y - 48400$
c_3	$y^{89} - 56y^{88} + \cdots - 83395183689034y - 8433605140489$
c_4	$y^{89} + 3y^{88} + \cdots - 2432y - 256$
c_5, c_{10}	$y^{89} - 43y^{88} + \cdots + 3827190y - 208849$
c_7, c_{11}	$y^{89} - 24y^{88} + \cdots + 66y - 1$
c_8	$y^{89} - 9y^{88} + \cdots + 460345940y - 11296321$
c_9, c_{12}	$y^{89} + 55y^{88} + \cdots - 1038699y - 44521$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.728707 + 0.689660I$ $a = 1.140920 - 0.798950I$ $b = -0.106997 + 1.343020I$	$3.36537 + 3.15246I$	0
$u = 0.728707 - 0.689660I$ $a = 1.140920 + 0.798950I$ $b = -0.106997 - 1.343020I$	$3.36537 - 3.15246I$	0
$u = -0.924993 + 0.174397I$ $a = 1.57826 + 0.33149I$ $b = 0.991171 - 0.061075I$	$-3.52619 - 0.12569I$	0
$u = -0.924993 - 0.174397I$ $a = 1.57826 - 0.33149I$ $b = 0.991171 + 0.061075I$	$-3.52619 + 0.12569I$	0
$u = 1.116820 + 0.152077I$ $a = 0.650111 + 0.740802I$ $b = -0.759825 + 0.290326I$	$-3.17613 + 0.89707I$	0
$u = 1.116820 - 0.152077I$ $a = 0.650111 - 0.740802I$ $b = -0.759825 - 0.290326I$	$-3.17613 - 0.89707I$	0
$u = 0.450061 + 0.744605I$ $a = 0.607261 - 0.124059I$ $b = 0.502872 + 0.181456I$	$3.61994 - 0.64342I$	0
$u = 0.450061 - 0.744605I$ $a = 0.607261 + 0.124059I$ $b = 0.502872 - 0.181456I$	$3.61994 + 0.64342I$	0
$u = -0.865942 + 0.013321I$ $a = -0.377046 + 1.305970I$ $b = 0.12951 - 1.45777I$	$-0.82448 - 6.19029I$	0
$u = -0.865942 - 0.013321I$ $a = -0.377046 - 1.305970I$ $b = 0.12951 + 1.45777I$	$-0.82448 + 6.19029I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.573452+0.587260I$ $a=-0.60537-1.48602I$ $b=-1.077630+0.711416I$	$-0.31660+4.57592I$	0
$u=-0.573452-0.587260I$ $a=-0.60537+1.48602I$ $b=-1.077630-0.711416I$	$-0.31660-4.57592I$	0
$u=-0.809930+0.027084I$ $a=0.238299-0.326731I$ $b=-1.188020-0.459108I$	$-1.67659-1.76730I$	0
$u=-0.809930-0.027084I$ $a=0.238299+0.326731I$ $b=-1.188020+0.459108I$	$-1.67659+1.76730I$	0
$u=-1.186060+0.122031I$ $a=0.473953-0.313586I$ $b=-0.677351-0.634263I$	$-2.10870-1.82799I$	0
$u=-1.186060-0.122031I$ $a=0.473953+0.313586I$ $b=-0.677351+0.634263I$	$-2.10870+1.82799I$	0
$u=-0.878350+0.815051I$ $a=-0.500476-1.315300I$ $b=-0.76164+1.34733I$	$0.99618+5.42464I$	0
$u=-0.878350-0.815051I$ $a=-0.500476+1.315300I$ $b=-0.76164-1.34733I$	$0.99618-5.42464I$	0
$u=0.726246+0.975893I$ $a=0.640522-0.768375I$ $b=0.351698+1.075030I$	$4.14888-0.87827I$	0
$u=0.726246-0.975893I$ $a=0.640522+0.768375I$ $b=0.351698-1.075030I$	$4.14888+0.87827I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.985705+0.750992I$ $a=\ \ 0.782971+0.642116I$ $b=-0.109357-1.160930I$	$0.662776+0.539516I$	0
$u=-0.985705-0.750992I$ $a=\ \ 0.782971-0.642116I$ $b=-0.109357+1.160930I$	$0.662776-0.539516I$	0
$u=-0.712728+1.015920I$ $a=\ \ 0.499103+1.235100I$ $b=\ \ 0.29416-1.61372I$	$9.54462-2.29743I$	0
$u=-0.712728-1.015920I$ $a=\ \ 0.499103-1.235100I$ $b=\ \ 0.29416+1.61372I$	$9.54462+2.29743I$	0
$u=\ \ 0.766930+0.993698I$ $a=\ \ 0.401340-0.947871I$ $b=\ \ 0.54402+1.44826I$	$4.50282-1.08927I$	0
$u=\ \ 0.766930-0.993698I$ $a=\ \ 0.401340+0.947871I$ $b=\ \ 0.54402-1.44826I$	$4.50282+1.08927I$	0
$u=\ \ 1.013200+0.753764I$ $a=-0.646652+1.230910I$ $b=-0.70501-1.64006I$	$2.56199-8.83087I$	0
$u=\ \ 1.013200-0.753764I$ $a=-0.646652-1.230910I$ $b=-0.70501+1.64006I$	$2.56199+8.83087I$	0
$u=-0.732612+1.030540I$ $a=\ \ 0.156776+1.052220I$ $b=\ \ 0.57412-1.73131I$	$6.53176+7.27006I$	0
$u=-0.732612-1.030540I$ $a=\ \ 0.156776-1.052220I$ $b=\ \ 0.57412+1.73131I$	$6.53176-7.27006I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.607390+0.408610I$ $a=\ \ 0.66595-1.34345I$ $b=-0.190565+0.778107I$	$-1.32281+1.49993I$	$-8.00000+0.I$
$u=-0.607390-0.408610I$ $a=\ \ 0.66595+1.34345I$ $b=-0.190565-0.778107I$	$-1.32281-1.49993I$	$-8.00000+0.I$
$u=\ \ 0.581342+0.441443I$ $a=-0.212475-0.031319I$ $b=\ \ 1.93552-0.28067I$	$0.71957-8.87941I$	$-8.0000+13.4036I$
$u=\ \ 0.581342-0.441443I$ $a=-0.212475+0.031319I$ $b=\ \ 1.93552+0.28067I$	$0.71957+8.87941I$	$-8.0000-13.4036I$
$u=\ \ 0.720659+0.071260I$ $a=\ \ 2.08430-0.32839I$ $b=\ \ 1.001690-0.367941I$	$-0.05018+6.72143I$	$-13.2759-5.0382I$
$u=\ \ 0.720659-0.071260I$ $a=\ \ 2.08430+0.32839I$ $b=\ \ 1.001690+0.367941I$	$-0.05018-6.72143I$	$-13.2759+5.0382I$
$u=-0.476229+0.525739I$ $a=-0.142712-0.221460I$ $b=\ \ 1.48007+0.83547I$	$-1.81194+3.10417I$	$-8.00000-9.84544I$
$u=-0.476229-0.525739I$ $a=-0.142712+0.221460I$ $b=\ \ 1.48007-0.83547I$	$-1.81194-3.10417I$	$-8.00000+9.84544I$
$u=\ \ 0.688408+0.125680I$ $a=-0.276936+0.559711I$ $b=-1.53936+0.11618I$	$-2.46249-0.67631I$	$-8.00000+10.85950I$
$u=\ \ 0.688408-0.125680I$ $a=-0.276936-0.559711I$ $b=-1.53936-0.11618I$	$-2.46249+0.67631I$	$-8.00000-10.85950I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.644054+0.260652I$ $a=\ \ 1.14759-1.42214I$ $b=-0.247479+0.278785I$	$-1.54586+1.12108I$	$-11.00706-6.04709I$
$u=-0.644054-0.260652I$ $a=\ \ 1.14759+1.42214I$ $b=-0.247479-0.278785I$	$-1.54586-1.12108I$	$-11.00706+6.04709I$
$u=\ \ 0.620239+0.221199I$ $a=-1.06970-2.54323I$ $b=-0.075257-0.139231I$	$-3.44636-3.28123I$	$-20.2992+8.3870I$
$u=\ \ 0.620239-0.221199I$ $a=-1.06970+2.54323I$ $b=-0.075257+0.139231I$	$-3.44636+3.28123I$	$-20.2992-8.3870I$
$u=-0.445574+0.477651I$ $a=-2.96309+1.38824I$ $b=\ \ 0.116212+0.104340I$	$1.10496+8.28971I$	$-4.3178-14.5248I$
$u=-0.445574-0.477651I$ $a=-2.96309-1.38824I$ $b=\ \ 0.116212-0.104340I$	$1.10496-8.28971I$	$-4.3178+14.5248I$
$u=\ \ 0.855189+1.043680I$ $a=-0.407496+0.805868I$ $b=\ \ 0.24636-1.41483I$	$7.31163-1.88418I$	0
$u=\ \ 0.855189-1.043680I$ $a=-0.407496-0.805868I$ $b=\ \ 0.24636+1.41483I$	$7.31163+1.88418I$	0
$u=\ \ 0.429882+0.485314I$ $a=\ \ 0.85439+2.04202I$ $b=-0.483871-1.087000I$	$-0.54805-3.51803I$	$-5.26955+4.96976I$
$u=\ \ 0.429882-0.485314I$ $a=\ \ 0.85439-2.04202I$ $b=-0.483871+1.087000I$	$-0.54805+3.51803I$	$-5.26955-4.96976I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.780322+1.124850I$ $a=\ \ 0.879309+0.837722I$ $b=\ \ 0.042420-1.053150I$	$5.37297+0.17301I$	0
$u=-0.780322-1.124850I$ $a=\ \ 0.879309-0.837722I$ $b=\ \ 0.042420+1.053150I$	$5.37297-0.17301I$	0
$u=-0.810003+1.147870I$ $a=-0.579327-0.691089I$ $b=\ \ 0.19153+1.41504I$	$2.04685-4.05320I$	0
$u=-0.810003-1.147870I$ $a=-0.579327+0.691089I$ $b=\ \ 0.19153-1.41504I$	$2.04685+4.05320I$	0
$u=\ \ 1.122200+0.854316I$ $a=-0.583374+0.657925I$ $b=-0.33959-1.41890I$	$3.37656-5.71824I$	0
$u=\ \ 1.122200-0.854316I$ $a=-0.583374-0.657925I$ $b=-0.33959+1.41890I$	$3.37656+5.71824I$	0
$u=-1.150330+0.818490I$ $a=-0.863157-0.795066I$ $b=-0.22259+1.57983I$	$8.14222+9.05246I$	0
$u=-1.150330-0.818490I$ $a=-0.863157+0.795066I$ $b=-0.22259-1.57983I$	$8.14222-9.05246I$	0
$u=\ \ 1.12526+0.86285I$ $a=-0.357076+0.892757I$ $b=-0.47716-1.43875I$	$2.91341-5.91259I$	0
$u=\ \ 1.12526-0.86285I$ $a=-0.357076-0.892757I$ $b=-0.47716+1.43875I$	$2.91341+5.91259I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.08481 + 0.92394I$ $a = 0.665171 - 0.977161I$ $b = 0.73889 + 1.21253I$	$6.57099 - 5.29222I$	0
$u = 1.08481 - 0.92394I$ $a = 0.665171 + 0.977161I$ $b = 0.73889 - 1.21253I$	$6.57099 + 5.29222I$	0
$u = 0.76985 + 1.20914I$ $a = -0.249525 + 1.327490I$ $b = -0.388594 - 1.129600I$	$6.48905 - 4.72393I$	0
$u = 0.76985 - 1.20914I$ $a = -0.249525 - 1.327490I$ $b = -0.388594 + 1.129600I$	$6.48905 + 4.72393I$	0
$u = 0.81489 + 1.19005I$ $a = -0.679307 + 0.759719I$ $b = 0.229063 - 1.393780I$	$6.15465 + 10.11680I$	0
$u = 0.81489 - 1.19005I$ $a = -0.679307 - 0.759719I$ $b = 0.229063 + 1.393780I$	$6.15465 - 10.11680I$	0
$u = 0.548991 + 0.053107I$ $a = -0.61886 - 1.53164I$ $b = -0.19159 + 1.61911I$	$-3.16683 + 2.11548I$	$-19.9398 + 0.6159I$
$u = 0.548991 - 0.053107I$ $a = -0.61886 + 1.53164I$ $b = -0.19159 - 1.61911I$	$-3.16683 - 2.11548I$	$-19.9398 - 0.6159I$
$u = 0.320160 + 0.435342I$ $a = -0.30304 - 1.39831I$ $b = -0.168673 - 0.492183I$	$2.82976 - 3.05132I$	$-6.01961 + 4.35621I$
$u = 0.320160 - 0.435342I$ $a = -0.30304 + 1.39831I$ $b = -0.168673 + 0.492183I$	$2.82976 + 3.05132I$	$-6.01961 - 4.35621I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.12958+0.94056I$ $a=\ \ 0.487277+1.033280I$ $b=\ \ 0.83552-1.47021I$	$1.00959+11.54230I$	0
$u=-1.12958-0.94056I$ $a=\ \ 0.487277-1.033280I$ $b=\ \ 0.83552+1.47021I$	$1.00959-11.54230I$	0
$u=\ \ 1.15144+0.94647I$ $a=\ \ 0.474981-1.113650I$ $b=\ \ 0.78479+1.56197I$	$5.0305-17.7489I$	0
$u=\ \ 1.15144-0.94647I$ $a=\ \ 0.474981+1.113650I$ $b=\ \ 0.78479-1.56197I$	$5.0305+17.7489I$	0
$u=-1.20389+0.87932I$ $a=-0.720920-0.365436I$ $b=-0.272531+1.294200I$	$5.08544-0.24142I$	0
$u=-1.20389-0.87932I$ $a=-0.720920+0.365436I$ $b=-0.272531-1.294200I$	$5.08544+0.24142I$	0
$u=-1.14972+0.98487I$ $a=-0.240161-1.118220I$ $b=-0.47345+1.46567I$	$4.23168+7.42784I$	0
$u=-1.14972-0.98487I$ $a=-0.240161+1.118220I$ $b=-0.47345-1.46567I$	$4.23168-7.42784I$	0
$u=-0.471056$ $a=\ \ 0.731915$ $b=-0.314436$	-0.833811	-11.9600
$u=\ \ 1.14245+1.06741I$ $a=\ \ 0.522645-0.840930I$ $b=-0.004729+1.016560I$	$5.36861-3.34549I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.14245 - 1.06741I$ $a = 0.522645 + 0.840930I$ $b = -0.004729 - 1.016560I$	$5.36861 + 3.34549I$	0
$u = 0.339291 + 0.239137I$ $a = -1.56566 + 1.14010I$ $b = -1.189080 + 0.093441I$	$-1.76767 - 0.26940I$	$-7.85955 + 0.15438I$
$u = 0.339291 - 0.239137I$ $a = -1.56566 - 1.14010I$ $b = -1.189080 - 0.093441I$	$-1.76767 + 0.26940I$	$-7.85955 - 0.15438I$
$u = 1.60629 + 0.04073I$ $a = -0.209632 - 0.044831I$ $b = -0.400984 - 0.348661I$	$-7.65923 + 0.42868I$	0
$u = 1.60629 - 0.04073I$ $a = -0.209632 + 0.044831I$ $b = -0.400984 + 0.348661I$	$-7.65923 - 0.42868I$	0
$u = -1.65953 + 0.11879I$ $a = -0.170689 + 0.140332I$ $b = -0.108870 - 0.439743I$	$-4.40554 + 6.24970I$	0
$u = -1.65953 - 0.11879I$ $a = -0.170689 - 0.140332I$ $b = -0.108870 + 0.439743I$	$-4.40554 - 6.24970I$	0
$u = 0.238593 + 0.068203I$ $a = 4.52558 + 0.58023I$ $b = -0.172188 + 0.904850I$	$2.91692 + 2.97937I$	$-6.43690 - 3.41848I$
$u = 0.238593 - 0.068203I$ $a = 4.52558 - 0.58023I$ $b = -0.172188 - 0.904850I$	$2.91692 - 2.97937I$	$-6.43690 + 3.41848I$

II.

$\boldsymbol{I_2^u = \langle -2.54\times 10^{12}u^{21} - 5.88\times 10^{12}u^{20} + \cdots + 4.16\times 10^{12}b - 2.62\times 10^{12},\ 6.66\times 10^{12}u^{21} + 1.04\times 10^{13}u^{20} + \cdots + 4.16\times 10^{12}a + 4.76\times 10^{12},\ u^{22} + 2u^{21} + \cdots + u + 1\rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.60165u^{21} - 2.50053u^{20} + \cdots + 2.81817u - 1.14509 \\ 0.611930u^{21} + 1.41502u^{20} + \cdots - 0.982911u + 0.629448 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.521525u^{21} - 0.227058u^{20} + \cdots + 0.936384u + 0.187136 \\ 1.03584u^{21} + 2.36411u^{20} + \cdots - 2.17625u + 0.516237 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.989724u^{21} - 1.08551u^{20} + \cdots + 1.83526u - 0.515645 \\ 0.611930u^{21} + 1.41502u^{20} + \cdots - 0.982911u + 0.629448 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.712784u^{21} + 1.59340u^{20} + \cdots - 4.81578u - 4.56029 \\ 0.420560u^{21} + 1.30356u^{20} + \cdots - 4.86085u - 1.77823 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.17981u^{21} - 2.41220u^{20} + \cdots + 3.22411u + 2.57632 \\ -0.845661u^{21} - 2.05422u^{20} + \cdots + 3.70732u + 0.457794 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.166253u^{21} - 0.520197u^{20} + \cdots - 2.22843u - 2.74819 \\ 0.657520u^{21} + 1.59914u^{20} + \cdots - 4.50691u - 1.59053 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0455890u^{21} + 0.184121u^{20} + \cdots - 3.52400u - 3.21998 \\ 0.869362u^{21} + 2.30346u^{20} + \cdots - 5.80247u - 2.06233 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.595136u^{21} + 1.39636u^{20} + \cdots + 2.92959u - 2.00034 \\ 1.12554u^{21} + 2.04526u^{20} + \cdots - 0.383547u - 0.835575 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes

$$= -\frac{14644014353596}{4155085006409}u^{21} - \frac{19925641665362}{4155085006409}u^{20} + \cdots - \frac{251442070714}{4155085006409}u - \frac{90897297812916}{4155085006409}$$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} - 8u^{21} + \cdots - 2u + 1$
c_2	$u^{22} - 3u^{21} + \cdots + 6u + 1$
c_3	$u^{22} + u^{21} + \cdots - 397u + 73$
c_4	$u^{22} - 2u^{21} + \cdots - 61u + 31$
c_5	$u^{22} + 2u^{21} + \cdots - 7u + 1$
c_6	$u^{22} + 3u^{21} + \cdots - 6u + 1$
c_7	$u^{22} + 2u^{21} + \cdots + u + 1$
c_8	$u^{22} + u^{21} + \cdots + 6u + 1$
c_9	$u^{22} - u^{21} + \cdots - 7u + 1$
c_{10}	$u^{22} - 2u^{21} + \cdots + 7u + 1$
c_{11}	$u^{22} - 2u^{21} + \cdots - u + 1$
c_{12}	$u^{22} + u^{21} + \cdots + 7u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} + 10y^{21} + \cdots + 6y + 1$
c_2, c_6	$y^{22} + 9y^{21} + \cdots - 10y + 1$
c_3	$y^{22} - 7y^{21} + \cdots + 9707y + 5329$
c_4	$y^{22} - 6y^{21} + \cdots - 11409y + 961$
c_5, c_{10}	$y^{22} - 22y^{21} + \cdots - 21y + 1$
c_7, c_{11}	$y^{22} - 14y^{21} + \cdots - 15y + 1$
c_8	$y^{22} + 3y^{21} + \cdots - 6y + 1$
c_9, c_{12}	$y^{22} + 15y^{21} + \cdots - 3y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.069910+0.150673I$ $a=\ \ 0.577013-0.784503I$ $b=-0.838504-0.683407I$	$-2.93463-1.89534I$	$-16.0134+7.0646I$
$u=-1.069910-0.150673I$ $a=\ \ 0.577013+0.784503I$ $b=-0.838504+0.683407I$	$-2.93463+1.89534I$	$-16.0134-7.0646I$
$u=\ \ 0.895310+0.875198I$ $a=\ \ 0.899910-0.506349I$ $b=\ \ 0.259337+1.161090I$	$3.98677+0.79058I$	$-7.82878-2.57835I$
$u=\ \ 0.895310-0.875198I$ $a=\ \ 0.899910+0.506349I$ $b=\ \ 0.259337-1.161090I$	$3.98677-0.79058I$	$-7.82878+2.57835I$
$u=-0.666787+0.261360I$ $a=-0.25275-1.66366I$ $b=-0.831001+1.015850I$	$-1.52733+3.60865I$	$-15.1313-6.6117I$
$u=-0.666787-0.261360I$ $a=-0.25275+1.66366I$ $b=-0.831001-1.015850I$	$-1.52733-3.60865I$	$-15.1313+6.6117I$
$u=\ \ 0.708422+0.007961I$ $a=-0.502117-0.222546I$ $b=-1.186880+0.108689I$	$-2.70850-0.00901I$	$-17.4901-0.4015I$
$u=\ \ 0.708422-0.007961I$ $a=-0.502117+0.222546I$ $b=-1.186880-0.108689I$	$-2.70850+0.00901I$	$-17.4901+0.4015I$
$u=\ \ 1.066780+0.843600I$ $a=-0.345137+1.079520I$ $b=-0.50641-1.57274I$	$3.31029-7.19107I$	$-8.47997+7.24995I$
$u=\ \ 1.066780-0.843600I$ $a=-0.345137-1.079520I$ $b=-0.50641+1.57274I$	$3.31029+7.19107I$	$-8.47997-7.24995I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.997024+0.998501I$ $a=-0.494715-1.148990I$ $b=-0.514008+1.127450I$	$5.51088+5.10187I$	$-8.67511-6.86093I$
$u=-0.997024-0.998501I$ $a=-0.494715+1.148990I$ $b=-0.514008-1.127450I$	$5.51088-5.10187I$	$-8.67511+6.86093I$
$u=-0.95941+1.19557I$ $a=\ \ 0.447477+0.817898I$ $b=-0.033772-1.076920I$	$5.70839+2.72360I$	$-2.20784+0.67124I$
$u=-0.95941-1.19557I$ $a=\ \ 0.447477-0.817898I$ $b=-0.033772+1.076920I$	$5.70839-2.72360I$	$-2.20784-0.67124I$
$u=\ \ 0.358330+0.266127I$ $a=\ \ 2.95918+0.87373I$ $b=\ \ 0.963513-0.225172I$	$0.60336-7.79834I$	$-11.52931+5.72788I$
$u=\ \ 0.358330-0.266127I$ $a=\ \ 2.95918-0.87373I$ $b=\ \ 0.963513+0.225172I$	$0.60336+7.79834I$	$-11.52931-5.72788I$
$u=-0.343418+0.283245I$ $a=\ \ 1.39869-1.74155I$ $b=\ \ 0.438864+1.183790I$	$-2.67905+2.65765I$	$-12.41068-5.25421I$
$u=-0.343418-0.283245I$ $a=\ \ 1.39869+1.74155I$ $b=\ \ 0.438864-1.183790I$	$-2.67905-2.65765I$	$-12.41068+5.25421I$
$u=-1.57250+0.12187I$ $a=\ \ 0.260238-0.205227I$ $b=\ \ 0.404374-0.170638I$	$-7.78467-0.66795I$	$-17.6587+13.6602I$
$u=-1.57250-0.12187I$ $a=\ \ 0.260238+0.205227I$ $b=\ \ 0.404374+0.170638I$	$-7.78467+0.66795I$	$-17.6587-13.6602I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$1.58021+0.02080I$		
$a=$	$0.052206-0.352538I$	$-4.77539-6.53518I$	$-16.0749+9.4216I$
$b=$	$0.344492+0.223654I$		
$u=$	$1.58021-0.02080I$		
$a=$	$0.052206+0.352538I$	$-4.77539+6.53518I$	$-16.0749-9.4216I$
$b=$	$0.344492-0.223654I$		

III. $I_3^u = \langle b+1,\ a^3+a^2+1,\ u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 9a^2 - 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = \quad 0.232786 + 0.792552I$ $b = -1.00000$	-3.28987	$-17.1655 + 3.3209I$
$u = \quad 1.00000$ $a = \quad 0.232786 - 0.792552I$ $b = -1.00000$	-3.28987	$-17.1655 - 3.3209I$
$u = \quad 1.00000$ $a = -1.46557$ $b = -1.00000$	-3.28987	7.33110

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3-3u^2+4u-1)(u^{22}-8u^{21}+\cdots-2u+1)$ $\cdot(u^{89}-2u^{88}+\cdots+3224u-173)$
c_2	$((u-1)^3)(u^{22}-3u^{21}+\cdots+6u+1)(u^{89}+3u^{88}+\cdots+2143u+220)$
c_3	$(u^3-2u^2+u+1)(u^{22}+u^{21}+\cdots-397u+73)$ $\cdot(u^{89}+2u^{88}+\cdots+42280112u+2904067)$
c_4	$u^3(u^{22}-2u^{21}+\cdots-61u+31)(u^{89}+u^{88}+\cdots+76u^2+16)$
c_5	$(u^3-2u^2+u+1)(u^{22}+2u^{21}+\cdots-7u+1)$ $\cdot(u^{89}+u^{88}+\cdots-1398u+457)$
c_6	$((u+1)^3)(u^{22}+3u^{21}+\cdots-6u+1)(u^{89}+3u^{88}+\cdots+2143u+220)$
c_7	$((u-1)^3)(u^{22}+2u^{21}+\cdots+u+1)(u^{89}-2u^{88}+\cdots-14u+1)$
c_8	$(u^3-u^2-1)(u^{22}+u^{21}+\cdots+6u+1)$ $\cdot(u^{89}+3u^{88}+\cdots+37920u+3361)$
c_9	$(u^3-u^2-1)(u^{22}-u^{21}+\cdots-7u+1)(u^{89}+u^{88}+\cdots+349u+211)$
c_{10}	$(u^3+2u^2+u-1)(u^{22}-2u^{21}+\cdots+7u+1)$ $\cdot(u^{89}+u^{88}+\cdots-1398u+457)$
c_{11}	$((u+1)^3)(u^{22}-2u^{21}+\cdots-u+1)(u^{89}-2u^{88}+\cdots-14u+1)$
c_{12}	$(u^3+u^2+1)(u^{22}+u^{21}+\cdots+7u+1)(u^{89}+u^{88}+\cdots+349u+211)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^3-y^2+10y-1)(y^{22}+10y^{21}+\cdots+6y+1)$ $\cdot(y^{89}+26y^{88}+\cdots+2490152y-29929)$
c_2, c_6	$((y-1)^3)(y^{22}+9y^{21}+\cdots-10y+1)$ $\cdot(y^{89}+63y^{88}+\cdots-2481871y-48400)$
c_3	$(y^3-2y^2+5y-1)(y^{22}-7y^{21}+\cdots+9707y+5329)$ $\cdot(y^{89}-56y^{88}+\cdots-83395183689034y-8433605140489)$
c_4	$y^3(y^{22}-6y^{21}+\cdots-11409y+961)(y^{89}+3y^{88}+\cdots-2432y-256)$
c_5, c_{10}	$(y^3-2y^2+5y-1)(y^{22}-22y^{21}+\cdots-21y+1)$ $\cdot(y^{89}-43y^{88}+\cdots+3827190y-208849)$
c_7, c_{11}	$((y-1)^3)(y^{22}-14y^{21}+\cdots-15y+1)(y^{89}-24y^{88}+\cdots+66y-1)$
c_8	$(y^3-y^2-2y-1)(y^{22}+3y^{21}+\cdots-6y+1)$ $\cdot(y^{89}-9y^{88}+\cdots+460345940y-11296321)$
c_9, c_{12}	$(y^3-y^2-2y-1)(y^{22}+15y^{21}+\cdots-3y+1)$ $\cdot(y^{89}+55y^{88}+\cdots-1038699y-44521)$