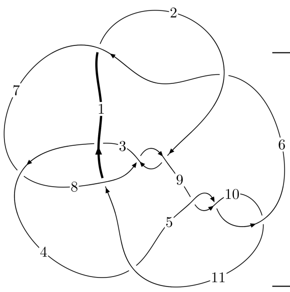
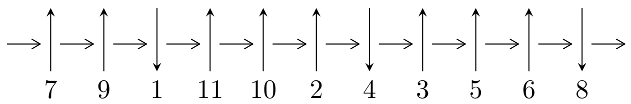
$11a_{312}$ ($K11a_{312}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 73u^{22} + 403u^{21} + \cdots + 4b - 388,\ 13u^{22} + 105u^{21} + \cdots + 8a - 196,\ u^{23} + 7u^{22} + \cdots + 20u - 8\rangle$$

$$I_2^u = \langle -23118805228540u^7a^5 + 8120163058708u^7a^4 + \cdots + 167668012322500a + 126864012582143,$$
$$-2u^7a^5 - 3u^7a^4 + \cdots + 54a + 10,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1\rangle$$

$$I_3^u = \langle u^{11} - 5u^9 + 8u^7 + u^6 - 2u^5 - 3u^4 - 4u^3 + 2u^2 + b + u,$$
$$-u^{10} - u^9 + 4u^8 + 4u^7 - 4u^6 - 5u^5 - 3u^4 + 4u^2 + a + 3u + 2,$$
$$u^{12} - 6u^{10} + 13u^8 + u^7 - 10u^6 - 4u^5 - 2u^4 + 5u^3 + 4u^2 - 2u + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 83 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. $I^u_1 = \langle 73u^{22} + 403u^{21} + \cdots + 4b - 388,\ 13u^{22} + 105u^{21} + \cdots + 8a - 196,\ u^{23} + 7u^{22} + \cdots + 20u - 8\rangle$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -1.62500u^{22} - 13.1250u^{21} + \cdots - 88.7500u + 24.5000 \\ -\frac{73}{4}u^{22} - \frac{403}{4}u^{21} + \cdots - 303u + 97 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 16.6250u^{22} + 87.6250u^{21} + \cdots + 214.250u - 72.5000 \\ -\frac{73}{4}u^{22} - \frac{403}{4}u^{21} + \cdots - 303u + 97 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -\frac{93}{8}u^{22} - \frac{517}{8}u^{21} + \cdots - \frac{769}{4}u + 62 \\ \frac{37}{4}u^{22} + \frac{213}{4}u^{21} + \cdots + \frac{389}{2}u - 59 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -\frac{13}{8}u^{22} - \frac{67}{8}u^{21} + \cdots - 21u + 8 \\ -\frac{19}{2}u^{22} - 55u^{21} + \cdots - \frac{383}{2}u + 59 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{167}{8}u^{22} + \frac{943}{8}u^{21} + \cdots + \frac{1551}{4}u - 120 \\ -\frac{37}{4}u^{22} - \frac{213}{4}u^{21} + \cdots - \frac{387}{2}u + 59 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{167}{8}u^{22} + \frac{943}{8}u^{21} + \cdots + \frac{1551}{4}u - 120 \\ -\frac{37}{4}u^{22} - \frac{213}{4}u^{21} + \cdots - \frac{387}{2}u + 59 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= 3u^{22}+17u^{21}+24u^{20}-24u^{19}-51u^{18}+70u^{17}+81u^{16}-139u^{15}+10u^{14}+241u^{13}-226u^{12}-212u^{11}+397u^{10}-84u^9-335u^8+295u^7-62u^6-302u^5+136u^4-15u^3-78u^2+40u-2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6 c_8	$u^{23} + 10u^{21} + \cdots + 3u - 1$
c_3	$u^{23} - 24u^{22} + \cdots + 3840u - 256$
c_4	$u^{23} - 21u^{22} + \cdots - 11268u + 1192$
c_5, c_9, c_{10}	$u^{23} + 7u^{22} + \cdots + 20u - 8$
c_7, c_{11}	$u^{23} + u^{22} + \cdots + 3u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_8	$y^{23} + 20y^{22} + \cdots + 13y - 1$
c_3	$y^{23} - 4y^{22} + \cdots + 131072y - 65536$
c_4	$y^{23} + 9y^{22} + \cdots + 19115664y - 1420864$
c_5, c_9, c_{10}	$y^{23} - 19y^{22} + \cdots + 144y - 64$
c_7, c_{11}	$y^{23} - 3y^{22} + \cdots + 6y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.293135 + 1.025030I$ $a = 0.46656 - 1.57304I$ $b = -0.147192 - 1.229000I$	$-7.64064 + 1.90172I$	$-11.16155 - 1.95097I$
$u = 0.293135 - 1.025030I$ $a = 0.46656 + 1.57304I$ $b = -0.147192 + 1.229000I$	$-7.64064 - 1.90172I$	$-11.16155 + 1.95097I$
$u = 0.202954 + 0.883680I$ $a = -0.38232 + 2.26017I$ $b = 0.48719 + 1.49237I$	$-9.7130 + 11.5082I$	$-0.75618 - 6.89858I$
$u = 0.202954 - 0.883680I$ $a = -0.38232 - 2.26017I$ $b = 0.48719 - 1.49237I$	$-9.7130 - 11.5082I$	$-0.75618 + 6.89858I$
$u = 0.881214 + 0.717683I$ $a = 0.446178 - 1.010460I$ $b = -0.044762 - 1.270850I$	$-5.82775 + 3.98753I$	$-2.21274 - 8.17133I$
$u = 0.881214 - 0.717683I$ $a = 0.446178 + 1.010460I$ $b = -0.044762 + 1.270850I$	$-5.82775 - 3.98753I$	$-2.21274 + 8.17133I$
$u = 1.14836$ $a = 0.267977$ $b = 0.450637$	1.73407	6.87040
$u = 1.034490 + 0.522098I$ $a = -0.652102 + 0.902922I$ $b = -0.37473 + 1.45394I$	$-7.16797 - 6.55570I$	$1.22391 + 3.26324I$
$u = 1.034490 - 0.522098I$ $a = -0.652102 - 0.902922I$ $b = -0.37473 - 1.45394I$	$-7.16797 + 6.55570I$	$1.22391 - 3.26324I$
$u = 0.232269 + 0.616489I$ $a = -0.683421 - 0.586793I$ $b = -0.575175 + 0.039007I$	$-0.29865 + 2.39912I$	$6.29196 - 4.13143I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.232269 - 0.616489I$ $a = -0.683421 + 0.586793I$ $b = -0.575175 - 0.039007I$	$-0.29865 - 2.39912I$	$6.29196 + 4.13143I$
$u = -1.372390 + 0.114615I$ $a = 0.820986 + 0.214490I$ $b = -0.737153 + 0.407888I$	$6.36396 - 1.94185I$	$12.44424 + 2.77963I$
$u = -1.372390 - 0.114615I$ $a = 0.820986 - 0.214490I$ $b = -0.737153 - 0.407888I$	$6.36396 + 1.94185I$	$12.44424 - 2.77963I$
$u = -1.381230 + 0.237993I$ $a = -0.152679 - 0.704144I$ $b = 0.670861 - 0.027425I$	$4.83020 - 5.52175I$	$12.07498 + 4.89921I$
$u = -1.381230 - 0.237993I$ $a = -0.152679 + 0.704144I$ $b = 0.670861 + 0.027425I$	$4.83020 + 5.52175I$	$12.07498 - 4.89921I$
$u = -1.39795 + 0.37738I$ $a = 1.40129 + 1.12721I$ $b = -0.57325 + 1.48723I$	$-4.6506 - 16.0409I$	$3.32343 + 8.47375I$
$u = -1.39795 - 0.37738I$ $a = 1.40129 - 1.12721I$ $b = -0.57325 - 1.48723I$	$-4.6506 + 16.0409I$	$3.32343 - 8.47375I$
$u = -1.42052 + 0.45491I$ $a = -0.968130 - 0.943346I$ $b = 0.318171 - 1.163070I$	$-2.31364 - 7.21005I$	$-0.81443 + 11.11700I$
$u = -1.42052 - 0.45491I$ $a = -0.968130 + 0.943346I$ $b = 0.318171 + 1.163070I$	$-2.31364 + 7.21005I$	$-0.81443 - 11.11700I$
$u = 0.401495 + 0.274693I$ $a = -0.290970 + 0.483465I$ $b = 0.473749 + 0.279232I$	$0.892504 + 0.454173I$	$10.11280 - 4.18130I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.401495 - 0.274693I$ $a = -0.290970 - 0.483465I$ $b = 0.473749 - 0.279232I$	$0.892504 - 0.454173I$	$10.11280 + 4.18130I$
$u = -1.54765 + 0.11437I$ $a = -0.389379 + 0.033075I$ $b = 0.276976 - 1.131580I$	$2.45199 - 6.58203I$	$4.53835 + 6.99896I$
$u = -1.54765 - 0.11437I$ $a = -0.389379 - 0.033075I$ $b = 0.276976 + 1.131580I$	$2.45199 + 6.58203I$	$4.53835 - 6.99896I$

II. $\boldsymbol{I_2^u = \langle -2.31 \times 10^{13} a^5 u^7 + 8.12 \times 10^{12} a^4 u^7 + \cdots + 1.68 \times 10^{14} a + 1.27 \times 10^{14},\ -2u^7 a^5 - 3u^7 a^4 + \cdots + 54a + 10,\ u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1 \rangle}$

(i) Arc colorings

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

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} a \\ 0.392427a^5u^7 - 0.137835a^4u^7 + \cdots - 2.84606a - 2.15344 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.392427a^5u^7 + 0.137835a^4u^7 + \cdots + 3.84606a + 2.15344 \\ 0.392427a^5u^7 - 0.137835a^4u^7 + \cdots - 2.84606a - 2.15344 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} 0.619590a^5u^7 + 0.411741a^4u^7 + \cdots + 5.96004a + 6.04257 \\ -0.461898a^5u^7 + 0.617791a^4u^7 + \cdots - 2.20681a - 0.962589 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.863277a^5u^7 + 0.0511046a^4u^7 + \cdots - 1.95851a - 2.40659 \\ -1.09603a^5u^7 - 0.183794a^4u^7 + \cdots - 3.37057a - 1.13036 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.257408a^5u^7 - 0.257217a^4u^7 + \cdots + 8.19095a + 7.33644 \\ -0.388740a^5u^7 + 0.461509a^4u^7 + \cdots - 4.45800a - 2.53941 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.257408a^5u^7 - 0.257217a^4u^7 + \cdots + 8.19095a + 7.33644 \\ -0.388740a^5u^7 + 0.461509a^4u^7 + \cdots - 4.45800a - 2.53941 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{17781823578608}{58912383397937}u^7a^5 + \frac{890888304264}{58912383397937}u^7a^4 + \cdots - \frac{483633451308792}{58912383397937}a - \frac{241926483811578}{58912383397937}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6 c_8	$u^{48} + u^{47} + \cdots + 160u + 293$
c_3	$(u^3 + u^2 - 1)^{16}$
c_4	$(u^8 + 3u^7 + 7u^6 + 10u^5 + 11u^4 + 10u^3 + 6u^2 + 4u + 1)^6$
c_5, c_9, c_{10}	$(u^8 - u^7 - 3u^6 + 2u^5 + 3u^4 - 2u - 1)^6$
c_7, c_{11}	$u^{48} + 3u^{47} + \cdots + 890u + 173$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_8	$y^{48} + 39y^{47} + \cdots - 564720y + 85849$
c_3	$(y^3 - y^2 + 2y - 1)^{16}$
c_4	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^6$
c_5, c_9, c_{10}	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^6$
c_7, c_{11}	$y^{48} - 13y^{47} + \cdots - 826008y + 29929$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.180120 + 0.268597I$ $a = -0.896822 - 0.641304I$ $b = -0.44089 - 1.82899I$	$-5.00760 - 1.13123I$	$-3.60429 + 0.51079I$
$u = -1.180120 + 0.268597I$ $a = -0.989164 - 0.528833I$ $b = \quad 0.347952 + 0.310629I$	$-0.87002 - 3.95936I$	$2.92498 + 3.49024I$
$u = -1.180120 + 0.268597I$ $a = \quad 0.141663 + 0.835373I$ $b = -1.167430 - 0.563919I$	$-0.87002 + 1.69689I$	$2.92498 - 2.46866I$
$u = -1.180120 + 0.268597I$ $a = -0.123278 + 1.382340I$ $b = \quad 0.11559 + 1.41262I$	$-5.00760 - 1.13123I$	$-3.60429 + 0.51079I$
$u = -1.180120 + 0.268597I$ $a = -1.09571 - 1.53145I$ $b = \quad 0.484357 - 1.213990I$	$-0.87002 - 3.95936I$	$2.92498 + 3.49024I$
$u = -1.180120 + 0.268597I$ $a = \quad 1.17316 + 1.78430I$ $b = \quad 0.089556 + 1.152970I$	$-0.87002 + 1.69689I$	$2.92498 - 2.46866I$
$u = -1.180120 - 0.268597I$ $a = -0.896822 + 0.641304I$ $b = -0.44089 + 1.82899I$	$-5.00760 + 1.13123I$	$-3.60429 - 0.51079I$
$u = -1.180120 - 0.268597I$ $a = -0.989164 + 0.528833I$ $b = \quad 0.347952 - 0.310629I$	$-0.87002 + 3.95936I$	$2.92498 - 3.49024I$
$u = -1.180120 - 0.268597I$ $a = \quad 0.141663 - 0.835373I$ $b = -1.167430 + 0.563919I$	$-0.87002 - 1.69689I$	$2.92498 + 2.46866I$
$u = -1.180120 - 0.268597I$ $a = -0.123278 - 1.382340I$ $b = \quad 0.11559 - 1.41262I$	$-5.00760 + 1.13123I$	$-3.60429 - 0.51079I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.180120-0.268597I$ $a=-1.09571+1.53145I$ $b=\ \ 0.484357+1.213990I$	$-0.87002+3.95936I$	$2.92498-3.49024I$
$u=-1.180120-0.268597I$ $a=\ \ 1.17316-1.78430I$ $b=\ \ 0.089556-1.152970I$	$-0.87002-1.69689I$	$2.92498+2.46866I$
$u=-0.108090+0.747508I$ $a=\ \ 1.012830-0.490873I$ $b=\ \ 1.294730-0.286176I$	$-4.07009-5.40662I$	$-0.21317+6.54740I$
$u=-0.108090+0.747508I$ $a=\ \ 0.192080-0.476649I$ $b=-0.465784-0.043673I$	$-4.07009+0.24963I$	$-0.213168+0.588510I$
$u=-0.108090+0.747508I$ $a=-0.50426-2.37465I$ $b=-0.220687-1.217460I$	$-4.07009+0.24963I$	$-0.213168+0.588510I$
$u=-0.108090+0.747508I$ $a=-0.12907-2.65292I$ $b=\ \ 0.66006-1.66847I$	$-8.20767-2.57849I$	$-6.74243+3.56796I$
$u=-0.108090+0.747508I$ $a=\ \ 1.31751+2.32128I$ $b=-0.172710+1.289020I$	$-8.20767-2.57849I$	$-6.74243+3.56796I$
$u=-0.108090+0.747508I$ $a=\ \ 0.19648+3.09182I$ $b=-0.240367+1.260870I$	$-4.07009-5.40662I$	$-0.21317+6.54740I$
$u=-0.108090-0.747508I$ $a=\ \ 1.012830+0.490873I$ $b=\ \ 1.294730+0.286176I$	$-4.07009+5.40662I$	$-0.21317-6.54740I$
$u=-0.108090-0.747508I$ $a=\ \ 0.192080+0.476649I$ $b=-0.465784+0.043673I$	$-4.07009-0.24963I$	$-0.213168-0.588510I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.108090-0.747508I$ $a=-0.50426+2.37465I$ $b=-0.220687+1.217460I$	$-4.07009-0.24963I$	$-0.213168-0.588510I$
$u=-0.108090-0.747508I$ $a=-0.12907+2.65292I$ $b=\ 0.66006+1.66847I$	$-8.20767+2.57849I$	$-6.74243-3.56796I$
$u=-0.108090-0.747508I$ $a=\ 1.31751-2.32128I$ $b=-0.172710-1.289020I$	$-8.20767+2.57849I$	$-6.74243-3.56796I$
$u=-0.108090-0.747508I$ $a=\ 0.19648-3.09182I$ $b=-0.240367-1.260870I$	$-4.07009+5.40662I$	$-0.21317-6.54740I$
$u=\ 1.37100$ $a=\ 0.216638+0.976013I$ $b=\ 0.312893-1.010360I$	0.454474	$2.84453+0.I$
$u=\ 1.37100$ $a=\ 0.216638-0.976013I$ $b=\ 0.312893+1.010360I$	0.454474	$2.84453+0.I$
$u=\ 1.37100$ $a=-0.567976+0.778979I$ $b=\ 0.790704+0.425774I$	$4.59206-2.82812I$	$9.37379+2.97945I$
$u=\ 1.37100$ $a=-0.567976-0.778979I$ $b=\ 0.790704-0.425774I$	$4.59206+2.82812I$	$9.37379-2.97945I$
$u=\ 1.37100$ $a=\ 0.731511+0.214900I$ $b=-0.554508+1.009700I$	$4.59206-2.82812I$	$9.37379+2.97945I$
$u=\ 1.37100$ $a=\ 0.731511-0.214900I$ $b=-0.554508-1.009700I$	$4.59206+2.82812I$	$9.37379-2.97945I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.334530 + 0.318930I$ $a = 0.387884 - 0.883429I$ $b = -1.407320 - 0.123988I$	$0.46900 + 9.27166I$	$4.93820 - 8.27362I$
$u = 1.334530 + 0.318930I$ $a = 0.933242 - 0.982503I$ $b = 0.003311 - 1.250180I$	$0.46900 + 3.61542I$	$4.93820 - 2.31472I$
$u = 1.334530 + 0.318930I$ $a = -0.314651 - 0.006577I$ $b = 0.631559 - 0.239514I$	$0.46900 + 3.61542I$	$4.93820 - 2.31472I$
$u = 1.334530 + 0.318930I$ $a = 1.56880 - 1.06264I$ $b = -0.82210 - 1.57135I$	$-3.66858 + 6.44354I$	$-1.59106 - 5.29417I$
$u = 1.334530 + 0.318930I$ $a = -1.29077 + 1.62216I$ $b = 0.328612 + 1.331730I$	$0.46900 + 9.27166I$	$4.93820 - 8.27362I$
$u = 1.334530 + 0.318930I$ $a = -1.94541 + 0.73100I$ $b = 0.234132 + 1.197830I$	$-3.66858 + 6.44354I$	$-1.59106 - 5.29417I$
$u = 1.334530 - 0.318930I$ $a = 0.387884 + 0.883429I$ $b = -1.407320 + 0.123988I$	$0.46900 - 9.27166I$	$4.93820 + 8.27362I$
$u = 1.334530 - 0.318930I$ $a = 0.933242 + 0.982503I$ $b = 0.003311 + 1.250180I$	$0.46900 - 3.61542I$	$4.93820 + 2.31472I$
$u = 1.334530 - 0.318930I$ $a = -0.314651 + 0.006577I$ $b = 0.631559 + 0.239514I$	$0.46900 - 3.61542I$	$4.93820 + 2.31472I$
$u = 1.334530 - 0.318930I$ $a = 1.56880 + 1.06264I$ $b = -0.82210 + 1.57135I$	$-3.66858 - 6.44354I$	$-1.59106 + 5.29417I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.334530 - 0.318930I$ $a = -1.29077 - 1.62216I$ $b = 0.328612 - 1.331730I$	$0.46900 - 9.27166I$	$4.93820 + 8.27362I$
$u = 1.334530 - 0.318930I$ $a = -1.94541 - 0.73100I$ $b = 0.234132 - 1.197830I$	$-3.66858 - 6.44354I$	$-1.59106 + 5.29417I$
$u = -0.463640$ $a = -0.863122 + 0.658172I$ $b = -0.171893 - 1.389680I$	-5.20322	$-60.874953 + 0.10I$
$u = -0.463640$ $a = -0.863122 - 0.658172I$ $b = -0.171893 + 1.389680I$	-5.20322	$-60.874953 + 0.10I$
$u = -0.463640$ $a = -0.53791 + 1.70966I$ $b = 0.383023 + 0.964868I$	$-1.06564 + 2.82812I$	$7.40422 - 2.97945I$
$u = -0.463640$ $a = -0.53791 - 1.70966I$ $b = 0.383023 - 0.964868I$	$-1.06564 - 2.82812I$	$7.40422 + 2.97945I$
$u = -0.463640$ $a = -0.11364 + 2.25012I$ $b = -0.512781 - 0.176265I$	$-1.06564 + 2.82812I$	$7.40422 - 2.97945I$
$u = -0.463640$ $a = -0.11364 - 2.25012I$ $b = -0.512781 + 0.176265I$	$-1.06564 - 2.82812I$	$7.40422 + 2.97945I$

III.
$$\boldsymbol{I^u_3 = \langle u^{11} - 5u^9 + \cdots + b + u,\ -u^{10} - u^9 + \cdots + a + 2,\ u^{12} - 6u^{10} + \cdots - 2u + 1\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{10} + u^9 - 4u^8 - 4u^7 + 4u^6 + 5u^5 + 3u^4 - 4u^2 - 3u - 2 \\ -u^{11} + 5u^9 - 8u^7 - u^6 + 2u^5 + 3u^4 + 4u^3 - 2u^2 - u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{11} + u^{10} - 4u^9 - 4u^8 + 4u^7 + 5u^6 + 3u^5 - 4u^3 - 2u^2 - 2u - 2 \\ -u^{11} + 5u^9 - 8u^7 - u^6 + 2u^5 + 3u^4 + 4u^3 - 2u^2 - u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^5 + 2u^3 - u \\ u^7 - 3u^5 + 2u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^{11} - 5u^9 + 9u^7 + 2u^6 - 5u^5 - 6u^4 - 3u^3 + 5u^2 + 4u \\ -u^{10} + 4u^8 - 4u^6 - u^5 - 2u^4 + 2u^3 + 3u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^9 + u^8 - 4u^7 - 4u^6 + 5u^5 + 6u^4 + u^3 - 3u^2 - 4u \\ -u^{10} + 5u^8 - u^7 - 8u^6 + 2u^5 + 3u^4 + u^3 + u^2 - 3u + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{11} + u^{10} - 5u^9 - 4u^8 + 9u^7 + 6u^6 - 4u^5 - 4u^4 - 5u^3 + 2u^2 + 5u - 1 \\ -u^{10} + 4u^8 - 4u^6 - u^5 - 2u^4 + u^3 + 3u^2 + u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^{11} + u^{10} - 5u^9 - 4u^8 + 9u^7 + 6u^6 - 4u^5 - 4u^4 - 5u^3 + 2u^2 + 5u - 1 \\ -u^{10} + 4u^8 - 4u^6 - u^5 - 2u^4 + u^3 + 3u^2 + u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= u^{11} - u^{10} - u^9 + 8u^8 - 8u^7 - 19u^6 + 16u^5 + 16u^4 + 3u^3 - 16u + 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{12}+6u^{10}-u^9+14u^8-4u^7+17u^6-6u^5+12u^4-3u^3+5u^2-u+1$
c_2, c_6	$u^{12}+6u^{10}+u^9+14u^8+4u^7+17u^6+6u^5+12u^4+3u^3+5u^2+u+1$
c_3	$u^{12}+3u^{11}+3u^{10}+u^9+2u^8+4u^7+3u^6+2u^5+2u^4-u^3-2u^2+1$
c_4	$u^{12}+2u^{10}+3u^9+4u^8-4u^7+12u^6-7u^5+3u^4-4u^3+4u^2+2u+1$
c_5	$u^{12}-6u^{10}+13u^8-u^7-10u^6+4u^5-2u^4-5u^3+4u^2+2u+1$
c_7, c_{11}	$u^{12}-u^{11}-u^{10}+u^9+u^8-u^7-u^5+2u^4+2u^3+1$
c_9, c_{10}	$u^{12}-6u^{10}+13u^8+u^7-10u^6-4u^5-2u^4+5u^3+4u^2-2u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_8	$y^{12} + 12y^{11} + \cdots + 9y + 1$
c_3	$y^{12} - 3y^{11} + 7y^{10} - 7y^9 + 6y^8 + 6y^7 - 7y^6 + 14y^5 - 3y^3 + 8y^2 - 4y + 1$
c_4	$y^{12} + 4y^{11} + \cdots + 4y + 1$
c_5, c_9, c_{10}	$y^{12} - 12y^{11} + \cdots + 4y + 1$
c_7, c_{11}	$y^{12} - 3y^{11} + 5y^{10} - 5y^9 + 5y^8 + y^7 + y^5 + 10y^4 - 4y^3 + 4y^2 + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.215104 + 0.798845I$ $a = -0.72776 - 1.83625I$ $b = 0.240699 - 1.306190I$	$-6.79522 - 1.91915I$	$0.40771 + 1.45870I$
$u = -0.215104 - 0.798845I$ $a = -0.72776 + 1.83625I$ $b = 0.240699 + 1.306190I$	$-6.79522 + 1.91915I$	$0.40771 - 1.45870I$
$u = -1.181970 + 0.217891I$ $a = -0.278563 - 0.993678I$ $b = -0.17391 - 1.59240I$	$-4.12723 - 1.52744I$	$6.19652 + 4.95399I$
$u = -1.181970 - 0.217891I$ $a = -0.278563 + 0.993678I$ $b = -0.17391 + 1.59240I$	$-4.12723 + 1.52744I$	$6.19652 - 4.95399I$
$u = 1.286840 + 0.093791I$ $a = -0.095508 + 1.343010I$ $b = 0.506197 - 0.617660I$	$1.54867 - 1.75409I$	$7.03852 + 3.77129I$
$u = 1.286840 - 0.093791I$ $a = -0.095508 - 1.343010I$ $b = 0.506197 + 0.617660I$	$1.54867 + 1.75409I$	$7.03852 - 3.77129I$
$u = 1.334400 + 0.365970I$ $a = 1.33435 - 0.96209I$ $b = -0.445009 - 1.143310I$	$-1.99720 + 6.23322I$	$3.71112 - 3.63849I$
$u = 1.334400 - 0.365970I$ $a = 1.33435 + 0.96209I$ $b = -0.445009 + 1.143310I$	$-1.99720 - 6.23322I$	$3.71112 + 3.63849I$
$u = -1.43060 + 0.17503I$ $a = 0.132739 - 0.441201I$ $b = 0.229430 - 0.594825I$	$3.51165 - 5.19940I$	$5.87830 + 4.31149I$
$u = -1.43060 - 0.17503I$ $a = 0.132739 + 0.441201I$ $b = 0.229430 + 0.594825I$	$3.51165 + 5.19940I$	$5.87830 - 4.31149I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.206431 + 0.331897I$ $a = -2.36526 - 1.65098I$ $b = -0.357408 - 0.662175I$	$-2.01027 + 3.15177I$	$-2.73217 - 5.71624I$
$u = 0.206431 - 0.331897I$ $a = -2.36526 + 1.65098I$ $b = -0.357408 + 0.662175I$	$-2.01027 - 3.15177I$	$-2.73217 + 5.71624I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8	$(u^{12}+6u^{10}-u^9+14u^8-4u^7+17u^6-6u^5+12u^4-3u^3+5u^2-u+1)$ $\cdot(u^{23}+10u^{21}+\cdots+3u-1)(u^{48}+u^{47}+\cdots+160u+293)$
c_2, c_6	$(u^{12}+6u^{10}+u^9+14u^8+4u^7+17u^6+6u^5+12u^4+3u^3+5u^2+u+1)$ $\cdot(u^{23}+10u^{21}+\cdots+3u-1)(u^{48}+u^{47}+\cdots+160u+293)$
c_3	$(u^3+u^2-1)^{16}$ $\cdot(u^{12}+3u^{11}+3u^{10}+u^9+2u^8+4u^7+3u^6+2u^5+2u^4-u^3-2u^2+1)$ $\cdot(u^{23}-24u^{22}+\cdots+3840u-256)$
c_4	$(u^8+3u^7+7u^6+10u^5+11u^4+10u^3+6u^2+4u+1)^6$ $\cdot(u^{12}+2u^{10}+3u^9+4u^8-4u^7+12u^6-7u^5+3u^4-4u^3+4u^2+2u+1)$ $\cdot(u^{23}-21u^{22}+\cdots-11268u+1192)$
c_5	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^6$ $\cdot(u^{12}-6u^{10}+13u^8-u^7-10u^6+4u^5-2u^4-5u^3+4u^2+2u+1)$ $\cdot(u^{23}+7u^{22}+\cdots+20u-8)$
c_7, c_{11}	$(u^{12}-u^{11}-u^{10}+u^9+u^8-u^7-u^5+2u^4+2u^3+1)$ $\cdot(u^{23}+u^{22}+\cdots+3u^2-1)(u^{48}+3u^{47}+\cdots+890u+173)$
c_9, c_{10}	$(u^8-u^7-3u^6+2u^5+3u^4-2u-1)^6$ $\cdot(u^{12}-6u^{10}+13u^8+u^7-10u^6-4u^5-2u^4+5u^3+4u^2-2u+1)$ $\cdot(u^{23}+7u^{22}+\cdots+20u-8)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6 c_8	$(y^{12} + 12y^{11} + \cdots + 9y + 1)(y^{23} + 20y^{22} + \cdots + 13y - 1)$ $\cdot (y^{48} + 39y^{47} + \cdots - 564720y + 85849)$
c_3	$(y^3 - y^2 + 2y - 1)^{16}$ $\cdot (y^{12} - 3y^{11} + 7y^{10} - 7y^9 + 6y^8 + 6y^7 - 7y^6 + 14y^5 - 3y^3 + 8y^2 - 4y + 1)$ $\cdot (y^{23} - 4y^{22} + \cdots + 131072y - 65536)$
c_4	$(y^8 + 5y^7 + 11y^6 + 6y^5 - 17y^4 - 34y^3 - 22y^2 - 4y + 1)^6$ $\cdot (y^{12} + 4y^{11} + \cdots + 4y + 1)(y^{23} + 9y^{22} + \cdots + 1.91157 \times 10^7 y - 1420864)$
c_5, c_9, c_{10}	$(y^8 - 7y^7 + 19y^6 - 22y^5 + 3y^4 + 14y^3 - 6y^2 - 4y + 1)^6$ $\cdot (y^{12} - 12y^{11} + \cdots + 4y + 1)(y^{23} - 19y^{22} + \cdots + 144y - 64)$
c_7, c_{11}	$(y^{12} - 3y^{11} + 5y^{10} - 5y^9 + 5y^8 + y^7 + y^5 + 10y^4 - 4y^3 + 4y^2 + 1)$ $\cdot (y^{23} - 3y^{22} + \cdots + 6y - 1)(y^{48} - 13y^{47} + \cdots - 826008y + 29929)$