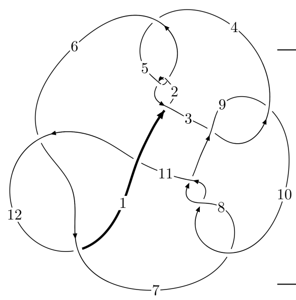
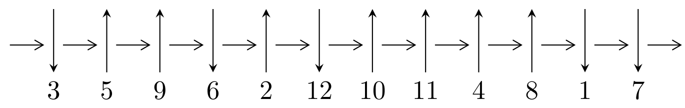
$12a_{0182}$ ($K12a_{0182}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 1.01638 \times 10^{144} u^{70} + 3.79783 \times 10^{144} u^{69} + \cdots + 2.19432 \times 10^{148} d + 4.74337 \times 10^{147}, \\
& -1.52787 \times 10^{144} u^{70} + 2.07626 \times 10^{144} u^{69} + \cdots + 3.13474 \times 10^{147} c - 1.26268 \times 10^{147}, \\
& 2.08280 \times 10^{163} u^{70} - 6.54445 \times 10^{163} u^{69} + \cdots + 3.56067 \times 10^{166} b - 1.75912 \times 10^{166}, \\
& 2.20933 \times 10^{163} u^{70} - 4.97335 \times 10^{163} u^{69} + \cdots + 1.01733 \times 10^{166} a - 9.57968 \times 10^{164}, \\
& u^{71} - 2u^{70} + \cdots + 1536u^2 - 512 \rangle \\
I_2^u = \langle & c^2 u + u^2 c + d - c, \\
& u^8 c + u^8 - 3u^6 c + u^7 - u^5 c - 2u^6 + 4u^4 c - 3u^5 + 2u^3 c + u^4 + c^3 - u^2 c + 3u^3 - 2cu + 2u^2 - c - 1, \\
& u^8 - 2u^6 + 2u^4 + b,\ -u^6 + u^4 + a - 1,\ u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1 \rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ d - v + 1,\ av + c - v,\ b + v,\ v^2 - v + 1 \rangle \\
I_2^v &= \langle a,\ d,\ c - v,\ b - v,\ v^2 + v + 1 \rangle \\
I_3^v &= \langle c,\ d + 1,\ b,\ a - 1,\ v - 1 \rangle \\
I_4^v &= \langle a,\ da - cb - d - b - 1,\ dv + 1,\ cv - ba - bv + b - a + 1,\ b^2 + b + 1 \rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 103 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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. $I^u_1 =$
$\langle 1.02 \times 10^{144} u^{70} + 3.80 \times 10^{144} u^{69} + \cdots + 2.19 \times 10^{148} d + 4.74 \times 10^{147},\ -1.53 \times 10^{144} u^{70} + 2.08 \times 10^{144} u^{69} + \cdots + 3.13 \times 10^{147} c - 1.26 \times 10^{147},\ 2.08 \times 10^{163} u^{70} - 6.54 \times 10^{163} u^{69} + \cdots + 3.56 \times 10^{166} b - 1.76 \times 10^{166},\ 2.21 \times 10^{163} u^{70} - 4.97 \times 10^{163} u^{69} + \cdots + 1.02 \times 10^{166} a - 9.58 \times 10^{164},\ u^{71} - 2u^{70} + \cdots + 1536u^2 - 512 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.00217169u^{70} + 0.00488861u^{69} + \cdots - 2.25991u + 0.0941645 \\ -0.000584947u^{70} + 0.00183798u^{69} + \cdots - 0.979894u + 0.494041 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.000125704u^{70} + 0.00219339u^{69} + \cdots - 0.129419u + 0.703347 \\ 0.000888998u^{70} - 0.00320644u^{69} + \cdots + 2.30414u - 0.769289 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.000125704u^{70} + 0.00219339u^{69} + \cdots - 0.129419u + 0.703347 \\ -0.00231995u^{70} + 0.00405624u^{69} + \cdots - 2.36850u - 0.482448 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00101470u^{70} - 0.00101305u^{69} + \cdots + 2.17472u - 0.0659421 \\ 0.000888998u^{70} - 0.00320644u^{69} + \cdots + 2.30414u - 0.769289 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.000487399u^{70} - 0.000662337u^{69} + \cdots + 1.64247u + 0.402802 \\ -0.0000463186u^{70} - 0.000173075u^{69} + \cdots + 0.648446u - 0.216166 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.000515659u^{70} + 0.000632921u^{69} + \cdots - 0.744479u - 0.458988 \\ 0.0000317918u^{70} + 0.0000611450u^{69} + \cdots + 1.16201u + 0.147793 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.000533717u^{70} + 0.000489262u^{69} + \cdots - 0.994027u - 0.618968 \\ 0.000164426u^{70} - 0.000246208u^{69} + \cdots + 0.921710u + 0.0798584 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.00194846u^{70} - 0.00138153u^{69} + \cdots + 2.53194u + 0.453579 \\ 0.000595399u^{70} - 0.00245201u^{69} + \cdots + 1.96648u - 0.834037 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.000644196u^{70} + 0.0111115u^{69} + \cdots - 0.863041u + 15.1191$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$u^{71} + 24u^{70} + \cdots - 40u - 16$
c_2, c_5	$u^{71} + 2u^{70} + \cdots - 5u^2 - 4$
c_3, c_9	$u^{71} - 2u^{70} + \cdots + 1536u^2 - 512$
c_6, c_{12}	$u^{71} - 8u^{70} + \cdots + 56u - 16$
c_7, c_8, c_{10}	$u^{71} + 8u^{70} + \cdots + 56u - 16$
c_{11}	$u^{71} + 30u^{70} + \cdots + 4640u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y^{71} + 48y^{70} + \cdots - 6880y - 256$
c_2, c_5	$y^{71} + 24y^{70} + \cdots - 40y - 16$
c_3, c_9	$y^{71} - 30y^{70} + \cdots + 1572864y - 262144$
c_6, c_{12}	$y^{71} - 30y^{70} + \cdots + 4640y - 256$
c_7, c_8, c_{10}	$y^{71} - 70y^{70} + \cdots - 1504y - 256$
c_{11}	$y^{71} + 30y^{70} + \cdots + 5022208y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.372595+0.922213I$ $a=\ \ 0.706869+0.294839I$ $b=-0.705480+0.710846I$ $c=-0.470907+0.554383I$ $d=-1.70042+0.50968I$	$-0.206074+1.106620I$	$1.82615-2.10157I$
$u=-0.372595-0.922213I$ $a=\ \ 0.706869-0.294839I$ $b=-0.705480-0.710846I$ $c=-0.470907-0.554383I$ $d=-1.70042-0.50968I$	$-0.206074-1.106620I$	$1.82615+2.10157I$
$u=\ \ 0.661751+0.731261I$ $a=\ \ 1.05387-1.06299I$ $b=\ \ 0.033676-0.991675I$ $c=\ \ 0.475791+0.487011I$ $d=\ \ 1.339240-0.225092I$	$-5.31233-1.23150I$	$-6.16629+0.79467I$
$u=\ \ 0.661751-0.731261I$ $a=\ \ 1.05387+1.06299I$ $b=\ \ 0.033676+0.991675I$ $c=\ \ 0.475791-0.487011I$ $d=\ \ 1.339240+0.225092I$	$-5.31233+1.23150I$	$-6.16629-0.79467I$
$u=\ \ 0.216094+0.961248I$ $a=\ \ 0.490833+0.220678I$ $b=\ \ 0.626372-0.146182I$ $c=\ \ 0.190153-1.314880I$ $d=-0.304165-0.812210I$	$2.60149-2.06138I$	$6.60052+3.22142I$
$u=\ \ 0.216094-0.961248I$ $a=\ \ 0.490833-0.220678I$ $b=\ \ 0.626372+0.146182I$ $c=\ \ 0.190153+1.314880I$ $d=-0.304165+0.812210I$	$2.60149+2.06138I$	$6.60052-3.22142I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.510340 + 0.919175I$ $a = 0.97241 + 1.52837I$ $b = 0.167182 + 1.050320I$ $c = -0.387643 - 1.176070I$ $d = 0.698084 - 0.628537I$	$-1.22762 + 4.53498I$	$-0.48837 - 4.83158I$
$u = -0.510340 - 0.919175I$ $a = 0.97241 - 1.52837I$ $b = 0.167182 - 1.050320I$ $c = -0.387643 + 1.176070I$ $d = 0.698084 + 0.628537I$	$-1.22762 - 4.53498I$	$-0.48837 + 4.83158I$
$u = 0.843761 + 0.417994I$ $a = -3.24462 + 0.27087I$ $b = 0.648309 + 0.950753I$ $c = 0.537281 + 0.453998I$ $d = 0.703145 - 0.615016I$	$-1.74336 + 3.95563I$	$0.57229 - 6.63484I$
$u = 0.843761 - 0.417994I$ $a = -3.24462 - 0.27087I$ $b = 0.648309 - 0.950753I$ $c = 0.537281 - 0.453998I$ $d = 0.703145 + 0.615016I$	$-1.74336 - 3.95563I$	$0.57229 + 6.63484I$
$u = -0.980094 + 0.401535I$ $a = 0.780465 + 0.104472I$ $b = -0.675884 + 0.258339I$ $c = -0.548184 + 0.485014I$ $d = -0.641289 - 0.881527I$	$0.13020 - 4.00402I$	$4.41276 + 6.69495I$
$u = -0.980094 - 0.401535I$ $a = 0.780465 - 0.104472I$ $b = -0.675884 - 0.258339I$ $c = -0.548184 - 0.485014I$ $d = -0.641289 + 0.881527I$	$0.13020 + 4.00402I$	$4.41276 - 6.69495I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.482781 + 0.984718I$ $a = 0.632388 + 0.401253I$ $b = -0.681961 + 0.973056I$ $c = 0.486783 + 0.532736I$ $d = 1.88522 + 0.25805I$	$-0.99233 - 6.45679I$	$0.34368 + 6.97496I$
$u = 0.482781 - 0.984718I$ $a = 0.632388 - 0.401253I$ $b = -0.681961 - 0.973056I$ $c = 0.486783 - 0.532736I$ $d = 1.88522 - 0.25805I$	$-0.99233 + 6.45679I$	$0.34368 - 6.97496I$
$u = 0.777198 + 0.427799I$ $a = 0.661548 + 0.487935I$ $b = -0.527615 + 1.024960I$ $c = 0.525019 + 0.439223I$ $d = 0.729049 - 0.488658I$	$-1.94652 - 0.34051I$	$-0.37051 - 3.03065I$
$u = 0.777198 - 0.427799I$ $a = 0.661548 - 0.487935I$ $b = -0.527615 - 1.024960I$ $c = 0.525019 - 0.439223I$ $d = 0.729049 + 0.488658I$	$-1.94652 + 0.34051I$	$-0.37051 + 3.03065I$
$u = 1.127060 + 0.152551I$ $a = 0.639024 + 0.570894I$ $b = -0.435782 + 1.114890I$ $c = -1.214770 + 0.100113I$ $d = -1.35450 + 0.44354I$	$4.50468 - 2.47836I$	$7.49354 + 3.38416I$
$u = 1.127060 - 0.152551I$ $a = 0.639024 - 0.570894I$ $b = -0.435782 - 1.114890I$ $c = -1.214770 - 0.100113I$ $d = -1.35450 - 0.44354I$	$4.50468 + 2.47836I$	$7.49354 - 3.38416I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.982347 + 0.611518I$ $a = \quad 0.755795 - 0.846393I$ $b = -0.132131 - 1.098790I$ $c = \quad 0.515465 + 0.490470I$ $d = \quad 1.08458 - 0.93082I$	$-4.29573 + 6.37313I$	$-3.00781 - 7.19219I$
$u = \quad 0.982347 - 0.611518I$ $a = \quad 0.755795 + 0.846393I$ $b = -0.132131 + 1.098790I$ $c = \quad 0.515465 - 0.490470I$ $d = \quad 1.08458 + 0.93082I$	$-4.29573 - 6.37313I$	$-3.00781 + 7.19219I$
$u = \quad 1.173990 + 0.222972I$ $a = -2.07252 - 0.44952I$ $b = \quad 0.744384 + 0.914398I$ $c = \quad 0.606381 - 0.672488I$ $d = -0.633879 + 0.879788I$	$5.09577 + 1.83902I$	$8.24819 + 0.I$
$u = \quad 1.173990 - 0.222972I$ $a = -2.07252 + 0.44952I$ $b = \quad 0.744384 - 0.914398I$ $c = \quad 0.606381 + 0.672488I$ $d = -0.633879 - 0.879788I$	$5.09577 - 1.83902I$	$8.24819 + 0.I$
$u = -1.203430 + 0.094057I$ $a = -1.52309 - 0.96637I$ $b = \quad 0.774513 + 0.827694I$ $c = -0.596615 - 0.625599I$ $d = \quad 0.431350 + 1.041490I$	$5.36659 + 3.89584I$	$8.41567 - 5.55146I$
$u = -1.203430 - 0.094057I$ $a = -1.52309 + 0.96637I$ $b = \quad 0.774513 - 0.827694I$ $c = -0.596615 + 0.625599I$ $d = \quad 0.431350 - 1.041490I$	$5.36659 - 3.89584I$	$8.41567 + 5.55146I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.117530+0.478181I$ $a = 0.690211-0.765567I$ $b = -0.209298-1.133130I$ $c = -1.116800+0.271956I$ $d = -1.28841+1.30589I$	$3.15531+5.12152I$	0
$u = 1.117530-0.478181I$ $a = 0.690211+0.765567I$ $b = -0.209298+1.133130I$ $c = -1.116800-0.271956I$ $d = -1.28841-1.30589I$	$3.15531-5.12152I$	0
$u = -1.137650+0.460214I$ $a = 0.609632-0.520416I$ $b = -0.523715-1.123490I$ $c = 1.116170+0.256986I$ $d = 1.24509+1.25727I$	$3.19656-2.55854I$	0
$u = -1.137650-0.460214I$ $a = 0.609632+0.520416I$ $b = -0.523715+1.123490I$ $c = 1.116170-0.256986I$ $d = 1.24509-1.25727I$	$3.19656+2.55854I$	0
$u = -0.725491+0.260568I$ $a = -0.74999-2.93714I$ $b = 0.621787+0.746410I$ $c = -0.573783+0.383951I$ $d = -0.438809-0.376035I$	$-1.09934+1.05821I$	$3.09814+1.72718I$
$u = -0.725491-0.260568I$ $a = -0.74999+2.93714I$ $b = 0.621787-0.746410I$ $c = -0.573783-0.383951I$ $d = -0.438809+0.376035I$	$-1.09934-1.05821I$	$3.09814-1.72718I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.247645 + 1.226350I$ $a = 0.653789 + 0.300056I$ $b = -0.795711 + 0.784067I$ $c = -0.133830 - 1.140380I$ $d = 0.422479 - 1.218340I$	$6.94619 - 1.12108I$	0
$u = -0.247645 - 1.226350I$ $a = 0.653789 - 0.300056I$ $b = -0.795711 - 0.784067I$ $c = -0.133830 + 1.140380I$ $d = 0.422479 + 1.218340I$	$6.94619 + 1.12108I$	0
$u = 0.464983 + 0.581438I$ $a = 1.72522 - 0.64973I$ $b = 0.139048 - 0.768176I$ $c = 0.71852 - 1.33569I$ $d = -0.442687 - 0.257326I$	$1.011140 - 0.938516I$	$3.66296 - 0.79830I$
$u = 0.464983 - 0.581438I$ $a = 1.72522 + 0.64973I$ $b = 0.139048 + 0.768176I$ $c = 0.71852 + 1.33569I$ $d = -0.442687 + 0.257326I$	$1.011140 + 0.938516I$	$3.66296 + 0.79830I$
$u = 0.368570 + 1.210560I$ $a = 0.618935 + 0.372180I$ $b = -0.745652 + 0.954700I$ $c = 0.194177 - 1.117100I$ $d = -0.623618 - 1.150760I$	$6.42018 - 4.68044I$	0
$u = 0.368570 - 1.210560I$ $a = 0.618935 - 0.372180I$ $b = -0.745652 - 0.954700I$ $c = 0.194177 + 1.117100I$ $d = -0.623618 + 1.150760I$	$6.42018 + 4.68044I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.248660 + 0.306382I$ $a = 0.734113 + 0.059783I$ $b = -0.802776 + 0.158635I$ $c = 1.116690 + 0.156605I$ $d = 0.994223 + 0.843737I$	$7.51654 - 1.91781I$	0
$u = -1.248660 - 0.306382I$ $a = 0.734113 - 0.059783I$ $b = -0.802776 - 0.158635I$ $c = 1.116690 - 0.156605I$ $d = 0.994223 - 0.843737I$	$7.51654 + 1.91781I$	0
$u = 0.504947 + 1.215580I$ $a = 0.662564 - 0.264148I$ $b = -0.825179 - 0.702952I$ $c = 0.245007 - 1.071700I$ $d = -0.859773 - 1.094450I$	$5.42990 - 4.32973I$	0
$u = 0.504947 - 1.215580I$ $a = 0.662564 + 0.264148I$ $b = -0.825179 + 0.702952I$ $c = 0.245007 + 1.071700I$ $d = -0.859773 + 1.094450I$	$5.42990 + 4.32973I$	0
$u = -1.152900 + 0.667545I$ $a = 0.653927 + 0.849988I$ $b = -0.143613 + 1.176100I$ $c = 1.028980 + 0.314229I$ $d = 1.17468 + 1.72508I$	$0.80414 - 10.42400I$	0
$u = -1.152900 - 0.667545I$ $a = 0.653927 - 0.849988I$ $b = -0.143613 - 1.176100I$ $c = 1.028980 - 0.314229I$ $d = 1.17468 - 1.72508I$	$0.80414 + 10.42400I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.185800+0.609579I$ $a=-0.604647-0.948689I$ $b=\ \ 0.833000+0.664986I$ $c=-0.515530+0.509861I$ $d=-1.03285-1.38981I$	$2.33908-6.73341I$	0
$u=-1.185800-0.609579I$ $a=-0.604647+0.948689I$ $b=\ \ 0.833000-0.664986I$ $c=-0.515530-0.509861I$ $d=-1.03285+1.38981I$	$2.33908+6.73341I$	0
$u=-0.593784+1.208600I$ $a=\ \ 0.602225-0.393473I$ $b=-0.733361-1.011480I$ $c=-0.274626-1.042820I$ $d=\ \ 1.00911-1.02929I$	$4.48821+10.17210I$	0
$u=-0.593784-1.208600I$ $a=\ \ 0.602225+0.393473I$ $b=-0.733361+1.011480I$ $c=-0.274626+1.042820I$ $d=\ \ 1.00911+1.02929I$	$4.48821-10.17210I$	0
$u=\ \ 1.233000+0.545251I$ $a=\ \ 0.716779-0.101507I$ $b=-0.834377-0.273084I$ $c=-1.052540+0.252051I$ $d=-1.00331+1.44383I$	$5.82408+7.48275I$	0
$u=\ \ 1.233000-0.545251I$ $a=\ \ 0.716779+0.101507I$ $b=-0.834377+0.273084I$ $c=-1.052540-0.252051I$ $d=-1.00331-1.44383I$	$5.82408-7.48275I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.176438+0.617781I$ $a=-1.24181-5.67569I$ $b=\ \ 0.472468-0.965679I$ $c=-0.38103-1.75179I$ $d=\ \ 0.176185-0.407221I$	$0.42738-1.60074I$	$0.77404+2.18898I$
$u=-0.176438-0.617781I$ $a=-1.24181+5.67569I$ $b=\ \ 0.472468+0.965679I$ $c=-0.38103+1.75179I$ $d=\ \ 0.176185+0.407221I$	$0.42738+1.60074I$	$0.77404-2.18898I$
$u=\ \ 1.181300+0.680585I$ $a=-1.94797+0.51901I$ $b=\ \ 0.722487+1.031630I$ $c=\ \ 0.510240+0.507622I$ $d=\ \ 1.20020-1.39980I$	$1.22414+12.55690I$	0
$u=\ \ 1.181300-0.680585I$ $a=-1.94797-0.51901I$ $b=\ \ 0.722487-1.031630I$ $c=\ \ 0.510240-0.507622I$ $d=\ \ 1.20020+1.39980I$	$1.22414-12.55690I$	0
$u=\ \ 0.010891+0.626888I$ $a=\ \ 0.717451-0.379980I$ $b=-0.596253-0.833536I$ $c=-0.145864+0.996178I$ $d=-0.36117+2.00147I$	$0.65592+2.35939I$	$1.51759-4.85897I$
$u=\ \ 0.010891-0.626888I$ $a=\ \ 0.717451+0.379980I$ $b=-0.596253+0.833536I$ $c=-0.145864-0.996178I$ $d=-0.36117-2.00147I$	$0.65592-2.35939I$	$1.51759+4.85897I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.617428 + 0.085193I$		
$a = \quad 0.771703 + 0.515946I$		
$b = -0.399151 + 0.927946I$	$-0.93328 - 2.67780I$	$3.99337 + 7.95500I$
$c = -0.667996 + 0.208298I$		
$d = -0.215095 - 0.146010I$		
$u = -0.617428 - 0.085193I$		
$a = \quad 0.771703 - 0.515946I$		
$b = -0.399151 - 0.927946I$	$-0.93328 + 2.67780I$	$3.99337 - 7.95500I$
$c = -0.667996 - 0.208298I$		
$d = -0.215095 + 0.146010I$		
$u = \quad 0.591164$		
$a = \quad 0.929806$		
$b = -0.315087$	1.02886	10.5160
$c = \quad 1.20948$		
$d = -0.0779789$		
$u = -0.282782 + 0.492299I$		
$a = \quad 1.070690 - 0.124673I$		
$b = \quad 0.198227 + 0.270585I$	$-1.67984 + 0.60130I$	$-3.90300 - 0.33160I$
$c = -0.298696 + 0.445240I$		
$d = -0.632940 + 0.412834I$		
$u = -0.282782 - 0.492299I$		
$a = \quad 1.070690 + 0.124673I$		
$b = \quad 0.198227 - 0.270585I$	$-1.67984 - 0.60130I$	$-3.90300 + 0.33160I$
$c = -0.298696 - 0.445240I$		
$d = -0.632940 - 0.412834I$		
$u = -1.33133 + 0.61244I$		
$a = -0.691353 - 0.789833I$		
$b = \quad 0.877454 + 0.689350I$	$10.54930 - 5.35435I$	0
$c = \quad 1.004370 + 0.240216I$		
$d = \quad 0.77088 + 1.60236I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.33133 - 0.61244I$ $a = -0.691353 + 0.789833I$ $b = 0.877454 - 0.689350I$ $c = 1.004370 - 0.240216I$ $d = 0.77088 - 1.60236I$	$10.54930 + 5.35435I$	0
$u = 1.29995 + 0.68416I$ $a = -1.77475 + 0.42337I$ $b = 0.751329 + 1.038160I$ $c = -0.990397 + 0.266490I$ $d = -0.85024 + 1.76626I$	$9.4739 + 11.4004I$	0
$u = 1.29995 - 0.68416I$ $a = -1.77475 - 0.42337I$ $b = 0.751329 - 1.038160I$ $c = -0.990397 - 0.266490I$ $d = -0.85024 - 1.76626I$	$9.4739 - 11.4004I$	0
$u = 1.27239 + 0.75883I$ $a = -0.528127 + 0.758818I$ $b = 0.887462 - 0.636245I$ $c = -0.972392 + 0.290048I$ $d = -0.92205 + 1.92929I$	$7.95427 + 11.37060I$	0
$u = 1.27239 - 0.75883I$ $a = -0.528127 - 0.758818I$ $b = 0.887462 + 0.636245I$ $c = -0.972392 - 0.290048I$ $d = -0.92205 - 1.92929I$	$7.95427 - 11.37060I$	0
$u = -1.24401 + 0.80606I$ $a = -1.73933 - 0.62055I$ $b = 0.732124 - 1.065030I$ $c = 0.961782 + 0.307183I$ $d = 0.99186 + 2.02574I$	$6.6365 - 17.3722I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.24401-0.80606I$ $a=-1.73933+0.62055I$ $b=\ 0.732124+1.065030I$ $c=\ 0.961782-0.307183I$ $d=\ 0.99186-2.02574I$	$6.6365+17.3722I$	0
$u=-1.51788+0.06429I$ $a=-1.289590-0.499691I$ $b=\ 0.858480+0.864860I$ $c=\ 1.033780+0.023696I$ $d=\ 0.276083+0.176660I$	$13.78050-0.08878I$	0
$u=-1.51788-0.06429I$ $a=-1.289590+0.499691I$ $b=\ 0.858480-0.864860I$ $c=\ 1.033780-0.023696I$ $d=\ 0.276083-0.176660I$	$13.78050+0.08878I$	0
$u=\ 1.51414+0.16464I$ $a=-1.47755-0.28880I$ $b=\ 0.837181+0.923149I$ $c=-1.029750+0.060361I$ $d=-0.287259+0.451271I$	$13.6007+6.3599I$	0
$u=\ 1.51414-0.16464I$ $a=-1.47755+0.28880I$ $b=\ 0.837181-0.923149I$ $c=-1.029750-0.060361I$ $d=-0.287259-0.451271I$	$13.6007-6.3599I$	0

II. $I_2^u = \langle c^2u + u^2c + d - c,\ u^8c + u^8 + \cdots - c - 1,\ u^8 - 2u^6 + 2u^4 + b,\ -u^6 + u^4 + a - 1,\ u^9 + u^8 + \cdots - u - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u^6 - u^4 + 1 \\ -u^8 + 2u^6 - 2u^4 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^3 \\ -u^3 + u \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 \\ -u^5 + u^3 - u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -c^2u \\ u^3c^2 - c^2u + c \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -c^2u - u^2c \\ u^3c^2 + u^4c - c^2u - u^2c + c \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^3c^2 + c \\ -u^5c^2 + u^3c^2 - c^2u - u^2c + c \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 4u^7 - 8u^5 - 4u^4 + 8u^3 + 4u^2 + 4u + 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_4	$(u^9 + 3u^8 + 8u^7 + 13u^6 + 17u^5 + 17u^4 + 12u^3 + 6u^2 + u - 1)^3$
c_2, c_5	$(u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1)^3$
c_3, c_9	$(u^9 + u^8 - 2u^7 - 3u^6 + u^5 + 3u^4 + 2u^3 - u - 1)^3$
c_6, c_7, c_8 c_{10}, c_{12}	$u^{27} - 9u^{25} + \cdots - u + 1$
c_{11}	$u^{27} + 18u^{26} + \cdots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_4	$(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$
c_2, c_5	$(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$
c_3, c_9	$(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$
c_6, c_7, c_8 c_{10}, c_{12}	$y^{27}-18y^{26}+\cdots+5y-1$
c_{11}	$y^{27}-18y^{26}+\cdots-15y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.772920 + 0.510351I$ $a = 0.917974 + 0.753965I$ $b = -0.140343 + 0.966856I$ $c = -0.719765 - 0.954592I$ $d = 0.673261 + 0.061997I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 + 0.510351I$ $a = 0.917974 + 0.753965I$ $b = -0.140343 + 0.966856I$ $c = -0.508051 + 0.453456I$ $d = -0.889180 - 0.483066I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 + 0.510351I$ $a = 0.917974 + 0.753965I$ $b = -0.140343 + 0.966856I$ $c = 1.227820 + 0.501136I$ $d = 2.01788 + 1.61089I$	$-1.78344 - 2.09337I$	$-0.51499 + 4.16283I$
$u = -0.772920 - 0.510351I$ $a = 0.917974 - 0.753965I$ $b = -0.140343 - 0.966856I$ $c = -0.719765 + 0.954592I$ $d = 0.673261 - 0.061997I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$
$u = -0.772920 - 0.510351I$ $a = 0.917974 - 0.753965I$ $b = -0.140343 - 0.966856I$ $c = -0.508051 - 0.453456I$ $d = -0.889180 + 0.483066I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$
$u = -0.772920 - 0.510351I$ $a = 0.917974 - 0.753965I$ $b = -0.140343 - 0.966856I$ $c = 1.227820 - 0.501136I$ $d = 2.01788 - 1.61089I$	$-1.78344 + 2.09337I$	$-0.51499 - 4.16283I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.825933$ $a = 0.852096$ $b = -0.512358$ $c = 0.753259 + 0.486083I$ $d = -0.034073 - 0.450330I$	1.19845	8.65230
$u = 0.825933$ $a = 0.852096$ $b = -0.512358$ $c = 0.753259 - 0.486083I$ $d = -0.034073 + 0.450330I$	1.19845	8.65230
$u = 0.825933$ $a = 0.852096$ $b = -0.512358$ $c = -1.50652$ $d = -2.35336$	1.19845	8.65230
$u = 1.173910 + 0.391555I$ $a = -0.92292 + 1.10816I$ $b = 0.796005 - 0.733148I$ $c = 0.585219 - 0.735474I$ $d = -0.911760 + 0.715540I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 1.173910 + 0.391555I$ $a = -0.92292 + 1.10816I$ $b = 0.796005 - 0.733148I$ $c = -1.125820 + 0.215546I$ $d = -1.17222 + 1.07817I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$
$u = 1.173910 + 0.391555I$ $a = -0.92292 + 1.10816I$ $b = 0.796005 - 0.733148I$ $c = 0.540604 + 0.519928I$ $d = 0.550840 - 1.282330I$	$4.37135 + 1.33617I$	$7.28409 - 0.70175I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.173910 - 0.391555I$ $a = -0.92292 - 1.10816I$ $b = 0.796005 + 0.733148I$ $c = 0.585219 + 0.735474I$ $d = -0.911760 - 0.715540I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 1.173910 - 0.391555I$ $a = -0.92292 - 1.10816I$ $b = 0.796005 + 0.733148I$ $c = -1.125820 - 0.215546I$ $d = -1.17222 - 1.07817I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = 1.173910 - 0.391555I$ $a = -0.92292 - 1.10816I$ $b = 0.796005 + 0.733148I$ $c = 0.540604 - 0.519928I$ $d = 0.550840 + 1.282330I$	$4.37135 - 1.33617I$	$7.28409 + 0.70175I$
$u = -0.141484 + 0.739668I$ $a = 0.688816 - 0.385922I$ $b = -0.628449 - 0.875112I$ $c = 0.588998 + 0.928874I$ $d = 1.44140 + 2.07815I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.141484 + 0.739668I$ $a = 0.688816 - 0.385922I$ $b = -0.628449 - 0.875112I$ $c = -0.370252 + 0.657000I$ $d = -1.10445 + 1.07485I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$
$u = -0.141484 + 0.739668I$ $a = 0.688816 - 0.385922I$ $b = -0.628449 - 0.875112I$ $c = -0.21875 - 1.58587I$ $d = 0.162007 - 0.544526I$	$0.61694 + 2.45442I$	$2.32792 - 2.91298I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.141484 - 0.739668I$ $a = 0.688816 + 0.385922I$ $b = -0.628449 + 0.875112I$ $c = 0.588998 - 0.928874I$ $d = 1.44140 - 2.07815I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$
$u = -0.141484 - 0.739668I$ $a = 0.688816 + 0.385922I$ $b = -0.628449 + 0.875112I$ $c = -0.370252 - 0.657000I$ $d = -1.10445 - 1.07485I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$
$u = -0.141484 - 0.739668I$ $a = 0.688816 + 0.385922I$ $b = -0.628449 + 0.875112I$ $c = -0.21875 + 1.58587I$ $d = 0.162007 + 0.544526I$	$0.61694 - 2.45442I$	$2.32792 + 2.91298I$
$u = -1.172470 + 0.500383I$ $a = -2.10992 - 0.19571I$ $b = 0.728966 - 0.986295I$ $c = -0.561253 - 0.771469I$ $d = 1.079830 + 0.592867I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -1.172470 + 0.500383I$ $a = -2.10992 - 0.19571I$ $b = 0.728966 - 0.986295I$ $c = 1.088090 + 0.258687I$ $d = 1.15257 + 1.34568I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$
$u = -1.172470 + 0.500383I$ $a = -2.10992 - 0.19571I$ $b = 0.728966 - 0.986295I$ $c = -0.526836 + 0.512782I$ $d = -0.78942 - 1.32272I$	$3.59813 - 7.08493I$	$5.57680 + 5.91335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.172470 - 0.500383I$ $a = -2.10992 + 0.19571I$ $b = 0.728966 + 0.986295I$ $c = -0.561253 + 0.771469I$ $d = 1.079830 - 0.592867I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = -1.172470 - 0.500383I$ $a = -2.10992 + 0.19571I$ $b = 0.728966 + 0.986295I$ $c = 1.088090 - 0.258687I$ $d = 1.15257 - 1.34568I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$
$u = -1.172470 - 0.500383I$ $a = -2.10992 + 0.19571I$ $b = 0.728966 + 0.986295I$ $c = -0.526836 - 0.512782I$ $d = -0.78942 + 1.32272I$	$3.59813 + 7.08493I$	$5.57680 - 5.91335I$

III. $I_1^v = \langle a,\ d - v + 1,\ av + c - v,\ b + v,\ v^2 - v + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v + 11$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$ $c = 0.500000 + 0.866025I$ $d = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$9.00000 - 3.46410I$
$v = 0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$ $c = 0.500000 - 0.866025I$ $d = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$9.00000 + 3.46410I$

IV. $I_2^v = \langle a,\ d,\ c - v,\ b - v,\ v^2 + v + 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} 1 \\ -v - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} v \\ v + 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -v \\ -v - 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

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

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

$$a_{12} = \begin{pmatrix} 0 \\ -v - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$ $c = -0.500000 + 0.866025I$ $d = 0$	$-1.64493 - 2.02988I$	$-3.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$ $c = -0.500000 - 0.866025I$ $d = 0$	$-1.64493 + 2.02988I$	$-3.00000 - 3.46410I$

V. $I_3^v = \langle c,\ d+1,\ b,\ a-1,\ v-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_9	y
c_6, c_7, c_8 c_{10}, c_{11}, c_{12}	$y-1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 1.00000$ $b = 0$ $c = 0$ $d = -1.00000$	0	0

VI. $\boldsymbol{I_4^v = \langle a,\ da - cb - d - b - 1,\ dv + 1,\ cv - ba - bv + b - a + 1,\ b^2 + b + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ b \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -b - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} b \\ b + 1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -b \\ -b - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} c \\ -cb - b - 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -c + v \\ cb + b + 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -c \\ cb + b + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} c - b \\ -cb - 2b - 2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= c^2b + c^2 - v^2 + 2c + 3b + 4$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$ $a = \cdots$ $b = \cdots$ $c = \cdots$ $d = \cdots$	$2.02988I$	$0.00174 + 3.27049I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_4	$u(u^2-u+1)^2$ $\cdot(u^9+3u^8+8u^7+13u^6+17u^5+17u^4+12u^3+6u^2+u-1)^3$ $\cdot(u^{71}+24u^{70}+\cdots-40u-16)$
c_2	$u(u^2+u+1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^3$ $\cdot(u^{71}+2u^{70}+\cdots-5u^2-4)$
c_3, c_9	$u^5(u^9+u^8-2u^7-3u^6+u^5+3u^4+2u^3-u-1)^3$ $\cdot(u^{71}-2u^{70}+\cdots+1536u^2-512)$
c_5	$u(u^2-u+1)^2(u^9+u^8+2u^7+u^6+3u^5+u^4+2u^3+u-1)^3$ $\cdot(u^{71}+2u^{70}+\cdots-5u^2-4)$
c_6	$u^2(u-1)^2(u+1)(u^{27}-9u^{25}+\cdots-u+1)(u^{71}-8u^{70}+\cdots+56u-16)$
c_7, c_8	$u^2(u+1)^3(u^{27}-9u^{25}+\cdots-u+1)(u^{71}+8u^{70}+\cdots+56u-16)$
c_{10}	$u^2(u-1)^3(u^{27}-9u^{25}+\cdots-u+1)(u^{71}+8u^{70}+\cdots+56u-16)$
c_{11}	$u^2(u-1)^3(u^{27}+18u^{26}+\cdots+5u+1)$ $\cdot(u^{71}+30u^{70}+\cdots+4640u+256)$
c_{12}	$u^2(u-1)(u+1)^2(u^{27}-9u^{25}+\cdots-u+1)(u^{71}-8u^{70}+\cdots+56u-16)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_4	$y(y^2+y+1)^2$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$ $\cdot(y^{71}+48y^{70}+\cdots-6880y-256)$
c_2, c_5	$y(y^2+y+1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$ $\cdot(y^{71}+24y^{70}+\cdots-40y-16)$
c_3, c_9	$y^5(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot(y^{71}-30y^{70}+\cdots+1572864y-262144)$
c_6, c_{12}	$y^2(y-1)^3(y^{27}-18y^{26}+\cdots+5y-1)$ $\cdot(y^{71}-30y^{70}+\cdots+4640y-256)$
c_7, c_8, c_{10}	$y^2(y-1)^3(y^{27}-18y^{26}+\cdots+5y-1)$ $\cdot(y^{71}-70y^{70}+\cdots-1504y-256)$
c_{11}	$y^2(y-1)^3(y^{27}-18y^{26}+\cdots-15y-1)$ $\cdot(y^{71}+30y^{70}+\cdots+5022208y-65536)$