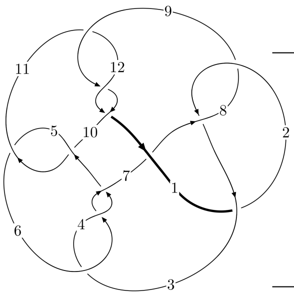
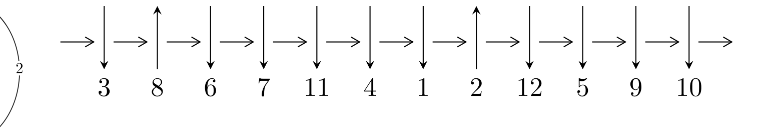
$12a_{0694}$ $(K12a_{0694})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.71327 \times 10^{48} u^{35} + 4.04621 \times 10^{50} u^{34} + \cdots + 1.08619 \times 10^{53} d - 2.28969 \times 10^{52}, \\
& - 5.18177 \times 10^{49} u^{35} - 5.63360 \times 10^{50} u^{34} + \cdots + 2.17237 \times 10^{53} c - 2.07122 \times 10^{53}, \\
& - 5.97435 \times 10^{50} u^{35} - 1.74229 \times 10^{51} u^{34} + \cdots + 1.08619 \times 10^{53} b + 9.47908 \times 10^{50}, \\
& - 2.62593 \times 10^{51} u^{35} - 7.78518 \times 10^{51} u^{34} + \cdots + 2.17237 \times 10^{53} a + 6.90156 \times 10^{51}, \\
& u^{36} + 3u^{35} + \cdots + 64u + 32 \rangle \\
I_2^u = \langle & 302671644024258 u^{27} a + 662808669960639 u^{27} + \cdots - 2916745959458060 a - 4296331597385486, \\
& 5.46608 \times 10^{15} a u^{27} + 5.56735 \times 10^{15} u^{27} + \cdots - 2.36686 \times 10^{16} a - 1.71489 \times 10^{15}, \\
& - 7.29186 \times 10^{14} a u^{27} - 8.99105 \times 10^{14} u^{27} + \cdots + 4.25539 \times 10^{15} a + 3.18374 \times 10^{15}, \\
& 4247989817783 u^{27} a - 203084799592924 u^{27} + \cdots + 250742454402200 a + 1119525361661648, \\
& u^{28} - u^{27} + \cdots - 8u + 4 \rangle
\end{aligned}$$

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

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 97 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`).

I.

$$\boldsymbol{I_1^u = \langle 3.71\times 10^{48}u^{35}+4.05\times 10^{50}u^{34}+\cdots+1.09\times 10^{53}d-2.29\times 10^{52},\ -5.18\times 10^{49}u^{35}-5.63\times 10^{50}u^{34}+\cdots+2.17\times 10^{53}c-2.07\times 10^{53},\ -5.97\times 10^{50}u^{35}-1.74\times 10^{51}u^{34}+\cdots+1.09\times 10^{53}b+9.48\times 10^{50},\ -2.63\times 10^{51}u^{35}-7.79\times 10^{51}u^{34}+\cdots+2.17\times 10^{53}a+6.90\times 10^{51},\ u^{36}+3u^{35}+\cdots+64u+32\rangle}$$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} 0.0120878u^{35}+0.0358372u^{34}+\cdots-0.808374u-0.0317697 \\ 0.00550031u^{35}+0.0160404u^{34}+\cdots+0.725183u-0.00872695 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.000238531u^{35}+0.00259330u^{34}+\cdots-0.119290u+0.953438 \\ -0.0000341864u^{35}-0.00372516u^{34}+\cdots+0.444645u+0.210801 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00157086u^{35}+0.0135938u^{34}+\cdots-1.44591u+0.372386 \\ 0.00128903u^{35}-0.00127210u^{34}+\cdots+0.00984404u+0.00259441 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.000238531u^{35}+0.00259330u^{34}+\cdots-0.119290u+0.953438 \\ -0.000492763u^{35}+0.00362002u^{34}+\cdots-0.572452u-0.270888 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.000272717u^{35}+0.00631846u^{34}+\cdots-0.563935u+0.742637 \\ -0.000426302u^{35}+0.00445645u^{34}+\cdots-0.805392u-0.386811 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.00896229u^{35}+0.0251058u^{34}+\cdots-2.42424u-0.0549226 \\ 0.0194270u^{35}+0.0554189u^{34}+\cdots+0.0990461u+0.00672681 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.00846525u^{35}+0.0249030u^{34}+\cdots-0.595385u-0.0306758 \\ 0.00187771u^{35}+0.00510617u^{34}+\cdots+0.938172u-0.00763298 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.00658754u^{35}-0.0197968u^{34}+\cdots+1.53356u+0.0230428 \\ 0.00187771u^{35}+0.00510617u^{34}+\cdots+0.938172u-0.00763298 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0805025u^{35}-0.242112u^{34}+\cdots-5.72407u-9.52193$

[2] All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{36}+17u^{35}+\cdots-120u+16$
c_2, c_8	$u^{36}+u^{35}+\cdots+16u+4$
c_3, c_4, c_6 c_9, c_{11}, c_{12}	$u^{36}-5u^{35}+\cdots+3u-1$
c_5, c_{10}	$u^{36}+3u^{35}+\cdots+64u+32$
c_7	$u^{36}-u^{35}+\cdots-104u+1252$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{36} + 5y^{35} + \cdots - 27936y + 256$
c_2, c_8	$y^{36} + 17y^{35} + \cdots - 120y + 16$
c_3, c_4, c_6 c_9, c_{11}, c_{12}	$y^{36} - 41y^{35} + \cdots - 21y + 1$
c_5, c_{10}	$y^{36} - 15y^{35} + \cdots - 1024y + 1024$
c_7	$y^{36} - 7y^{35} + \cdots - 22103608y + 1567504$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.956534 + 0.246505I$ $a = 0.245175 - 1.269220I$ $b = -0.346134 - 0.784654I$ $c = 0.587254 + 0.247408I$ $d = 0.446161 - 0.609262I$	$-2.56616 + 0.65266I$	$-13.12638 - 3.31133I$
$u = -0.956534 - 0.246505I$ $a = 0.245175 + 1.269220I$ $b = -0.346134 + 0.784654I$ $c = 0.587254 - 0.247408I$ $d = 0.446161 + 0.609262I$	$-2.56616 - 0.65266I$	$-13.12638 + 3.31133I$
$u = 0.935949 + 0.527292I$ $a = 0.386487 - 1.298670I$ $b = 0.910276 - 0.817885I$ $c = 0.601278 - 0.353058I$ $d = 0.236726 + 0.726179I$	$1.36964 - 3.10356I$	$-5.16268 + 4.71165I$
$u = 0.935949 - 0.527292I$ $a = 0.386487 + 1.298670I$ $b = 0.910276 + 0.817885I$ $c = 0.601278 + 0.353058I$ $d = 0.236726 - 0.726179I$	$1.36964 + 3.10356I$	$-5.16268 - 4.71165I$
$u = 0.651308 + 0.620650I$ $a = 0.626981 - 0.691158I$ $b = 1.099680 - 0.225491I$ $c = 0.730839 - 0.428002I$ $d = 0.018859 + 0.596676I$	$2.25394 - 1.43184I$	$-2.05632 + 3.52848I$
$u = 0.651308 - 0.620650I$ $a = 0.626981 + 0.691158I$ $b = 1.099680 + 0.225491I$ $c = 0.730839 + 0.428002I$ $d = 0.018859 - 0.596676I$	$2.25394 + 1.43184I$	$-2.05632 - 3.52848I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.134519 + 0.831817I$ $a = -0.333054 + 0.814839I$ $b = -0.168798 - 0.656332I$ $c = 0.444936 + 0.012138I$ $d = 1.245840 - 0.061269I$	$-4.07214 + 2.53804I$	$-12.12047 - 3.16226I$
$u = 0.134519 - 0.831817I$ $a = -0.333054 - 0.814839I$ $b = -0.168798 + 0.656332I$ $c = 0.444936 - 0.012138I$ $d = 1.245840 + 0.061269I$	$-4.07214 - 2.53804I$	$-12.12047 + 3.16226I$
$u = -0.488093 + 0.675929I$ $a = -0.729751 - 0.351432I$ $b = -1.163350 + 0.137978I$ $c = 0.831879 + 0.502397I$ $d = -0.119169 - 0.531960I$	$0.92725 - 3.15352I$	$-4.07893 + 3.45921I$
$u = -0.488093 - 0.675929I$ $a = -0.729751 + 0.351432I$ $b = -1.163350 - 0.137978I$ $c = 0.831879 - 0.502397I$ $d = -0.119169 + 0.531960I$	$0.92725 + 3.15352I$	$-4.07893 - 3.45921I$
$u = -1.066500 + 0.529753I$ $a = -0.36138 - 1.59734I$ $b = -0.887704 - 1.098310I$ $c = 0.554284 + 0.346614I$ $d = 0.296959 - 0.811036I$	$-0.85359 + 7.85577I$	$-9.34096 - 8.43490I$
$u = -1.066500 - 0.529753I$ $a = -0.36138 + 1.59734I$ $b = -0.887704 + 1.098310I$ $c = 0.554284 - 0.346614I$ $d = 0.296959 + 0.811036I$	$-0.85359 - 7.85577I$	$-9.34096 + 8.43490I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.471804 + 1.201650I$ $a = -1.033650 - 0.000390I$ $b = -0.795501 - 1.088210I$ $c = 0.409694 + 0.038448I$ $d = 1.41953 - 0.22707I$	$-6.92260 + 4.39379I$	$-12.55418 - 2.40542I$
$u = 0.471804 - 1.201650I$ $a = -1.033650 + 0.000390I$ $b = -0.795501 + 1.088210I$ $c = 0.409694 - 0.038448I$ $d = 1.41953 + 0.22707I$	$-6.92260 - 4.39379I$	$-12.55418 + 2.40542I$
$u = -1.232210 + 0.408112I$ $a = -0.074767 + 0.904861I$ $b = 1.02170 + 1.10904I$ $c = -1.91298 - 0.86265I$ $d = -1.43441 + 0.19589I$	$-8.11992 + 1.67660I$	$-15.7568 - 0.9806I$
$u = -1.232210 - 0.408112I$ $a = -0.074767 - 0.904861I$ $b = 1.02170 - 1.10904I$ $c = -1.91298 + 0.86265I$ $d = -1.43441 - 0.19589I$	$-8.11992 - 1.67660I$	$-15.7568 + 0.9806I$
$u = 1.223950 + 0.516090I$ $a = 0.037576 + 1.129580I$ $b = -1.02760 + 1.37545I$ $c = -1.74112 + 1.00593I$ $d = -1.43061 - 0.24878I$	$-7.33125 - 7.52384I$	$-14.0983 + 6.1679I$
$u = 1.223950 - 0.516090I$ $a = 0.037576 - 1.129580I$ $b = -1.02760 - 1.37545I$ $c = -1.74112 - 1.00593I$ $d = -1.43061 + 0.24878I$	$-7.33125 + 7.52384I$	$-14.0983 - 6.1679I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.666134 + 0.068993I$ $a = -1.123260 + 0.576466I$ $b = -0.104353 + 0.169913I$ $c = 0.577923 + 0.067898I$ $d = 0.706776 - 0.200522I$	$-2.77509 + 2.72721I$	$-16.6085 - 5.9652I$
$u = 0.666134 - 0.068993I$ $a = -1.123260 - 0.576466I$ $b = -0.104353 - 0.169913I$ $c = 0.577923 - 0.067898I$ $d = 0.706776 + 0.200522I$	$-2.77509 - 2.72721I$	$-16.6085 + 5.9652I$
$u = -0.318666 + 1.335800I$ $a = 0.724523 - 0.313609I$ $b = 0.58164 - 1.39075I$ $c = 0.401008 - 0.024597I$ $d = 1.48437 + 0.15238I$	$-11.42670 - 0.95860I$	$-17.6650 - 0.2050I$
$u = -0.318666 - 1.335800I$ $a = 0.724523 + 0.313609I$ $b = 0.58164 + 1.39075I$ $c = 0.401008 + 0.024597I$ $d = 1.48437 - 0.15238I$	$-11.42670 + 0.95860I$	$-17.6650 + 0.2050I$
$u = -0.568640 + 1.285090I$ $a = 1.254760 - 0.150682I$ $b = 1.01253 - 1.18042I$ $c = 0.401346 - 0.044727I$ $d = 1.46105 + 0.27427I$	$-9.63713 - 9.42250I$	$-15.4804 + 5.9490I$
$u = -0.568640 - 1.285090I$ $a = 1.254760 + 0.150682I$ $b = 1.01253 + 1.18042I$ $c = 0.401346 + 0.044727I$ $d = 1.46105 - 0.27427I$	$-9.63713 + 9.42250I$	$-15.4804 - 5.9490I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.579877$ $a = 0.508844$ $b = -0.181813$ $c = 0.714033$ $d = 0.400496$	-0.811618	-12.0290
$u = 1.27702 + 0.74720I$ $a = 0.06527 + 1.61805I$ $b = -0.91000 + 1.90449I$ $c = -1.34025 + 1.05868I$ $d = -1.45945 - 0.36293I$	$-9.5381 - 11.3478I$	$-13.0594 + 5.6672I$
$u = 1.27702 - 0.74720I$ $a = 0.06527 - 1.61805I$ $b = -0.91000 - 1.90449I$ $c = -1.34025 - 1.05868I$ $d = -1.45945 + 0.36293I$	$-9.5381 + 11.3478I$	$-13.0594 - 5.6672I$
$u = -1.51924$ $a = -0.762049$ $b = 0.272206$ $c = -1.75045$ $d = -1.57128$	-14.8609	-15.8600
$u = -1.29117 + 0.81558I$ $a = -0.05855 + 1.76313I$ $b = 0.89290 + 2.05678I$ $c = -1.24306 - 1.05406I$ $d = -1.46798 + 0.39682I$	$-12.0349 + 16.8809I$	$-15.3736 - 9.2575I$
$u = -1.29117 - 0.81558I$ $a = -0.05855 - 1.76313I$ $b = 0.89290 - 2.05678I$ $c = -1.24306 + 1.05406I$ $d = -1.46798 - 0.39682I$	$-12.0349 - 16.8809I$	$-15.3736 + 9.2575I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.111921 + 0.451208I$ $a = -0.148541 + 0.145650I$ $b = -0.283161 + 0.602030I$ $c = 1.212710 + 0.167592I$ $d = -0.190856 - 0.111820I$	$-0.30692 + 1.79670I$	$-2.13838 - 3.34715I$
$u = -0.111921 - 0.451208I$ $a = -0.148541 - 0.145650I$ $b = -0.283161 - 0.602030I$ $c = 1.212710 - 0.167592I$ $d = -0.190856 + 0.111820I$	$-0.30692 - 1.79670I$	$-2.13838 + 3.34715I$
$u = -1.38860 + 0.67758I$ $a = -0.32966 + 1.52385I$ $b = 0.64328 + 1.76352I$ $c = -1.38705 - 0.88191I$ $d = -1.51341 + 0.32643I$	$-15.0030 + 8.0885I$	$-18.3300 - 3.8436I$
$u = -1.38860 - 0.67758I$ $a = -0.32966 - 1.52385I$ $b = 0.64328 - 1.76352I$ $c = -1.38705 + 0.88191I$ $d = -1.51341 - 0.32643I$	$-15.0030 - 8.0885I$	$-18.3300 + 3.8436I$
$u = 1.61122 + 0.12770I$ $a = 0.978439 + 0.310581I$ $b = -0.020607 + 0.352320I$ $c = -1.61050 + 0.15798I$ $d = -1.61501 - 0.06033I$	$-18.8051 - 4.7571I$	$-19.1049 + 3.2273I$
$u = 1.61122 - 0.12770I$ $a = 0.978439 - 0.310581I$ $b = -0.020607 - 0.352320I$ $c = -1.61050 - 0.15798I$ $d = -1.61501 + 0.06033I$	$-18.8051 + 4.7571I$	$-19.1049 - 3.2273I$

II.
$\boldsymbol{I_2^u = \langle 3.03\times10^{14}au^{27}+6.63\times10^{14}u^{27}+\cdots-2.92\times10^{15}a-4.30\times10^{15},\ 5.47\times10^{15}au^{27}+5.57\times10^{15}u^{27}+\cdots-2.37\times10^{16}a-1.71\times10^{15},\ -7.29\times10^{14}au^{27}-8.99\times10^{14}u^{27}+\cdots+4.26\times10^{15}a+3.18\times10^{15},\ 4.25\times10^{12}au^{27}-2.03\times10^{14}u^{27}+\cdots+2.51\times10^{14}a+1.12\times10^{15},\ u^{28}-u^{27}+\cdots-8u+4\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}a\\2.82492au^{27}+3.48319u^{27}+\cdots-16.4857a-12.3340\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-5.29398au^{27}-5.39206u^{27}+\cdots+22.9234a+1.66090\\-1.17257au^{27}-2.56776u^{27}+\cdots+11.2997a+16.6443\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-5.46593au^{27}-5.39206u^{27}+\cdots+21.5903a+1.66090\\-1.60474au^{27}-5.47431u^{27}+\cdots+15.1316a+36.9788\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-5.29398au^{27}-5.39206u^{27}+\cdots+22.9234a+1.66090\\-0.210350au^{27}-0.338787u^{27}+\cdots+1.35515a+3.69028\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-4.12142au^{27}-2.82430u^{27}+\cdots+11.6237a-14.9834\\-0.0843068u^{27}+0.0893064u^{26}+\cdots-1.10305u+0.0658279\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.0154888au^{27}-1.33360u^{27}+\cdots+1.66131a-4.83197\\4.22120au^{27}+4.90685u^{27}+\cdots-24.1466a-20.2576\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.338787au^{27}-0.377991u^{27}+\cdots-3.69028a-5.87532\\3.16370au^{27}+3.10520u^{27}+\cdots-21.1759a-18.2093\end{pmatrix}$$
$$a_9 = \begin{pmatrix}2.82492au^{27}+3.48319u^{27}+\cdots-17.4857a-12.3340\\3.16370au^{27}+3.10520u^{27}+\cdots-21.1759a-18.2093\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -\frac{37274533074785}{129063433504426}u^{27}+\frac{53621307092165}{129063433504426}u^{26}+\cdots-\frac{660629047616669}{129063433504426}u-\frac{645502044434670}{64531716752213}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{28} + 14u^{27} + \cdots + 2u + 1)^2$
c_2, c_8	$(u^{28} + 2u^{27} + \cdots + 2u + 1)^2$
c_3, c_4, c_6 c_9, c_{11}, c_{12}	$u^{56} - 3u^{55} + \cdots + 72u + 16$
c_5, c_{10}	$(u^{28} - u^{27} + \cdots - 8u + 4)^2$
c_7	$(u^{28} - 2u^{27} + \cdots - 22u + 17)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{28} + 2y^{27} + \cdots + 14y + 1)^2$
c_2, c_8	$(y^{28} + 14y^{27} + \cdots + 2y + 1)^2$
c_3, c_4, c_6 c_9, c_{11}, c_{12}	$y^{56} - 43y^{55} + \cdots + 736y + 256$
c_5, c_{10}	$(y^{28} - 15y^{27} + \cdots - 88y + 16)^2$
c_7	$(y^{28} - 10y^{27} + \cdots - 246y + 289)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.910131 + 0.395689I$ $a = 0.577913 + 0.875653I$ $b = 1.83296 + 1.21612I$ $c = 0.614034 + 0.300820I$ $d = 0.313357 - 0.643423I$	$-1.72215 + 4.24816I$	$-10.11355 - 6.97904I$
$u = -0.910131 + 0.395689I$ $a = -0.099220 - 1.209090I$ $b = -0.647282 - 0.740410I$ $c = -2.48219 - 1.67345I$ $d = -1.276980 + 0.186733I$	$-1.72215 + 4.24816I$	$-10.11355 - 6.97904I$
$u = -0.910131 - 0.395689I$ $a = 0.577913 - 0.875653I$ $b = 1.83296 - 1.21612I$ $c = 0.614034 - 0.300820I$ $d = 0.313357 + 0.643423I$	$-1.72215 - 4.24816I$	$-10.11355 + 6.97904I$
$u = -0.910131 - 0.395689I$ $a = -0.099220 + 1.209090I$ $b = -0.647282 + 0.740410I$ $c = -2.48219 + 1.67345I$ $d = -1.276980 - 0.186733I$	$-1.72215 - 4.24816I$	$-10.11355 + 6.97904I$
$u = 0.017123 + 0.961380I$ $a = 1.23063 + 0.74510I$ $b = 1.77384 + 1.41897I$ $c = 0.433525 + 0.001501I$ $d = 1.306640 - 0.007988I$	$-4.61196 - 1.34593I$	$-13.91932 + 0.66126I$
$u = 0.017123 + 0.961380I$ $a = -0.039967 + 0.519614I$ $b = -0.024073 - 0.839235I$ $c = 0.86981 - 1.28447I$ $d = -0.638546 + 0.533764I$	$-4.61196 - 1.34593I$	$-13.91932 + 0.66126I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.017123 - 0.961380I$ $a = 1.23063 - 0.74510I$ $b = 1.77384 - 1.41897I$ $c = 0.433525 - 0.001501I$ $d = 1.306640 + 0.007988I$	$-4.61196 + 1.34593I$	$-13.91932 - 0.66126I$
$u = 0.017123 - 0.961380I$ $a = -0.039967 - 0.519614I$ $b = -0.024073 + 0.839235I$ $c = 0.86981 + 1.28447I$ $d = -0.638546 - 0.533764I$	$-4.61196 + 1.34593I$	$-13.91932 - 0.66126I$
$u = 0.907099 + 0.252760I$ $a = -0.216978 - 1.161080I$ $b = 0.375545 - 0.694496I$ $c = 0.507453 + 0.124235I$ $d = 0.859190 - 0.455166I$	$-2.63794 - 3.28147I$	$-13.2327 + 4.9939I$
$u = 0.907099 + 0.252760I$ $a = -1.21470 + 1.14721I$ $b = -0.465509 + 0.436668I$ $c = 0.605754 - 0.244512I$ $d = 0.419544 + 0.572998I$	$-2.63794 - 3.28147I$	$-13.2327 + 4.9939I$
$u = 0.907099 - 0.252760I$ $a = -0.216978 + 1.161080I$ $b = 0.375545 + 0.694496I$ $c = 0.507453 - 0.124235I$ $d = 0.859190 + 0.455166I$	$-2.63794 + 3.28147I$	$-13.2327 - 4.9939I$
$u = 0.907099 - 0.252760I$ $a = -1.21470 - 1.14721I$ $b = -0.465509 - 0.436668I$ $c = 0.605754 + 0.244512I$ $d = 0.419544 - 0.572998I$	$-2.63794 + 3.28147I$	$-13.2327 - 4.9939I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.387411 + 0.832689I$ $a = -1.036680 - 0.102202I$ $b = -1.48423 + 0.44182I$ $c = 0.443674 - 0.035750I$ $d = 1.239370 + 0.180444I$	$-1.43770 - 1.40144I$	$-7.30053 + 1.74630I$
$u = -0.387411 + 0.832689I$ $a = 0.879401 + 0.727615I$ $b = 0.488283 - 0.578810I$ $c = 0.838293 + 0.678920I$ $d = -0.279611 - 0.583432I$	$-1.43770 - 1.40144I$	$-7.30053 + 1.74630I$
$u = -0.387411 - 0.832689I$ $a = -1.036680 + 0.102202I$ $b = -1.48423 - 0.44182I$ $c = 0.443674 + 0.035750I$ $d = 1.239370 - 0.180444I$	$-1.43770 + 1.40144I$	$-7.30053 - 1.74630I$
$u = -0.387411 - 0.832689I$ $a = 0.879401 - 0.727615I$ $b = 0.488283 + 0.578810I$ $c = 0.838293 - 0.678920I$ $d = -0.279611 + 0.583432I$	$-1.43770 + 1.40144I$	$-7.30053 - 1.74630I$
$u = 0.387502 + 1.047530I$ $a = -0.847760 + 0.306836I$ $b = -0.585544 - 0.879512I$ $c = 0.669242 - 0.797085I$ $d = -0.382179 + 0.735842I$	$-3.70255 + 5.75423I$	$-11.89302 - 5.96655I$
$u = 0.387502 + 1.047530I$ $a = 1.51403 - 0.04211I$ $b = 2.01322 + 0.50738I$ $c = 0.423917 + 0.033459I$ $d = 1.344350 - 0.185032I$	$-3.70255 + 5.75423I$	$-11.89302 - 5.96655I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.387502 - 1.047530I$ $a = -0.847760 - 0.306836I$ $b = -0.585544 + 0.879512I$ $c = 0.669242 + 0.797085I$ $d = -0.382179 - 0.735842I$	$-3.70255 - 5.75423I$	$-11.89302 + 5.96655I$
$u = 0.387502 - 1.047530I$ $a = 1.51403 + 0.04211I$ $b = 2.01322 - 0.50738I$ $c = 0.423917 - 0.033459I$ $d = 1.344350 + 0.185032I$	$-3.70255 - 5.75423I$	$-11.89302 + 5.96655I$
$u = 0.802767 + 0.244916I$ $a = -0.844969 + 0.599643I$ $b = -2.28532 + 0.90013I$ $c = 0.647474 - 0.227775I$ $d = 0.374376 + 0.483492I$	$-2.32218 + 0.90628I$	$-12.59768 + 1.67094I$
$u = 0.802767 + 0.244916I$ $a = -0.201313 - 0.924926I$ $b = 0.393435 - 0.504095I$ $c = -3.52128 + 1.70882I$ $d = -1.229860 - 0.111546I$	$-2.32218 + 0.90628I$	$-12.59768 + 1.67094I$
$u = 0.802767 - 0.244916I$ $a = -0.844969 - 0.599643I$ $b = -2.28532 - 0.90013I$ $c = 0.647474 + 0.227775I$ $d = 0.374376 - 0.483492I$	$-2.32218 - 0.90628I$	$-12.59768 - 1.67094I$
$u = 0.802767 - 0.244916I$ $a = -0.201313 + 0.924926I$ $b = 0.393435 + 0.504095I$ $c = -3.52128 - 1.70882I$ $d = -1.229860 + 0.111546I$	$-2.32218 - 0.90628I$	$-12.59768 - 1.67094I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.147340 + 0.340892I$ $a = -0.098527 + 0.753717I$ $b = -1.25317 + 0.95465I$ $c = 0.467659 + 0.149971I$ $d = 0.938913 - 0.621780I$	$-5.81300 - 1.47542I$	$-13.29345 + 0.59666I$
$u = 1.147340 + 0.340892I$ $a = -1.40778 + 1.44620I$ $b = -0.803773 + 0.724816I$ $c = -2.16974 + 0.89969I$ $d = -1.393270 - 0.163069I$	$-5.81300 - 1.47542I$	$-13.29345 + 0.59666I$
$u = 1.147340 - 0.340892I$ $a = -0.098527 - 0.753717I$ $b = -1.25317 - 0.95465I$ $c = 0.467659 - 0.149971I$ $d = 0.938913 + 0.621780I$	$-5.81300 + 1.47542I$	$-13.29345 - 0.59666I$
$u = 1.147340 - 0.340892I$ $a = -1.40778 - 1.44620I$ $b = -0.803773 - 0.724816I$ $c = -2.16974 - 0.89969I$ $d = -1.393270 + 0.163069I$	$-5.81300 + 1.47542I$	$-13.29345 - 0.59666I$
$u = -0.611767 + 0.458091I$ $a = -0.302684 - 0.597006I$ $b = -0.775693 - 0.182328I$ $c = 0.484849 - 0.064041I$ $d = 1.027130 + 0.267751I$	$-0.887541 - 0.644142I$	$-7.64602 - 1.30683I$
$u = -0.611767 + 0.458091I$ $a = 1.34953 + 1.04053I$ $b = 0.483743 - 0.045437I$ $c = 0.768846 + 0.328940I$ $d = 0.099411 - 0.470368I$	$-0.887541 - 0.644142I$	$-7.64602 - 1.30683I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.611767 - 0.458091I$ $a = -0.302684 + 0.597006I$ $b = -0.775693 + 0.182328I$ $c = 0.484849 + 0.064041I$ $d = 1.027130 - 0.267751I$	$-0.887541 + 0.644142I$	$-7.64602 + 1.30683I$
$u = -0.611767 - 0.458091I$ $a = 1.34953 - 1.04053I$ $b = 0.483743 + 0.045437I$ $c = 0.768846 - 0.328940I$ $d = 0.099411 + 0.470368I$	$-0.887541 + 0.644142I$	$-7.64602 + 1.30683I$
$u = -1.175470 + 0.589984I$ $a = 0.078447 + 1.266970I$ $b = 1.13190 + 1.55275I$ $c = 0.517297 + 0.357727I$ $d = 0.307742 - 0.904345I$	$-3.88965 + 6.77427I$	$-10.22594 - 4.95962I$
$u = -1.175470 + 0.589984I$ $a = -0.47336 - 1.86947I$ $b = -0.99093 - 1.35989I$ $c = -1.64648 - 1.15561I$ $d = -1.40691 + 0.28559I$	$-3.88965 + 6.77427I$	$-10.22594 - 4.95962I$
$u = -1.175470 - 0.589984I$ $a = 0.078447 - 1.266970I$ $b = 1.13190 - 1.55275I$ $c = 0.517297 - 0.357727I$ $d = 0.307742 + 0.904345I$	$-3.88965 - 6.77427I$	$-10.22594 + 4.95962I$
$u = -1.175470 - 0.589984I$ $a = -0.47336 + 1.86947I$ $b = -0.99093 + 1.35989I$ $c = -1.64648 + 1.15561I$ $d = -1.40691 - 0.28559I$	$-3.88965 - 6.77427I$	$-10.22594 + 4.95962I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.312590 + 0.177484I$ $a = -0.275200 + 0.404719I$ $b = 0.835435 + 0.490381I$ $c = 0.462683 - 0.188428I$ $d = 0.853841 + 0.754977I$	$-9.90219 - 2.08114I$	$-17.7960 + 2.7886I$
$u = -1.312590 + 0.177484I$ $a = 1.24331 + 1.82011I$ $b = 0.680869 + 1.168880I$ $c = -2.04845 - 0.36673I$ $d = -1.47301 + 0.08468I$	$-9.90219 - 2.08114I$	$-17.7960 + 2.7886I$
$u = -1.312590 - 0.177484I$ $a = -0.275200 - 0.404719I$ $b = 0.835435 - 0.490381I$ $c = 0.462683 + 0.188428I$ $d = 0.853841 - 0.754977I$	$-9.90219 + 2.08114I$	$-17.7960 - 2.7886I$
$u = -1.312590 - 0.177484I$ $a = 1.24331 - 1.82011I$ $b = 0.680869 - 1.168880I$ $c = -2.04845 + 0.36673I$ $d = -1.47301 - 0.08468I$	$-9.90219 + 2.08114I$	$-17.7960 - 2.7886I$
$u = -1.262900 + 0.460239I$ $a = -0.130945 + 1.020930I$ $b = 0.93861 + 1.23552I$ $c = 0.442858 - 0.149307I$ $d = 1.027590 + 0.683591I$	$-8.61088 + 6.23266I$	$-16.1498 - 4.3008I$
$u = -1.262900 + 0.460239I$ $a = 1.66593 + 1.52234I$ $b = 1.121790 + 0.782747I$ $c = -1.79085 - 0.88148I$ $d = -1.44949 + 0.22125I$	$-8.61088 + 6.23266I$	$-16.1498 - 4.3008I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.262900 - 0.460239I$ $a = -0.130945 - 1.020930I$ $b = 0.93861 - 1.23552I$ $c = 0.442858 + 0.149307I$ $d = 1.027590 - 0.683591I$	$-8.61088 - 6.23266I$	$-16.1498 + 4.3008I$
$u = -1.262900 - 0.460239I$ $a = 1.66593 - 1.52234I$ $b = 1.121790 - 0.782747I$ $c = -1.79085 + 0.88148I$ $d = -1.44949 - 0.22125I$	$-8.61088 - 6.23266I$	$-16.1498 + 4.3008I$
$u = 1.280370 + 0.446560I$ $a = 0.170945 + 0.995242I$ $b = -0.89636 + 1.19996I$ $c = 0.496590 - 0.314623I$ $d = 0.436936 + 0.910395I$	$-8.68474 - 3.62399I$	$-16.2087 + 2.7619I$
$u = 1.280370 + 0.446560I$ $a = 0.09808 - 2.06965I$ $b = 0.62342 - 1.54184I$ $c = -1.79070 + 0.83874I$ $d = -1.45797 - 0.21451I$	$-8.68474 - 3.62399I$	$-16.2087 + 2.7619I$
$u = 1.280370 - 0.446560I$ $a = 0.170945 - 0.995242I$ $b = -0.89636 - 1.19996I$ $c = 0.496590 + 0.314623I$ $d = 0.436936 - 0.910395I$	$-8.68474 + 3.62399I$	$-16.2087 - 2.7619I$
$u = 1.280370 - 0.446560I$ $a = 0.09808 + 2.06965I$ $b = 0.62342 + 1.54184I$ $c = -1.79070 - 0.83874I$ $d = -1.45797 + 0.21451I$	$-8.68474 + 3.62399I$	$-16.2087 - 2.7619I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.376924 + 0.508425I$ $a = -1.15170 + 1.28261I$ $b = -0.324622 - 0.238361I$ $c = 0.01916 + 5.10656I$ $d = -0.999265 - 0.195824I$	$-3.51302 - 1.43304I$	$-13.5823 + 4.9760I$
$u = 0.376924 + 0.508425I$ $a = -1.12316 + 1.43233I$ $b = -2.31200 + 2.51639I$ $c = 0.477044 + 0.034956I$ $d = 1.085050 - 0.152783I$	$-3.51302 - 1.43304I$	$-13.5823 + 4.9760I$
$u = 0.376924 - 0.508425I$ $a = -1.15170 - 1.28261I$ $b = -0.324622 + 0.238361I$ $c = 0.01916 - 5.10656I$ $d = -0.999265 + 0.195824I$	$-3.51302 + 1.43304I$	$-13.5823 - 4.9760I$
$u = 0.376924 - 0.508425I$ $a = -1.12316 - 1.43233I$ $b = -2.31200 - 2.51639I$ $c = 0.477044 - 0.034956I$ $d = 1.085050 + 0.152783I$	$-3.51302 + 1.43304I$	$-13.5823 - 4.9760I$
$u = 1.241130 + 0.661367I$ $a = 0.02947 + 1.43015I$ $b = -0.98154 + 1.71054I$ $c = 0.493724 - 0.371241I$ $d = 0.293882 + 0.972896I$	$-6.41692 - 11.95450I$	$-13.0412 + 8.3222I$
$u = 1.241130 + 0.661367I$ $a = 0.62725 - 2.04833I$ $b = 1.13700 - 1.53608I$ $c = -1.48418 + 1.08099I$ $d = -1.44024 - 0.32064I$	$-6.41692 - 11.95450I$	$-13.0412 + 8.3222I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.241130 - 0.661367I$ $a = 0.02947 - 1.43015I$ $b = -0.98154 - 1.71054I$ $c = 0.493724 + 0.371241I$ $d = 0.293882 - 0.972896I$	$-6.41692 + 11.95450I$	$-13.0412 - 8.3222I$
$u = 1.241130 - 0.661367I$ $a = 0.62725 + 2.04833I$ $b = 1.13700 + 1.53608I$ $c = -1.48418 - 1.08099I$ $d = -1.44024 + 0.32064I$	$-6.41692 + 11.95450I$	$-13.0412 - 8.3222I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$ $c = 1.00000$ $d = 0$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$ $c = 1.00000$ $d = 0$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$

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

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} v+1 \\ 1 \end{pmatrix}$$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0$ $c = 0$ $d = 1.00000$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0$ $c = 0$ $d = 1.00000$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = -1.00000$ $c = 0$ $d = 1.00000$	-3.28987	-12.0000

VI. $\boldsymbol{I^v_4 = \langle c,\ d-1,\ a^2v^2 - 2cav + v^2a + c^2 - cv + v^2,\ bv - 1\rangle}$

(i) Arc colorings

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_1 = \begin{pmatrix} a \\ b \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} a+1 \\ -ba+1 \end{pmatrix}$$

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

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

$$a_2 = \begin{pmatrix} a \\ b+a \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} a+v \\ b \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -a \\ -b \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= b^2 + v^2 - 4a - 16$

(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
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	$-3.28987 + 2.02988I$	$-15.4701 - 3.5093I$
$c = \cdots$		
$d = \cdots$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2-u+1)^2(u^{28}+14u^{27}+\cdots+2u+1)^2$ $\cdot(u^{36}+17u^{35}+\cdots-120u+16)$
c_2, c_8	$u(u^2-u+1)(u^2+u+1)(u^{28}+2u^{27}+\cdots+2u+1)^2$ $\cdot(u^{36}+u^{35}+\cdots+16u+4)$
c_3, c_4, c_9	$u^2(u-1)^3(u^{36}-5u^{35}+\cdots+3u-1)(u^{56}-3u^{55}+\cdots+72u+16)$
c_5, c_{10}	$u^5(u^{28}-u^{27}+\cdots-8u+4)^2(u^{36}+3u^{35}+\cdots+64u+32)$
c_6, c_{11}, c_{12}	$u^2(u+1)^3(u^{36}-5u^{35}+\cdots+3u-1)(u^{56}-3u^{55}+\cdots+72u+16)$
c_7	$u(u^2-u+1)(u^2+u+1)(u^{28}-2u^{27}+\cdots-22u+17)^2$ $\cdot(u^{36}-u^{35}+\cdots-104u+1252)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2+y+1)^2(y^{28}+2y^{27}+\cdots+14y+1)^2$ $\cdot\,(y^{36}+5y^{35}+\cdots-27936y+256)$
c_2, c_8	$y(y^2+y+1)^2(y^{28}+14y^{27}+\cdots+2y+1)^2$ $\cdot\,(y^{36}+17y^{35}+\cdots-120y+16)$
c_3, c_4, c_6 c_9, c_{11}, c_{12}	$y^2(y-1)^3(y^{36}-41y^{35}+\cdots-21y+1)$ $\cdot\,(y^{56}-43y^{55}+\cdots+736y+256)$
c_5, c_{10}	$y^5(y^{28}-15y^{27}+\cdots-88y+16)^2$ $\cdot\,(y^{36}-15y^{35}+\cdots-1024y+1024)$
c_7	$y(y^2+y+1)^2(y^{28}-10y^{27}+\cdots-246y+289)^2$ $\cdot\,(y^{36}-7y^{35}+\cdots-22103608y+1567504)$