PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b) = (z^2, z^5 + z^2 + z + 1)$

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ABSTRACT. The continued fraction conjecture claims that the continued fraction defined by the (a,b)-Thue-Morse sequence is algebraic over $\mathbb{F}_2(x)$ for all pairs of distinct elements (a,b) in $\mathbb{F}_2[x] \setminus \mathbb{F}_2$. In this paper we prove the conjecture for $(a,b) = (z^2, z^5 + z^2 + z + 1)$.

1. INTRODUCTION

Let $\mathbb{F}_2$ be the finite field of cardinality 2. Given a sequence of polynomials $\mathbf{a} = (a_0(z), a_1(z), a_2(z), \ldots)$ of elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$, we define the infinite continued fraction

$$\mathrm{CF}(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{a_2(z) + \cfrac{1}{\ddots}}}} \tag{1.1}$$

as the limit of the finite continued fractions

$$\mathrm{CF}_n(\mathbf{a}(z)) = \cfrac{1}{a_0(z) + \cfrac{1}{a_1(z) + \cfrac{1}{\ddots + \cfrac{1}{a_n(z)}}}} \in \mathbb{F}_2((1/z)). \tag{1.2}$$

Conversely, each power series in $\mathbb{F}_2[[1/z]]$ without constant term

$$c_{-1}z^{-1} + c_{-2}z^{-2} + c_{-3}z^{-3} + \cdots \tag{1.3}$$

admits a continued fraction expansion of form (1.1).

Let a and b be two distinct elements from $\mathbb{F}_2[z] \setminus \mathbb{F}_2$. We consider the continued fraction (1.1) associated with the (a,b)-Thue-Morse sequence

$$\mathbf{t} = (t_0(z), t_1(z), t_2(z), \ldots) = (a, b, b, a, b, a, a, b, \ldots)$$

that we shall denote

$$\mathrm{CF}(a,b) := \mathrm{CF}(\mathbf{t}). \tag{1.4}$$

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Theorem 1.1. *When $(a,b)=(z^2,z^5+z^2+z+1)$, the two power series* $\mathrm{CF}(a,b)$ *and* $\mathrm{CF}(b,a)$ *are algebraic over $\mathbb{F}_2(z)$, with minimal polynomials of the form*

$$p_4(z)y^4+p_3(z)y^3+p_2(z)y^2+p_1(z)y+p_0(z)=0$$

where, for $\mathrm{CF}(a,b)$,

$$\begin{aligned}
p_0(z)&=z^{21}+z^{20}+z^{18}+z^{16}+z^{15}+z^6+z^5+z^3+z^2+1,\\
p_1(z)&=z^{26}+z^{23}+z^{22}+z^{20}+z^{18}+z^{17}+z^{14}+z^{10}+z^8+z^7+z^6+z^5+z^4\\
&\quad+z^2,\\
p_2(z)&=z^{28}+z^{24}+z^{18}+z^{16}+z^{12}+z^{10}+z^8+z^4,\\
p_3(z)&=z^{26}+z^{23}+z^{22}+z^{20}+z^{18}+z^{17}+z^{14}+z^{10}+z^8+z^7+z^6+z^5+z^4\\
&\quad+z^2,\\
p_4(z)&=z^{24}+z^{21}+z^{16}+z^{15}+z^{10}+z^6+z^5+z^3+z^2,
\end{aligned}$$

and for $\mathrm{CF}(b,a)$,

$$\begin{aligned}
p_0(z)&=z^{21}+z^{18}+z^{16}+z^{15}+z^6+z^5+z^4+z^3+z^2,\\
p_1(z)&=z^{26}+z^{23}+z^{22}+z^{20}+z^{18}+z^{17}+z^{14}+z^{10}+z^8+z^7+z^6+z^5+z^4\\
&\quad+z^2,\\
p_2(z)&=z^{28}+z^{24}+z^{18}+z^{16}+z^{12}+z^{10}+z^8+z^4,\\
p_3(z)&=z^{26}+z^{23}+z^{22}+z^{20}+z^{18}+z^{17}+z^{14}+z^{10}+z^8+z^7+z^6+z^5+z^4\\
&\quad+z^2,\\
p_4(z)&=z^{24}+z^{21}+z^{20}+z^{16}+z^{15}+z^{10}+z^6+z^5+z^4+z^3+z^2+1.
\end{aligned}$$

2. Proof

Define the sequences of polynomials $(P_n(z))_{n\geq 0}$ and $(Q_n(z))_{n\geq 0}$ by

$$\begin{pmatrix}P_n(z) & Q_n(z)\\ P_{n-1}(z) & Q_{n-1}(z)\end{pmatrix}:=\begin{pmatrix}t_n(z) & 1\\ 1 & 0\end{pmatrix}\begin{pmatrix}t_{n-1}(z) & 1\\ 1 & 0\end{pmatrix}\cdots\begin{pmatrix}t_0(z) & 1\\ 1 & 0\end{pmatrix}\begin{pmatrix}0 & 1\\ 1 & 0\end{pmatrix}.$$

By the basic properties of continued fractions, we have

$$\mathrm{CF}_n(a,b)=\frac{P_n(z)}{Q_n(z)}\in\mathbb{F}_2((1/z)). \tag{2.1}$$

As formula (2.1) is not efficient for calculating $\mathrm{CF}_n(a,b)$, a fast method is to be derived and described as follows. Define

$$\begin{aligned}
M_n(x)&=x^{\deg(t_{2^n-1})}\begin{pmatrix}t_{2^n-1}(1/x) & 1\\ 1 & 0\end{pmatrix}\times x^{\deg(t_{2^n-2})}\begin{pmatrix}t_{2^n-2}(1/x) & 1\\ 1 & 0\end{pmatrix}\times\\
&\qquad\cdots\times x^{\deg(t_0)}\begin{pmatrix}t_0(1/x) & 1\\ 1 & 0\end{pmatrix},\\
W_n(x)&=x^{\deg(\bar t_{2^n-1})}\begin{pmatrix}\bar t_{2^n-1}(1/x) & 1\\ 1 & 0\end{pmatrix}\times x^{\deg(\bar t_{2^n-2})}\begin{pmatrix}\bar t_{2^n-2}(1/x) & 1\\ 1 & 0\end{pmatrix}\times\\
&\qquad\cdots\times x^{\deg(\bar t_0)}\begin{pmatrix}\bar t_0(1/x) & 1\\ 1 & 0\end{pmatrix},
\end{aligned}$$

where $\bar{\mathbf{t}}$ is the (b,a)-Thue-Morse sequence. By the properties of the Thue-Morse sequence, we have for $n \geq 0$

$$\begin{aligned} M_{n+1}(x) &= W_n(x) \cdot M_n(x), \\ W_{n+1}(x) &= M_n(x) \cdot W_n(x). \end{aligned}$$

Let $x := 1/z$. For each non-zero polynomial $P(z)$, define $\tilde{P}(x)$ to be $P(1/x)$. Then,

$$\mathrm{CF}_n(a,b) = \frac{P_n(z)}{Q_n(z)} = \frac{\tilde{P}_n(x)}{\tilde{Q}_n(x)} \in \mathbb{F}_2((x)) = \mathbb{F}_2((1/z)).$$

Comparing the definition of $M_n(x)$ with the definition of $P_n(x)$ and $Q_n(x)$, we see that

$$\begin{aligned} M_n(x)_{0,1} &= x^{d_n} \tilde{P}_{2^n-1}(x), \\ M_n(x)_{0,0} &= x^{d_n} \tilde{Q}_{2^n-1}(x), \end{aligned}$$

for some positive integer d_n. Hence,

$$\mathrm{CF}_{2^{2n}-1}(a,b) = \frac{\tilde{P}_{2^{2n}-1}(x)}{\tilde{Q}_{2^{2n}-1}(x)} = \frac{M_{2n}(x)_{0,1}}{M_{2n}(x)_{0,0}}. \tag{2.2}$$

Therefore, by the convergence theorem of continued fraction, the algebraicity of $\mathrm{CF}(a,b)$ will be established if it is shown that both $M_{2n}(x)_{0,1}$ and $M_{2n}(x)_{0,0}$ converge to algebraic series in $\mathbb{F}_2[[x]]$.

Actually, we will prove that for all $0 \leq i,j \leq 1$ the four sequences $(M_{2n}(x)_{i,j})_n$, $(M_{2n+1}(x)_{i,j})_n$, $(W_{2n}(x)_{i,j})_n$, and $(W_{2n+1}(x)_{i,j})_n$ converge to algebraic series in $\mathbb{F}_2[[x]]$. For this purpose, we define four 2×2 matrices M^e, M^o, W^e, W^o as follows: For each $T \in \{M^e, M^o, W^e, W^o\}$ and $0 \leq i,j \leq 1$, $T_{i,j}$ is defined to be the unique solution in $\mathbb{F}_2[[x]]$ of the polynomial $\phi(T,i,j)$ under certain initial conditions; the polynomials $\phi(T,i,j)$ and initial conditions are given in Section 3. We will prove that these four matrices, whose components are algebraic by definition, are the limits of $(M_{2n}(x))_n$, $(M_{2n+1}(x))_n$, $(W_{2n}(x))_n$, and $(W_{2n+1}(x))_n$.

Let us explain how the polynomials $\phi(T,i,j)$ and initial conditions are found, and why the solutions exist and are unique. For $0 \leq i,j \leq 1$, the the coefficients of the polynomial $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$) are the Padé-Hermite approximants of type

$$(175, 175, 175, 175, 175)$$

of the vector

$$(1, T^3, T^6, T^9, T^{12}),$$

where $T = M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$), found by the Derksen algorithm. We take the first 8 terms of $M_{12,i,j}$ (resp. $M_{11,i,j}$, $W_{12,i,j}$, and $W_{11,i,j}$) as initial conditions for $\phi(M^e,i,j)$ (resp. $\phi(M^o,i,j)$, $\phi(W^e,i,j)$, and $\phi(W^o,i,j)$). The following fact will be used to ensure that the solution exists and is unique: let $P(x,y) \in \mathbb{F}_2[x,y]$ and for each series $f(x) = \sum_{n=0}^{\infty} a_n x^n \in \mathbb{F}_2[[x]]$ denote the partial sum $\sum_{j=0}^{n-1} a_j x^j$ by $f_n(x)$ for $n \geq 0$. If for some $n \geq 0$ and $a_0, a_1, \ldots, a_{n-1} \in \mathbb{F}_2$ $P(x, \sum_{j=0}^{n-1} a_j x^j) = O(x^n)$ and $Q(x,y) := P(x, \sum_{j=0}^{n-1} a_j x^j + x^n y)$ can be written as $x^m \sum_{j=0}^{\infty} q_j(x) y^j$ where $q_j(x)$ are polynomials for $j \geq 0$, $q_1(0) = 1$, and $q_j(0) = 0$ for $j > 1$, then there exists a unique solution $f(x) \in \mathbb{F}_2[[x]]$ of $P(x, f(x)) = 0$ that satisfies the initial condition $f_n(x) = \sum_{j=0}^{n-1} a_j x^j$.

We state two lemmas concerning the four matrices M^e, M^o, W^e, W^o. The first one is about relations between them; the second, about the structure of the each matrix.

Lemma 2.1. *We have*

$$M^e = W^o \cdot M^o, \tag{2.3}$$

$$M^o = W^e \cdot M^e, \tag{2.4}$$

$$W^e = M^o \cdot W^o, \tag{2.5}$$

$$W^o = M^e \cdot W^e. \tag{2.6}$$

Proof. We give the proof of the identity

$$M^e_{0,0} = W^o_{0,0} M^o_{0,0} + W^o_{0,1} M^o_{1,0},$$

the proofs of the others being similar.

First, we compute the minimal polynomials of $W^o_{0,0}M^o_{0,0}$ and $W^o_{0,1}M^o_{1,0}$. We know that

$$P(x,y) = \mathrm{Res}_z\left(\phi(W^o,0,0)(x,z),\ z^{12}\cdot\phi(M^o,0,0)(x,y/z)\right)$$

is an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We use Padé-Hermite approximation to find a candidate for the minimal polynomial of $W^o_{0,0}M^o_{0,0}$, that will be called $\phi_0(x,y)$. To prove that $\phi_0(x,y)$ is indeed the minimal polynomial, it suffices to prove that it is an irreducible factor of $P(x,y)$ of multiplicity m and that $Q(x,y) := P(x,y)/\phi_0(x,y)^m$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We verify the first point directly. For the second point, we truncate $W^o_{0,0}M^o_{0,0}$ to order 630 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 630, which proves that $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}$. We find the minimal polynomial $\phi_1(x,y)$ of $W^o_{0,1}M^o_{1,0}$ in a similar way.

Now we prove that $\phi(M^e,0,0)$ is the minimal polynomial of $W^o_{0,0}M^o_{0,0}+W^o_{0,1}M^o_{1,0}$. We know that

$$S(x,y) = \mathrm{Res}_z\left(\phi_0(x,z),\ \phi_1(x,y+z)\right)$$

is an annihilating of $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$. We verify that $\phi(M^e,0,0)$ is an irreducible factor of $S(x,y)$ of multiplicity μ, and that $Q(x,y) := S(x,y)/\phi(M^e,0,0)^\mu$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0}+W^o_{0,1}M^o_{1,0}$. To see the last point, we truncate $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$ to order 770 and substitute it for y in $Q(x,y)$. We get a series of valuation less than 770, and therefore $Q(x,y)$ is not an annihilating polynomial of $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$.

Finally, the first 16 terms of $M^e_{0,0}$ and $W^o_{0,0}M^o_{0,0} + W^o_{0,1}M^o_{1,0}$ coincide. As these first terms determine a unique solution of $\phi(M^e,0,0)$, we know that the two series are one and the same. $\square$

Define

$$R^e = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \qquad \text{and} \qquad R^o = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}.$$

Lemma 2.2. *For all integers $k \geq 2$ and $u = 2^{2k-1}$, the following identities hold.*

$$\begin{aligned} M^e[:14u] = {} & M^e[:7u] + x^{3u}M^e[:4u] + x^{5u}M^e[:2u] + x^{3u}M^e[:7u] + x^{6u}M^e[:4u] \\ & + x^{8u}M^e[:2u] + x^{5u}M^e[:7u] + x^{8u}M^e[:4u] + x^{10u}M^e[:2u] \\ & + x^{6u}M^e[:7u] + x^{9u}M^e[:4u] + x^{11u}M^e[:2u] + x^{7u}M^e[:7u] \\ & + x^{10u}M^e[:4u] + (x^{7u} + x^{10u} + x^{12u} + x^{13u})R^e, \end{aligned}$$

$$\begin{aligned}W^e[:14u] &= W^e[:7u] + x^{3u}W^e[:4u] + x^{5u}W^e[:2u] + x^{3u}W^e[:7u] + x^{6u}W^e[:4u]\\ &\quad + x^{8u}W^e[:2u] + x^{5u}W^e[:7u] + x^{8u}W^e[:4u] + x^{10u}W^e[:2u]\\ &\quad + x^{6u}W^e[:7u] + x^{9u}W^e[:4u] + x^{11u}W^e[:2u] + x^{7u}W^e[:7u]\\ &\quad + x^{10u}W^e[:4u] + (x^{7u}+x^{10u}+x^{12u}+x^{13u})R^e.\end{aligned}$$

For all integers $k \geq 2$ and $u = 2^{2k}$, the following identities hold.

$$\begin{aligned}M^o[:14u] &= M^o[:7u] + x^{3u}M^o[:4u] + x^{5u}M^o[:2u] + x^{3u}M^o[:7u] + x^{6u}M^o[:4u]\\ &\quad + x^{8u}M^o[:2u] + x^{5u}M^o[:7u] + x^{8u}M^o[:4u] + x^{10u}M^o[:2u]\\ &\quad + x^{6u}M^o[:7u] + x^{9u}M^o[:4u] + x^{11u}M^o[:2u] + x^{7u}M^o[:7u]\\ &\quad + x^{10u}M^o[:4u] + (x^{7u}+x^{10u}+x^{12u}+x^{13u})R^o,\\ W^o[:14u] &= W^o[:7u] + x^{3u}W^o[:4u] + x^{5u}W^o[:2u] + x^{3u}W^o[:7u] + x^{6u}W^o[:4u]\\ &\quad + x^{8u}W^o[:2u] + x^{5u}W^o[:7u] + x^{8u}W^o[:4u] + x^{10u}W^o[:2u]\\ &\quad + x^{6u}W^o[:7u] + x^{9u}W^o[:4u] + x^{11u}W^o[:2u] + x^{7u}W^o[:7u]\\ &\quad + x^{10u}W^o[:4u] + (x^{7u}+x^{10u}+x^{12u}+x^{13u})R^o.\end{aligned}$$

Proof. To prove Lemma 2.2 we first construct an automaton for each sequence concerned, and then transform the conditions on infinitely many k's into finitely many conditions on the states of the automaton. In the following, we will prove that for $T = M^o_{0,0}$, for all integer $k \geq 2$ and $u = 2^{2k}$,

$$\begin{aligned}T[:14u] &= T[:7u] + x^{3u}T[:4u] + x^{5u}T[:2u] + x^{3u}T[:7u] + x^{6u}T[:4u] + x^{8u}T[:2u]\\ &\quad + x^{5u}T[:7u] + x^{8u}T[:4u] + x^{10u}T[:2u] + x^{6u}T[:7u] + x^{9u}T[:4u]\\ &\quad + x^{11u}T[:2u] + x^{7u}T[:7u] + x^{10u}T[:4u].\end{aligned}$$

The proof of the other 15 cases are similar. We break down the above identity into 7 parts:

$$\begin{aligned}0 &= x^{7u}T[:u] + x^{5u}T[2u:3u] + x^{3u}T[4u:5u] + T[7u:8u],\\ 0 &= x^{7u}T[u:2u] + x^{5u}T[3u:4u] + x^{3u}T[5u:6u] + T[8u:9u],\\ 0 &= x^{9u}T[:u] + x^{7u}T[2u:3u] + x^{5u}T[4u:5u] + x^{3u}T[6u:7u]\\ &\quad + T[9u:10u],\\ 0 &= x^{9u}T[u:2u] + x^{8u}T[2u:3u] + x^{7u}T[3u:4u] + x^{6u}T[4u:5u]\\ &\quad + x^{5u}T[5u:6u] + T[10u:11u],\\ 0 &= x^{11u}T[:u] + x^{9u}T[2u:3u] + x^{8u}T[3u:4u] + x^{7u}T[4u:5u]\\ &\quad + x^{6u}T[5u:6u] + x^{5u}T[6u:7u] + T[11u:12u],\\ 0 &= x^{11u}T[u:2u] + x^{10u}T[2u:3u] + x^{9u}T[3u:4u] + x^{7u}T[5u:6u]\\ &\quad + x^{6u}T[6u:7u] + T[12u:13u],\\ 0 &= x^{10u}T[3u:4u] + x^{7u}T[6u:7u] + T[13u:14u],\end{aligned}$$

which can be rewritten as

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.8}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.9}$$

$$\begin{aligned} 0 = & T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\ & + T[[1010w]_2], \end{aligned} \tag{2.10}$$

$$\begin{aligned} 0 = & T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\ & + T[[110w]_2] + T[[1011w]_2], \end{aligned} \tag{2.11}$$

$$\begin{aligned} 0 = & T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[110w]_2] \\ & + T[[1100w]_2], \end{aligned} \tag{2.12}$$

$$0 = T[[11w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.13}$$

for all binary word w of length $2k$ and $w \neq 0^{2k}$, and

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1000w]_2], \tag{2.15}$$

$$0 = T[[w]_2] + T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1001w]_2], \tag{2.16}$$

$$\begin{aligned} 0 = & T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\ & + T[[1010w]_2], \end{aligned} \tag{2.17}$$

$$\begin{aligned} 0 = & T[[w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2] + T[[101w]_2] \\ & + T[[110w]_2] + T[[1011w]_2], \end{aligned} \tag{2.18}$$

$$\begin{aligned} 0 = & T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[101w]_2] + T[[110w]_2] \\ & + T[[1100w]_2], \end{aligned} \tag{2.19}$$

$$0 = T[[11w]_2] + T[[110w]_2] + T[[1101w]_2], \tag{2.20}$$

for $w = 0^{2k}$.

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 3709 states; its transition function and output function can be found in the annex. Let $A(s,w)$ denote the state reached after reading w from right to left starting from the state s, and τ the output function. Define

$$E_{2k} = \{A(i,w) : |w| = 2k, w \neq 0^{2k}\}.$$

Identities (2.7) through (2.20) can be written as

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,111)), \tag{2.21}$$

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) + \tau(A(s,1000)), \tag{2.22}$$

$$\begin{aligned} 0 = & \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,110)) \\ & + \tau(A(s,1001)), \end{aligned} \tag{2.23}$$

$$\begin{aligned} 0 = & \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & + \tau(A(s,101)) + \tau(A(s,1010)), \end{aligned} \tag{2.24}$$

$$\begin{aligned} 0 = & \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1011)), \end{aligned} \tag{2.25}$$

$$\begin{aligned} 0 = & \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,101)) \\ & + \tau(A(s,110)) + \tau(A(s,1100)), \end{aligned} \tag{2.26}$$

$$0 = \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1101)), \tag{2.27}$$

for all $s \in E_{2k}$, and

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,111)), \tag{2.28}$$

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) + \tau(A(s,1000)), \tag{2.29}$$

$$\begin{aligned} 0 = {} & \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,110)) \\ & + \tau(A(s,1001)), \end{aligned} \tag{2.30}$$

$$\begin{aligned} 0 = {} & \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & + \tau(A(s,101)) + \tau(A(s,1010)), \end{aligned} \tag{2.31}$$

$$\begin{aligned} 0 = {} & \tau(A(s,\epsilon)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) \\ & + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1011)), \end{aligned} \tag{2.32}$$

$$\begin{aligned} 0 = {} & \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,101)) \\ & + \tau(A(s,110)) + \tau(A(s,1100)), \end{aligned} \tag{2.33}$$

$$0 = \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i,0^{26}), E_{26}) = (A(i,0^{22}), E_{22})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 13$, which turns out to be true. □

In the following lemma, we express M_{2k}, M_{2k+1}, W_{2k}, and W_{2k+1} in terms of M^e, M^o, W^e, and W^o.

Lemma 2.3. *For all integer $k \ge 2$, and $u = 2^{2k-1}$,*

$$M_{2k} = M^e[:7u] + x^{3u} M^e[:4u] + x^{5u} M^e[:2u] + x^{7u} R^e,$$
$$W_{2k} = W^e[:7u] + x^{3u} W^e[:4u] + x^{5u} W^e[:2u] + x^{7u} R^e.$$

For all integer $k \ge 2$, and $u = 2^{2k}$,

$$M_{2k+1} = M^o[:7u] + x^{3u} M^o[:4u] + x^{5u} M^o[:2u] + x^{7u} R^o,$$
$$W_{2k+1} = W^o[:7u] + x^{3u} W^o[:4u] + x^{5u} W^o[:2u] + x^{7u} R^o.$$

Proof. We call the four identities in Lemma 2.3 also by the name M_{2k}, W_{2k}, M_{2k+1}, and W_{2k+1}. For $n = 2$, the identities can be verified directly. For $n \ge 2$, we claim that

$$M_{2k} \wedge W_{2k} \Rightarrow M_{2k+1} \wedge W_{2k+1},$$
$$M_{2k+1} \wedge W_{2k+1} \Rightarrow M_{2k+2} \wedge W_{2k+2}.$$

We give the proof of

$$M_{2k} \wedge W_{2k} \Rightarrow M_{2k+1},$$

the other ones being similar. Set $u = 2^{2k}$ and $v = 2^{2k-1}$. By definition and induction hypothesis, the left side of identity M_{2k+1} is equal to

$$\begin{aligned} W_{2k} M_{2k} = {} & \big(W^e[:7v] + x^{3v} W^e[:4v] + x^{5v} W^e[:2v] + x^{7u} R^e\big) \times \big(M^e[:7v] \\ & + x^{3v} M^e[:4v] + x^{5v} M^e[:2v] + x^{7u} R^e\big); \end{aligned} \tag{2.35}$$

Call this expression lhs. Note that both sides of identity M_{2k+1} have the same term of highest degree $x^{14v} R^o$. Therefore we only need to prove that their difference is $O(x^{14v})$. Using Lemma 2.1 it can be seen that the right side of identity M_{2k+1} is congruent, modulo x^{14v}, to

$$W^e[:14v] M^e[:14v] + x^{6v} W^e[:8v] M^e[:8v] + x^{10v} W^e[:4v] M^e[:4v].$$

For all $n \leq 14$, replace the occurrences of $W^e[: n \cdot v]$ and $M^e[: n \cdot v]$ in the above expression by the reduction modulo $x^{n \cdot v}$ of the right side of the corresponding identity in Lemma 2.2 and get a new expression, which we call rhs. Define

$$\begin{aligned} X &:= x^v, \\ a_n &:= W^e[n \cdot v : (n+1) \cdot v]/X^n, \\ b_n &:= M^e[n \cdot v : (n+1) \cdot v]/X^n, \\ c &:= R^e. \end{aligned}$$

Using the notation introduced above, we can represent the expressions lhs (2.35) and rhs as polynomials in $\mathbb{F}_2[a_1, ..., a_{14}, b_1, ..., b_{14}, c][X]$. Note that it is not a problem that a_j commutes with b_k while W^e does not commute with M^e, because in the expressions concerned, the products of W^e-terms and M^e-terms are always in the same order. We let the computer do the simplification and check that the difference between these two polynomials is indeed $O(X^{14})$, which completes the proof. $\square$

Proof of Theorem 1.1. We prove the theorem for $\mathrm{CF}(a, b)$; for $\mathrm{CF}(b, a)$, the proof is similar. By Lemma 2.3, we have For all $0 \leq j, k \leq 1$,

$$\begin{aligned} \lim_{n\to\infty} M_{2n,j,k} &= M^e_{j,k}, \\ \lim_{n\to\infty} M_{2n+1,j,k} &= M^o_{j,k}, \\ \lim_{n\to\infty} W_{2n,j,k} &= W^e_{j,k}, \\ \lim_{n\to\infty} W_{2n+1,j,k} &= W^o_{j,k}. \end{aligned}$$

Let $z = 1/x$. By the convergence theorem and identity (2.2),

$$\mathrm{CF}(a, b) = \frac{M^e_{0,1}(x)}{M^e_{0,0}(x)}.$$

By definition, $\phi(M^e, 0, 1)$ and $\phi(M^e, 0, 0)$ are minimal polynomials of $M^e_{0,1}$ and $M^e_{0,0}$. Therefore

$$P(x, y) = \mathrm{Res}_t \left(\phi(M^e, 0, 1)(x, t), y^{12}\phi(M^e, 0, 1)(x, t/y)\right)$$

is an annihilating polynomial of $f(x) = M^e_{0,1}/M^e_{0,0}$.

Define

$$Q(x, y) = q_4(x)y^4 + q_3(x)y^3 + q_2(x)y^2 + q_1(x)y + q_0(x),$$

where

$$\begin{aligned} q_0(x) &= x^{28} + x^{26} + x^{25} + x^{23} + x^{22} + x^{13} + x^{12} + x^{10} + x^8 + x^7, \\ q_1(x) &= x^{26} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{14} + x^{11} + x^{10} + x^8 + x^6 \\ &\quad + x^5 + x^2, \\ q_2(x) &= x^{24} + x^{20} + x^{18} + x^{16} + x^{12} + x^{10} + x^4 + 1, \\ q_3(x) &= x^{26} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{14} + x^{11} + x^{10} + x^8 + x^6 \\ &\quad + x^5 + x^2, \\ q_4(x) &= x^{26} + x^{25} + x^{23} + x^{22} + x^{18} + x^{13} + x^{12} + x^7 + x^4. \end{aligned}$$

The polynomial $Q(x, y)$ is the candidate for the minimal polynomial of $f(x)$ found by Padé-Hermite approximation. To prove that it is indeed the minimal polynomial of $f(x)$, we only need to prove that it is an irreducible factor of $P(x,y)$ of multiplicity m and $R(x,y) := P(x,y)/Q(x,y)^m$ is not an annihilating polynomial of $f(x)$. We verify the first point directly. For the second point, we find that when we truncate $f(x)$ to order 216, and substitute it for y in $R(z,y)$, we get a series with valuation smaller than 216, which proves that $R(z,y)$ is not an annihilating polynomial of $f(x)$. Finally, $z^{12}Q(1/z,y)$ is the minimal polynomial of $\mathrm{CF}(a,b) = f(1/z)$. $\square$

3. Annexe

All 16 polynomials are of the form

$$p_0(x) + p_3(x)y^3 + p_6(x)y^6 + p_9(x)y^9 + p_{12}(x)y^{12}.$$

The coefficients $p_j(x)$ and the 16 initial terms to determine the solutions uniquely are given below.

For $\phi(M^e, 0, 0)$:

$$\begin{aligned}
p_0(x) = {} & x^{156} + x^{154} + x^{152} + x^{148} + x^{146} + x^{142} + x^{134} + x^{132} + x^{130} + x^{126} \\
& + x^{124} + x^{122} + x^{118} + x^{106} + x^{104} + x^{98} + x^{96} + x^{94} + x^{92} + x^{88} \\
& + x^{86} + x^{84} + x^{76} + x^{68} + x^{64} + x^{56} + x^{54} + x^{40} + x^{36} + x^{30} + x^{24}, \\
p_3(x) = {} & x^{150} + x^{146} + x^{142} + x^{134} + x^{132} + x^{122} + x^{118} + x^{116} + x^{114} + x^{112} \\
& + x^{110} + x^{102} + x^{94} + x^{92} + x^{88} + x^{86} + x^{84} + x^{80} + x^{76} + x^{74} + x^{64} \\
& + x^{60} + x^{56} + x^{52} + x^{48} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34} + x^{30} + x^{28} \\
& + x^{18} + x^{16}, \\
p_6(x) = {} & x^{150} + x^{148} + x^{128} + x^{126} + x^{124} + x^{116} + x^{112} + x^{102} + x^{100} + x^{98} \\
& + x^{96} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{74} + x^{72} + x^{70} \\
& + x^{68} + x^{64} + x^{62} + x^{56} + x^{52} + x^{50} + x^{46} + x^{38} + x^{34} + x^{28} + x^{26} \\
& + x^{24} + x^{22} + x^{16} + x^{14} + x^{10} + x^{8} + x^{4} + 1, \\
p_9(x) = {} & x^{152} + x^{148} + x^{144} + x^{142} + x^{140} + x^{138} + x^{132} + x^{126} + x^{124} + x^{122} \\
& + x^{120} + x^{114} + x^{110} + x^{108} + x^{104} + x^{102} + x^{100} + x^{88} + x^{84} + x^{76} \\
& + x^{74} + x^{70} + x^{68} + x^{64} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44} + x^{42} + x^{40} \\
& + x^{38} + x^{26} + x^{24} + x^{22} + x^{20} + x^{12} + x^{10} + x^{8} + x^{4}, \\
p_{12}(x) = {} & x^{152} + x^{144} + x^{128} + x^{56} + x^{48} + x^{40} + x^{24} + 1,
\end{aligned}$$

and the initial terms are [1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 1, 0].

For $\phi(M^e, 0, 1)$:

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{135} \\
& + x^{134} + x^{132} + x^{128} + x^{126} + x^{123} + x^{122} + x^{119} + x^{118} + x^{117} \\
& + x^{115} + x^{114} + x^{113} + x^{112} + x^{111} + x^{106} + x^{102} + x^{100} + x^{96} + x^{94} \\
& + x^{90} + x^{88} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{75} + x^{73} + x^{72} \\
& + x^{71} + x^{70} + x^{67} + x^{59} + x^{54} + x^{52} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46} \\
& + x^{43} + x^{42} + x^{37} + x^{35} + x^{34} + x^{33}, \\
p_3(x) = {} & x^{143} + x^{142} + x^{139} + x^{137} + x^{136} + x^{135} + x^{132} + x^{131} + x^{129} + x^{128}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{126} + x^{124} + x^{123} + x^{122} + x^{119} + x^{114} + x^{103} + x^{102} + x^{99} + x^{97}\\
&+ x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{79}\\
&+ x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{55} + x^{54} + x^{50}\\
&+ x^{49} + x^{48} + x^{44} + x^{41} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{30}\\
&+ x^{28} + x^{27} + x^{26} + x^{23} + x^{18},\\
p_6(x) = {}& x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128}\\
&+ x^{125} + x^{124} + x^{123} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112}\\
&+ x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{98} + x^{91} + x^{90}\\
&+ x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{49} + x^{48} + x^{46} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{34} + x^{31}\\
&+ x^{30} + x^{29} + x^{27} + x^{25} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15}\\
&+ x^{12},\\
p_9(x) = {}& x^{139} + x^{138} + x^{134} + x^{129} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{121}\\
&+ x^{120} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{95} + x^{91}\\
&+ x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{78} + x^{75} + x^{74} + x^{71} + x^{69}\\
&+ x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59} + x^{57} + x^{54} + x^{52} + x^{51}\\
&+ x^{50} + x^{47} + x^{45} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35}\\
&+ x^{32} + x^{30} + x^{27} + x^{26} + x^{23} + x^{19} + x^{17} + x^{16} + x^{15} + x^{12} + x^{11}\\
&+ x^{6},\\
p_{12}(x) = {}& x^{137} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{124} + x^{121} + x^{120}\\
&+ x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105} + x^{104} + x^{103}\\
&+ x^{100} + x^{97} + x^{96} + x^{95} + x^{92} + x^{89} + x^{88} + x^{87} + x^{84} + x^{81} + x^{80}\\
&+ x^{79} + x^{76} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{60} + x^{57}\\
&+ x^{56} + x^{55} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{37} + x^{36} + x^{35} + x^{32}\\
&+ x^{25} + x^{24} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{12} + x^{5} + x^{4} + x^{3} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 1, 1].

For $\phi(M^e, 1, 0)$:

$$
\begin{aligned}
p_0(x) = {}& x^{147} + x^{144} + x^{143} + x^{142} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{135}\\
&+ x^{134} + x^{132} + x^{128} + x^{126} + x^{123} + x^{122} + x^{119} + x^{118} + x^{117}\\
&+ x^{115} + x^{114} + x^{113} + x^{112} + x^{111} + x^{106} + x^{102} + x^{100} + x^{96} + x^{94}\\
&+ x^{90} + x^{88} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{75} + x^{73} + x^{72}\\
&+ x^{71} + x^{70} + x^{67} + x^{59} + x^{54} + x^{52} + x^{50} + x^{49} + x^{48} + x^{47} + x^{46}\\
&+ x^{43} + x^{42} + x^{37} + x^{35} + x^{34} + x^{33},
\end{aligned}
$$

$$\begin{aligned}
p_3(x) &= x^{143} + x^{142} + x^{139} + x^{137} + x^{136} + x^{135} + x^{132} + x^{131} + x^{129} + x^{128} \\
&\quad + x^{126} + x^{124} + x^{123} + x^{122} + x^{119} + x^{114} + x^{103} + x^{102} + x^{99} + x^{97} \\
&\quad + x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{79} \\
&\quad + x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{55} + x^{54} + x^{50} \\
&\quad + x^{49} + x^{48} + x^{44} + x^{41} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{30} \\
&\quad + x^{28} + x^{27} + x^{26} + x^{23} + x^{18}, \\
p_6(x) &= x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128} \\
&\quad + x^{125} + x^{124} + x^{123} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{98} + x^{91} + x^{90} \\
&\quad + x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72} \\
&\quad + x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57} \\
&\quad + x^{54} + x^{49} + x^{48} + x^{46} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{34} + x^{31} \\
&\quad + x^{30} + x^{29} + x^{27} + x^{25} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15} \\
&\quad + x^{12}, \\
p_9(x) &= x^{139} + x^{138} + x^{134} + x^{129} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{121} \\
&\quad + x^{120} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{95} + x^{91} \\
&\quad + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{78} + x^{75} + x^{74} + x^{71} + x^{69} \\
&\quad + x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59} + x^{57} + x^{54} + x^{52} + x^{51} \\
&\quad + x^{50} + x^{47} + x^{45} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35} \\
&\quad + x^{32} + x^{30} + x^{27} + x^{26} + x^{23} + x^{19} + x^{17} + x^{16} + x^{15} + x^{12} + x^{11} \\
&\quad + x^{6}, \\
p_{12}(x) &= x^{137} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{124} + x^{121} + x^{120} \\
&\quad + x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105} + x^{104} + x^{103} \\
&\quad + x^{100} + x^{97} + x^{96} + x^{95} + x^{92} + x^{89} + x^{88} + x^{87} + x^{84} + x^{81} + x^{80} \\
&\quad + x^{79} + x^{76} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{60} + x^{57} \\
&\quad + x^{56} + x^{55} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{37} + x^{36} + x^{35} + x^{32} \\
&\quad + x^{25} + x^{24} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{12} + x^{5} + x^{4} + x^{3} + 1,
\end{aligned}$$

and the initial terms are [0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 1, 1, 1].

For $\phi(M^e, 1, 1)$:

$$\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{128} + x^{126} + x^{122} + x^{120} + x^{118} + x^{110} + x^{108} + x^{98} \\
&\quad + x^{92} + x^{88} + x^{86} + x^{84} + x^{78} + x^{74} + x^{72} + x^{70} + x^{66} + x^{64} + x^{62} \\
&\quad + x^{60} + x^{58} + x^{56} + x^{52} + x^{48} + x^{46} + x^{44} + x^{42}, \\
p_3(x) &= x^{126} + x^{124} + x^{120} + x^{114} + x^{112} + x^{108} + x^{106} + x^{100} + x^{98} + x^{90} \\
&\quad + x^{84} + x^{82} + x^{80} + x^{78} + x^{72} + x^{70} + x^{68} + x^{66} + x^{62} + x^{50} + x^{48}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{42} + x^{34} + x^{32} + x^{24} + x^{18} + x^{16} + x^{12},\\
p_6(x) &= x^{126} + x^{124} + x^{122} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104} + x^{96} + x^{90}\\
&+ x^{88} + x^{86} + x^{84} + x^{66} + x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{44} + x^{40}\\
&+ x^{38} + x^{36} + x^{34} + x^{24} + x^{22} + x^{20} + x^{18} + x^{16} + x^{10} + x^{8} + x^{6} + x^{4}\\
&+ 1,\\
p_9(x) &= x^{122} + x^{120} + x^{116} + x^{114} + x^{110} + x^{108} + x^{104} + x^{102} + x^{98} + x^{92}\\
&+ x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{76} + x^{70} + x^{66} + x^{64} + x^{58} + x^{54}\\
&+ x^{50} + x^{48} + x^{46} + x^{38} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18} + x^{8} + x^{4},\\
p_{12}(x) &= x^{122} + x^{120} + x^{118} + x^{112} + x^{106} + x^{104} + x^{102} + x^{96} + x^{90} + x^{88}\\
&+ x^{86} + x^{80} + x^{74} + x^{72} + x^{70} + x^{64} + x^{58} + x^{56} + x^{54} + x^{48} + x^{42}\\
&+ x^{40} + x^{38} + x^{32} + x^{10} + x^{8} + x^{6} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 0].

For $\phi(W^e, 0, 0)$:

$$
\begin{aligned}
p_0(x) &= x^{138} + x^{136} + x^{130} + x^{120} + x^{118} + x^{114} + x^{110} + x^{104} + x^{102} + x^{96}\\
&+ x^{92} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{78} + x^{70} + x^{62} + x^{60} + x^{58}\\
&+ x^{56} + x^{50} + x^{34} + x^{24},\\
p_3(x) &= x^{126} + x^{124} + x^{120} + x^{118} + x^{116} + x^{114} + x^{112} + x^{110} + x^{108} + x^{104}\\
&+ x^{102} + x^{100} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76}\\
&+ x^{72} + x^{66} + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{50} + x^{46} + x^{42}\\
&+ x^{38} + x^{28} + x^{22} + x^{20} + x^{18} + x^{16},\\
p_6(x) &= x^{126} + x^{124} + x^{122} + x^{118} + x^{116} + x^{114} + x^{110} + x^{108} + x^{106} + x^{102}\\
&+ x^{100} + x^{98} + x^{96} + x^{94} + x^{90} + x^{86} + x^{82} + x^{78} + x^{76} + x^{72} + x^{70}\\
&+ x^{68} + x^{64} + x^{62} + x^{60} + x^{58} + x^{54} + x^{52} + x^{50} + x^{48} + x^{46} + x^{42}\\
&+ x^{40} + x^{38} + x^{36} + x^{34} + x^{32} + x^{26} + x^{24} + x^{20} + x^{14} + x^{12} + x^{10}\\
&+ x^{6} + x^{4} + 1,\\
p_9(x) &= x^{122} + x^{120} + x^{116} + x^{114} + x^{110} + x^{108} + x^{104} + x^{102} + x^{98} + x^{92}\\
&+ x^{88} + x^{86} + x^{84} + x^{80} + x^{78} + x^{76} + x^{70} + x^{66} + x^{64} + x^{58} + x^{54}\\
&+ x^{50} + x^{48} + x^{46} + x^{38} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18} + x^{8} + x^{4},\\
p_{12}(x) &= x^{122} + x^{120} + x^{118} + x^{112} + x^{106} + x^{104} + x^{102} + x^{96} + x^{90} + x^{88}\\
&+ x^{86} + x^{80} + x^{74} + x^{72} + x^{70} + x^{64} + x^{58} + x^{56} + x^{54} + x^{48} + x^{42}\\
&+ x^{40} + x^{38} + x^{32} + x^{10} + x^{8} + x^{6} + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 1, 0].

For $\phi(W^e, 0, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{147} + x^{145} + x^{141} + x^{140} + x^{137} + x^{132} + x^{129} + x^{127} + x^{126} + x^{125}\\
&+ x^{122} + x^{119} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110} + x^{108} + x^{104}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{99} + x^{96} + x^{92} + x^{90} + x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{77} + x^{76}\\
&+ x^{75} + x^{74} + x^{73} + x^{71} + x^{68} + x^{67} + x^{66} + x^{63} + x^{62} + x^{61} + x^{60}\\
&+ x^{58} + x^{54} + x^{52} + x^{51} + x^{50} + x^{49} + x^{47} + x^{44} + x^{42} + x^{41} + x^{36}\\
&+ x^{33},\\
p_3(x) = &\; x^{143} + x^{142} + x^{139} + x^{137} + x^{136} + x^{135} + x^{132} + x^{131} + x^{129} + x^{128}\\
&+ x^{126} + x^{124} + x^{123} + x^{122} + x^{119} + x^{114} + x^{103} + x^{102} + x^{99} + x^{97}\\
&+ x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{79}\\
&+ x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{55} + x^{54} + x^{50}\\
&+ x^{49} + x^{48} + x^{44} + x^{41} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{30}\\
&+ x^{28} + x^{27} + x^{26} + x^{23} + x^{18},\\
p_6(x) = &\; x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128}\\
&+ x^{125} + x^{124} + x^{123} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112}\\
&+ x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{98} + x^{91} + x^{90}\\
&+ x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{49} + x^{48} + x^{46} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{34} + x^{31}\\
&+ x^{30} + x^{29} + x^{27} + x^{25} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15}\\
&+ x^{12},\\
p_9(x) = &\; x^{139} + x^{138} + x^{134} + x^{129} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{121}\\
&+ x^{120} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{95} + x^{91}\\
&+ x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{78} + x^{75} + x^{74} + x^{71} + x^{69}\\
&+ x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59} + x^{57} + x^{54} + x^{52} + x^{51}\\
&+ x^{50} + x^{47} + x^{45} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35}\\
&+ x^{32} + x^{30} + x^{27} + x^{26} + x^{23} + x^{19} + x^{17} + x^{16} + x^{15} + x^{12} + x^{11}\\
&+ x^{6},\\
p_{12}(x) = &\; x^{137} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{124} + x^{121} + x^{120}\\
&+ x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105} + x^{104} + x^{103}\\
&+ x^{100} + x^{97} + x^{96} + x^{95} + x^{92} + x^{89} + x^{88} + x^{87} + x^{84} + x^{81} + x^{80}\\
&+ x^{79} + x^{76} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{60} + x^{57}\\
&+ x^{56} + x^{55} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{37} + x^{36} + x^{35} + x^{32}\\
&+ x^{25} + x^{24} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{12} + x^{5} + x^{4} + x^{3} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1].

For $\phi(W^e, 1, 0)$:

$$p_0(x) = x^{147} + x^{145} + x^{141} + x^{140} + x^{137} + x^{132} + x^{129} + x^{127} + x^{126} + x^{125}$$

$$
\begin{aligned}
&+ x^{122} + x^{119} + x^{117} + x^{116} + x^{114} + x^{113} + x^{110} + x^{108} + x^{104}\\
&+ x^{99} + x^{96} + x^{92} + x^{90} + x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{77} + x^{76}\\
&+ x^{75} + x^{74} + x^{73} + x^{71} + x^{68} + x^{67} + x^{66} + x^{63} + x^{62} + x^{61} + x^{60}\\
&+ x^{58} + x^{54} + x^{52} + x^{51} + x^{50} + x^{49} + x^{47} + x^{44} + x^{42} + x^{41} + x^{36}\\
&+ x^{33},\\
p_3(x) = {}& x^{143} + x^{142} + x^{139} + x^{137} + x^{136} + x^{135} + x^{132} + x^{131} + x^{129} + x^{128}\\
&+ x^{126} + x^{124} + x^{123} + x^{122} + x^{119} + x^{114} + x^{103} + x^{102} + x^{99} + x^{97}\\
&+ x^{96} + x^{95} + x^{92} + x^{91} + x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{79}\\
&+ x^{74} + x^{71} + x^{70} + x^{67} + x^{65} + x^{64} + x^{62} + x^{60} + x^{55} + x^{54} + x^{50}\\
&+ x^{49} + x^{48} + x^{44} + x^{41} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33} + x^{32} + x^{30}\\
&+ x^{28} + x^{27} + x^{26} + x^{23} + x^{18},\\
p_6(x) = {}& x^{141} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{132} + x^{131} + x^{130} + x^{128}\\
&+ x^{125} + x^{124} + x^{123} + x^{120} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112}\\
&+ x^{110} + x^{109} + x^{108} + x^{107} + x^{105} + x^{103} + x^{101} + x^{98} + x^{91} + x^{90}\\
&+ x^{89} + x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72}\\
&+ x^{70} + x^{69} + x^{68} + x^{67} + x^{64} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57}\\
&+ x^{54} + x^{49} + x^{48} + x^{46} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{34} + x^{31}\\
&+ x^{30} + x^{29} + x^{27} + x^{25} + x^{22} + x^{21} + x^{20} + x^{18} + x^{17} + x^{16} + x^{15}\\
&+ x^{12},\\
p_9(x) = {}& x^{139} + x^{138} + x^{134} + x^{129} + x^{128} + x^{127} + x^{126} + x^{124} + x^{123} + x^{121}\\
&+ x^{120} + x^{118} + x^{117} + x^{115} + x^{114} + x^{113} + x^{110} + x^{108} + x^{107}\\
&+ x^{106} + x^{105} + x^{104} + x^{102} + x^{101} + x^{99} + x^{98} + x^{96} + x^{95} + x^{91}\\
&+ x^{89} + x^{88} + x^{86} + x^{84} + x^{83} + x^{82} + x^{78} + x^{75} + x^{74} + x^{71} + x^{69}\\
&+ x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{59} + x^{57} + x^{54} + x^{52} + x^{51}\\
&+ x^{50} + x^{47} + x^{45} + x^{44} + x^{42} + x^{40} + x^{39} + x^{38} + x^{37} + x^{36} + x^{35}\\
&+ x^{32} + x^{30} + x^{27} + x^{26} + x^{23} + x^{19} + x^{17} + x^{16} + x^{15} + x^{12} + x^{11}\\
&+ x^{6},\\
p_{12}(x) = {}& x^{137} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{127} + x^{124} + x^{121} + x^{120}\\
&+ x^{119} + x^{116} + x^{113} + x^{112} + x^{111} + x^{108} + x^{105} + x^{104} + x^{103}\\
&+ x^{100} + x^{97} + x^{96} + x^{95} + x^{92} + x^{89} + x^{88} + x^{87} + x^{84} + x^{81} + x^{80}\\
&+ x^{79} + x^{76} + x^{73} + x^{72} + x^{71} + x^{68} + x^{65} + x^{64} + x^{63} + x^{60} + x^{57}\\
&+ x^{56} + x^{55} + x^{52} + x^{49} + x^{48} + x^{47} + x^{44} + x^{37} + x^{36} + x^{35} + x^{32}\\
&+ x^{25} + x^{24} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{12} + x^{5} + x^{4} + x^{3} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 1, 0, 1].

For $\phi(W^e, 1, 1)$:

$$\begin{aligned}
p_0(x) &= x^{156} + x^{154} + x^{148} + x^{144} + x^{140} + x^{134} + x^{132} + x^{130} + x^{128} + x^{126} \\
&\quad + x^{122} + x^{110} + x^{108} + x^{106} + x^{104} + x^{94} + x^{90} + x^{88} + x^{86} + x^{84} \\
&\quad + x^{80} + x^{72} + x^{68} + x^{64} + x^{62} + x^{60} + x^{52} + x^{48} + x^{42}, \\
p_3(x) &= x^{150} + x^{148} + x^{146} + x^{144} + x^{138} + x^{130} + x^{128} + x^{126} + x^{122} + x^{120} \\
&\quad + x^{118} + x^{110} + x^{106} + x^{98} + x^{96} + x^{90} + x^{86} + x^{82} + x^{80} + x^{78} + x^{76} \\
&\quad + x^{74} + x^{62} + x^{56} + x^{54} + x^{52} + x^{50} + x^{46} + x^{40} + x^{36} + x^{34} + x^{30} \\
&\quad + x^{28} + x^{26} + x^{16} + x^{12}, \\
p_6(x) &= x^{150} + x^{142} + x^{138} + x^{134} + x^{130} + x^{128} + x^{124} + x^{114} + x^{112} + x^{108} \\
&\quad + x^{106} + x^{104} + x^{100} + x^{96} + x^{94} + x^{92} + x^{86} + x^{78} + x^{76} + x^{74} + x^{70} \\
&\quad + x^{64} + x^{54} + x^{48} + x^{44} + x^{34} + x^{28} + x^{22} + x^{20} + x^{18} + x^{16} + x^{14} \\
&\quad + x^{12} + x^{10} + x^{4} + 1, \\
p_9(x) &= x^{152} + x^{148} + x^{144} + x^{142} + x^{140} + x^{138} + x^{132} + x^{126} + x^{124} + x^{122} \\
&\quad + x^{120} + x^{114} + x^{110} + x^{108} + x^{104} + x^{102} + x^{100} + x^{88} + x^{84} + x^{76} \\
&\quad + x^{74} + x^{70} + x^{68} + x^{64} + x^{56} + x^{52} + x^{50} + x^{46} + x^{44} + x^{42} + x^{40} \\
&\quad + x^{38} + x^{26} + x^{24} + x^{22} + x^{20} + x^{12} + x^{10} + x^{8} + x^{4}, \\
p_{12}(x) &= x^{152} + x^{144} + x^{128} + x^{56} + x^{48} + x^{40} + x^{24} + 1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0].

For $\phi(M^o, 0, 0)$:

$$\begin{aligned}
p_0(x) &= x^{147} + x^{144} + x^{142} + x^{140} + x^{133} + x^{125} + x^{123} + x^{121} + x^{120} + x^{118} \\
&\quad + x^{116} + x^{115} + x^{114} + x^{112} + x^{111} + x^{109} + x^{108} + x^{105} + x^{103} \\
&\quad + x^{102} + x^{100} + x^{99} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{88} + x^{87} + x^{85} \\
&\quad + x^{83} + x^{82} + x^{80} + x^{77} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{63} \\
&\quad + x^{59} + x^{57} + x^{56} + x^{53} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{43} \\
&\quad + x^{42} + x^{41} + x^{40} + x^{39} + x^{35} + x^{30} + x^{29} + x^{27} + x^{24}, \\
p_3(x) &= x^{145} + x^{144} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} + x^{132} + x^{127} \\
&\quad + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{115} + x^{114} \\
&\quad + x^{112} + x^{102} + x^{100} + x^{98} + x^{97} + x^{96} + x^{94} + x^{92} + x^{91} + x^{89} + x^{85} \\
&\quad + x^{84} + x^{81} + x^{79} + x^{78} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{69} + x^{65} \\
&\quad + x^{64} + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{53} + x^{51} + x^{47} + x^{45} + x^{42} \\
&\quad + x^{40} + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{32} + x^{31} + x^{28} + x^{27} + x^{22} \\
&\quad + x^{21} + x^{19} + x^{16}, \\
p_6(x) &= x^{145} + x^{144} + x^{140} + x^{139} + x^{136} + x^{134} + x^{127} + x^{126} + x^{125} + x^{122} \\
&\quad + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} + x^{112} + x^{111} + x^{107} \\
&\quad + x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{97} + x^{93} + x^{92} + x^{91}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{80} + x^{79} + x^{78} + x^{75} + x^{74} + x^{73}\\
&+ x^{72} + x^{71} + x^{68} + x^{67} + x^{65} + x^{62} + x^{61} + x^{59} + x^{58} + x^{56} + x^{53}\\
&+ x^{52} + x^{49} + x^{48} + x^{47} + x^{45} + x^{42} + x^{40} + x^{39} + x^{37} + x^{35} + x^{30}\\
&+ x^{29} + x^{23} + x^{22} + x^{19} + x^{17} + x^{16} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11}\\
&+ x^{8} + x^{5} + x^{4} + x^{3} + 1,\\
p_9(x) &= x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{136} + x^{129} + x^{128} + x^{127} + x^{124}\\
&+ x^{113} + x^{112} + x^{111} + x^{108} + x^{97} + x^{96} + x^{95} + x^{92} + x^{81} + x^{80}\\
&+ x^{79} + x^{76} + x^{65} + x^{64} + x^{63} + x^{60} + x^{45} + x^{44} + x^{43} + x^{40} + x^{33}\\
&+ x^{32} + x^{31} + x^{29} + x^{27} + x^{24} + x^{13} + x^{12} + x^{11} + x^{8},\\
p_{12}(x) &= x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{137} + x^{135} + x^{133} + x^{131} + x^{128}\\
&+ x^{121} + x^{120} + x^{119} + x^{116} + x^{105} + x^{104} + x^{103} + x^{100} + x^{89} + x^{88}\\
&+ x^{87} + x^{84} + x^{73} + x^{72} + x^{71} + x^{68} + x^{57} + x^{56} + x^{55} + x^{52} + x^{49}\\
&+ x^{48} + x^{47} + x^{45} + x^{43} + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{29}\\
&+ x^{27} + x^{25} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{13} + x^{11} + x^{8} + x^{5} + x^{4}\\
&+ x^{3} + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0].

For $\phi(M^o, 0, 1)$:

$$
\begin{aligned}
p_0(x) &= x^{148} + x^{144} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{133} + x^{131} + x^{130}\\
&+ x^{129} + x^{128} + x^{127} + x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{114}\\
&+ x^{113} + x^{112} + x^{110} + x^{108} + x^{105} + x^{104} + x^{103} + x^{101} + x^{100}\\
&+ x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} + x^{86}\\
&+ x^{85} + x^{84} + x^{82} + x^{79} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{70} + x^{69}\\
&+ x^{68} + x^{67} + x^{66} + x^{65} + x^{60} + x^{58} + x^{57} + x^{55} + x^{52} + x^{51} + x^{50}\\
&+ x^{49} + x^{46} + x^{44} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33},\\
p_3(x) &= x^{134} + x^{132} + x^{131} + x^{130} + x^{129} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120}\\
&+ x^{117} + x^{114} + x^{94} + x^{92} + x^{91} + x^{90} + x^{89} + x^{85} + x^{83} + x^{82} + x^{81}\\
&+ x^{80} + x^{77} + x^{74} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52}\\
&+ x^{48} + x^{43} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} + x^{27}\\
&+ x^{26} + x^{25} + x^{24} + x^{21} + x^{18},\\
p_6(x) &= x^{136} + x^{130} + x^{128} + x^{120} + x^{112} + x^{110} + x^{104} + x^{100} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{84} + x^{80} + x^{74} + x^{68} + x^{66} + x^{62} + x^{60} + x^{54}\\
&+ x^{44} + x^{42} + x^{40} + x^{38} + x^{32} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18} + x^{12},\\
p_9(x) &= x^{138} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{126} + x^{125} + x^{122} + x^{121}\\
&+ x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{113} + x^{110} + x^{109} + x^{106}\\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{99} + x^{97} + x^{94} + x^{93} + x^{90}
\end{aligned}
$$

$$+ x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{78} + x^{77} + x^{74} + x^{73} + x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{46} + x^{45} + x^{41} + x^{38} + x^{26} + x^{24} + x^{23} + x^{21} + x^{19} + x^{17} + x^{14} + x^{13} + x^{9} + x^{6},$$

$$p_{12}(x) = x^{140} + x^{136} + x^{132} + x^{128} + x^{116} + x^{100} + x^{84} + x^{68} + x^{52} + x^{44} + x^{40} + x^{32} + x^{28} + x^{24} + x^{20} + x^{16} + x^{12} + x^{8} + 1,$$

and the initial terms are [0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0].

For $\phi(M^o, 1, 0)$:

$$p_0(x) = x^{156} + x^{153} + x^{151} + x^{150} + x^{144} + x^{143} + x^{141} + x^{140} + x^{136} + x^{135} + x^{132} + x^{131} + x^{130} + x^{129} + x^{126} + x^{125} + x^{120} + x^{119} + x^{118} + x^{114} + x^{109} + x^{108} + x^{104} + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} + x^{95} + x^{90} + x^{89} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77} + x^{75} + x^{73} + x^{72} + x^{70} + x^{69} + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{57} + x^{56} + x^{55} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{38} + x^{33},$$

$$p_3(x) = x^{154} + x^{152} + x^{151} + x^{149} + x^{148} + x^{147} + x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{131} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{112} + x^{111} + x^{109} + x^{108} + x^{107} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{91} + x^{86} + x^{85} + x^{83} + x^{81} + x^{79} + x^{76} + x^{75} + x^{71} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{60} + x^{57} + x^{52} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{30} + x^{29} + x^{27} + x^{26} + x^{25} + x^{24} + x^{21} + x^{18},$$

$$p_6(x) = x^{156} + x^{152} + x^{150} + x^{146} + x^{144} + x^{142} + x^{126} + x^{122} + x^{120} + x^{116} + x^{114} + x^{110} + x^{108} + x^{102} + x^{96} + x^{80} + x^{76} + x^{74} + x^{72} + x^{70} + x^{68} + x^{64} + x^{60} + x^{54} + x^{46} + x^{34} + x^{32} + x^{20} + x^{18} + x^{12},$$

$$p_9(x) = x^{158} + x^{156} + x^{155} + x^{154} + x^{153} + x^{152} + x^{150} + x^{148} + x^{146} + x^{145} + x^{143} + x^{141} + x^{140} + x^{139} + x^{137} + x^{135} + x^{132} + x^{131} + x^{127} + x^{126} + x^{124} + x^{123} + x^{119} + x^{118} + x^{116} + x^{115} + x^{111} + x^{110} + x^{108} + x^{107} + x^{103} + x^{102} + x^{100} + x^{99} + x^{95} + x^{94} + x^{92} + x^{91} + x^{87} + x^{86} + x^{84} + x^{83} + x^{79} + x^{78} + x^{76} + x^{75} + x^{71} + x^{70} + x^{68} + x^{67} + x^{63} + x^{58} + x^{57} + x^{56} + x^{55} + x^{51} + x^{50} + x^{49} + x^{45} + x^{44} + x^{43} + x^{42} + x^{40} + x^{36} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{26} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{17} + x^{14} + x^{13} + x^{9} + x^{6},$$

$$p_{12}(x) = x^{160} + x^{152} + x^{148} + x^{120} + x^{112} + x^{104} + x^{96} + x^{88} + x^{80} + x^{72}$$

$$+ x^{52} + x^{36} + x^{24} + x^{20} + x^{8} + 1,$$

and the initial terms are [0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 0, 0].

For $\phi(M^o, 1, 1)$:

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{145} + x^{143} + x^{141} + x^{137} + x^{136} + x^{132} + x^{131} + x^{129} + x^{125} \\
& + x^{124} + x^{120} + x^{119} + x^{117} + x^{114} + x^{113} + x^{111} + x^{109} + x^{105} \\
& + x^{102} + x^{101} + x^{99} + x^{97} + x^{95} + x^{94} + x^{92} + x^{91} + x^{85} + x^{84} + x^{81} \\
& + x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{60} \\
& + x^{59} + x^{55} + x^{53} + x^{52} + x^{50} + x^{47} + x^{46} + x^{44} + x^{43} + x^{42}, \\
p_3(x) = {} & x^{145} + x^{144} + x^{141} + x^{137} + x^{136} + x^{135} + x^{133} + x^{132} + x^{131} + x^{130} \\
& + x^{129} + x^{127} + x^{126} + x^{124} + x^{123} + x^{118} + x^{117} + x^{114} + x^{102} \\
& + x^{101} + x^{99} + x^{98} + x^{96} + x^{92} + x^{90} + x^{86} + x^{82} + x^{80} + x^{78} + x^{76} \\
& + x^{75} + x^{74} + x^{73} + x^{68} + x^{67} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57} + x^{56} \\
& + x^{52} + x^{48} + x^{46} + x^{40} + x^{39} + x^{36} + x^{35} + x^{33} + x^{31} + x^{30} + x^{29} \\
& + x^{27} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22}, \\
p_6(x) = {} & x^{145} + x^{144} + x^{141} + x^{137} + x^{136} + x^{133} + x^{132} + x^{130} + x^{127} + x^{126} \\
& + x^{125} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{110} \\
& + x^{109} + x^{106} + x^{105} + x^{104} + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96} \\
& + x^{91} + x^{90} + x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{79} + x^{73} + x^{70} \\
& + x^{67} + x^{64} + x^{61} + x^{57} + x^{56} + x^{54} + x^{53} + x^{52} + x^{47} + x^{46} + x^{45} \\
& + x^{42} + x^{40} + x^{38} + x^{35} + x^{34} + x^{31} + x^{27} + x^{25} + x^{23} + x^{18} + x^{16} \\
& + x^{14} + x^{12} + x^{5} + x^{4} + x^{3} + 1, \\
p_9(x) = {} & x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{136} + x^{129} + x^{128} + x^{127} + x^{124} \\
& + x^{113} + x^{112} + x^{111} + x^{108} + x^{97} + x^{96} + x^{95} + x^{92} + x^{81} + x^{80} \\
& + x^{79} + x^{76} + x^{65} + x^{64} + x^{63} + x^{60} + x^{45} + x^{44} + x^{43} + x^{40} + x^{33} \\
& + x^{32} + x^{31} + x^{29} + x^{27} + x^{24} + x^{13} + x^{12} + x^{11} + x^{8}, \\
p_{12}(x) = {} & x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{137} + x^{135} + x^{133} + x^{131} + x^{128} \\
& + x^{121} + x^{120} + x^{119} + x^{116} + x^{105} + x^{104} + x^{103} + x^{100} + x^{89} + x^{88} \\
& + x^{87} + x^{84} + x^{73} + x^{72} + x^{71} + x^{68} + x^{57} + x^{56} + x^{55} + x^{52} + x^{49} \\
& + x^{48} + x^{47} + x^{45} + x^{43} + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{29} \\
& + x^{27} + x^{25} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{13} + x^{11} + x^{8} + x^{5} + x^{4} \\
& + x^{3} + 1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0].

For $\phi(W^o, 0, 0)$:

$$\begin{aligned}
p_0(x) = {} & x^{147} + x^{144} + x^{142} + x^{140} + x^{133} + x^{125} + x^{123} + x^{121} + x^{120} + x^{118} \\
& + x^{116} + x^{115} + x^{114} + x^{112} + x^{111} + x^{109} + x^{108} + x^{105} + x^{103}
\end{aligned}$$

$$
\begin{aligned}
&+ x^{102} + x^{100} + x^{99} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{88} + x^{87} + x^{85}\\
&+ x^{83} + x^{82} + x^{80} + x^{77} + x^{73} + x^{71} + x^{70} + x^{69} + x^{68} + x^{67} + x^{63}\\
&+ x^{59} + x^{57} + x^{56} + x^{53} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{43}\\
&+ x^{42} + x^{41} + x^{40} + x^{39} + x^{35} + x^{30} + x^{29} + x^{27} + x^{24},\\
p_3(x) = {}& x^{145} + x^{144} + x^{140} + x^{139} + x^{136} + x^{135} + x^{134} + x^{133} + x^{132} + x^{127}\\
&+ x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{115} + x^{114}\\
&+ x^{112} + x^{102} + x^{100} + x^{98} + x^{97} + x^{96} + x^{94} + x^{92} + x^{91} + x^{89} + x^{85}\\
&+ x^{84} + x^{81} + x^{79} + x^{78} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{69} + x^{65}\\
&+ x^{64} + x^{63} + x^{62} + x^{60} + x^{57} + x^{56} + x^{53} + x^{51} + x^{47} + x^{45} + x^{42}\\
&+ x^{40} + x^{38} + x^{37} + x^{36} + x^{35} + x^{34} + x^{32} + x^{31} + x^{28} + x^{27} + x^{22}\\
&+ x^{21} + x^{19} + x^{16},\\
p_6(x) = {}& x^{145} + x^{144} + x^{140} + x^{139} + x^{136} + x^{134} + x^{127} + x^{126} + x^{125} + x^{122}\\
&+ x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{114} + x^{112} + x^{111} + x^{107}\\
&+ x^{106} + x^{105} + x^{103} + x^{101} + x^{100} + x^{99} + x^{97} + x^{93} + x^{92} + x^{91}\\
&+ x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{80} + x^{79} + x^{78} + x^{75} + x^{74} + x^{73}\\
&+ x^{72} + x^{71} + x^{68} + x^{67} + x^{65} + x^{62} + x^{61} + x^{59} + x^{58} + x^{56} + x^{53}\\
&+ x^{52} + x^{49} + x^{48} + x^{47} + x^{45} + x^{42} + x^{40} + x^{39} + x^{37} + x^{35} + x^{30}\\
&+ x^{29} + x^{23} + x^{22} + x^{19} + x^{17} + x^{16} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11}\\
&+ x^{8} + x^{5} + x^{4} + x^{3} + 1,\\
p_9(x) = {}& x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{136} + x^{129} + x^{128} + x^{127} + x^{124}\\
&+ x^{113} + x^{112} + x^{111} + x^{108} + x^{97} + x^{96} + x^{95} + x^{92} + x^{81} + x^{80}\\
&+ x^{79} + x^{76} + x^{65} + x^{64} + x^{63} + x^{60} + x^{45} + x^{44} + x^{43} + x^{40} + x^{33}\\
&+ x^{32} + x^{31} + x^{29} + x^{27} + x^{24} + x^{13} + x^{12} + x^{11} + x^{8},\\
p_{12}(x) = {}& x^{145} + x^{144} + x^{143} + x^{141} + x^{139} + x^{137} + x^{135} + x^{133} + x^{131} + x^{128}\\
&+ x^{121} + x^{120} + x^{119} + x^{116} + x^{105} + x^{104} + x^{103} + x^{100} + x^{89} + x^{88}\\
&+ x^{87} + x^{84} + x^{73} + x^{72} + x^{71} + x^{68} + x^{57} + x^{56} + x^{55} + x^{52} + x^{49}\\
&+ x^{48} + x^{47} + x^{45} + x^{43} + x^{40} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{29}\\
&+ x^{27} + x^{25} + x^{23} + x^{21} + x^{19} + x^{17} + x^{15} + x^{13} + x^{11} + x^{8} + x^{5} + x^{4}\\
&+ x^{3} + 1,
\end{aligned}
$$

and the initial terms are [1, 0, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 1, 0, 0].

For $\phi(W^o, 0, 1)$:

$$
\begin{aligned}
p_0(x) = {}& x^{156} + x^{153} + x^{151} + x^{150} + x^{144} + x^{143} + x^{141} + x^{140} + x^{136} + x^{135}\\
&+ x^{132} + x^{131} + x^{130} + x^{129} + x^{126} + x^{125} + x^{120} + x^{119} + x^{118}\\
&+ x^{114} + x^{109} + x^{108} + x^{104} + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96}\\
&+ x^{95} + x^{90} + x^{89} + x^{86} + x^{85} + x^{83} + x^{82} + x^{81} + x^{80} + x^{79} + x^{77}
\end{aligned}
$$

$$+ x^{75} + x^{73} + x^{72} + x^{70} + x^{69} + x^{65} + x^{64} + x^{63} + x^{60} + x^{59} + x^{57} + x^{56} + x^{55} + x^{51} + x^{49} + x^{48} + x^{47} + x^{46} + x^{45} + x^{44} + x^{43} + x^{38} + x^{33},$$

$$p_3(x) = x^{154} + x^{152} + x^{151} + x^{149} + x^{148} + x^{147} + x^{144} + x^{141} + x^{140} + x^{139} + x^{138} + x^{137} + x^{136} + x^{135} + x^{134} + x^{131} + x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{112} + x^{111} + x^{109} + x^{108} + x^{107} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{94} + x^{91} + x^{86} + x^{85} + x^{83} + x^{81} + x^{79} + x^{76} + x^{75} + x^{71} + x^{66} + x^{65} + x^{63} + x^{62} + x^{61} + x^{60} + x^{57} + x^{52} + x^{51} + x^{50} + x^{49} + x^{46} + x^{45} + x^{44} + x^{42} + x^{39} + x^{38} + x^{37} + x^{35} + x^{34} + x^{30} + x^{29} + x^{27} + x^{26} + x^{25} + x^{24} + x^{21} + x^{18},$$

$$p_6(x) = x^{156} + x^{152} + x^{150} + x^{146} + x^{144} + x^{142} + x^{126} + x^{122} + x^{120} + x^{116} + x^{114} + x^{110} + x^{108} + x^{102} + x^{96} + x^{80} + x^{76} + x^{74} + x^{72} + x^{70} + x^{68} + x^{64} + x^{60} + x^{54} + x^{46} + x^{34} + x^{32} + x^{20} + x^{18} + x^{12},$$

$$p_9(x) = x^{158} + x^{156} + x^{155} + x^{154} + x^{153} + x^{152} + x^{150} + x^{148} + x^{146} + x^{145} + x^{143} + x^{141} + x^{140} + x^{139} + x^{137} + x^{135} + x^{132} + x^{131} + x^{127} + x^{126} + x^{124} + x^{123} + x^{119} + x^{118} + x^{116} + x^{115} + x^{111} + x^{110} + x^{108} + x^{107} + x^{103} + x^{102} + x^{100} + x^{99} + x^{95} + x^{94} + x^{92} + x^{91} + x^{87} + x^{86} + x^{84} + x^{83} + x^{79} + x^{78} + x^{76} + x^{75} + x^{71} + x^{70} + x^{68} + x^{67} + x^{63} + x^{58} + x^{57} + x^{56} + x^{55} + x^{51} + x^{50} + x^{49} + x^{45} + x^{44} + x^{43} + x^{42} + x^{40} + x^{36} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{26} + x^{24} + x^{23} + x^{22} + x^{19} + x^{18} + x^{17} + x^{14} + x^{13} + x^{9} + x^{6},$$

$$p_{12}(x) = x^{160} + x^{152} + x^{148} + x^{120} + x^{112} + x^{104} + x^{96} + x^{88} + x^{80} + x^{72} + x^{52} + x^{36} + x^{24} + x^{20} + x^{8} + 1,$$

and the initial terms are [0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 1, 0, 0, 0].

For $\phi(W^o, 1, 0)$:

$$p_0(x) = x^{148} + x^{144} + x^{141} + x^{139} + x^{138} + x^{137} + x^{136} + x^{133} + x^{131} + x^{130} + x^{129} + x^{128} + x^{127} + x^{123} + x^{120} + x^{118} + x^{117} + x^{116} + x^{114} + x^{113} + x^{112} + x^{110} + x^{108} + x^{105} + x^{104} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{97} + x^{96} + x^{95} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{82} + x^{79} + x^{77} + x^{76} + x^{74} + x^{73} + x^{72} + x^{70} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} + x^{60} + x^{58} + x^{57} + x^{55} + x^{52} + x^{51} + x^{50} + x^{49} + x^{46} + x^{44} + x^{42} + x^{40} + x^{36} + x^{35} + x^{34} + x^{33},$$

$$p_3(x) = x^{134} + x^{132} + x^{131} + x^{130} + x^{129} + x^{125} + x^{123} + x^{122} + x^{121} + x^{120} + x^{117} + x^{114} + x^{94} + x^{92} + x^{91} + x^{90} + x^{89} + x^{85} + x^{83} + x^{82} + x^{81}$$

$$
\begin{aligned}
&+ x^{80} + x^{77} + x^{74} + x^{62} + x^{60} + x^{59} + x^{58} + x^{57} + x^{54} + x^{53} + x^{52}\\
&+ x^{48} + x^{43} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{35} + x^{33} + x^{29} + x^{27}\\
&+ x^{26} + x^{25} + x^{24} + x^{21} + x^{18},\\
p_6(x) = {}& x^{136} + x^{130} + x^{128} + x^{120} + x^{112} + x^{110} + x^{104} + x^{100} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{84} + x^{80} + x^{74} + x^{68} + x^{66} + x^{62} + x^{60} + x^{54}\\
&+ x^{44} + x^{42} + x^{40} + x^{38} + x^{32} + x^{30} + x^{28} + x^{24} + x^{20} + x^{18} + x^{12},\\
p_9(x) = {}& x^{138} + x^{136} + x^{135} + x^{133} + x^{131} + x^{129} + x^{126} + x^{125} + x^{122} + x^{121}\\
&+ x^{120} + x^{119} + x^{118} + x^{117} + x^{115} + x^{113} + x^{110} + x^{109} + x^{106}\\
&+ x^{105} + x^{104} + x^{103} + x^{102} + x^{101} + x^{99} + x^{97} + x^{94} + x^{93} + x^{90}\\
&+ x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{83} + x^{81} + x^{78} + x^{77} + x^{74} + x^{73}\\
&+ x^{72} + x^{71} + x^{70} + x^{69} + x^{67} + x^{65} + x^{62} + x^{61} + x^{58} + x^{57} + x^{56}\\
&+ x^{55} + x^{54} + x^{53} + x^{51} + x^{49} + x^{46} + x^{45} + x^{41} + x^{38} + x^{26} + x^{24}\\
&+ x^{23} + x^{21} + x^{19} + x^{17} + x^{14} + x^{13} + x^{9} + x^{6},\\
p_{12}(x) = {}& x^{140} + x^{136} + x^{132} + x^{128} + x^{116} + x^{100} + x^{84} + x^{68} + x^{52} + x^{44}\\
&+ x^{40} + x^{32} + x^{28} + x^{24} + x^{20} + x^{16} + x^{12} + x^{8} + 1,
\end{aligned}
$$

and the initial terms are [0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 0].

For $\phi(W^o, 1, 1)$:

$$
\begin{aligned}
p_0(x) = {}& x^{147} + x^{145} + x^{143} + x^{141} + x^{137} + x^{136} + x^{132} + x^{131} + x^{129} + x^{125}\\
&+ x^{124} + x^{120} + x^{119} + x^{117} + x^{114} + x^{113} + x^{111} + x^{109} + x^{105}\\
&+ x^{102} + x^{101} + x^{99} + x^{97} + x^{95} + x^{94} + x^{92} + x^{91} + x^{85} + x^{84} + x^{81}\\
&+ x^{80} + x^{78} + x^{76} + x^{74} + x^{72} + x^{70} + x^{69} + x^{65} + x^{63} + x^{62} + x^{60}\\
&+ x^{59} + x^{55} + x^{53} + x^{52} + x^{50} + x^{47} + x^{46} + x^{44} + x^{43} + x^{42},\\
p_3(x) = {}& x^{145} + x^{144} + x^{141} + x^{137} + x^{136} + x^{135} + x^{133} + x^{132} + x^{131} + x^{130}\\
&+ x^{129} + x^{127} + x^{126} + x^{124} + x^{123} + x^{118} + x^{117} + x^{114} + x^{102}\\
&+ x^{101} + x^{99} + x^{98} + x^{96} + x^{92} + x^{90} + x^{86} + x^{82} + x^{80} + x^{78} + x^{76}\\
&+ x^{75} + x^{74} + x^{73} + x^{68} + x^{67} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57} + x^{56}\\
&+ x^{52} + x^{48} + x^{46} + x^{40} + x^{39} + x^{36} + x^{35} + x^{33} + x^{31} + x^{30} + x^{29}\\
&+ x^{27} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22},\\
p_6(x) = {}& x^{145} + x^{144} + x^{141} + x^{137} + x^{136} + x^{133} + x^{132} + x^{130} + x^{127} + x^{126}\\
&+ x^{125} + x^{122} + x^{121} + x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{110}\\
&+ x^{109} + x^{106} + x^{105} + x^{104} + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{96}\\
&+ x^{91} + x^{90} + x^{88} + x^{87} + x^{86} + x^{84} + x^{83} + x^{81} + x^{79} + x^{73} + x^{70}\\
&+ x^{67} + x^{64} + x^{61} + x^{57} + x^{56} + x^{54} + x^{53} + x^{52} + x^{47} + x^{46} + x^{45}\\
&+ x^{42} + x^{40} + x^{38} + x^{35} + x^{34} + x^{31} + x^{27} + x^{25} + x^{23} + x^{18} + x^{16}\\
&+ x^{14} + x^{12} + x^{5} + x^{4} + x^{3} + 1,
\end{aligned}
$$

$$\begin{aligned}
p_9(x) &= x^{145}+x^{144}+x^{143}+x^{141}+x^{139}+x^{136}+x^{129}+x^{128}+x^{127}+x^{124}\\
&\quad +x^{113}+x^{112}+x^{111}+x^{108}+x^{97}+x^{96}+x^{95}+x^{92}+x^{81}+x^{80}\\
&\quad +x^{79}+x^{76}+x^{65}+x^{64}+x^{63}+x^{60}+x^{45}+x^{44}+x^{43}+x^{40}+x^{33}\\
&\quad +x^{32}+x^{31}+x^{29}+x^{27}+x^{24}+x^{13}+x^{12}+x^{11}+x^{8},\\
p_{12}(x) &= x^{145}+x^{144}+x^{143}+x^{141}+x^{139}+x^{137}+x^{135}+x^{133}+x^{131}+x^{128}\\
&\quad +x^{121}+x^{120}+x^{119}+x^{116}+x^{105}+x^{104}+x^{103}+x^{100}+x^{89}+x^{88}\\
&\quad +x^{87}+x^{84}+x^{73}+x^{72}+x^{71}+x^{68}+x^{57}+x^{56}+x^{55}+x^{52}+x^{49}\\
&\quad +x^{48}+x^{47}+x^{45}+x^{43}+x^{40}+x^{37}+x^{36}+x^{35}+x^{33}+x^{31}+x^{29}\\
&\quad +x^{27}+x^{25}+x^{23}+x^{21}+x^{19}+x^{17}+x^{15}+x^{13}+x^{11}+x^{8}+x^{5}+x^{4}\\
&\quad +x^{3}+1,
\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 0, 1, 0, 1, 1, 0, 0].

Below is the transition function and output function of an 2-automaton that generates $T = M^o_{0,0}$:

Transition function $(n, j) \mapsto \delta(n, j)$ ($\Lambda(n) := [\delta(n, 0), \delta(n, 1)]$):

n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$	n	$\Lambda(n)$
0	[1, 2]	928	[630, 1526]	1856	[2551, 1990]	2784	[3156, 2296]
1	[3, 4]	929	[1527, 1528]	1857	[2552, 2271]	2785	[3157, 413]
2	[5, 6]	930	[1406, 1420]	1858	[2553, 2554]	2786	[3158, 1119]
3	[7, 8]	931	[1529, 1530]	1859	[2555, 2426]	2787	[3159, 3160]
4	[9, 10]	932	[130, 493]	1860	[2556, 2557]	2788	[3161, 1948]
5	[11, 12]	933	[587, 1531]	1861	[2558, 265]	2789	[2344, 3162]
6	[13, 14]	934	[1532, 186]	1862	[2559, 2560]	2790	[3163, 1251]
7	[15, 16]	935	[797, 683]	1863	[2561, 2562]	2791	[3164, 2198]
8	[17, 18]	936	[1533, 727]	1864	[1127, 2563]	2792	[3165, 3166]
9	[19, 20]	937	[651, 1534]	1865	[2564, 2565]	2793	[1046, 3167]
10	[21, 22]	938	[1535, 1536]	1866	[2566, 2567]	2794	[3168, 3169]
11	[23, 24]	939	[1537, 1476]	1867	[2568, 434]	2795	[3170, 1241]
12	[25, 26]	940	[1538, 1539]	1868	[1054, 2569]	2796	[3171, 1242]
13	[27, 28]	941	[1540, 141]	1869	[2570, 1355]	2797	[2215, 3172]
14	[29, 30]	942	[1541, 1542]	1870	[2571, 450]	2798	[3173, 3174]
15	[31, 32]	943	[746, 1543]	1871	[2572, 2573]	2799	[3175, 360]
16	[33, 34]	944	[1544, 1545]	1872	[2574, 427]	2800	[3176, 2030]
17	[35, 36]	945	[1546, 1547]	1873	[2468, 2575]	2801	[3177, 1035]
18	[37, 38]	946	[532, 662]	1874	[2576, 2050]	2802	[3178, 2234]
19	[39, 40]	947	[1548, 53]	1875	[24, 89]	2803	[3179, 1209]
20	[41, 42]	948	[1419, 738]	1876	[2577, 2058]	2804	[3180, 1198]
21	[43, 44]	949	[1488, 1549]	1877	[2578, 2008]	2805	[3181, 849]
22	[45, 46]	950	[1550, 552]	1878	[2579, 1206]	2806	[3182, 3183]
23	[47, 48]	951	[1551, 534]	1879	[817, 447]	2807	[3184, 1238]
24	[49, 50]	952	[1552, 521]	1880	[2580, 969]	2808	[3185, 2330]
25	[51, 52]	953	[534, 639]	1881	[2530, 973]	2809	[3186, 3187]

26	[53, 32]	954	[1553, 1554]	1882	[2581, 2582]	2810	[3188, 3189]
27	[54, 55]	955	[1555, 1556]	1883	[2583, 2128]	2811	[3190, 1030]
28	[56, 57]	956	[1428, 1557]	1884	[2584, 2117]	2812	[3191, 1985]
29	[58, 59]	957	[573, 2]	1885	[2585, 1945]	2813	[3192, 3193]
30	[60, 61]	958	[1530, 783]	1886	[449, 2203]	2814	[3194, 75]
31	[62, 63]	959	[744, 1558]	1887	[2586, 2516]	2815	[3195, 1227]
32	[64, 65]	960	[231, 1492]	1888	[2587, 82]	2816	[3196, 2057]
33	[66, 67]	961	[1474, 1559]	1889	[2588, 1352]	2817	[3149, 1184]
34	[68, 69]	962	[503, 1560]	1890	[2589, 2282]	2818	[3197, 3198]
35	[70, 71]	963	[1561, 1562]	1891	[2590, 2591]	2819	[3199, 1959]
36	[72, 73]	964	[1563, 1564]	1892	[2592, 1207]	2820	[3200, 3201]
37	[74, 75]	965	[634, 1565]	1893	[2593, 1181]	2821	[3134, 3202]
38	[76, 77]	966	[1566, 752]	1894	[2594, 989]	2822	[3203, 3102]
39	[78, 79]	967	[1567, 1568]	1895	[2595, 2076]	2823	[3204, 999]
40	[80, 81]	968	[1569, 1570]	1896	[2596, 2357]	2824	[3205, 945]
41	[82, 83]	969	[1503, 1571]	1897	[2597, 2598]	2825	[3206, 944]
42	[84, 85]	970	[198, 541]	1898	[2599, 2600]	2826	[3207, 322]
43	[86, 87]	971	[1572, 1573]	1899	[2601, 2602]	2827	[3208, 3209]
44	[88, 89]	972	[471, 1574]	1900	[2603, 2604]	2828	[3210, 1302]
45	[90, 91]	973	[1575, 744]	1901	[2605, 2533]	2829	[3211, 1320]
46	[92, 93]	974	[1576, 1577]	1902	[2606, 2155]	2830	[3212, 3097]
47	[94, 95]	975	[558, 1420]	1903	[2607, 1934]	2831	[1365, 2504]
48	[96, 97]	976	[1504, 774]	1904	[1919, 2608]	2832	[2965, 2109]
49	[98, 99]	977	[1420, 675]	1905	[2609, 2083]	2833	[3213, 3058]
50	[100, 101]	978	[485, 1578]	1906	[2610, 2259]	2834	[3214, 1931]
51	[102, 103]	979	[1413, 716]	1907	[1292, 2611]	2835	[2984, 3215]
52	[104, 105]	980	[1579, 778]	1908	[2612, 326]	2836	[3216, 114]
53	[106, 107]	981	[740, 1580]	1909	[2613, 973]	2837	[3217, 946]
54	[108, 109]	982	[1581, 700]	1910	[2614, 2615]	2838	[3218, 1046]
55	[110, 111]	983	[1378, 1582]	1911	[2616, 1089]	2839	[361, 2114]
56	[112, 113]	984	[1583, 1584]	1912	[2617, 2618]	2840	[3219, 3220]
57	[114, 115]	985	[1585, 1586]	1913	[2619, 350]	2841	[3221, 934]
58	[116, 117]	986	[32, 1587]	1914	[2620, 402]	2842	[3222, 100]
59	[118, 119]	987	[1588, 149]	1915	[2621, 1018]	2843	[3223, 269]
60	[120, 121]	988	[1589, 1526]	1916	[2622, 1380]	2844	[3224, 431]
61	[122, 123]	989	[476, 1569]	1917	[2623, 2624]	2845	[3225, 347]
62	[124, 125]	990	[1520, 188]	1918	[1696, 208]	2846	[3226, 3227]
63	[126, 127]	991	[1590, 492]	1919	[2625, 495]	2847	[3228, 2364]
64	[128, 129]	992	[1591, 1456]	1920	[2626, 1598]	2848	[837, 3229]
65	[130, 131]	993	[1592, 1593]	1921	[2627, 1516]	2849	[3230, 1252]
66	[132, 133]	994	[1594, 607]	1922	[2628, 2629]	2850	[3231, 3232]
67	[54, 134]	995	[1595, 1596]	1923	[699, 1430]	2851	[3233, 2208]
68	[9, 135]	996	[1583, 1563]	1924	[496, 1718]	2852	[3234, 3235]
69	[136, 137]	997	[1597, 1598]	1925	[2630, 1782]	2853	[3236, 2041]

70	[138, 139]	998	[1407, 1599]	1926	[2623, 2631]	2854	[3237, 1166]
71	[140, 141]	999	[1600, 1519]	1927	[141, 479]	2855	[3238, 2070]
72	[142, 143]	1000	[1601, 1602]	1928	[1915, 1388]	2856	[3239, 3240]
73	[144, 145]	1001	[1603, 1604]	1929	[2632, 2633]	2857	[3241, 3242]
74	[146, 147]	1002	[1605, 10]	1930	[1799, 769]	2858	[3243, 2436]
75	[148, 149]	1003	[55, 1535]	1931	[772, 769]	2859	[2019, 1988]
76	[150, 151]	1004	[1606, 475]	1932	[1406, 1383]	2860	[3244, 3245]
77	[152, 153]	1005	[1607, 477]	1933	[56, 2634]	2861	[3246, 3247]
78	[154, 155]	1006	[166, 685]	1934	[1599, 213]	2862	[3248, 887]
79	[156, 157]	1007	[1608, 57]	1935	[1603, 2635]	2863	[908, 3249]
80	[158, 159]	1008	[681, 628]	1936	[2636, 763]	2864	[3250, 1194]
81	[160, 161]	1009	[752, 1609]	1937	[186, 1624]	2865	[3251, 3252]
82	[162, 163]	1010	[1610, 1611]	1938	[1545, 609]	2866	[3253, 1165]
83	[164, 165]	1011	[771, 1421]	1939	[2637, 2638]	2867	[3254, 3255]
84	[166, 167]	1012	[1612, 1613]	1940	[2639, 1544]	2868	[3256, 3257]
85	[168, 169]	1013	[1614, 1615]	1941	[2640, 136]	2869	[447, 2991]
86	[170, 171]	1014	[8, 1616]	1942	[2641, 540]	2870	[3258, 1219]
87	[172, 173]	1015	[1482, 1617]	1943	[1760, 2642]	2871	[3259, 2365]
88	[174, 175]	1016	[1618, 1619]	1944	[1790, 755]	2872	[3260, 292]
89	[48, 176]	1017	[1620, 1621]	1945	[1879, 646]	2873	[3261, 3262]
90	[177, 178]	1018	[1622, 1623]	1946	[465, 2643]	2874	[3263, 1052]
91	[179, 180]	1019	[217, 1624]	1947	[1377, 1854]	2875	[3264, 3265]
92	[181, 182]	1020	[694, 591]	1948	[2644, 2645]	2876	[3266, 367]
93	[183, 184]	1021	[1625, 1626]	1949	[1393, 1587]	2877	[3267, 2567]
94	[185, 186]	1022	[1627, 538]	1950	[2646, 2647]	2878	[3268, 291]
95	[187, 188]	1023	[1628, 153]	1951	[1652, 1852]	2879	[3269, 2180]
96	[189, 190]	1024	[1629, 1630]	1952	[626, 1790]	2880	[3270, 3271]
97	[191, 192]	1025	[1631, 1632]	1953	[143, 1798]	2881	[3272, 3273]
98	[193, 194]	1026	[1633, 1561]	1954	[733, 501]	2882	[3274, 828]
99	[195, 196]	1027	[1634, 1635]	1955	[1897, 239]	2883	[3275, 1323]
100	[197, 198]	1028	[1636, 128]	1956	[2648, 491]	2884	[3276, 1932]
101	[199, 200]	1029	[171, 200]	1957	[681, 1717]	2885	[3277, 987]
102	[201, 202]	1030	[1637, 1638]	1958	[1745, 504]	2886	[3278, 3279]
103	[203, 204]	1031	[1639, 1640]	1959	[2649, 528]	2887	[3280, 1048]
104	[205, 206]	1032	[1625, 149]	1960	[1912, 2650]	2888	[2452, 313]
105	[207, 208]	1033	[1641, 1599]	1961	[1655, 1804]	2889	[3281, 380]
106	[209, 210]	1034	[1570, 1642]	1962	[2651, 2633]	2890	[3282, 3283]
107	[211, 212]	1035	[1643, 1644]	1963	[2652, 2653]	2891	[3284, 2344]
108	[213, 214]	1036	[53, 645]	1964	[142, 691]	2892	[3285, 3286]
109	[215, 216]	1037	[1645, 1646]	1965	[616, 734]	2893	[3287, 3240]
110	[217, 218]	1038	[145, 1647]	1966	[1424, 1520]	2894	[3288, 892]
111	[219, 50]	1039	[228, 772]	1967	[1493, 1589]	2895	[3289, 418]
112	[220, 221]	1040	[1648, 486]	1968	[2654, 2655]	2896	[3290, 1244]
113	[12, 222]	1041	[492, 133]	1969	[47, 607]	2897	[3291, 3001]

114	[223, 224]	1042	[1649, 1394]	1970	[2656, 1460]	2898	[3292, 1305]
115	[225, 226]	1043	[1650, 746]	1971	[2657, 1761]	2899	[3293, 3294]
116	[227, 228]	1044	[498, 1651]	1972	[214, 1821]	2900	[3295, 1136]
117	[229, 230]	1045	[1652, 1653]	1973	[1818, 2658]	2901	[3296, 982]
118	[231, 232]	1046	[1654, 781]	1974	[2659, 171]	2902	[3297, 839]
119	[233, 234]	1047	[566, 132]	1975	[32, 2660]	2903	[3298, 3299]
120	[235, 236]	1048	[1505, 1422]	1976	[1786, 803]	2904	[3300, 1999]
121	[237, 214]	1049	[1655, 11]	1977	[2661, 709]	2905	[3301, 3302]
122	[238, 239]	1050	[1656, 1657]	1978	[2662, 1600]	2906	[3303, 1037]
123	[240, 241]	1051	[1658, 1659]	1979	[1773, 518]	2907	[3304, 1131]
124	[242, 243]	1052	[173, 1485]	1980	[1614, 2663]	2908	[3305, 3306]
125	[244, 245]	1053	[488, 161]	1981	[2664, 670]	2909	[2141, 2090]
126	[246, 247]	1054	[1660, 161]	1982	[168, 1489]	2910	[3307, 337]
127	[248, 249]	1055	[1661, 1662]	1983	[2665, 625]	2911	[3308, 917]
128	[250, 251]	1056	[1663, 533]	1984	[32, 646]	2912	[2188, 3309]
129	[252, 253]	1057	[1664, 1665]	1985	[2666, 546]	2913	[3310, 2527]
130	[254, 255]	1058	[1552, 1666]	1986	[540, 2667]	2914	[3311, 2602]
131	[256, 257]	1059	[1667, 129]	1987	[2668, 1826]	2915	[1061, 3312]
132	[258, 259]	1060	[154, 761]	1988	[2669, 1463]	2916	[3313, 3314]
133	[260, 261]	1061	[1668, 1669]	1989	[2670, 185]	2917	[3315, 3316]
134	[262, 263]	1062	[1670, 1671]	1990	[763, 2671]	2918	[3317, 3318]
135	[264, 265]	1063	[706, 1514]	1991	[148, 795]	2919	[3319, 2089]
136	[266, 267]	1064	[1672, 1604]	1992	[1815, 533]	2920	[3320, 3321]
137	[268, 269]	1065	[1673, 1674]	1993	[516, 2672]	2921	[3322, 3323]
138	[270, 271]	1066	[1675, 1676]	1994	[2628, 2673]	2922	[3324, 3219]
139	[272, 273]	1067	[1677, 618]	1995	[239, 1758]	2923	[924, 3325]
140	[274, 275]	1068	[1678, 744]	1996	[2674, 536]	2924	[3326, 2477]
141	[276, 277]	1069	[1679, 1680]	1997	[631, 2675]	2925	[3327, 2349]
142	[278, 279]	1070	[1681, 1682]	1998	[2676, 2677]	2926	[3328, 387]
143	[280, 281]	1071	[1683, 1684]	1999	[2678, 2667]	2927	[3329, 3330]
144	[282, 283]	1072	[626, 544]	2000	[234, 2679]	2928	[3331, 2565]
145	[284, 285]	1073	[1685, 1686]	2001	[1521, 2680]	2929	[3332, 3333]
146	[286, 287]	1074	[547, 1687]	2002	[2632, 2681]	2930	[3334, 3335]
147	[288, 289]	1075	[481, 1688]	2003	[620, 179]	2931	[3336, 22]
148	[290, 291]	1076	[1689, 1690]	2004	[2682, 1674]	2932	[3337, 3338]
149	[292, 293]	1077	[788, 1531]	2005	[2683, 1453]	2933	[3339, 2193]
150	[294, 295]	1078	[1691, 148]	2006	[2684, 2685]	2934	[3340, 2159]
151	[296, 297]	1079	[1478, 1692]	2007	[2630, 1852]	2935	[3341, 1221]
152	[298, 299]	1080	[1693, 1694]	2008	[802, 1513]	2936	[3342, 2503]
153	[300, 64]	1081	[1421, 485]	2009	[1573, 696]	2937	[3343, 451]
154	[301, 302]	1082	[1695, 1696]	2010	[2686, 2670]	2938	[3344, 3345]
155	[303, 73]	1083	[1697, 132]	2011	[1468, 2687]	2939	[3346, 3347]
156	[304, 305]	1084	[1698, 1699]	2012	[2688, 2689]	2940	[3348, 3349]
157	[306, 289]	1085	[1700, 714]	2013	[1790, 195]	2941	[3350, 1128]

158	[307, 308]	1086	[1701, 642]	2014	[2646, 2690]	2942	[3351, 1225]
159	[309, 310]	1087	[217, 633]	2015	[2691, 172]	2943	[3352, 2318]
160	[311, 312]	1088	[760, 155]	2016	[2692, 1539]	2944	[3353, 3354]
161	[313, 314]	1089	[582, 1702]	2017	[1700, 689]	2945	[3355, 832]
162	[315, 316]	1090	[1703, 45]	2018	[148, 1626]	2946	[3356, 834]
163	[317, 318]	1091	[1704, 1386]	2019	[2693, 2670]	2947	[3357, 2283]
164	[319, 320]	1092	[1505, 1406]	2020	[1689, 2694]	2948	[3358, 460]
165	[321, 322]	1093	[1705, 1591]	2021	[2695, 672]	2949	[3314, 1022]
166	[323, 324]	1094	[1706, 1707]	2022	[2696, 1828]	2950	[3359, 78]
167	[325, 326]	1095	[1708, 1709]	2023	[1891, 1813]	2951	[864, 3360]
168	[327, 328]	1096	[1586, 1553]	2024	[2697, 49]	2952	[3361, 3362]
169	[329, 330]	1097	[1710, 596]	2025	[2698, 779]	2953	[3363, 2168]
170	[331, 332]	1098	[624, 1402]	2026	[704, 673]	2954	[3364, 3365]
171	[333, 106]	1099	[1405, 1514]	2027	[704, 1839]	2955	[3366, 3367]
172	[334, 335]	1100	[1711, 1712]	2028	[2699, 1851]	2956	[3368, 3369]
173	[336, 337]	1101	[132, 131]	2029	[1472, 657]	2957	[3370, 1986]
174	[338, 339]	1102	[657, 693]	2030	[2700, 1770]	2958	[3371, 3372]
175	[340, 297]	1103	[1612, 216]	2031	[2682, 2701]	2959	[3373, 2241]
176	[95, 341]	1104	[1618, 1713]	2032	[2702, 1874]	2960	[1650, 683]
177	[342, 343]	1105	[1714, 1688]	2033	[1693, 2703]	2961	[1433, 2946]
178	[344, 345]	1106	[1715, 1568]	2034	[230, 2704]	2962	[2792, 1479]
179	[346, 347]	1107	[1633, 1716]	2035	[1564, 1594]	2963	[717, 3374]
180	[348, 349]	1108	[480, 1634]	2036	[2705, 2706]	2964	[2861, 1869]
181	[350, 351]	1109	[660, 1717]	2037	[1463, 2635]	2965	[3375, 1550]
182	[352, 353]	1110	[804, 1718]	2038	[1785, 2707]	2966	[1668, 2653]
183	[354, 355]	1111	[1719, 574]	2039	[482, 2630]	2967	[3376, 1871]
184	[356, 357]	1112	[1720, 1721]	2040	[1711, 2708]	2968	[1876, 3377]
185	[358, 359]	1113	[137, 1621]	2041	[627, 1717]	2969	[1545, 3378]
186	[360, 361]	1114	[1558, 1722]	2042	[1890, 667]	2970	[2652, 1669]
187	[362, 363]	1115	[1723, 515]	2043	[2709, 2710]	2971	[2628, 2728]
188	[364, 365]	1116	[1724, 152]	2044	[128, 2711]	2972	[168, 1549]
189	[366, 367]	1117	[1398, 1725]	2045	[2712, 1444]	2973	[791, 3379]
190	[368, 369]	1118	[174, 1726]	2046	[615, 622]	2974	[2836, 2741]
191	[370, 371]	1119	[124, 693]	2047	[792, 465]	2975	[3380, 1591]
192	[372, 373]	1120	[1727, 1728]	2048	[138, 1754]	2976	[3381, 2705]
193	[374, 375]	1121	[1527, 1680]	2049	[587, 126]	2977	[3382, 2823]
194	[376, 377]	1122	[1729, 1730]	2050	[2713, 1569]	2978	[2691, 3383]
195	[378, 261]	1123	[209, 1537]	2051	[2714, 2715]	2979	[693, 1468]
196	[379, 380]	1124	[1466, 1731]	2052	[1835, 696]	2980	[1752, 1377]
197	[381, 382]	1125	[1732, 756]	2053	[1753, 2716]	2981	[573, 2858]
198	[383, 384]	1126	[240, 1733]	2054	[2717, 1738]	2982	[520, 207]
199	[385, 386]	1127	[1547, 1734]	2055	[2718, 2719]	2983	[1459, 2898]
200	[332, 387]	1128	[210, 1735]	2056	[1672, 2720]	2984	[3384, 630]
201	[79, 388]	1129	[1736, 139]	2057	[544, 755]	2985	[3385, 3386]

202	[389, 390]	1130	[1408, 213]	2058	[2721, 2722]	2986	[1851, 1464]
203	[391, 392]	1131	[1737, 1617]	2059	[2723, 1544]	2987	[3387, 2855]
204	[393, 394]	1132	[1738, 1640]	2060	[753, 1857]	2988	[1639, 668]
205	[395, 396]	1133	[1562, 1739]	2061	[1622, 2724]	2989	[3388, 2896]
206	[397, 267]	1134	[1740, 1741]	2062	[647, 1553]	2990	[2912, 2895]
207	[398, 399]	1135	[610, 1742]	2063	[2725, 182]	2991	[1768, 473]
208	[400, 401]	1136	[1526, 1694]	2064	[2726, 2727]	2992	[3389, 1508]
209	[402, 403]	1137	[1743, 1659]	2065	[668, 2728]	2993	[1517, 2673]
210	[404, 405]	1138	[1744, 1745]	2066	[519, 1773]	2994	[45, 1638]
211	[406, 407]	1139	[1683, 1544]	2067	[2729, 809]	2995	[158, 2919]
212	[408, 409]	1140	[640, 1746]	2068	[1484, 1491]	2996	[2859, 2935]
213	[410, 411]	1141	[1537, 1735]	2069	[2730, 2624]	2997	[2657, 1646]
214	[412, 413]	1142	[1747, 1748]	2070	[182, 1819]	2998	[2756, 42]
215	[414, 415]	1143	[588, 542]	2071	[1414, 1427]	2999	[673, 523]
216	[416, 417]	1144	[1749, 1675]	2072	[1710, 1706]	3000	[537, 1459]
217	[418, 419]	1145	[1750, 1751]	2073	[1801, 2678]	3001	[3390, 1534]
218	[420, 421]	1146	[173, 1385]	2074	[1873, 2731]	3002	[1907, 635]
219	[422, 349]	1147	[669, 736]	2075	[1780, 1392]	3003	[1895, 1865]
220	[423, 424]	1148	[1752, 1753]	2076	[2636, 1573]	3004	[3391, 689]
221	[425, 412]	1149	[1754, 1755]	2077	[1447, 541]	3005	[3392, 1547]
222	[426, 427]	1150	[141, 192]	2078	[494, 2732]	3006	[1501, 3393]
223	[428, 429]	1151	[1756, 137]	2079	[1696, 781]	3007	[538, 745]
224	[430, 431]	1152	[1376, 1753]	2080	[1701, 639]	3008	[3394, 1856]
225	[432, 433]	1153	[1661, 1542]	2081	[2733, 2734]	3009	[2939, 1823]
226	[434, 435]	1154	[782, 1757]	2082	[186, 1722]	3010	[2819, 465]
227	[436, 437]	1155	[1437, 1456]	2083	[234, 1886]	3011	[54, 1866]
228	[438, 439]	1156	[521, 1758]	2084	[1791, 2642]	3012	[557, 1422]
229	[440, 441]	1157	[703, 1709]	2085	[2735, 1473]	3013	[2819, 624]
230	[442, 443]	1158	[1610, 496]	2086	[1684, 504]	3014	[201, 3395]
231	[444, 445]	1159	[1384, 485]	2087	[2705, 2658]	3015	[585, 2680]
232	[446, 447]	1160	[700, 665]	2088	[510, 1490]	3016	[532, 799]
233	[448, 449]	1161	[1737, 1759]	2089	[2736, 1519]	3017	[1495, 3396]
234	[450, 451]	1162	[685, 717]	2090	[2737, 2738]	3018	[227, 1772]
235	[452, 101]	1163	[554, 1608]	2091	[1619, 2739]	3019	[513, 555]
236	[453, 454]	1164	[565, 1725]	2092	[2649, 804]	3020	[126, 3397]
237	[455, 456]	1165	[563, 644]	2093	[1509, 678]	3021	[2713, 210]
238	[457, 458]	1166	[1760, 1761]	2094	[2740, 1513]	3022	[3398, 1623]
239	[459, 460]	1167	[1749, 1570]	2095	[581, 474]	3023	[233, 1797]
240	[461, 462]	1168	[139, 1755]	2096	[728, 547]	3024	[1825, 3399]
241	[463, 439]	1169	[601, 1465]	2097	[1706, 1794]	3025	[539, 2678]
242	[464, 231]	1170	[1762, 1763]	2098	[1578, 772]	3026	[1822, 1581]
243	[465, 466]	1171	[1764, 1660]	2099	[774, 558]	3027	[1860, 2931]
244	[467, 468]	1172	[1765, 1766]	2100	[153, 53]	3028	[1735, 1477]
245	[469, 470]	1173	[239, 522]	2101	[2741, 2634]	3029	[525, 561]

246	[471, 472]	1174	[1641, 698]	2102	[2742, 2743]	3030	[1487, 796]
247	[473, 474]	1175	[1767, 38]	2103	[1619, 2744]	3031	[2751, 637]
248	[475, 476]	1176	[1768, 581]	2104	[2684, 2745]	3032	[2676, 1613]
249	[477, 478]	1177	[1769, 1770]	2105	[1904, 2746]	3033	[137, 3400]
250	[191, 479]	1178	[675, 1771]	2106	[1817, 55]	3034	[2802, 1851]
251	[480, 481]	1179	[598, 598]	2107	[595, 1785]	3035	[588, 3401]
252	[482, 483]	1180	[1772, 773]	2108	[2747, 2748]	3036	[1831, 3402]
253	[484, 485]	1181	[518, 1773]	2109	[1774, 2749]	3037	[1687, 1690]
254	[486, 487]	1182	[1774, 1775]	2110	[1666, 1465]	3038	[620, 2684]
255	[488, 489]	1183	[11, 1435]	2111	[2750, 11]	3039	[3403, 1584]
256	[490, 491]	1184	[1524, 1416]	2112	[2751, 562]	3040	[138, 477]
257	[492, 493]	1185	[1776, 1777]	2113	[215, 2752]	3041	[193, 3404]
258	[494, 495]	1186	[1778, 1779]	2114	[663, 1879]	3042	[3405, 661]
259	[496, 497]	1187	[1780, 1781]	2115	[1750, 2753]	3043	[183, 3406]
260	[498, 499]	1188	[1562, 143]	2116	[1713, 2739]	3044	[1652, 1782]
261	[500, 501]	1189	[1696, 572]	2117	[1736, 1754]	3045	[144, 736]
262	[502, 503]	1190	[483, 1782]	2118	[1863, 185]	3046	[3407, 52]
263	[504, 505]	1191	[1783, 1784]	2119	[2715, 612]	3047	[170, 199]
264	[506, 507]	1192	[1785, 1734]	2120	[2625, 2732]	3048	[2827, 2823]
265	[508, 509]	1193	[230, 1630]	2121	[2754, 2755]	3049	[1799, 774]
266	[510, 511]	1194	[1786, 1787]	2122	[2756, 2757]	3050	[3408, 802]
267	[512, 513]	1195	[153, 31]	2123	[2758, 189]	3051	[1608, 2785]
268	[514, 515]	1196	[1788, 1789]	2124	[1807, 61]	3052	[1862, 1575]
269	[516, 517]	1197	[1790, 791]	2125	[650, 764]	3053	[3409, 3410]
270	[518, 519]	1198	[523, 1751]	2126	[2759, 1490]	3054	[1743, 2877]
271	[520, 486]	1199	[1791, 1761]	2127	[1821, 2760]	3055	[3411, 2697]
272	[521, 522]	1200	[1792, 1716]	2128	[639, 195]	3056	[44, 3412]
273	[506, 523]	1201	[1793, 234]	2129	[2740, 2761]	3057	[2683, 3413]
274	[524, 525]	1202	[1471, 656]	2130	[2762, 1632]	3058	[474, 1454]
275	[526, 527]	1203	[1785, 1794]	2131	[2763, 1615]	3059	[2831, 2801]
276	[528, 529]	1204	[637, 1763]	2132	[2764, 2765]	3060	[1439, 3414]
277	[530, 489]	1205	[674, 530]	2133	[618, 758]	3061	[1480, 3415]
278	[531, 532]	1206	[1795, 1384]	2134	[1588, 2766]	3062	[2818, 3416]
279	[533, 534]	1207	[224, 509]	2135	[776, 765]	3063	[2955, 1850]
280	[535, 46]	1208	[793, 466]	2136	[140, 2695]	3064	[1497, 1394]
281	[536, 179]	1209	[1564, 47]	2137	[500, 1854]	3065	[3380, 1437]
282	[537, 492]	1210	[648, 1554]	2138	[571, 1538]	3066	[543, 1790]
283	[538, 241]	1211	[657, 125]	2139	[2767, 43]	3067	[3417, 2677]
284	[539, 540]	1212	[1796, 1397]	2140	[2768, 2769]	3068	[617, 525]
285	[541, 542]	1213	[502, 1647]	2141	[736, 1619]	3069	[61, 547]
286	[543, 544]	1214	[1797, 550]	2142	[476, 1749]	3070	[214, 1503]
287	[545, 546]	1215	[1739, 1798]	2143	[1430, 1462]	3071	[1833, 3418]
288	[547, 548]	1216	[1799, 1505]	2144	[748, 2770]	3072	[144, 502]
289	[549, 550]	1217	[1800, 530]	2145	[218, 1511]	3073	[3419, 1789]

290	[551, 202]	1218	[719, 758]	2146	[2771, 726]	3074	[1715, 3420]
291	[552, 553]	1219	[1801, 47]	2147	[2772, 1913]	3075	[2662, 1473]
292	[554, 56]	1220	[150, 798]	2148	[1723, 2773]	3076	[688, 1545]
293	[555, 556]	1221	[1802, 1803]	2149	[2726, 2774]	3077	[1764, 160]
294	[557, 558]	1222	[1804, 1435]	2150	[474, 2775]	3078	[1670, 3421]
295	[559, 560]	1223	[1805, 1441]	2151	[584, 648]	3079	[2955, 1664]
296	[141, 561]	1224	[1806, 1807]	2152	[679, 2776]	3080	[1729, 1826]
297	[562, 563]	1225	[576, 198]	2153	[2777, 2778]	3081	[1665, 236]
298	[513, 564]	1226	[1569, 1476]	2154	[2779, 2780]	3082	[3422, 1482]
299	[213, 565]	1227	[236, 692]	2155	[1399, 2760]	3083	[1679, 2765]
300	[566, 130]	1228	[1808, 1809]	2156	[2781, 733]	3084	[3423, 8]
301	[567, 204]	1229	[1810, 720]	2157	[2782, 801]	3085	[2952, 569]
302	[568, 569]	1230	[1431, 1811]	2158	[560, 2761]	3086	[2854, 147]
303	[570, 571]	1231	[798, 662]	2159	[560, 1787]	3087	[3388, 790]
304	[207, 572]	1232	[1812, 1813]	2160	[1400, 1500]	3088	[2788, 1899]
305	[573, 574]	1233	[630, 1643]	2161	[1703, 535]	3089	[1910, 3424]
306	[575, 576]	1234	[1814, 719]	2162	[540, 516]	3090	[2840, 2774]
307	[577, 578]	1235	[1815, 1551]	2163	[173, 1704]	3091	[2932, 3425]
308	[579, 580]	1236	[1816, 1754]	2164	[200, 53]	3092	[2920, 661]
309	[581, 582]	1237	[1817, 134]	2165	[1697, 130]	3093	[2750, 796]
310	[583, 584]	1238	[1818, 1819]	2166	[2783, 2784]	3094	[3426, 472]
311	[585, 586]	1239	[514, 1820]	2167	[1802, 2785]	3095	[166, 1414]
312	[587, 588]	1240	[1821, 1571]	2168	[2786, 626]	3096	[2852, 3427]
313	[589, 590]	1241	[1822, 1523]	2169	[594, 671]	3097	[565, 1503]
314	[591, 592]	1242	[1823, 209]	2170	[2787, 1905]	3098	[2861, 2913]
315	[593, 594]	1243	[660, 1824]	2171	[2788, 1649]	3099	[551, 3395]
316	[595, 596]	1244	[43, 1394]	2172	[2789, 752]	3100	[3428, 1667]
317	[584, 225]	1245	[688, 608]	2173	[2662, 2736]	3101	[1581, 1461]
318	[597, 210]	1246	[1748, 1489]	2174	[1709, 1635]	3102	[604, 214]
319	[518, 598]	1247	[125, 1687]	2175	[237, 1398]	3103	[691, 3429]
320	[599, 600]	1248	[1825, 1826]	2176	[1531, 127]	3104	[2763, 1814]
321	[601, 602]	1249	[1636, 1667]	2177	[2654, 2790]	3105	[1748, 169]
322	[603, 49]	1250	[1827, 539]	2178	[1460, 633]	3106	[510, 163]
323	[604, 565]	1251	[794, 1626]	2179	[146, 667]	3107	[633, 3430]
324	[605, 606]	1252	[1828, 612]	2180	[1573, 2671]	3108	[1735, 3431]
325	[540, 607]	1253	[1608, 1803]	2181	[2791, 165]	3109	[592, 2745]
326	[608, 609]	1254	[1663, 625]	2182	[2743, 604]	3110	[604, 1502]
327	[610, 611]	1255	[1725, 1829]	2183	[1470, 1419]	3111	[2818, 1686]
328	[612, 613]	1256	[1749, 1735]	2184	[464, 1491]	3112	[2869, 194]
329	[614, 615]	1257	[1616, 1830]	2185	[710, 1469]	3113	[158, 1846]
330	[564, 556]	1258	[1831, 40]	2186	[1460, 218]	3114	[1664, 142]
331	[616, 577]	1259	[1618, 1647]	2187	[2792, 1692]	3115	[594, 129]
332	[617, 191]	1260	[1832, 521]	2188	[2793, 586]	3116	[3432, 3433]
333	[618, 211]	1261	[1833, 1699]	2189	[2794, 2795]	3117	[11, 653]

334	[619, 620]	1262	[488, 1834]	2190	[2796, 729]	3118	[3403, 1563]
335	[621, 622]	1263	[1546, 1785]	2191	[2797, 56]	3119	[2944, 1672]
336	[623, 624]	1264	[1835, 1836]	2192	[2798, 2799]	3120	[2882, 581]
337	[625, 626]	1265	[1837, 12]	2193	[1517, 2728]	3121	[1771, 1878]
338	[627, 628]	1266	[1838, 794]	2194	[1740, 1637]	3122	[3434, 560]
339	[629, 630]	1267	[1485, 730]	2195	[699, 664]	3123	[3435, 538]
340	[631, 632]	1268	[1590, 1459]	2196	[492, 131]	3124	[2700, 3436]
341	[186, 633]	1269	[1405, 707]	2197	[1871, 1797]	3125	[1533, 1577]
342	[634, 635]	1270	[528, 805]	2198	[2800, 1530]	3126	[2718, 1813]
343	[636, 637]	1271	[1706, 1734]	2199	[2801, 1819]	3127	[2802, 1463]
344	[638, 480]	1272	[1839, 523]	2200	[1583, 1827]	3128	[483, 1653]
345	[543, 639]	1273	[659, 627]	2201	[1720, 787]	3129	[1729, 2755]
346	[640, 641]	1274	[165, 1577]	2202	[623, 1401]	3130	[2851, 42]
347	[642, 195]	1275	[1637, 1840]	2203	[163, 669]	3131	[2923, 3426]
348	[643, 644]	1276	[1841, 539]	2204	[717, 2689]	3132	[210, 1675]
349	[645, 646]	1277	[1842, 1522]	2205	[2802, 1672]	3133	[2951, 790]
350	[647, 648]	1278	[1843, 480]	2206	[1424, 187]	3134	[2698, 741]
351	[649, 650]	1279	[600, 1844]	2207	[1890, 1738]	3135	[1845, 2919]
352	[651, 652]	1280	[1845, 1846]	2208	[2664, 594]	3136	[3437, 3438]
353	[653, 222]	1281	[1847, 1767]	2209	[125, 548]	3137	[3392, 596]
354	[535, 654]	1282	[1763, 1830]	2210	[2702, 2803]	3138	[3439, 680]
355	[655, 582]	1283	[538, 690]	2211	[663, 32]	3139	[1864, 194]
356	[656, 657]	1284	[1848, 1849]	2212	[1609, 713]	3140	[2890, 1728]
357	[658, 478]	1285	[1494, 1526]	2213	[2622, 1441]	3141	[2718, 2879]
358	[659, 660]	1286	[1850, 1562]	2214	[1907, 2804]	3142	[2788, 1497]
359	[661, 662]	1287	[1805, 1380]	2215	[2796, 1485]	3143	[2692, 3440]
360	[467, 663]	1288	[1851, 1604]	2216	[532, 2805]	3144	[1643, 1694]
361	[664, 665]	1289	[599, 494]	2217	[2806, 2807]	3145	[2944, 1463]
362	[182, 666]	1290	[1578, 1799]	2218	[581, 2808]	3146	[2781, 1753]
363	[667, 668]	1291	[1437, 783]	2219	[1486, 1502]	3147	[1447, 588]
364	[36, 669]	1292	[809, 1852]	2220	[2809, 55]	3148	[1500, 1824]
365	[670, 671]	1293	[1765, 1853]	2221	[2810, 2811]	3149	[775, 134]
366	[191, 672]	1294	[1753, 1854]	2222	[733, 1403]	3150	[1605, 3441]
367	[673, 507]	1295	[1855, 1494]	2223	[2812, 685]	3151	[2867, 660]
368	[674, 488]	1296	[1605, 1856]	2224	[2813, 2814]	3152	[3442, 1853]
369	[675, 676]	1297	[1857, 507]	2225	[1470, 737]	3153	[3443, 1731]
370	[160, 677]	1298	[1611, 529]	2226	[629, 723]	3154	[1864, 3404]
371	[494, 678]	1299	[1858, 1859]	2227	[1741, 1638]	3155	[551, 2895]
372	[679, 680]	1300	[1860, 1861]	2228	[1748, 2815]	3156	[12, 3444]
373	[681, 682]	1301	[1862, 1863]	2229	[1407, 2743]	3157	[181, 1818]
374	[683, 232]	1302	[42, 584]	2230	[1468, 1690]	3158	[235, 691]
375	[684, 685]	1303	[468, 645]	2231	[2816, 1454]	3159	[1530, 1438]
376	[686, 687]	1304	[1864, 1726]	2232	[660, 682]	3160	[2794, 2893]
377	[688, 504]	1305	[596, 1794]	2233	[1793, 1797]	3161	[31, 1393]

378	[689, 690]	1306	[1607, 658]	2234	[2817, 2625]	3162	[3388, 2780]
379	[691, 692]	1307	[1865, 169]	2235	[227, 1578]	3163	[1497, 1872]
380	[693, 548]	1308	[1866, 1780]	2236	[2818, 2734]	3164	[773, 557]
381	[694, 695]	1309	[1867, 1501]	2237	[1884, 1600]	3165	[2793, 1423]
382	[650, 696]	1310	[1838, 1625]	2238	[2819, 1401]	3166	[3445, 673]
383	[697, 577]	1311	[1868, 1869]	2239	[773, 769]	3167	[3446, 3421]
384	[698, 604]	1312	[1870, 1871]	2240	[2820, 1779]	3168	[59, 702]
385	[699, 700]	1313	[1872, 1395]	2241	[1570, 1477]	3169	[631, 1849]
386	[701, 145]	1314	[1873, 1874]	2242	[2764, 1680]	3170	[630, 724]
387	[577, 702]	1315	[1435, 1875]	2243	[2821, 2822]	3171	[2758, 1533]
388	[638, 703]	1316	[1481, 1737]	2244	[1904, 1669]	3172	[3447, 615]
389	[704, 506]	1317	[1876, 1877]	2245	[2794, 2823]	3173	[2721, 1528]
390	[657, 705]	1318	[1558, 1624]	2246	[2824, 1827]	3174	[2863, 136]
391	[706, 707]	1319	[142, 1739]	2247	[2750, 1837]	3175	[2751, 8]
392	[708, 709]	1320	[153, 663]	2248	[2801, 2658]	3176	[1506, 1837]
393	[710, 711]	1321	[1380, 786]	2249	[2779, 2825]	3177	[2890, 2774]
394	[712, 713]	1322	[228, 773]	2250	[2667, 176]	3178	[1421, 227]
395	[714, 241]	1323	[676, 1772]	2251	[1548, 31]	3179	[2952, 233]
396	[686, 715]	1324	[1772, 1504]	2252	[1597, 2826]	3180	[1847, 37]
397	[716, 717]	1325	[1795, 484]	2253	[1647, 1560]	3181	[1695, 1654]
398	[718, 635]	1326	[519, 598]	2254	[739, 1742]	3182	[2657, 3448]
399	[719, 720]	1327	[770, 1383]	2255	[1521, 586]	3183	[3449, 1469]
400	[721, 722]	1328	[1878, 1799]	2256	[2827, 2828]	3184	[506, 1880]
401	[723, 724]	1329	[1532, 1558]	2257	[2695, 479]	3185	[1685, 2948]
402	[725, 726]	1330	[53, 1879]	2258	[2820, 2829]	3186	[200, 468]
403	[189, 727]	1331	[1880, 1881]	2259	[2830, 180]	3187	[1715, 40]
404	[728, 705]	1332	[1573, 1836]	2260	[2831, 2705]	3188	[2922, 1686]
405	[729, 730]	1333	[1882, 533]	2261	[780, 470]	3189	[3450, 1409]
406	[224, 731]	1334	[48, 1883]	2262	[1505, 770]	3190	[136, 49]
407	[147, 668]	1335	[1884, 1473]	2263	[2832, 230]	3191	[1801, 540]
408	[511, 144]	1336	[1885, 1886]	2264	[1887, 469]	3192	[3451, 606]
409	[714, 690]	1337	[55, 1780]	2265	[1417, 2638]	3193	[710, 1409]
410	[732, 733]	1338	[1445, 1557]	2266	[38, 1704]	3194	[2697, 137]
411	[734, 702]	1339	[1887, 1520]	2267	[589, 2833]	3195	[1691, 1588]
412	[735, 736]	1340	[1888, 1889]	2268	[59, 2834]	3196	[1567, 3420]
413	[737, 738]	1341	[1494, 724]	2269	[9, 1856]	3197	[3390, 652]
414	[739, 611]	1342	[1427, 762]	2270	[1494, 1693]	3198	[1658, 1809]
415	[740, 741]	1343	[802, 1787]	2271	[2757, 1586]	3199	[1878, 1504]
416	[742, 743]	1344	[1890, 1639]	2272	[1606, 2778]	3200	[3452, 1908]
417	[486, 208]	1345	[1491, 1543]	2273	[2699, 1672]	3201	[2640, 2697]
418	[744, 217]	1346	[146, 1738]	2274	[2737, 1451]	3202	[2767, 1899]
419	[720, 212]	1347	[1891, 1892]	2275	[1735, 1676]	3203	[7, 637]
420	[689, 745]	1348	[661, 1893]	2276	[1406, 771]	3204	[147, 2628]
421	[746, 747]	1349	[1422, 1383]	2277	[2835, 1405]	3205	[3405, 532]

422	[748, 749]	1350	[231, 747]	2278	[2683, 1516]	3206	[3437, 3396]
423	[750, 751]	1351	[220, 1894]	2279	[1427, 2689]	3207	[2709, 3453]
424	[570, 752]	1352	[765, 1536]	2280	[2836, 1802]	3208	[1851, 2635]
425	[753, 673]	1353	[1895, 168]	2281	[47, 2667]	3209	[3454, 2790]
426	[44, 754]	1354	[547, 1468]	2282	[2768, 606]	3210	[695, 179]
427	[755, 756]	1355	[1896, 505]	2283	[705, 1687]	3211	[570, 1682]
428	[757, 758]	1356	[1897, 601]	2284	[1816, 658]	3212	[51, 3455]
429	[759, 650]	1357	[1898, 1458]	2285	[2771, 1380]	3213	[1732, 196]
430	[760, 761]	1358	[1377, 501]	2286	[648, 2837]	3214	[559, 1786]
431	[717, 762]	1359	[1899, 1498]	2287	[2666, 2838]	3215	[3456, 2748]
432	[763, 764]	1360	[1776, 34]	2288	[1722, 2839]	3216	[1867, 225]
433	[134, 765]	1361	[1900, 1901]	2289	[2840, 2841]	3217	[1575, 2656]
434	[766, 209]	1362	[582, 1902]	2290	[1858, 2842]	3218	[2846, 709]
435	[767, 768]	1363	[1903, 1704]	2291	[1855, 723]	3219	[2908, 1557]
436	[769, 770]	1364	[1904, 1905]	2292	[1663, 1551]	3220	[3457, 506]
437	[558, 771]	1365	[788, 126]	2293	[595, 1547]	3221	[2723, 1745]
438	[772, 557]	1366	[1888, 1906]	2294	[2830, 2843]	3222	[796, 1435]
439	[773, 774]	1367	[1907, 1908]	2295	[203, 741]	3223	[1872, 3458]
440	[775, 776]	1368	[1909, 564]	2296	[198, 588]	3224	[1879, 1587]
441	[777, 778]	1369	[1910, 1911]	2297	[721, 2844]	3225	[555, 3459]
442	[203, 779]	1370	[1912, 1913]	2298	[1527, 2722]	3226	[793, 2883]
443	[14, 780]	1371	[683, 747]	2299	[2656, 186]	3227	[2813, 2855]
444	[486, 781]	1372	[1914, 766]	2300	[39, 1568]	3228	[695, 2830]
445	[782, 783]	1373	[1915, 655]	2301	[1741, 46]	3229	[2903, 473]
446	[526, 784]	1374	[1601, 1657]	2302	[1806, 656]	3230	[1507, 3460]
447	[785, 786]	1375	[1808, 751]	2303	[1647, 2845]	3231	[594, 2711]
448	[35, 163]	1376	[1916, 1917]	2304	[724, 1644]	3232	[3461, 2879]
449	[787, 788]	1377	[1918, 1919]	2305	[2846, 2847]	3233	[2665, 2786]
450	[789, 790]	1378	[1920, 1921]	2306	[1633, 1850]	3234	[605, 641]
451	[791, 196]	1379	[1922, 1923]	2307	[718, 1565]	3235	[3462, 1600]
452	[792, 793]	1380	[1924, 1925]	2308	[1586, 1501]	3236	[1457, 3463]
453	[794, 795]	1381	[1926, 1927]	2309	[2848, 2645]	3237	[597, 1749]
454	[796, 12]	1382	[1928, 1929]	2310	[1478, 1901]	3238	[703, 1714]
455	[797, 746]	1383	[1323, 1930]	2311	[2684, 180]	3239	[1806, 60]
456	[798, 799]	1384	[1931, 1932]	2312	[164, 1533]	3240	[3383, 173]
457	[524, 191]	1385	[1933, 1341]	2313	[619, 536]	3241	[1576, 190]
458	[800, 801]	1386	[1934, 1935]	2314	[2778, 476]	3242	[3464, 2807]
459	[802, 803]	1387	[1936, 361]	2315	[2630, 2849]	3243	[1388, 2816]
460	[804, 805]	1388	[1937, 1938]	2316	[1405, 2704]	3244	[1547, 1707]
461	[726, 806]	1389	[1939, 1940]	2317	[500, 2716]	3245	[694, 536]
462	[807, 481]	1390	[1941, 1942]	2318	[1684, 1545]	3246	[809, 2849]
463	[808, 809]	1391	[1943, 1944]	2319	[1654, 487]	3247	[3465, 1846]
464	[810, 811]	1392	[1331, 1945]	2320	[2850, 1859]	3248	[1550, 612]
465	[812, 813]	1393	[1946, 1947]	2321	[2851, 583]	3249	[1515, 34]

466	[814, 815]	1394	[1948, 1949]	2322	[793, 1402]	3250	[1670, 3466]
467	[816, 817]	1395	[87, 1029]	2323	[2852, 2790]	3251	[508, 472]
468	[818, 819]	1396	[1186, 1939]	2324	[620, 592]	3252	[1724, 171]
469	[820, 821]	1397	[1950, 1951]	2325	[726, 2853]	3253	[3449, 1409]
470	[30, 822]	1398	[1952, 1953]	2326	[2854, 667]	3254	[1484, 231]
471	[823, 824]	1399	[411, 1954]	2327	[686, 2855]	3255	[3467, 1440]
472	[429, 825]	1400	[1955, 1956]	2328	[2856, 1609]	3256	[3468, 515]
473	[826, 827]	1401	[1957, 1958]	2329	[767, 578]	3257	[2915, 1894]
474	[828, 829]	1402	[1959, 976]	2330	[502, 1619]	3258	[638, 807]
475	[830, 404]	1403	[1960, 1954]	2331	[2714, 1828]	3259	[49, 3469]
476	[831, 832]	1404	[1961, 1962]	2332	[618, 720]	3260	[1909, 555]
477	[833, 834]	1405	[1963, 1964]	2333	[2857, 2858]	3261	[508, 1574]
478	[835, 836]	1406	[1327, 1011]	2334	[2859, 1822]	3262	[1471, 60]
479	[275, 837]	1407	[1965, 410]	2335	[145, 503]	3263	[2891, 613]
480	[838, 839]	1408	[1966, 989]	2336	[2860, 1467]	3264	[2958, 2770]
481	[840, 841]	1409	[1967, 987]	2337	[1914, 1823]	3265	[2820, 611]
482	[842, 843]	1410	[906, 842]	2338	[2848, 1598]	3266	[2810, 1849]
483	[844, 845]	1411	[1968, 1958]	2339	[1641, 2743]	3267	[1614, 1677]
484	[846, 847]	1412	[1210, 1969]	2340	[1721, 788]	3268	[1647, 2739]
485	[848, 849]	1413	[1970, 1971]	2341	[2861, 2638]	3269	[2697, 1620]
486	[850, 851]	1414	[1972, 1313]	2342	[1631, 2862]	3270	[2881, 465]
487	[852, 853]	1415	[1973, 1974]	2343	[151, 2805]	3271	[1897, 1666]
488	[854, 855]	1416	[1975, 938]	2344	[468, 1879]	3272	[1383, 675]
489	[856, 857]	1417	[1976, 1977]	2345	[2863, 2697]	3273	[3470, 2625]
490	[858, 414]	1418	[1978, 24]	2346	[1788, 2864]	3274	[213, 1398]
491	[859, 860]	1419	[898, 1183]	2347	[2865, 1911]	3275	[1404, 1629]
492	[861, 862]	1420	[1979, 1180]	2348	[1428, 2866]	3276	[808, 1652]
493	[863, 864]	1421	[978, 369]	2349	[1665, 691]	3277	[637, 563]
494	[865, 860]	1422	[836, 1931]	2350	[2867, 627]	3278	[3419, 2724]
495	[866, 867]	1423	[1980, 940]	2351	[2868, 1784]	3279	[3471, 172]
496	[868, 869]	1424	[1981, 364]	2352	[2869, 175]	3280	[2817, 1509]
497	[870, 871]	1425	[1982, 1983]	2353	[2821, 2870]	3281	[1645, 3448]
498	[872, 873]	1426	[1984, 353]	2354	[1643, 2871]	3282	[3452, 2804]
499	[874, 875]	1427	[1985, 1986]	2355	[1422, 1795]	3283	[1683, 1745]
500	[876, 81]	1428	[1063, 1987]	2356	[732, 500]	3284	[1396, 2934]
501	[877, 878]	1429	[1988, 1989]	2357	[1624, 2839]	3285	[1533, 2884]
502	[879, 880]	1430	[1990, 928]	2358	[1519, 187]	3286	[3409, 3453]
503	[881, 882]	1431	[1991, 1992]	2359	[2872, 148]	3287	[1828, 2891]
504	[883, 884]	1432	[1993, 1994]	2360	[2873, 590]	3288	[1429, 1461]
505	[885, 356]	1433	[1995, 1996]	2361	[528, 497]	3289	[1843, 1708]
506	[886, 887]	1434	[1997, 1151]	2362	[490, 2874]	3290	[2852, 580]
507	[888, 889]	1435	[1998, 1999]	2363	[1862, 2670]	3291	[3468, 1820]
508	[890, 891]	1436	[2000, 1949]	2364	[1716, 1665]	3292	[2875, 3472]
509	[892, 880]	1437	[2001, 1188]	2365	[1725, 2760]	3293	[2940, 165]

510	[893, 894]	1438	[2002, 2003]	2366	[1832, 1666]	3294	[1540, 191]
511	[895, 896]	1439	[2004, 2005]	2367	[2875, 2784]	3295	[48, 517]
512	[897, 898]	1440	[2006, 1339]	2368	[1515, 1559]	3296	[1435, 222]
513	[899, 900]	1441	[2007, 2008]	2369	[1873, 2803]	3297	[147, 1640]
514	[901, 902]	1442	[2009, 2010]	2370	[12, 1875]	3298	[2641, 1594]
515	[903, 904]	1443	[2011, 2012]	2371	[734, 2834]	3299	[3451, 641]
516	[905, 906]	1444	[2013, 1282]	2372	[2644, 2876]	3300	[1461, 3473]
517	[907, 908]	1445	[862, 2014]	2373	[1808, 2877]	3301	[3391, 714]
518	[909, 253]	1446	[2015, 2016]	2374	[2812, 716]	3302	[1512, 660]
519	[910, 911]	1447	[2017, 951]	2375	[1442, 2878]	3303	[669, 145]
520	[912, 913]	1448	[2018, 2019]	2376	[1754, 1499]	3304	[136, 219]
521	[914, 915]	1449	[2020, 1315]	2377	[1891, 2879]	3305	[1591, 1757]
522	[458, 97]	1450	[2021, 2022]	2378	[2880, 1575]	3306	[3474, 3466]
523	[916, 917]	1451	[2023, 2024]	2379	[2881, 624]	3307	[787, 1447]
524	[918, 372]	1452	[2025, 2026]	2380	[2882, 473]	3308	[1880, 3475]
525	[919, 920]	1453	[2027, 299]	2381	[624, 2883]	3309	[3476, 1899]
526	[921, 922]	1454	[1145, 1066]	2382	[1441, 2853]	3310	[3449, 512]
527	[923, 924]	1455	[2028, 2029]	2383	[2712, 1828]	3311	[134, 1780]
528	[925, 926]	1456	[2030, 1265]	2384	[1816, 477]	3312	[3477, 703]
529	[927, 928]	1457	[2031, 2032]	2385	[1650, 1491]	3313	[1482, 1387]
530	[929, 875]	1458	[2033, 399]	2386	[165, 2884]	3314	[3478, 1628]
531	[930, 931]	1459	[2034, 1063]	2387	[2806, 2885]	3315	[2860, 2943]
532	[932, 377]	1460	[2035, 1091]	2388	[1842, 2680]	3316	[760, 1534]
533	[933, 934]	1461	[2036, 871]	2389	[1870, 569]	3317	[1576, 727]
534	[935, 936]	1462	[1989, 2037]	2390	[2789, 2856]	3318	[3479, 3396]
535	[937, 938]	1463	[2038, 2024]	2391	[1401, 2643]	3319	[716, 2941]
536	[939, 940]	1464	[2039, 848]	2392	[2886, 632]	3320	[228, 1799]
537	[941, 942]	1465	[2040, 906]	2393	[55, 765]	3321	[3480, 600]
538	[943, 944]	1466	[2041, 2042]	2394	[2813, 715]	3322	[2674, 620]
539	[945, 946]	1467	[2043, 1170]	2395	[670, 2887]	3323	[3481, 1443]
540	[947, 948]	1468	[2044, 373]	2396	[2800, 782]	3324	[2627, 3413]
541	[949, 950]	1469	[2045, 2046]	2397	[1771, 1772]	3325	[3482, 471]
542	[951, 378]	1470	[2047, 1276]	2398	[726, 786]	3326	[1382, 2740]
543	[952, 249]	1471	[2048, 1148]	2399	[1771, 1578]	3327	[2830, 2745]
544	[953, 954]	1472	[2049, 2050]	2400	[2888, 1660]	3328	[511, 701]
545	[955, 956]	1473	[2051, 2052]	2401	[1389, 1453]	3329	[567, 1580]
546	[957, 958]	1474	[2053, 2054]	2402	[2889, 1875]	3330	[3483, 480]
547	[959, 330]	1475	[2055, 1272]	2403	[642, 1732]	3331	[633, 2839]
548	[243, 960]	1476	[2056, 1294]	2404	[1865, 2815]	3332	[2637, 1418]
549	[961, 962]	1477	[1143, 2057]	2405	[757, 183]	3333	[3484, 136]
550	[963, 964]	1478	[2058, 2059]	2406	[2890, 2841]	3334	[1523, 664]
551	[965, 966]	1479	[2060, 947]	2407	[2891, 553]	3335	[3485, 1741]
552	[967, 968]	1480	[2061, 1969]	2408	[2767, 1649]	3336	[2712, 1550]
553	[394, 969]	1481	[2062, 2063]	2409	[530, 677]	3337	[577, 768]

554	[970, 971]	1482	[2064, 2065]	2410	[2892, 2893]	3338	[3486, 715]
555	[972, 314]	1483	[2066, 2067]	2411	[2678, 48]	3339	[1619, 1560]
556	[973, 974]	1484	[2068, 2069]	2412	[1450, 2770]	3340	[1858, 1593]
557	[975, 976]	1485	[2070, 2071]	2413	[2686, 1678]	3341	[1487, 1804]
558	[977, 978]	1486	[2072, 2037]	2414	[2827, 2893]	3342	[1821, 3487]
559	[979, 980]	1487	[2073, 1998]	2415	[1810, 211]	3343	[481, 3488]
560	[981, 982]	1488	[2074, 2075]	2416	[2894, 224]	3344	[3398, 2864]
561	[983, 960]	1489	[2076, 245]	2417	[2798, 2895]	3345	[1720, 197]
562	[984, 985]	1490	[2077, 284]	2418	[735, 502]	3346	[2920, 798]
563	[16, 986]	1491	[2078, 2079]	2419	[789, 2896]	3347	[1832, 239]
564	[987, 988]	1492	[811, 1947]	2420	[1540, 2695]	3348	[1384, 676]
565	[989, 990]	1493	[2080, 2081]	2421	[2897, 1379]	3349	[3489, 496]
566	[991, 256]	1494	[2082, 2083]	2422	[1509, 1844]	3350	[2733, 3416]
567	[992, 993]	1495	[2084, 2085]	2423	[1629, 2704]	3351	[1828, 552]
568	[994, 995]	1496	[2086, 2087]	2424	[130, 2898]	3352	[3385, 2807]
569	[996, 963]	1497	[2088, 2089]	2425	[2899, 1827]	3353	[519, 518]
570	[968, 997]	1498	[2090, 2091]	2426	[1615, 719]	3354	[3490, 528]
571	[998, 999]	1499	[2092, 1327]	2427	[2747, 2900]	3355	[1599, 1486]
572	[1000, 281]	1500	[2093, 2094]	2428	[1783, 2901]	3356	[2806, 3491]
573	[1001, 1002]	1501	[2087, 2095]	2429	[601, 522]	3357	[737, 3492]
574	[1003, 985]	1502	[2096, 115]	2430	[614, 621]	3358	[205, 1859]
575	[1004, 1005]	1503	[2037, 2097]	2431	[1900, 178]	3359	[2869, 1726]
576	[1006, 1007]	1504	[2098, 836]	2432	[2764, 2722]	3360	[619, 591]
577	[1008, 1009]	1505	[2099, 815]	2433	[2846, 2902]	3361	[1502, 1821]
578	[1010, 1011]	1506	[2100, 25]	2434	[1611, 497]	3362	[2626, 2645]
579	[1012, 1013]	1507	[2101, 2102]	2435	[1882, 625]	3363	[37, 1903]
580	[1014, 1015]	1508	[2103, 2104]	2436	[1861, 1429]	3364	[1667, 671]
581	[1016, 1017]	1509	[2105, 924]	2437	[1673, 2701]	3365	[3385, 3491]
582	[1018, 1019]	1510	[1954, 2106]	2438	[684, 167]	3366	[2880, 1678]
583	[1020, 1021]	1511	[1091, 994]	2439	[2848, 2876]	3367	[3428, 594]
584	[1022, 1023]	1512	[2107, 1191]	2440	[610, 1779]	3368	[477, 1755]
585	[1024, 1025]	1513	[2108, 363]	2441	[1693, 1644]	3369	[3493, 3491]
586	[1026, 1027]	1514	[2109, 950]	2442	[2903, 655]	3370	[187, 3494]
587	[1028, 1029]	1515	[2110, 2111]	2443	[200, 663]	3371	[1666, 602]
588	[1030, 1031]	1516	[2112, 386]	2444	[1791, 1646]	3372	[2882, 655]
589	[1032, 1033]	1517	[2113, 2114]	2445	[615, 1617]	3373	[1797, 3495]
590	[1034, 1035]	1518	[2115, 2116]	2446	[1914, 475]	3374	[3496, 2145]
591	[1036, 348]	1519	[2117, 2118]	2447	[1732, 2904]	3375	[3497, 967]
592	[1037, 1038]	1520	[2052, 2119]	2448	[770, 1795]	3376	[2283, 3498]
593	[1039, 1040]	1521	[2120, 2121]	2449	[650, 2671]	3377	[3499, 1925]
594	[1041, 1042]	1522	[2122, 348]	2450	[2905, 1599]	3378	[3500, 1250]
595	[1043, 1044]	1523	[2123, 2124]	2451	[791, 756]	3379	[3501, 26]
596	[1045, 1046]	1524	[2125, 2126]	2452	[2906, 591]	3380	[3502, 3503]
597	[1047, 357]	1525	[2127, 91]	2453	[1495, 2907]	3381	[3504, 3003]

598	[253, 1048]	1526	[2081, 2128]	2454	[2908, 1446]	3382	[3505, 3506]
599	[1049, 1050]	1527	[2129, 2130]	2455	[2909, 1649]	3383	[3507, 2070]
600	[1051, 1052]	1528	[2131, 1145]	2456	[1870, 1793]	3384	[3508, 3509]
601	[1053, 1054]	1529	[1295, 1340]	2457	[2656, 217]	3385	[3510, 3511]
602	[1055, 901]	1530	[2132, 2133]	2458	[214, 1399]	3386	[3512, 2046]
603	[1056, 1057]	1531	[2134, 2135]	2459	[712, 2910]	3387	[3513, 3514]
604	[1058, 1059]	1532	[2136, 365]	2460	[607, 517]	3388	[1305, 1049]
605	[1060, 1061]	1533	[2137, 2138]	2461	[2626, 2826]	3389	[3515, 3516]
606	[1062, 1063]	1534	[2139, 896]	2462	[1555, 2803]	3390	[2471, 3517]
607	[1064, 901]	1535	[2140, 2141]	2463	[2891, 2911]	3391	[3518, 3519]
608	[1065, 1066]	1536	[263, 962]	2464	[1470, 564]	3392	[3520, 3521]
609	[1067, 1068]	1537	[2142, 2143]	2465	[160, 489]	3393	[3522, 1064]
610	[1069, 1070]	1538	[2144, 2145]	2466	[1658, 2877]	3394	[3523, 3524]
611	[1071, 1072]	1539	[999, 1934]	2467	[2912, 2799]	3395	[3525, 2562]
612	[1073, 1074]	1540	[2146, 2147]	2468	[1868, 2913]	3396	[3526, 1021]
613	[1075, 1076]	1541	[2148, 2149]	2469	[1845, 2914]	3397	[3527, 936]
614	[1077, 1078]	1542	[2150, 2151]	2470	[701, 1618]	3398	[2353, 3528]
615	[1079, 1080]	1543	[2152, 65]	2471	[2787, 2746]	3399	[3529, 2573]
616	[1081, 1082]	1544	[2153, 1286]	2472	[1724, 1628]	3400	[3530, 2314]
617	[1083, 1084]	1545	[2154, 2155]	2473	[711, 1470]	3401	[3531, 1098]
618	[1085, 408]	1546	[2156, 2157]	2474	[484, 227]	3402	[3532, 1270]
619	[1086, 346]	1547	[2158, 2159]	2475	[2915, 221]	3403	[3533, 3534]
620	[1087, 1027]	1548	[2160, 1935]	2476	[750, 1809]	3404	[3535, 1157]
621	[1088, 1089]	1549	[2161, 1210]	2477	[1421, 676]	3405	[3536, 1158]
622	[1090, 1091]	1550	[2162, 1336]	2478	[2916, 1889]	3406	[3537, 403]
623	[1092, 1093]	1551	[2163, 2164]	2479	[238, 601]	3407	[2462, 3538]
624	[1094, 1095]	1552	[2165, 2166]	2480	[2702, 1556]	3408	[2326, 2108]
625	[1096, 953]	1553	[2167, 867]	2481	[1747, 1488]	3409	[3539, 3540]
626	[1097, 1098]	1554	[2168, 2169]	2482	[642, 755]	3410	[3541, 2227]
627	[1099, 417]	1555	[2170, 2171]	2483	[2781, 500]	3411	[3542, 268]
628	[1100, 1101]	1556	[2172, 121]	2484	[2917, 527]	3412	[3543, 248]
629	[1102, 1103]	1557	[2173, 2174]	2485	[1483, 59]	3413	[3544, 106]
630	[1104, 1105]	1558	[2175, 2176]	2486	[2622, 726]	3414	[3545, 2133]
631	[1106, 1107]	1559	[2177, 1009]	2487	[1586, 648]	3415	[3546, 889]
632	[1108, 1007]	1560	[880, 2178]	2488	[2918, 2919]	3416	[3547, 2316]
633	[359, 1109]	1561	[2179, 2180]	2489	[2756, 1585]	3417	[3548, 3200]
634	[1110, 1111]	1562	[2181, 2182]	2490	[697, 734]	3418	[3549, 926]
635	[1112, 1113]	1563	[2183, 947]	2491	[1624, 1511]	3419	[2521, 3054]
636	[1114, 1115]	1564	[2184, 1064]	2492	[545, 1397]	3420	[3550, 2423]
637	[1116, 6]	1565	[2185, 1313]	2493	[575, 787]	3421	[3551, 2340]
638	[1117, 1118]	1566	[2186, 2144]	2494	[1793, 1885]	3422	[2349, 3552]
639	[1119, 379]	1567	[2187, 2188]	2495	[629, 1494]	3423	[3553, 2437]
640	[1120, 1121]	1568	[2189, 1919]	2496	[2920, 151]	3424	[3554, 1080]
641	[1122, 259]	1569	[1072, 1143]	2497	[1697, 492]	3425	[3555, 18]

642	[1123, 293]	1570	[357, 1101]	2498	[1384, 1771]	3426	[3556, 3109]
643	[1124, 1125]	1571	[413, 2141]	2499	[2921, 483]	3427	[3557, 2248]
644	[18, 364]	1572	[2190, 2191]	2500	[2641, 47]	3428	[3558, 252]
645	[1126, 1127]	1573	[2192, 2193]	2501	[2922, 2734]	3429	[3559, 283]
646	[107, 1128]	1574	[2194, 285]	2502	[177, 1901]	3430	[3560, 1167]
647	[1129, 1130]	1575	[2195, 360]	2503	[1640, 2673]	3431	[3561, 829]
648	[1131, 1132]	1576	[2196, 2197]	2504	[2923, 471]	3432	[3562, 3563]
649	[1133, 1134]	1577	[2198, 847]	2505	[139, 2924]	3433	[3564, 3094]
650	[1135, 1136]	1578	[369, 1290]	2506	[1380, 806]	3434	[1996, 3565]
651	[1137, 1138]	1579	[2199, 2200]	2507	[1493, 630]	3435	[3566, 463]
652	[1139, 284]	1580	[2201, 1075]	2508	[584, 1501]	3436	[3567, 2407]
653	[1140, 1141]	1581	[2202, 2203]	2509	[800, 2925]	3437	[3568, 3569]
654	[1142, 1143]	1582	[2204, 845]	2510	[714, 1733]	3438	[3570, 85]
655	[1144, 1145]	1583	[2205, 2184]	2511	[2654, 580]	3439	[3571, 3014]
656	[1146, 1147]	1584	[2206, 94]	2512	[167, 2688]	3440	[3572, 77]
657	[1148, 1149]	1585	[2207, 1131]	2513	[719, 183]	3441	[3573, 1221]
658	[1150, 1151]	1586	[2208, 2168]	2514	[125, 1689]	3442	[3574, 3575]
659	[1152, 1153]	1587	[63, 2209]	2515	[1704, 2926]	3443	[3576, 912]
660	[1154, 1155]	1588	[2210, 2012]	2516	[1584, 1564]	3444	[3577, 2091]
661	[1156, 1157]	1589	[2211, 2212]	2517	[1727, 2727]	3445	[2178, 916]
662	[1158, 1159]	1590	[2213, 863]	2518	[1417, 2913]	3446	[3578, 3579]
663	[386, 1160]	1591	[2214, 2215]	2519	[1512, 1500]	3447	[1363, 1090]
664	[1161, 1162]	1592	[2216, 2217]	2520	[1450, 2738]	3448	[3580, 371]
665	[964, 456]	1593	[2218, 1057]	2521	[2927, 1874]	3449	[3581, 2047]
666	[1163, 107]	1594	[2219, 907]	2522	[777, 2928]	3450	[1974, 3582]
667	[1164, 1165]	1595	[1371, 2220]	2523	[2929, 2870]	3451	[3583, 3584]
668	[1166, 1167]	1596	[2221, 251]	2524	[2808, 1702]	3452	[3585, 3586]
669	[71, 1168]	1597	[2222, 2223]	2525	[759, 1835]	3453	[3587, 28]
670	[1169, 1170]	1598	[2224, 2197]	2526	[565, 1399]	3454	[3588, 3589]
671	[1171, 911]	1599	[2225, 412]	2527	[507, 1881]	3455	[3590, 992]
672	[1172, 1173]	1600	[2226, 2227]	2528	[2930, 1625]	3456	[3591, 3592]
673	[1174, 1175]	1601	[2228, 2229]	2529	[2686, 1575]	3457	[1038, 3593]
674	[1176, 1177]	1602	[2230, 2231]	2530	[2931, 1429]	3458	[3594, 384]
675	[1178, 1179]	1603	[2232, 2233]	2531	[223, 508]	3459	[3595, 1149]
676	[1180, 1181]	1604	[2234, 2235]	2532	[1581, 1430]	3460	[3596, 2075]
677	[1182, 1183]	1605	[2236, 2237]	2533	[61, 693]	3461	[3597, 3598]
678	[1184, 433]	1606	[2238, 831]	2534	[2932, 2858]	3462	[3599, 29]
679	[1185, 1186]	1607	[2239, 835]	2535	[544, 1732]	3463	[3600, 851]
680	[1187, 1188]	1608	[2240, 1994]	2536	[1776, 1475]	3464	[3601, 3602]
681	[1189, 1190]	1609	[997, 2241]	2537	[1448, 2933]	3465	[3603, 3604]
682	[1191, 1192]	1610	[375, 1369]	2538	[1603, 2720]	3466	[3605, 885]
683	[1193, 1194]	1611	[2242, 2151]	2539	[2810, 632]	3467	[3606, 3607]
684	[1195, 1196]	1612	[2243, 2244]	2540	[796, 2889]	3468	[3608, 1373]
685	[1197, 1198]	1613	[2245, 1190]	2541	[545, 2934]	3469	[3609, 2182]

686	[1199, 1200]	1614	[2246, 1249]	2542	[1860, 2935]	3470	[3610, 866]
687	[1201, 335]	1615	[2247, 2248]	2543	[1684, 1896]	3471	[3611, 76]
688	[1202, 885]	1616	[2249, 2250]	2544	[2903, 1388]	3472	[3612, 1309]
689	[1203, 1204]	1617	[1078, 2176]	2545	[2741, 1803]	3473	[3613, 411]
690	[1205, 1206]	1618	[2251, 825]	2546	[746, 1492]	3474	[3614, 3615]
691	[1207, 853]	1619	[1274, 2041]	2547	[1682, 1538]	3475	[3616, 1276]
692	[101, 1208]	1620	[2252, 2253]	2548	[1425, 2936]	3476	[1318, 3617]
693	[1209, 1210]	1621	[1057, 279]	2549	[765, 2937]	3477	[380, 840]
694	[1211, 1212]	1622	[2254, 2255]	2550	[669, 1618]	3478	[3618, 300]
695	[1213, 1214]	1623	[2256, 445]	2551	[637, 643]	3479	[3619, 3620]
696	[1134, 1215]	1624	[365, 2257]	2552	[2777, 475]	3480	[3621, 3622]
697	[1216, 1217]	1625	[2258, 2259]	2553	[1401, 466]	3481	[3623, 3624]
698	[1218, 1219]	1626	[2260, 2261]	2554	[2938, 10]	3482	[3625, 3626]
699	[1220, 964]	1627	[2262, 2263]	2555	[134, 1391]	3483	[1999, 3627]
700	[1221, 1222]	1628	[2264, 1942]	2556	[2939, 766]	3484	[3628, 3629]
701	[1223, 1208]	1629	[2265, 2266]	2557	[593, 1667]	3485	[855, 2280]
702	[1082, 978]	1630	[2267, 247]	2558	[1817, 776]	3486	[3630, 3631]
703	[1224, 1225]	1631	[2268, 2269]	2559	[2940, 1576]	3487	[3632, 2458]
704	[1226, 888]	1632	[2270, 2271]	2560	[1376, 733]	3488	[3633, 1023]
705	[121, 1227]	1633	[2272, 2273]	2561	[1887, 780]	3489	[3634, 870]
706	[1228, 1229]	1634	[2274, 2275]	2562	[1701, 544]	3490	[3635, 3636]
707	[1230, 1031]	1635	[1234, 434]	2563	[2714, 1550]	3491	[3637, 898]
708	[1231, 1232]	1636	[2276, 2277]	2564	[2929, 2822]	3492	[3638, 123]
709	[1233, 1234]	1637	[2278, 2279]	2565	[2941, 762]	3493	[3639, 3640]
710	[1235, 1236]	1638	[2280, 2143]	2566	[1537, 1570]	3494	[3641, 359]
711	[1237, 1238]	1639	[2281, 2174]	2567	[1498, 754]	3495	[3642, 1989]
712	[1239, 1240]	1640	[2282, 2283]	2568	[58, 767]	3496	[643, 3643]
713	[1241, 1242]	1641	[2284, 2285]	2569	[205, 1593]	3497	[597, 1569]
714	[1243, 1244]	1642	[2286, 1019]	2570	[575, 197]	3498	[2958, 2738]
715	[1245, 1246]	1643	[2287, 341]	2571	[639, 791]	3499	[2932, 574]
716	[1247, 1113]	1644	[2083, 2288]	2572	[1882, 2786]	3500	[172, 2796]
717	[1196, 15]	1645	[2289, 301]	2573	[2663, 618]	3501	[1485, 3644]
718	[1194, 1248]	1646	[2290, 920]	2574	[1410, 2773]	3502	[2809, 1866]
719	[1249, 1250]	1647	[1168, 1927]	2575	[2789, 1682]	3503	[3645, 1432]
720	[1251, 1252]	1648	[2291, 400]	2576	[2723, 688]	3504	[1903, 1385]
721	[1253, 1254]	1649	[2292, 310]	2577	[1778, 2829]	3505	[477, 2924]
722	[1255, 891]	1650	[2293, 1293]	2578	[2661, 2942]	3506	[3646, 2907]
723	[1256, 1257]	1651	[2294, 855]	2579	[485, 1878]	3507	[2812, 1414]
724	[1258, 1259]	1652	[2295, 2296]	2580	[1595, 2943]	3508	[2713, 1537]
725	[1260, 1261]	1653	[2297, 1308]	2581	[2944, 1603]	3509	[3647, 1877]
726	[1262, 992]	1654	[2298, 1363]	2582	[524, 141]	3510	[605, 1746]
727	[320, 1179]	1655	[2299, 2300]	2583	[211, 2945]	3511	[3648, 1850]
728	[1263, 974]	1656	[2301, 2302]	2584	[2693, 1863]	3512	[43, 1498]
729	[1264, 1265]	1657	[2303, 2304]	2585	[1510, 2946]	3513	[3407, 3377]

730	[77, 817]	1658	[1190, 2305]	2586	[1627, 240]	3514	[1847, 172]
731	[1266, 1267]	1659	[2306, 111]	2587	[2741, 57]	3515	[1482, 622]
732	[1268, 877]	1660	[2307, 2308]	2588	[1624, 2947]	3516	[3649, 656]
733	[1269, 1270]	1661	[2309, 2310]	2589	[61, 705]	3517	[753, 506]
734	[1271, 1272]	1662	[2311, 869]	2590	[2922, 2948]	3518	[1383, 1421]
735	[1273, 1274]	1663	[2312, 935]	2591	[2949, 2757]	3519	[3650, 1696]
736	[896, 1267]	1664	[2313, 280]	2592	[703, 481]	3520	[3392, 1706]
737	[1275, 857]	1665	[2273, 2314]	2593	[229, 706]	3521	[3651, 2708]
738	[1276, 243]	1666	[2315, 2316]	2594	[2863, 603]	3522	[1841, 2641]
739	[1277, 1278]	1667	[2317, 2318]	2595	[14, 469]	3523	[1796, 2838]
740	[1279, 1280]	1668	[2319, 2320]	2596	[33, 1777]	3524	[3652, 1615]
741	[1281, 1282]	1669	[2321, 2212]	2597	[2771, 785]	3525	[2640, 1756]
742	[1283, 1284]	1670	[2322, 2323]	2598	[2950, 1651]	3526	[233, 549]
743	[1285, 1286]	1671	[2324, 1067]	2599	[2951, 2825]	3527	[1563, 1801]
744	[1287, 1288]	1672	[2325, 1297]	2600	[220, 2870]	3528	[1445, 157]
745	[1289, 1290]	1673	[878, 2326]	2601	[2899, 1841]	3529	[1388, 474]
746	[1291, 1292]	1674	[2327, 2328]	2602	[2935, 1523]	3530	[1473, 1424]
747	[1293, 1127]	1675	[2329, 1192]	2603	[156, 2866]	3531	[2670, 1532]
748	[1294, 1295]	1676	[93, 2330]	2604	[2952, 1871]	3532	[742, 3421]
749	[1296, 1297]	1677	[2331, 1251]	2605	[7, 1762]	3533	[2881, 793]
750	[1298, 1299]	1678	[2332, 418]	2606	[1709, 2953]	3534	[1590, 130]
751	[1300, 263]	1679	[277, 2333]	2607	[2669, 1603]	3535	[3409, 3433]
752	[1301, 1302]	1680	[2334, 1017]	2608	[2954, 2847]	3536	[771, 1384]
753	[1303, 1304]	1681	[2335, 2336]	2609	[2955, 1716]	3537	[152, 467]
754	[310, 951]	1682	[2337, 1241]	2610	[516, 176]	3538	[2652, 2746]
755	[1098, 1305]	1683	[2057, 2338]	2611	[2956, 2690]	3539	[39, 3402]
756	[293, 1141]	1684	[2339, 2340]	2612	[1884, 13]	3540	[3653, 1469]
757	[1306, 356]	1685	[1361, 2341]	2613	[2791, 1576]	3541	[8, 1763]
758	[1307, 1308]	1686	[2342, 1054]	2614	[1625, 2766]	3542	[1594, 516]
759	[1309, 1310]	1687	[123, 1173]	2615	[35, 1490]	3543	[1469, 1909]
760	[1311, 3]	1688	[839, 1130]	2616	[1879, 2957]	3544	[1843, 703]
761	[1312, 318]	1689	[2343, 837]	2617	[2958, 749]	3545	[474, 1702]
762	[1313, 1240]	1690	[245, 2344]	2618	[177, 1479]	3546	[504, 3654]
763	[1314, 1315]	1691	[443, 2260]	2619	[1427, 2959]	3547	[2661, 2847]
764	[1316, 95]	1692	[2345, 94]	2620	[164, 189]	3548	[2927, 2731]
765	[1317, 1318]	1693	[2346, 908]	2621	[1532, 217]	3549	[1780, 1536]
766	[1319, 1320]	1694	[1257, 2275]	2622	[2960, 1370]	3550	[1825, 2755]
767	[1321, 69]	1695	[2220, 2347]	2623	[2961, 2962]	3551	[1639, 1517]
768	[117, 1322]	1696	[2348, 2349]	2624	[2963, 2266]	3552	[3655, 1802]
769	[1290, 1323]	1697	[2350, 2351]	2625	[2964, 428]	3553	[736, 1713]
770	[1324, 1322]	1698	[2352, 2353]	2626	[1173, 2965]	3554	[1725, 1571]
771	[976, 848]	1699	[2354, 1368]	2627	[2966, 2967]	3555	[167, 1427]
772	[1325, 1326]	1700	[2355, 1205]	2628	[2968, 994]	3556	[2726, 1728]
773	[437, 1327]	1701	[2356, 378]	2629	[2969, 986]	3557	[571, 1609]

774	[1206, 1328]	1702	[1938, 2357]	2630	[2970, 1923]	3558	[771, 484]
775	[1329, 1317]	1703	[2358, 2359]	2631	[2971, 1964]	3559	[60, 124]
776	[1330, 1331]	1704	[335, 2003]	2632	[2972, 2378]	3560	[143, 3656]
777	[1332, 1333]	1705	[2022, 2360]	2633	[2973, 2402]	3561	[469, 3657]
778	[1334, 328]	1706	[2361, 958]	2634	[2974, 990]	3562	[3398, 1789]
779	[1335, 1336]	1707	[2362, 1109]	2635	[2975, 1180]	3563	[2859, 1861]
780	[28, 1337]	1708	[2363, 2364]	2636	[2296, 2976]	3564	[571, 712]
781	[913, 454]	1709	[1118, 2365]	2637	[460, 2977]	3565	[3658, 2749]
782	[1338, 1339]	1710	[2366, 2367]	2638	[2978, 426]	3566	[1878, 773]
783	[1340, 1341]	1711	[2368, 2369]	2639	[2979, 883]	3567	[1570, 1676]
784	[1342, 428]	1712	[2370, 443]	2640	[2128, 98]	3568	[3451, 2769]
785	[1343, 105]	1713	[2371, 1371]	2641	[2980, 2169]	3569	[2851, 2757]
786	[1261, 882]	1714	[2372, 2288]	2642	[2981, 277]	3570	[480, 1709]
787	[1344, 1030]	1715	[873, 2373]	2643	[2982, 1328]	3571	[3443, 1467]
788	[1005, 248]	1716	[2374, 1207]	2644	[2983, 2984]	3572	[1561, 235]
789	[1345, 1346]	1717	[1153, 1294]	2645	[2985, 2138]	3573	[2856, 1538]
790	[1347, 1204]	1718	[2375, 1222]	2646	[2986, 2987]	3574	[1723, 1411]
791	[1348, 257]	1719	[2376, 2377]	2647	[2988, 1175]	3575	[2798, 3395]
792	[1349, 814]	1720	[2378, 2379]	2648	[2989, 2990]	3576	[785, 1381]
793	[1350, 904]	1721	[2380, 246]	2649	[2991, 2992]	3577	[1616, 3659]
794	[1351, 1352]	1722	[2381, 2110]	2650	[2993, 1365]	3578	[1667, 2887]
795	[1353, 954]	1723	[2382, 2383]	2651	[2994, 1004]	3579	[3437, 2907]
796	[1354, 1355]	1724	[2384, 2385]	2652	[2423, 2995]	3580	[2646, 1632]
797	[1356, 1357]	1725	[2386, 878]	2653	[2996, 1105]	3581	[2824, 1841]
798	[1358, 1359]	1726	[2387, 1359]	2654	[2997, 2998]	3582	[616, 59]
799	[295, 437]	1727	[2388, 2389]	2655	[2999, 1307]	3583	[1452, 1390]
800	[1360, 1361]	1728	[2390, 1119]	2656	[3000, 822]	3584	[718, 1908]
801	[1362, 1363]	1729	[2391, 2392]	2657	[3001, 3002]	3585	[1660, 1834]
802	[1364, 1365]	1730	[2393, 963]	2658	[3003, 819]	3586	[742, 3466]
803	[1366, 1337]	1731	[2394, 1042]	2659	[3004, 3005]	3587	[673, 1750]
804	[1367, 1368]	1732	[2395, 864]	2660	[3006, 15]	3588	[3647, 3455]
805	[1369, 1162]	1733	[2396, 2397]	2661	[3007, 3008]	3589	[3660, 197]
806	[1370, 1371]	1734	[1044, 421]	2662	[3009, 3010]	3590	[1631, 2690]
807	[1372, 1234]	1735	[403, 2398]	2663	[3011, 1307]	3591	[1741, 654]
808	[1373, 1374]	1736	[2399, 2400]	2664	[3012, 1171]	3592	[170, 1628]
809	[1375, 1309]	1737	[2401, 2402]	2665	[3013, 1097]	3593	[3468, 1411]
810	[1376, 1377]	1738	[2403, 2016]	2666	[3014, 3015]	3594	[1677, 757]
811	[1378, 1379]	1739	[2404, 401]	2667	[435, 2429]	3595	[2786, 1701]
812	[1380, 1381]	1740	[2405, 92]	2668	[3016, 3017]	3596	[1689, 1412]
813	[8, 563]	1741	[2406, 2407]	2669	[3018, 2975]	3597	[3419, 1623]
814	[1382, 802]	1742	[2408, 404]	2670	[3019, 390]	3598	[3661, 2663]
815	[1383, 1384]	1743	[2409, 2410]	2671	[1310, 907]	3599	[3662, 60]
816	[725, 785]	1744	[2411, 2412]	2672	[3020, 1259]	3600	[765, 1392]
817	[151, 799]	1745	[2413, 1067]	2673	[2174, 2250]	3601	[1612, 2677]

818	[534, 642]	1746	[2414, 255]	2674	[3021, 3022]	3602	[2691, 37]
819	[1385, 1386]	1747	[2415, 2416]	2675	[3023, 382]	3603	[1754, 478]
820	[621, 1387]	1748	[2417, 2104]	2676	[2990, 1069]	3604	[2709, 3433]
821	[1388, 582]	1749	[2418, 93]	2677	[3024, 2094]	3605	[1550, 1480]
822	[59, 768]	1750	[2419, 1076]	2678	[3025, 1215]	3606	[2951, 2780]
823	[1389, 1390]	1751	[887, 2029]	2679	[3026, 2124]	3607	[651, 155]
824	[1391, 1392]	1752	[2420, 2421]	2680	[3027, 1214]	3608	[596, 2707]
825	[758, 184]	1753	[2422, 2423]	2681	[3028, 2065]	3609	[2931, 699]
826	[663, 1393]	1754	[2424, 2328]	2682	[3029, 3030]	3610	[3375, 1444]
827	[1394, 1395]	1755	[271, 1326]	2683	[2476, 3031]	3611	[3478, 152]
828	[1396, 1397]	1756	[2425, 2426]	2684	[3032, 2178]	3612	[1480, 553]
829	[1398, 1399]	1757	[2427, 2071]	2685	[3033, 99]	3613	[1551, 543]
830	[38, 729]	1758	[2428, 2429]	2686	[3034, 1287]	3614	[798, 1893]
831	[1400, 681]	1759	[2430, 419]	2687	[3035, 968]	3615	[3663, 3453]
832	[1401, 1402]	1760	[2431, 2432]	2688	[3036, 2209]	3616	[197, 587]
833	[1377, 1403]	1761	[2433, 2434]	2689	[1113, 3037]	3617	[3443, 1596]
834	[569, 234]	1762	[2435, 2436]	2690	[3038, 2530]	3618	[3428, 128]
835	[1404, 1405]	1763	[2437, 2116]	2691	[3039, 3040]	3619	[3417, 216]
836	[769, 1406]	1764	[2438, 856]	2692	[3041, 3037]	3620	[3664, 787]
837	[525, 192]	1765	[2439, 2440]	2693	[3042, 358]	3621	[3384, 1589]
838	[1407, 1408]	1766	[2441, 2308]	2694	[3043, 1074]	3622	[3665, 2936]
839	[1409, 513]	1767	[2442, 1246]	2695	[3044, 2434]	3623	[2801, 666]
840	[1410, 1411]	1768	[2443, 2444]	2696	[3045, 3046]	3624	[2777, 766]
841	[548, 1412]	1769	[2445, 2446]	2697	[3047, 100]	3625	[1455, 737]
842	[1413, 1414]	1770	[2447, 2279]	2698	[105, 3048]	3626	[3666, 1865]
843	[1415, 1416]	1771	[2448, 1159]	2699	[3049, 3050]	3627	[2682, 1434]
844	[1417, 1418]	1772	[1179, 2397]	2700	[3051, 3052]	3628	[705, 1689]
845	[513, 1419]	1773	[1773, 1773]	2701	[3053, 273]	3629	[1433, 2701]
846	[598, 519]	1774	[2449, 2450]	2702	[3054, 3055]	3630	[3417, 2752]
847	[557, 1406]	1775	[2451, 824]	2703	[3056, 841]	3631	[3667, 2935]
848	[1420, 1421]	1776	[2257, 2452]	2704	[441, 2135]	3632	[664, 3668]
849	[774, 1422]	1777	[2453, 119]	2705	[3057, 3058]	3633	[1585, 1867]
850	[585, 1423]	1778	[2454, 2455]	2706	[3059, 1160]	3634	[2906, 695]
851	[1424, 780]	1779	[2456, 2457]	2707	[3060, 2257]	3635	[2717, 1639]
852	[1425, 1426]	1780	[109, 2458]	2708	[3061, 1229]	3636	[3669, 722]
853	[716, 1427]	1781	[2459, 2460]	2709	[3062, 3063]	3637	[2856, 2692]
854	[1428, 157]	1782	[1374, 355]	2710	[3064, 2052]	3638	[766, 597]
855	[1429, 1430]	1783	[2461, 2462]	2711	[3065, 1773]	3639	[3647, 52]
856	[1431, 1432]	1784	[2463, 2464]	2712	[3066, 3067]	3640	[3670, 1861]
857	[167, 717]	1785	[2465, 1951]	2713	[3068, 409]	3641	[2743, 237]
858	[1433, 1434]	1786	[2466, 2464]	2714	[3069, 1073]	3642	[1600, 1887]
859	[1435, 1436]	1787	[1929, 821]	2715	[3070, 394]	3643	[3671, 30]
860	[235, 143]	1788	[2467, 2468]	2716	[3071, 2097]	3644	[3672, 64]
861	[1437, 1438]	1789	[2469, 1292]	2717	[3072, 3073]	3645	[3673, 2246]

862	[600, 678]	1790	[2470, 2261]	2718	[3074, 3075]	3646	[3674, 3675]
863	[1439, 1440]	1791	[1921, 2471]	2719	[3076, 2545]	3647	[3257, 342]
864	[1441, 806]	1792	[2102, 2181]	2720	[3077, 1930]	3648	[3516, 3676]
865	[740, 204]	1793	[2472, 2473]	2721	[2434, 3078]	3649	[3677, 3678]
866	[1442, 1443]	1794	[2367, 2110]	2722	[3079, 1938]	3650	[3679, 3680]
867	[1444, 552]	1795	[2474, 2235]	2723	[829, 2154]	3651	[3681, 3682]
868	[1445, 1446]	1796	[2475, 2476]	2724	[3080, 2079]	3652	[3683, 1085]
869	[1447, 126]	1797	[995, 2460]	2725	[3081, 3082]	3653	[2126, 899]
870	[1448, 1449]	1798	[2182, 1274]	2726	[3083, 3084]	3654	[3684, 408]
871	[695, 592]	1799	[849, 2477]	2727	[3085, 953]	3655	[1188, 2481]
872	[1450, 1451]	1800	[2054, 2478]	2728	[2016, 1125]	3656	[3685, 1168]
873	[1452, 1453]	1801	[2479, 435]	2729	[3086, 2548]	3657	[3686, 1288]
874	[582, 1454]	1802	[2480, 2231]	2730	[3087, 1120]	3658	[3687, 3599]
875	[1455, 1419]	1803	[2481, 1953]	2731	[3088, 1147]	3659	[3688, 2118]
876	[782, 1456]	1804	[2482, 426]	2732	[3089, 1132]	3660	[3689, 3690]
877	[1457, 1458]	1805	[2483, 2484]	2733	[3090, 2388]	3661	[3691, 3692]
878	[1459, 493]	1806	[2485, 2486]	2734	[3091, 915]	3662	[3693, 122]
879	[185, 1460]	1807	[2487, 1209]	2735	[2450, 3092]	3663	[3694, 3695]
880	[1461, 1462]	1808	[2094, 2488]	2736	[3093, 3094]	3664	[3696, 383]
881	[1463, 1464]	1809	[2489, 1331]	2737	[1101, 3095]	3665	[3697, 3039]
882	[521, 1465]	1810	[2490, 1068]	2738	[3096, 2233]	3666	[1368, 329]
883	[1466, 1467]	1811	[2491, 113]	2739	[1267, 3097]	3667	[3698, 3699]
884	[1468, 1412]	1812	[2492, 2493]	2740	[3098, 350]	3668	[3700, 1059]
885	[1469, 1470]	1813	[2494, 280]	2741	[3099, 2304]	3669	[3701, 3702]
886	[1471, 1472]	1814	[2495, 1015]	2742	[3100, 1058]	3670	[3703, 2123]
887	[1473, 14]	1815	[2496, 2497]	2743	[3101, 3102]	3671	[1814, 1810]
888	[1474, 1475]	1816	[2498, 2499]	2744	[3103, 1038]	3672	[656, 728]
889	[1476, 1477]	1817	[2500, 2501]	2745	[1214, 2253]	3673	[3426, 509]
890	[1478, 1479]	1818	[2502, 2503]	2746	[3104, 1257]	3674	[3407, 1877]
891	[1480, 613]	1819	[2504, 63]	2747	[3105, 3106]	3675	[2763, 2663]
892	[1481, 1482]	1820	[4, 813]	2748	[3107, 2524]	3676	[3391, 538]
893	[1483, 767]	1821	[2505, 2506]	2749	[3108, 3109]	3677	[593, 670]
894	[1484, 683]	1822	[2507, 1990]	2750	[3110, 3111]	3678	[2867, 681]
895	[38, 1485]	1823	[2508, 2457]	2751	[1128, 3112]	3679	[2696, 2715]
896	[1486, 565]	1824	[2509, 2398]	2752	[3113, 1155]	3680	[3704, 1449]
897	[1487, 11]	1825	[2510, 2511]	2753	[3114, 900]	3681	[2860, 1596]
898	[1488, 1489]	1826	[2512, 449]	2754	[3115, 3116]	3682	[2929, 1894]
899	[531, 661]	1827	[2513, 345]	2755	[3117, 2473]	3683	[2759, 511]
900	[1490, 144]	1828	[2514, 1075]	2756	[3118, 3119]	3684	[583, 647]
901	[1491, 1492]	1829	[2515, 1318]	2757	[3120, 2087]	3685	[36, 735]
902	[1493, 1494]	1830	[985, 2516]	2758	[3121, 3122]	3686	[199, 1548]
903	[1495, 1496]	1831	[2517, 2518]	2759	[3123, 282]	3687	[1818, 2706]
904	[1497, 1498]	1832	[2519, 2040]	2760	[1953, 1944]	3688	[1409, 1455]
905	[658, 1499]	1833	[2520, 2521]	2761	[3124, 2119]	3689	[3649, 1472]

906	[1500, 682]	1834	[2522, 988]	2762	[3125, 3126]	3690	[3405, 151]
907	[1501, 226]	1835	[2523, 2524]	2763	[1992, 3127]	3691	[2659, 199]
908	[1502, 1503]	1836	[2525, 948]	2764	[3128, 3129]	3692	[2940, 189]
909	[1504, 1505]	1837	[2526, 2527]	2765	[3130, 827]	3693	[3435, 240]
910	[676, 228]	1838	[1229, 2528]	2766	[3131, 379]	3694	[1796, 546]
911	[1422, 771]	1839	[2529, 2530]	2767	[3132, 3133]	3695	[3705, 37]
912	[1506, 796]	1840	[2531, 405]	2768	[2962, 3134]	3696	[2742, 698]
913	[1507, 1508]	1841	[2532, 2533]	2769	[3135, 862]	3697	[45, 1840]
914	[496, 805]	1842	[958, 2534]	2770	[3136, 2547]	3698	[2905, 1408]
915	[1509, 495]	1843	[2535, 2536]	2771	[3137, 3138]	3699	[3435, 714]
916	[1510, 1434]	1844	[2537, 2095]	2772	[3139, 3140]	3700	[475, 2713]
917	[633, 1511]	1845	[2538, 2539]	2773	[3141, 1095]	3701	[615, 1759]
918	[1512, 681]	1846	[2540, 87]	2774	[3142, 2164]	3702	[2899, 1584]
919	[560, 1513]	1847	[1983, 336]	2775	[3143, 884]	3703	[3662, 1807]
920	[230, 1514]	1848	[2541, 2542]	2776	[3144, 2215]	3704	[3706, 2556]
921	[1515, 1475]	1849	[2543, 246]	2777	[3145, 3146]	3705	[3707, 3708]
922	[1389, 1516]	1850	[2544, 2545]	2778	[3147, 1072]	3706	[3426, 731]
923	[1517, 1518]	1851	[2546, 2547]	2779	[3148, 3149]	3707	[162, 36]
924	[1519, 1520]	1852	[2548, 407]	2780	[3150, 462]	3708	[1483, 577]
925	[1521, 1522]	1853	[2549, 312]	2781	[3151, 3152]		
926	[1523, 700]	1854	[1917, 2506]	2782	[3153, 3090]		
927	[1524, 1525]	1855	[2550, 1258]	2783	[3154, 3155]		

Output function $n \mapsto \tau(n)$:

n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$	n	$\tau(n)$
0	0	619	0	1238	0	1857	1	2476	1	3095	1
1	0	620	1	1239	1	1858	0	2477	0	3096	0
2	0	621	1	1240	1	1859	0	2478	0	3097	1
3	0	622	1	1241	0	1860	1	2479	0	3098	0
4	0	623	1	1242	1	1861	1	2480	0	3099	0
5	0	624	0	1243	1	1862	1	2481	1	3100	0
6	0	625	0	1244	0	1863	1	2482	0	3101	1
7	0	626	0	1245	0	1864	1	2483	1	3102	1
8	0	627	1	1246	1	1865	0	2484	1	3103	1
9	0	628	1	1247	0	1866	1	2485	1	3104	1
10	0	629	1	1248	1	1867	0	2486	0	3105	1
11	0	630	1	1249	1	1868	1	2487	0	3106	1
12	1	631	1	1250	1	1869	0	2488	0	3107	1
13	0	632	0	1251	1	1870	0	2489	1	3108	1
14	0	633	1	1252	0	1871	1	2490	1	3109	0
15	0	634	0	1253	1	1872	0	2491	0	3110	1
16	1	635	1	1254	0	1873	1	2492	1	3111	1
17	0	636	1	1255	0	1874	0	2493	0	3112	0
18	1	637	1	1256	0	1875	0	2494	1	3113	0

19	0	638	0	1257	0	1876	0	2495	1	3114	0
20	1	639	0	1258	1	1877	0	2496	1	3115	0
21	0	640	1	1259	1	1878	0	2497	1	3116	1
22	0	641	0	1260	0	1879	0	2498	1	3117	0
23	0	642	0	1261	0	1880	0	2499	1	3118	1
24	0	643	1	1262	0	1881	1	2500	1	3119	1
25	1	644	1	1263	1	1882	1	2501	0	3120	0
26	0	645	0	1264	0	1883	1	2502	0	3121	1
27	0	646	1	1265	1	1884	0	2503	0	3122	1
28	1	647	1	1266	1	1885	1	2504	1	3123	0
29	0	648	0	1267	0	1886	0	2505	1	3124	1
30	0	649	0	1268	0	1887	1	2506	1	3125	1
31	0	650	0	1269	1	1888	0	2507	0	3126	1
32	1	651	0	1270	0	1889	0	2508	1	3127	0
33	1	652	1	1271	0	1890	0	2509	0	3128	1
34	0	653	1	1272	0	1891	0	2510	1	3129	0
35	0	654	1	1273	0	1892	1	2511	1	3130	0
36	1	655	0	1274	0	1893	0	2512	1	3131	1
37	1	656	1	1275	1	1894	1	2513	1	3132	1
38	0	657	1	1276	1	1895	0	2514	0	3133	1
39	0	658	0	1277	1	1896	1	2515	1	3134	1
40	0	659	0	1278	1	1897	1	2516	0	3135	1
41	1	660	1	1279	1	1898	1	2517	1	3136	1
42	1	661	1	1280	1	1899	1	2518	1	3137	1
43	0	662	0	1281	0	1900	1	2519	0	3138	0
44	1	663	1	1282	0	1901	0	2520	0	3139	1
45	0	664	0	1283	0	1902	1	2521	0	3140	1
46	1	665	0	1284	1	1903	0	2522	1	3141	1
47	0	666	1	1285	0	1904	0	2523	0	3142	0
48	1	667	1	1286	1	1905	1	2524	1	3143	0
49	0	668	1	1287	1	1906	0	2525	0	3144	1
50	1	669	0	1288	0	1907	0	2526	1	3145	1
51	1	670	0	1289	1	1908	0	2527	0	3146	1
52	1	671	0	1290	0	1909	0	2528	1	3147	0
53	0	672	1	1291	0	1910	1	2529	0	3148	0
54	0	673	1	1292	0	1911	0	2530	1	3149	0
55	1	674	1	1293	1	1912	1	2531	0	3150	1
56	1	675	0	1294	0	1913	1	2532	1	3151	1
57	0	676	1	1295	0	1914	0	2533	0	3152	1
58	0	677	0	1296	1	1915	0	2534	0	3153	0
59	1	678	0	1297	1	1916	0	2535	1	3154	1
60	0	679	0	1298	1	1917	0	2536	0	3155	0
61	0	680	1	1299	0	1918	0	2537	0	3156	1
62	0	681	0	1300	1	1919	0	2538	1	3157	1

63	0	682	0	1301	1	1920	0	2539	0	3158	0
64	1	683	0	1302	1	1921	0	2540	1	3159	1
65	1	684	0	1303	1	1922	0	2541	1	3160	1
66	1	685	1	1304	1	1923	0	2542	1	3161	0
67	0	686	0	1305	0	1924	1	2543	1	3162	0
68	0	687	1	1306	0	1925	1	2544	1	3163	1
69	1	688	0	1307	0	1926	0	2545	0	3164	0
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72	1	691	1	1310	1	1929	0	2548	0	3167	1
73	1	692	0	1311	1	1930	1	2549	0	3168	1
74	1	693	0	1312	0	1931	1	2550	0	3169	1
75	0	694	1	1313	0	1932	1	2551	1	3170	1
76	0	695	0	1314	1	1933	1	2552	1	3171	1
77	1	696	0	1315	0	1934	0	2553	0	3172	0
78	0	697	1	1316	1	1935	1	2554	1	3173	1
79	1	698	1	1317	0	1936	1	2555	0	3174	1
80	0	699	0	1318	1	1937	0	2556	1	3175	1
81	1	700	0	1319	1	1938	0	2557	1	3176	0
82	1	701	1	1320	0	1939	0	2558	1	3177	1
83	0	702	1	1321	1	1940	0	2559	1	3178	0
84	1	703	1	1322	1	1941	0	2560	0	3179	1
85	0	704	0	1323	1	1942	1	2561	1	3180	0
86	0	705	1	1324	1	1943	1	2562	0	3181	1
87	0	706	0	1325	1	1944	1	2563	0	3182	1
88	1	707	0	1326	1	1945	0	2564	0	3183	0
89	1	708	0	1327	1	1946	1	2565	0	3184	0
90	0	709	1	1328	0	1947	0	2566	1	3185	1
91	1	710	1	1329	0	1948	0	2567	1	3186	1
92	1	711	1	1330	0	1949	1	2568	0	3187	1
93	0	712	1	1331	0	1950	0	2569	1	3188	0
94	0	713	0	1332	1	1951	0	2570	0	3189	1
95	0	714	1	1333	1	1952	0	2571	0	3190	1
96	1	715	0	1334	1	1953	0	2572	1	3191	0
97	1	716	0	1335	0	1954	1	2573	0	3192	1
98	0	717	0	1336	1	1955	1	2574	0	3193	1
99	1	718	1	1337	1	1956	0	2575	1	3194	0
100	1	719	1	1338	1	1957	0	2576	0	3195	0
101	0	720	1	1339	1	1958	0	2577	0	3196	0
102	1	721	1	1340	0	1959	1	2578	0	3197	1
103	0	722	0	1341	0	1960	1	2579	0	3198	1
104	1	723	0	1342	1	1961	1	2580	0	3199	0
105	1	724	1	1343	0	1962	0	2581	1	3200	1
106	0	725	0	1344	0	1963	1	2582	0	3201	0

107	1	726	0	1345	1	1964	1	2583	1	3202	1
108	0	727	1	1346	1	1965	0	2584	0	3203	0
109	1	728	1	1347	0	1966	0	2585	1	3204	1
110	1	729	0	1348	1	1967	0	2586	1	3205	0
111	0	730	1	1349	0	1968	1	2587	0	3206	1
112	1	731	1	1350	1	1969	0	2588	0	3207	1
113	1	732	0	1351	1	1970	1	2589	0	3208	0
114	0	733	1	1352	0	1971	1	2590	0	3209	0
115	1	734	0	1353	0	1972	0	2591	0	3210	0
116	0	735	0	1354	1	1973	0	2592	1	3211	0
117	0	736	0	1355	1	1974	1	2593	0	3212	1
118	1	737	1	1356	1	1975	1	2594	1	3213	0
119	0	738	1	1357	1	1976	1	2595	0	3214	1
120	0	739	1	1358	0	1977	0	2596	1	3215	1
121	1	740	1	1359	1	1978	1	2597	1	3216	0
122	0	741	0	1360	0	1979	0	2598	0	3217	0
123	0	742	0	1361	1	1980	0	2599	1	3218	1
124	0	743	0	1362	1	1981	0	2600	1	3219	0
125	0	744	1	1363	0	1982	0	2601	1	3220	1
126	0	745	1	1364	0	1983	0	2602	0	3221	0
127	0	746	0	1365	0	1984	1	2603	1	3222	1
128	1	747	1	1366	0	1985	1	2604	1	3223	0
129	1	748	0	1367	0	1986	1	2605	0	3224	0
130	1	749	1	1368	0	1987	1	2606	1	3225	0
131	0	750	1	1369	1	1988	0	2607	0	3226	1
132	1	751	1	1370	1	1989	1	2608	1	3227	1
133	0	752	1	1371	0	1990	1	2609	1	3228	0
134	0	753	1	1372	0	1991	0	2610	0	3229	1
135	0	754	1	1373	0	1992	1	2611	0	3230	0
136	1	755	0	1374	1	1993	0	2612	0	3231	0
137	1	756	0	1375	0	1994	0	2613	0	3232	0
138	0	757	0	1376	0	1995	0	2614	1	3233	0
139	1	758	0	1377	0	1996	1	2615	0	3234	0
140	0	759	0	1378	0	1997	1	2616	0	3235	0
141	0	760	1	1379	0	1998	0	2617	1	3236	1
142	1	761	0	1380	1	1999	1	2618	0	3237	0
143	0	762	0	1381	0	2000	1	2619	1	3238	1
144	1	763	1	1382	0	2001	0	2620	0	3239	1
145	1	764	1	1383	1	2002	0	2621	0	3240	0
146	1	765	0	1384	1	2003	1	2622	0	3241	0
147	1	766	1	1385	1	2004	1	2623	0	3242	1
148	0	767	1	1386	0	2005	1	2624	0	3243	0
149	1	768	0	1387	1	2006	0	2625	0	3244	1
150	0	769	0	1388	0	2007	1	2626	0	3245	1

151	0	770	1	1389	0	2008	0	2627	0	3246	0
152	1	771	0	1390	0	2009	1	2628	0	3247	1
153	0	772	1	1391	1	2010	0	2629	0	3248	1
154	0	773	0	1392	0	2011	1	2630	1	3249	1
155	0	774	1	1393	1	2012	1	2631	0	3250	1
156	1	775	0	1394	0	2013	1	2632	0	3251	1
157	0	776	0	1395	0	2014	0	2633	1	3252	1
158	0	777	1	1396	0	2015	1	2634	0	3253	0
159	1	778	1	1397	0	2016	0	2635	1	3254	1
160	1	779	0	1398	0	2017	0	2636	1	3255	1
161	1	780	1	1399	0	2018	0	2637	0	3256	0
162	1	781	0	1400	1	2019	0	2638	1	3257	0
163	1	782	1	1401	0	2020	0	2639	0	3258	0
164	0	783	0	1402	1	2021	0	2640	0	3259	0
165	0	784	1	1403	1	2022	1	2641	1	3260	0
166	1	785	0	1404	1	2023	0	2642	1	3261	1
167	1	786	0	1405	1	2024	0	2643	0	3262	0
168	0	787	0	1406	1	2025	1	2644	0	3263	0
169	0	788	0	1407	0	2026	0	2645	0	3264	1
170	0	789	1	1408	0	2027	0	2646	0	3265	1
171	0	790	0	1409	0	2028	1	2647	0	3266	0
172	0	791	1	1410	0	2029	1	2648	0	3267	0
173	1	792	0	1411	1	2030	1	2649	1	3268	1
174	1	793	1	1412	0	2031	1	2650	1	3269	0
175	1	794	1	1413	1	2032	0	2651	0	3270	1
176	0	795	0	1414	0	2033	0	2652	1	3271	1
177	0	796	1	1415	0	2034	0	2653	0	3272	1
178	0	797	1	1416	1	2035	0	2654	1	3273	0
179	1	798	0	1417	1	2036	1	2655	1	3274	0
180	1	799	1	1418	1	2037	1	2656	1	3275	1
181	1	800	0	1419	1	2038	1	2657	1	3276	0
182	0	801	1	1420	0	2039	1	2658	0	3277	1
183	0	802	0	1421	0	2040	1	2659	1	3278	0
184	1	803	0	1422	0	2041	1	2660	1	3279	0
185	0	804	0	1423	0	2042	0	2661	0	3280	0
186	0	805	1	1424	0	2043	1	2662	1	3281	0
187	0	806	1	1425	0	2044	1	2663	0	3282	1
188	1	807	0	1426	1	2045	1	2664	0	3283	1
189	1	808	0	1427	1	2046	1	2665	0	3284	0
190	1	809	0	1428	0	2047	0	2666	1	3285	1
191	1	810	0	1429	0	2048	0	2667	1	3286	0
192	0	811	0	1430	1	2049	1	2668	1	3287	0
193	0	812	1	1431	0	2050	1	2669	0	3288	0
194	0	813	0	1432	0	2051	0	2670	1	3289	1

195	1	814	0	1433	0	2052	0	2671	1	3290	0
196	1	815	1	1434	1	2053	0	2672	0	3291	0
197	1	816	0	1435	0	2054	1	2673	1	3292	1
198	1	817	0	1436	1	2055	1	2674	1	3293	1
199	0	818	1	1437	0	2056	0	2675	0	3294	1
200	1	819	1	1438	0	2057	1	2676	0	3295	1
201	1	820	1	1439	1	2058	1	2677	1	3296	0
202	0	821	0	1440	0	2059	0	2678	1	3297	1
203	0	822	1	1441	1	2060	1	2679	0	3298	1
204	1	823	0	1442	1	2061	1	2680	1	3299	1
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206	0	825	0	1444	1	2063	1	2682	1	3301	1
207	1	826	1	1445	1	2064	0	2683	1	3302	0
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210	1	829	0	1448	0	2067	0	2686	0	3305	0
211	1	830	0	1449	0	2068	1	2687	1	3306	0
212	0	831	1	1450	0	2069	0	2688	1	3307	0
213	0	832	0	1451	0	2070	0	2689	1	3308	0
214	0	833	0	1452	1	2071	0	2690	1	3309	1
215	1	834	0	1453	0	2072	0	2691	1	3310	0
216	0	835	1	1454	1	2073	0	2692	0	3311	0
217	1	836	0	1455	1	2074	1	2693	0	3312	0
218	1	837	1	1456	1	2075	1	2694	0	3313	0
219	0	838	0	1457	1	2076	1	2695	0	3314	0
220	1	839	0	1458	0	2077	0	2696	1	3315	1
221	1	840	0	1459	0	2078	1	2697	0	3316	1
222	1	841	1	1460	0	2079	0	2698	1	3317	0
223	0	842	1	1461	1	2080	0	2699	1	3318	0
224	1	843	0	1462	1	2081	0	2700	1	3319	0
225	1	844	1	1463	1	2082	0	2701	0	3320	1
226	1	845	1	1464	1	2083	1	2702	0	3321	1
227	0	846	1	1465	1	2084	0	2703	1	3322	1
228	1	847	0	1466	1	2085	1	2704	1	3323	1
229	0	848	0	1467	1	2086	1	2705	1	3324	0
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231	1	850	1	1469	1	2088	1	2707	1	3326	0
232	1	851	0	1470	0	2089	1	2708	1	3327	1
233	0	852	0	1471	0	2090	1	2709	1	3328	0
234	1	853	0	1472	1	2091	0	2710	1	3329	0
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236	1	855	0	1474	0	2093	0	2712	1	3331	1
237	1	856	0	1475	1	2094	0	2713	1	3332	0
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239	0	858	0	1477	1	2096	1	2715	0	3334	1
240	0	859	0	1478	1	2097	0	2716	0	3335	0
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242	0	861	0	1480	1	2099	1	2718	1	3337	0
243	1	862	1	1481	1	2100	0	2719	0	3338	0
244	0	863	1	1482	0	2101	0	2720	0	3339	0
245	1	864	1	1483	1	2102	0	2721	1	3340	0
246	0	865	1	1484	1	2103	0	2722	1	3341	0
247	1	866	1	1485	0	2104	0	2723	0	3342	1
248	0	867	1	1486	0	2105	0	2724	0	3343	0
249	0	868	1	1487	0	2106	1	2725	1	3344	1
250	1	869	0	1488	1	2107	0	2726	0	3345	1
251	0	870	0	1489	1	2108	1	2727	1	3346	1
252	1	871	0	1490	0	2109	0	2728	0	3347	0
253	1	872	0	1491	1	2110	1	2729	0	3348	1
254	1	873	1	1492	0	2111	1	2730	0	3349	0
255	0	874	1	1493	0	2112	1	2731	0	3350	0
256	0	875	1	1494	0	2113	1	2732	1	3351	0
257	0	876	1	1495	0	2114	1	2733	0	3352	0
258	1	877	1	1496	1	2115	1	2734	0	3353	1
259	1	878	0	1497	1	2116	0	2735	1	3354	1
260	0	879	0	1498	1	2117	1	2736	1	3355	0
261	1	880	1	1499	1	2118	1	2737	1	3356	1
262	0	881	1	1500	0	2119	0	2738	0	3357	1
263	1	882	1	1501	1	2120	0	2739	0	3358	1
264	0	883	1	1502	1	2121	0	2740	0	3359	0
265	1	884	1	1503	1	2122	1	2741	0	3360	0
266	1	885	1	1504	0	2123	1	2742	0	3361	1
267	0	886	0	1505	1	2124	0	2743	1	3362	0
268	1	887	0	1506	0	2125	0	2744	1	3363	1
269	0	888	0	1507	0	2126	0	2745	0	3364	1
270	0	889	0	1508	0	2127	1	2746	1	3365	0
271	0	890	1	1509	0	2128	0	2747	1	3366	1
272	1	891	1	1510	1	2129	0	2748	1	3367	0
273	0	892	1	1511	1	2130	1	2749	1	3368	0
274	0	893	1	1512	0	2131	1	2750	1	3369	0
275	1	894	1	1513	1	2132	1	2751	1	3370	0
276	0	895	0	1514	0	2133	0	2752	0	3371	1
277	0	896	0	1515	1	2134	0	2753	0	3372	0
278	1	897	0	1516	1	2135	0	2754	0	3373	0
279	1	898	1	1517	1	2136	0	2755	0	3374	1
280	0	899	1	1518	1	2137	1	2756	1	3375	0
281	1	900	0	1519	1	2138	0	2757	0	3376	1
282	1	901	1	1520	0	2139	1	2758	1	3377	0

283	0	902	0	1521	0	2140	0	2759	0	3378	0
284	1	903	0	1522	1	2141	0	2760	0	3379	0
285	1	904	1	1523	1	2142	1	2761	1	3380	1
286	1	905	0	1524	0	2143	1	2762	1	3381	0
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293	0	912	0	1531	0	2150	0	2769	1	3388	0
294	0	913	0	1532	0	2151	1	2770	1	3389	0
295	1	914	1	1533	1	2152	0	2771	1	3390	1
296	0	915	0	1534	1	2153	1	2772	1	3391	1
297	0	916	1	1535	0	2154	0	2773	1	3392	1
298	1	917	1	1536	1	2155	0	2774	0	3393	1
299	0	918	0	1537	1	2156	1	2775	0	3394	0
300	0	919	1	1538	0	2157	0	2776	1	3395	0
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303	0	922	0	1541	1	2160	1	2779	0	3398	1
304	1	923	1	1542	0	2161	1	2780	1	3399	0
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306	0	925	0	1544	1	2163	1	2782	0	3401	1
307	0	926	1	1545	0	2164	1	2783	1	3402	0
308	1	927	0	1546	1	2165	1	2784	1	3403	1
309	1	928	1	1547	1	2166	1	2785	1	3404	0
310	1	929	0	1548	1	2167	0	2786	0	3405	0
311	1	930	1	1549	1	2168	0	2787	1	3406	1
312	1	931	0	1550	1	2169	0	2788	0	3407	1
313	1	932	1	1551	1	2170	1	2789	1	3408	0
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315	1	934	0	1553	0	2172	1	2791	0	3410	0
316	0	935	1	1554	0	2173	1	2792	0	3411	0
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318	0	937	0	1556	1	2175	1	2794	1	3413	1
319	0	938	0	1557	1	2176	0	2795	1	3414	0
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321	0	940	0	1559	1	2178	0	2797	1	3416	0
322	0	941	1	1560	1	2179	1	2798	1	3417	0
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324	0	943	0	1562	0	2181	0	2800	0	3419	0
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326	0	945	1	1564	0	2183	0	2802	0	3421	0

327	0	946	1	1565	1	2184	0	2803	1	3422	1
328	1	947	1	1566	0	2185	1	2804	0	3423	0
329	0	948	1	1567	0	2186	0	2805	1	3424	0
330	0	949	1	1568	1	2187	0	2806	1	3425	1
331	0	950	1	1569	0	2188	0	2807	0	3426	0
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343	1	962	1	1581	1	2200	0	2819	0	3438	0
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574	1	1193	0	1812	1	2431	1	3050	0	3669	1
575	0	1194	1	1813	1	2432	1	3051	1	3670	0
576	1	1195	0	1814	1	2433	1	3052	1	3671	1
577	0	1196	0	1815	1	2434	1	3053	0	3672	1
578	0	1197	1	1816	1	2435	1	3054	0	3673	0
579	1	1198	1	1817	1	2436	1	3055	0	3674	1
580	0	1199	0	1818	0	2437	0	3056	1	3675	1
581	1	1200	0	1819	1	2438	0	3057	1	3676	1
582	1	1201	1	1820	0	2439	1	3058	0	3677	1
583	1	1202	0	1821	1	2440	0	3059	0	3678	1
584	1	1203	1	1822	0	2441	0	3060	1	3679	1
585	1	1204	1	1823	1	2442	1	3061	1	3680	0
586	0	1205	1	1824	0	2443	1	3062	1	3681	1
587	1	1206	1	1825	1	2444	0	3063	1	3682	0
588	1	1207	1	1826	1	2445	1	3064	1	3683	0
589	1	1208	1	1827	1	2446	0	3065	1	3684	1
590	0	1209	0	1828	0	2447	0	3066	1	3685	1

591	0	1210	0	1829	1	2448	1	3067	0	3686	0
592	0	1211	1	1830	0	2449	0	3068	1	3687	0
593	1	1212	0	1831	1	2450	1	3069	0	3688	0
594	0	1213	0	1832	0	2451	1	3070	0	3689	1
595	0	1214	0	1833	0	2452	0	3071	0	3690	0
596	0	1215	0	1834	1	2453	0	3072	1	3691	1
597	0	1216	1	1835	0	2454	0	3073	0	3692	1
598	1	1217	1	1836	0	2455	0	3074	1	3693	0
599	1	1218	1	1837	1	2456	0	3075	1	3694	0
600	1	1219	0	1838	1	2457	1	3076	0	3695	1
601	0	1220	0	1839	0	2458	0	3077	0	3696	0
602	1	1221	0	1840	0	2459	1	3078	1	3697	0
603	0	1222	0	1841	1	2460	0	3079	1	3698	1
604	1	1223	1	1842	1	2461	0	3080	0	3699	0
605	0	1224	1	1843	1	2462	1	3081	1	3700	0
606	1	1225	1	1844	0	2463	0	3082	1	3701	1
607	0	1226	0	1845	1	2464	0	3083	0	3702	1
608	0	1227	1	1846	1	2465	1	3084	0	3703	0
609	0	1228	0	1847	0	2466	1	3085	1	3704	0
610	0	1229	1	1848	1	2467	0	3086	0	3705	1
611	1	1230	0	1849	1	2468	1	3087	0	3706	0
612	1	1231	0	1850	1	2469	1	3088	0	3707	1
613	0	1232	1	1851	0	2470	1	3089	1	3708	1
614	0	1233	1	1852	0	2471	1	3090	0		
615	1	1234	1	1853	0	2472	1	3091	0		
616	0	1235	1	1854	0	2473	1	3092	1		
617	1	1236	1	1855	0	2474	1	3093	1		
618	0	1237	1	1856	1	2475	0	3094	0		

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