PROOF OF THE CONTINUED FRACTION CONJECTURE FOR $(a,b)=(z^6+z^5+z^4+z,z+1)$

GUO-NIU HAN* AND YINING HU*

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 $(a,b)=(z^6+z^5+z^4+z,z+1)$.

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 $(a,b)=(z^6+z^5+z^4+z, z+1)$, 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 $\mathrm{CF}(a,b)$*,*

$p_0(z)=z^{17}+z^{15}+z^{14}+z^9+z^8+z^4+z^3+z+1,$
$p_1(z)=z^{23}+z^{22}+z^{18}+z^{17}+z^{16}+z^{15}+z^{11}+z^8+z^7+z^6+z^5+z^3+z^2+z$
$,$
$p_2(z)=z^{24}+z^{22}+z^{16}+z^{14}+z^6+z^2,$
$p_3(z)=z^{23}+z^{22}+z^{18}+z^{17}+z^{16}+z^{15}+z^{11}+z^8+z^7+z^6+z^5+z^3+z^2+z$
$,$
$p_4(z)=z^{22}+z^{17}+z^{15}+z^{12}+z^9+z^6+z^4+z^3+z^2+z,$

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

$p_0(z)=z^{20}+z^{17}+z^{15}+z^{14}+z^{12}+z^9+z^3+z,$
$p_1(z)=z^{23}+z^{22}+z^{18}+z^{17}+z^{16}+z^{15}+z^{11}+z^8+z^7+z^6+z^5+z^3+z^2+z$
$,$
$p_2(z)=z^{24}+z^{22}+z^{16}+z^{14}+z^6+z^2,$
$p_3(z)=z^{23}+z^{22}+z^{18}+z^{17}+z^{16}+z^{15}+z^{11}+z^8+z^7+z^6+z^5+z^3+z^2+z$
$,$
$p_4(z)=z^{22}+z^{20}+z^{17}+z^{15}+z^9+z^8+z^6+z^3+z^2+z+1.$

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.*

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

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

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

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

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

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 $u = 2^{2k}$,

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

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

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

which can be rewritten as

$$0 = T[[w]_2] + T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[111w]_2], \tag{2.7}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.8}$$

$$\begin{aligned} 0 &= T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2]\\ &\quad + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \end{aligned} \tag{2.9}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.10}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.11}$$

$$0 = T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.12}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[1101w]_2], \tag{2.13}$$

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

$$0 = T[[w]_2] + T[[1w]_2] + T[[100w]_2] + T[[101w]_2] + T[[111w]_2], \tag{2.14}$$

$$0 = T[[1w]_2] + T[[10w]_2] + T[[101w]_2] + T[[110w]_2] + T[[1000w]_2], \tag{2.15}$$

$$\begin{aligned} 0 &= T[[w]_2] + T[[1w]_2] + T[[10w]_2] + T[[11w]_2] + T[[100w]_2]\\ &\quad + T[[101w]_2] + T[[110w]_2] + T[[1001w]_2], \end{aligned} \tag{2.16}$$

$$0 = T[[10w]_2] + T[[11w]_2] + T[[110w]_2] + T[[1010w]_2], \tag{2.17}$$

$$0 = T[[1w]_2] + T[[11w]_2] + T[[101w]_2] + T[[1011w]_2], \tag{2.18}$$

$$0 = T[[10w]_2] + T[[100w]_2] + T[[110w]_2] + T[[1100w]_2], \tag{2.19}$$

$$0 = T[[w]_2] + T[[1w]_2] + T[[11w]_2] + T[[100w]_2] + T[[1101w]_2], \tag{2.20}$$

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

First we calculate an 2-automaton that generates T from its minimal polynomial and its first terms. This automaton has 3283 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

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,111)), \tag{2.21}$$

$$0 = \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1000)), \tag{2.22}$$

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)), \tag{2.23}$$

$$0 = \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1010)), \tag{2.24}$$

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) + \tau(A(s,1011)), \tag{2.25}$$

$$0 = \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,110)) + \tau(A(s,1100)), \tag{2.26}$$

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,1101)), \tag{2.27}$$

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

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,111)), \tag{2.28}$$

$$0 = \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1000)), \tag{2.29}$$

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,101)) + \tau(A(s,110)) + \tau(A(s,1001)), \tag{2.30}$$

$$0 = \tau(A(s,10)) + \tau(A(s,11)) + \tau(A(s,110)) + \tau(A(s,1010)), \tag{2.31}$$

$$0 = \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,101)) + \tau(A(s,1011)), \tag{2.32}$$

$$0 = \tau(A(s,10)) + \tau(A(s,100)) + \tau(A(s,110)) + \tau(A(s,1100)), \tag{2.33}$$

$$0 = \tau(A(s,\epsilon)) + \tau(A(s,1)) + \tau(A(s,11)) + \tau(A(s,100)) + \tau(A(s,1101)), \tag{2.34}$$

for $s = A(i, 0^{2k})$. We find that $(A(i, 0^{50}), E_{50}) = (A(i, 0^{22}), E_{22})$, so that we only have to verify that identities (2.21) through (2.34) hold for $2 \le k \le 25$, which turns out to be true. $\square$

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 $u = 2^{2k-1}$,*

$$M_{2k} = M^e[:7u] + x^{2u}M^e[:5u] + x^{3u}M^e[:4u] + x^{6u}M^e[:u] + x^{7u}R^e,$$
$$W_{2k} = W^e[:7u] + x^{2u}W^e[:5u] + x^{3u}W^e[:4u] + x^{6u}W^e[:u] + x^{7u}R^e.$$

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

$$M_{2k+1} = M^o[:7u] + x^{2u}M^o[:5u] + x^{3u}M^o[:4u] + x^{6u}M^o[:u] + x^{7u}R^o,$$
$$W_{2k+1} = W^o[:7u] + x^{2u}W^o[:5u] + x^{3u}W^o[:4u] + x^{6u}W^o[:u] + x^{7u}R^o.$$

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

$$\begin{aligned} W_{2k}M_{2k} = \big(&W^e[:7v] + x^{2v}W^e[:5v] + x^{3v}W^e[:4v] + x^{6v}W^e[:v] + x^{7u}R^e\big) \times \big(\\ &M^e[:7v] + x^{2v}M^e[:5v] + x^{3v}M^e[:4v] + x^{6v}M^e[:v] + x^{7u}R^e\big); \end{aligned} \tag{2.35}$$

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

$$\begin{aligned} W^e[:14v]M^e[:14v] + x^{4v}W^e[:10v]M^e[:10v] + x^{6v}W^e[:8v]M^e[:8v]& \\ + x^{12v}W^e[:2v]M^e[:2v].& \end{aligned}$$

For all $n \le 14$, 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 $0 \le j, k \le 1$,

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

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

$$\begin{aligned}
q_0(x) &= x^{24} + x^{23} + x^{21} + x^{20} + x^{16} + x^{15} + x^{10} + x^9 + x^7,\\
q_1(x) &= x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{16} + x^{13} + x^9 + x^8 + x^7 + x^6 + x^2\\
&\quad + x,\\
q_2(x) &= x^{22} + x^{18} + x^{10} + x^8 + x^2 + 1,\\
q_3(x) &= x^{23} + x^{22} + x^{21} + x^{19} + x^{18} + x^{17} + x^{16} + x^{13} + x^9 + x^8 + x^7 + x^6 + x^2\\
&\quad + x,\\
q_4(x) &= x^{23} + x^{22} + x^{21} + x^{20} + x^{18} + x^{15} + x^{12} + x^9 + x^7 + x^2.
\end{aligned}$$

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

$$\begin{aligned}
p_0(x) &= x^{114} + x^{108} + x^{102} + x^{100} + x^{94} + x^{90} + x^{88} + x^{82} + x^{72} + x^{68} + x^{64}\\
&\quad + x^{62} + x^{60} + x^{58} + x^{54} + x^{52} + x^{48} + x^{46} + x^{44} + x^{42} + x^{22} + x^{20}\\
&\quad + x^{18} + x^{16} + x^{12},\\
p_3(x) &= x^{110} + x^{108} + x^{104} + x^{102} + x^{100} + x^{92} + x^{90} + x^{86} + x^{84} + x^{82} + x^{78}\\
&\quad + x^{76} + x^{60} + x^{54} + x^{52} + x^{48} + x^{46} + x^{44} + x^{42} + x^{38} + x^{36} + x^{30}\\
&\quad + x^{28} + x^{24} + x^{22} + x^{14} + x^{10} + x^8,\\
p_6(x) &= x^{108} + x^{104} + x^{102} + x^{100} + x^{90} + x^{86} + x^{78} + x^{76} + x^{74} + x^{68} + x^{66}\\
&\quad + x^{62} + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{50} + x^{44} + x^{42} + x^{40} + x^{38}\\
&\quad + x^{36} + x^{34} + x^{26} + x^{24} + x^{18} + x^{16} + x^{14} + x^{12} + x^6 + x^4 + x^2 + 1,\\
p_9(x) &= x^{112} + x^{104} + x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84}
\end{aligned}$$

$$
\begin{aligned}
&+x^{80}+x^{78}+x^{72}+x^{68}+x^{66}+x^{56}+x^{54}+x^{50}+x^{44}+x^{42}+x^{40}\\
&+x^{38}+x^{28}+x^{26}+x^{24}+x^{22}+x^{20}+x^{18}+x^{16}+x^{12}+x^{8}+x^{6}+x^{2},\\
p_{12}(x)=\ &x^{112}+x^{110}+x^{108}+x^{102}+x^{100}+x^{96}+x^{80}+x^{78}+x^{76}+x^{70}+x^{68}\\
&+x^{62}+x^{60}+x^{54}+x^{52}+x^{46}+x^{44}+x^{38}+x^{36}+x^{32}+x^{16}+x^{14}\\
&+x^{12}+x^{6}+x^{4}+1,
\end{aligned}
$$

and the initial terms are [1, 0, 1, 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^{129}+x^{128}+x^{127}+x^{126}+x^{123}+x^{121}+x^{119}+x^{118}+x^{117}+x^{116}\\
&+x^{110}+x^{107}+x^{104}+x^{101}+x^{100}+x^{99}+x^{98}+x^{94}+x^{88}+x^{87}\\
&+x^{86}+x^{85}+x^{80}+x^{78}+x^{75}+x^{74}+x^{69}+x^{67}+x^{66}+x^{62}+x^{61}\\
&+x^{59}+x^{55}+x^{51}+x^{50}+x^{47}+x^{45}+x^{42}+x^{41}+x^{38}+x^{37}+x^{33}\\
&+x^{32}+x^{31}+x^{27},\\
p_3(x)=\ &x^{127}+x^{125}+x^{122}+x^{121}+x^{120}+x^{119}+x^{118}+x^{117}+x^{116}+x^{114}\\
&+x^{113}+x^{112}+x^{109}+x^{108}+x^{106}+x^{105}+x^{103}+x^{101}+x^{99}+x^{98}\\
&+x^{97}+x^{96}+x^{95}+x^{92}+x^{91}+x^{88}+x^{85}+x^{84}+x^{82}+x^{81}+x^{79}\\
&+x^{77}+x^{75}+x^{74}+x^{73}+x^{72}+x^{71}+x^{68}+x^{67}+x^{64}+x^{61}+x^{60}\\
&+x^{58}+x^{57}+x^{51}+x^{46}+x^{45}+x^{43}+x^{42}+x^{41}+x^{39}+x^{37}+x^{34}\\
&+x^{33}+x^{32}+x^{30}+x^{28}+x^{22}+x^{21}+x^{18}+x^{17}+x^{14}+x^{13}+x^{11}\\
&+x^{10}+x^{9},\\
p_6(x)=\ &x^{126}+x^{125}+x^{123}+x^{122}+x^{121}+x^{117}+x^{115}+x^{114}+x^{113}+x^{112}\\
&+x^{111}+x^{108}+x^{104}+x^{103}+x^{101}+x^{98}+x^{90}+x^{89}+x^{87}+x^{83}\\
&+x^{81}+x^{78}+x^{76}+x^{75}+x^{74}+x^{71}+x^{69}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{64}+x^{63}+x^{60}+x^{58}+x^{57}+x^{55}+x^{54}+x^{53}+x^{52}+x^{51}+x^{47}\\
&+x^{45}+x^{42}+x^{38}+x^{37}+x^{36}+x^{33}+x^{32}+x^{29}+x^{27}+x^{26}+x^{25}\\
&+x^{21}+x^{20}+x^{17}+x^{15}+x^{14}+x^{13}+x^{12}+x^{11}+x^{10}+x^{9}+x^{6},\\
p_9(x)=\ &x^{125}+x^{120}+x^{116}+x^{115}+x^{114}+x^{112}+x^{111}+x^{110}+x^{109}+x^{106}\\
&+x^{105}+x^{103}+x^{102}+x^{99}+x^{96}+x^{94}+x^{93}+x^{92}+x^{91}+x^{88}+x^{87}\\
&+x^{85}+x^{84}+x^{83}+x^{77}+x^{72}+x^{71}+x^{68}+x^{64}+x^{63}+x^{62}+x^{61}\\
&+x^{60}+x^{59}+x^{58}+x^{56}+x^{55}+x^{54}+x^{53}+x^{50}+x^{49}+x^{47}+x^{46}\\
&+x^{40}+x^{37}+x^{36}+x^{35}+x^{34}+x^{30}+x^{29}+x^{28}+x^{26}+x^{25}+x^{24}\\
&+x^{21}+x^{20}+x^{18}+x^{15}+x^{12}+x^{11}+x^{10}+x^{9}+x^{8}+x^{6}+x^{4}+x^{3},\\
p_{12}(x)=\ &x^{124}+x^{123}+x^{122}+x^{119}+x^{118}+x^{116}+x^{112}+x^{111}+x^{110}+x^{108}\\
&+x^{100}+x^{99}+x^{98}+x^{96}+x^{92}+x^{91}+x^{90}+x^{87}+x^{86}+x^{84}+x^{80}\\
&+x^{79}+x^{78}+x^{75}+x^{74}+x^{71}+x^{70}+x^{67}+x^{66}+x^{63}+x^{62}+x^{59}\\
&+x^{58}+x^{55}+x^{54}+x^{51}+x^{50}+x^{47}+x^{46}+x^{44}+x^{36}+x^{35}+x^{34}
\end{aligned}
$$

$$+ x^{32} + x^{28} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12} + x^4 + x^3 + x^2 + 1,$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{127} + x^{126} + x^{123} + x^{121} + x^{119} + x^{118} + x^{117} + x^{116} \\
&\quad + x^{110} + x^{107} + x^{104} + x^{101} + x^{100} + x^{99} + x^{98} + x^{94} + x^{88} + x^{87} \\
&\quad + x^{86} + x^{85} + x^{80} + x^{78} + x^{75} + x^{74} + x^{69} + x^{67} + x^{66} + x^{62} + x^{61} \\
&\quad + x^{59} + x^{55} + x^{51} + x^{50} + x^{47} + x^{45} + x^{42} + x^{41} + x^{38} + x^{37} + x^{33} \\
&\quad + x^{32} + x^{31} + x^{27}, \\
p_3(x) &= x^{127} + x^{125} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} \\
&\quad + x^{113} + x^{112} + x^{109} + x^{108} + x^{106} + x^{105} + x^{103} + x^{101} + x^{99} + x^{98} \\
&\quad + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} \\
&\quad + x^{77} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} \\
&\quad + x^{58} + x^{57} + x^{51} + x^{46} + x^{45} + x^{43} + x^{42} + x^{41} + x^{39} + x^{37} + x^{34} \\
&\quad + x^{33} + x^{32} + x^{30} + x^{28} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{11} \\
&\quad + x^{10} + x^{9}, \\
p_6(x) &= x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{111} + x^{108} + x^{104} + x^{103} + x^{101} + x^{98} + x^{90} + x^{89} + x^{87} + x^{83} \\
&\quad + x^{81} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} \\
&\quad + x^{64} + x^{63} + x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{47} \\
&\quad + x^{45} + x^{42} + x^{38} + x^{37} + x^{36} + x^{33} + x^{32} + x^{29} + x^{27} + x^{26} + x^{25} \\
&\quad + x^{21} + x^{20} + x^{17} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{6}, \\
p_9(x) &= x^{125} + x^{120} + x^{116} + x^{115} + x^{114} + x^{112} + x^{111} + x^{110} + x^{109} + x^{106} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{99} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{77} + x^{72} + x^{71} + x^{68} + x^{64} + x^{63} + x^{62} + x^{61} \\
&\quad + x^{60} + x^{59} + x^{58} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{47} + x^{46} \\
&\quad + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} \\
&\quad + x^{21} + x^{20} + x^{18} + x^{15} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{6} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{112} + x^{111} + x^{110} + x^{108} \\
&\quad + x^{100} + x^{99} + x^{98} + x^{96} + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{84} + x^{80} \\
&\quad + x^{79} + x^{78} + x^{75} + x^{74} + x^{71} + x^{70} + x^{67} + x^{66} + x^{63} + x^{62} + x^{59} \\
&\quad + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{44} + x^{36} + x^{35} + x^{34} \\
&\quad + x^{32} + x^{28} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12} \\
&\quad + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{140} + x^{136} + x^{134} + x^{130} + x^{126} + x^{120} + x^{112} + x^{108} \\
&\quad + x^{106} + x^{96} + x^{92} + x^{90} + x^{88} + x^{86} + x^{82} + x^{78} + x^{72} + x^{66} + x^{56} \\
&\quad + x^{50} + x^{48} + x^{46} + x^{42}, \\
p_3(x) &= x^{138} + x^{136} + x^{134} + x^{132} + x^{126} + x^{120} + x^{118} + x^{114} + x^{108} + x^{106} \\
&\quad + x^{104} + x^{102} + x^{94} + x^{90} + x^{82} + x^{80} + x^{76} + x^{72} + x^{68} + x^{64} + x^{62} \\
&\quad + x^{60} + x^{58} + x^{56} + x^{54} + x^{52} + x^{50} + x^{42} + x^{38} + x^{36} + x^{34} + x^{32} \\
&\quad + x^{26} + x^{20} + x^{14} + x^{6}, \\
p_6(x) &= x^{138} + x^{132} + x^{128} + x^{120} + x^{118} + x^{116} + x^{114} + x^{112} + x^{108} + x^{104} \\
&\quad + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84} + x^{82} + x^{80} + x^{78} + x^{74} + x^{62} \\
&\quad + x^{56} + x^{54} + x^{48} + x^{46} + x^{40} + x^{36} + x^{32} + x^{28} + x^{24} + x^{22} + x^{18} \\
&\quad + x^{16} + x^{10} + x^{8} + x^{4} + x^{2} + 1, \\
p_9(x) &= x^{136} + x^{134} + x^{130} + x^{126} + x^{122} + x^{120} + x^{118} + x^{112} + x^{110} + x^{108} \\
&\quad + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{92} + x^{84} + x^{82} + x^{80} + x^{74} + x^{70} \\
&\quad + x^{64} + x^{60} + x^{56} + x^{46} + x^{44} + x^{42} + x^{38} + x^{34} + x^{32} + x^{28} + x^{22} \\
&\quad + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{2}, \\
p_{12}(x) &= x^{136} + x^{112} + x^{96} + x^{88} + x^{80} + x^{56} + x^{32} + x^{16} + x^{8} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{144} + x^{142} + x^{132} + x^{128} + x^{122} + x^{120} + x^{114} + x^{112} + x^{110} + x^{108} \\
&\quad + x^{104} + x^{100} + x^{98} + x^{94} + x^{92} + x^{88} + x^{86} + x^{84} + x^{78} + x^{72} + x^{70} \\
&\quad + x^{68} + x^{66} + x^{64} + x^{62} + x^{56} + x^{48} + x^{42} + x^{38} + x^{36} + x^{34} + x^{32} \\
&\quad + x^{30} + x^{26} + x^{24} + x^{22} + x^{20} + x^{16} + x^{12}, \\
p_3(x) &= x^{138} + x^{136} + x^{128} + x^{126} + x^{124} + x^{122} + x^{112} + x^{110} + x^{108} + x^{106} \\
&\quad + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{94} + x^{92} + x^{88} + x^{86} + x^{84} + x^{82} \\
&\quad + x^{80} + x^{76} + x^{74} + x^{72} + x^{68} + x^{60} + x^{58} + x^{54} + x^{52} + x^{48} + x^{40} \\
&\quad + x^{36} + x^{34} + x^{30} + x^{26} + x^{24} + x^{22} + x^{18} + x^{8}, \\
p_6(x) &= x^{138} + x^{134} + x^{132} + x^{128} + x^{122} + x^{112} + x^{110} + x^{108} + x^{104} + x^{100} \\
&\quad + x^{98} + x^{94} + x^{84} + x^{82} + x^{80} + x^{78} + x^{76} + x^{72} + x^{68} + x^{64} + x^{60} \\
&\quad + x^{54} + x^{50} + x^{46} + x^{44} + x^{42} + x^{38} + x^{36} + x^{30} + x^{14} + x^{12} + x^{10} \\
&\quad + x^{8} + x^{6} + x^{2} + 1, \\
p_9(x) &= x^{136} + x^{134} + x^{130} + x^{126} + x^{122} + x^{120} + x^{118} + x^{112} + x^{110} + x^{108} \\
&\quad + x^{104} + x^{102} + x^{100} + x^{98} + x^{96} + x^{92} + x^{84} + x^{82} + x^{80} + x^{74} + x^{70} \\
&\quad + x^{64} + x^{60} + x^{56} + x^{46} + x^{44} + x^{42} + x^{38} + x^{34} + x^{32} + x^{28} + x^{22} \\
&\quad + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{2},
\end{aligned}$$

$$p_{12}(x) = x^{136} + x^{112} + x^{96} + x^{88} + x^{80} + x^{56} + x^{32} + x^{16} + x^8 + 1,$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{121} + x^{119} + x^{118} + x^{116} + x^{114} + x^{112} \\
&\quad + x^{111} + x^{110} + x^{106} + x^{104} + x^{101} + x^{98} + x^{89} + x^{88} + x^{86} + x^{83} \\
&\quad + x^{82} + x^{81} + x^{78} + x^{77} + x^{76} + x^{74} + x^{71} + x^{70} + x^{68} + x^{67} + x^{66} \\
&\quad + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{52} + x^{49} + x^{48} + x^{44} + x^{41} + x^{38} \\
&\quad + x^{37} + x^{35} + x^{34} + x^{32} + x^{28} + x^{27} + x^{23} + x^{22} + x^{18}, \\
p_3(x) &= x^{127} + x^{125} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} \\
&\quad + x^{113} + x^{112} + x^{109} + x^{108} + x^{106} + x^{105} + x^{103} + x^{101} + x^{99} + x^{98} \\
&\quad + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} \\
&\quad + x^{77} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} \\
&\quad + x^{58} + x^{57} + x^{51} + x^{46} + x^{45} + x^{43} + x^{42} + x^{41} + x^{39} + x^{37} + x^{34} \\
&\quad + x^{33} + x^{32} + x^{30} + x^{28} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{11} \\
&\quad + x^{10} + x^9, \\
p_6(x) &= x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{111} + x^{108} + x^{104} + x^{103} + x^{101} + x^{98} + x^{90} + x^{89} + x^{87} + x^{83} \\
&\quad + x^{81} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} \\
&\quad + x^{64} + x^{63} + x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{47} \\
&\quad + x^{45} + x^{42} + x^{38} + x^{37} + x^{36} + x^{33} + x^{32} + x^{29} + x^{27} + x^{26} + x^{25} \\
&\quad + x^{21} + x^{20} + x^{17} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^9 + x^6, \\
p_9(x) &= x^{125} + x^{120} + x^{116} + x^{115} + x^{114} + x^{112} + x^{111} + x^{110} + x^{109} + x^{106} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{99} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{77} + x^{72} + x^{71} + x^{68} + x^{64} + x^{63} + x^{62} + x^{61} \\
&\quad + x^{60} + x^{59} + x^{58} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{47} + x^{46} \\
&\quad + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} \\
&\quad + x^{21} + x^{20} + x^{18} + x^{15} + x^{12} + x^{11} + x^{10} + x^9 + x^8 + x^6 + x^4 + x^3, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{112} + x^{111} + x^{110} + x^{108} \\
&\quad + x^{100} + x^{99} + x^{98} + x^{96} + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{84} + x^{80} \\
&\quad + x^{79} + x^{78} + x^{75} + x^{74} + x^{71} + x^{70} + x^{67} + x^{66} + x^{63} + x^{62} + x^{59} \\
&\quad + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{44} + x^{36} + x^{35} + x^{34} \\
&\quad + x^{32} + x^{28} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12} \\
&\quad + x^4 + x^3 + x^2 + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{127} + x^{126} + x^{125} + x^{121} + x^{119} + x^{118} + x^{116} + x^{114} + x^{112} \\
&\quad + x^{111} + x^{110} + x^{106} + x^{104} + x^{101} + x^{98} + x^{89} + x^{88} + x^{86} + x^{83} \\
&\quad + x^{82} + x^{81} + x^{78} + x^{77} + x^{76} + x^{74} + x^{71} + x^{70} + x^{68} + x^{67} + x^{66} \\
&\quad + x^{62} + x^{61} + x^{58} + x^{57} + x^{56} + x^{52} + x^{49} + x^{48} + x^{44} + x^{41} + x^{38} \\
&\quad + x^{37} + x^{35} + x^{34} + x^{32} + x^{28} + x^{27} + x^{23} + x^{22} + x^{18}, \\
p_3(x) &= x^{127} + x^{125} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{114} \\
&\quad + x^{113} + x^{112} + x^{109} + x^{108} + x^{106} + x^{105} + x^{103} + x^{101} + x^{99} + x^{98} \\
&\quad + x^{97} + x^{96} + x^{95} + x^{92} + x^{91} + x^{88} + x^{85} + x^{84} + x^{82} + x^{81} + x^{79} \\
&\quad + x^{77} + x^{75} + x^{74} + x^{73} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} + x^{61} + x^{60} \\
&\quad + x^{58} + x^{57} + x^{51} + x^{46} + x^{45} + x^{43} + x^{42} + x^{41} + x^{39} + x^{37} + x^{34} \\
&\quad + x^{33} + x^{32} + x^{30} + x^{28} + x^{22} + x^{21} + x^{18} + x^{17} + x^{14} + x^{13} + x^{11} \\
&\quad + x^{10} + x^{9}, \\
p_6(x) &= x^{126} + x^{125} + x^{123} + x^{122} + x^{121} + x^{117} + x^{115} + x^{114} + x^{113} + x^{112} \\
&\quad + x^{111} + x^{108} + x^{104} + x^{103} + x^{101} + x^{98} + x^{90} + x^{89} + x^{87} + x^{83} \\
&\quad + x^{81} + x^{78} + x^{76} + x^{75} + x^{74} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65} \\
&\quad + x^{64} + x^{63} + x^{60} + x^{58} + x^{57} + x^{55} + x^{54} + x^{53} + x^{52} + x^{51} + x^{47} \\
&\quad + x^{45} + x^{42} + x^{38} + x^{37} + x^{36} + x^{33} + x^{32} + x^{29} + x^{27} + x^{26} + x^{25} \\
&\quad + x^{21} + x^{20} + x^{17} + x^{15} + x^{14} + x^{13} + x^{12} + x^{11} + x^{10} + x^{9} + x^{6}, \\
p_9(x) &= x^{125} + x^{120} + x^{116} + x^{115} + x^{114} + x^{112} + x^{111} + x^{110} + x^{109} + x^{106} \\
&\quad + x^{105} + x^{103} + x^{102} + x^{99} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{88} + x^{87} \\
&\quad + x^{85} + x^{84} + x^{83} + x^{77} + x^{72} + x^{71} + x^{68} + x^{64} + x^{63} + x^{62} + x^{61} \\
&\quad + x^{60} + x^{59} + x^{58} + x^{56} + x^{55} + x^{54} + x^{53} + x^{50} + x^{49} + x^{47} + x^{46} \\
&\quad + x^{40} + x^{37} + x^{36} + x^{35} + x^{34} + x^{30} + x^{29} + x^{28} + x^{26} + x^{25} + x^{24} \\
&\quad + x^{21} + x^{20} + x^{18} + x^{15} + x^{12} + x^{11} + x^{10} + x^{9} + x^{8} + x^{6} + x^{4} + x^{3}, \\
p_{12}(x) &= x^{124} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{112} + x^{111} + x^{110} + x^{108} \\
&\quad + x^{100} + x^{99} + x^{98} + x^{96} + x^{92} + x^{91} + x^{90} + x^{87} + x^{86} + x^{84} + x^{80} \\
&\quad + x^{79} + x^{78} + x^{75} + x^{74} + x^{71} + x^{70} + x^{67} + x^{66} + x^{63} + x^{62} + x^{59} \\
&\quad + x^{58} + x^{55} + x^{54} + x^{51} + x^{50} + x^{47} + x^{46} + x^{44} + x^{36} + x^{35} + x^{34} \\
&\quad + x^{32} + x^{28} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{16} + x^{15} + x^{14} + x^{12} \\
&\quad + x^{4} + x^{3} + x^{2} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{114} + x^{112} + x^{108} + x^{102} + x^{94} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{72} \\
&\quad + x^{68} + x^{64} + x^{62} + x^{58} + x^{56} + x^{54} + x^{50} + x^{48} + x^{44} + x^{40} + x^{36}
\end{aligned}$$

$$\begin{aligned}
&+ x^{32} + x^{28} + x^{24},\\
p_3(x) &= x^{108} + x^{104} + x^{94} + x^{92} + x^{88} + x^{86} + x^{76} + x^{68} + x^{62} + x^{56} + x^{54}\\
&\quad + x^{52} + x^{48} + x^{36} + x^{24} + x^{22} + x^{16} + x^{6},\\
p_6(x) &= x^{110} + x^{106} + x^{104} + x^{102} + x^{92} + x^{88} + x^{82} + x^{80} + x^{70} + x^{68} + x^{56}\\
&\quad + x^{54} + x^{52} + x^{28} + x^{26} + x^{24} + x^{22} + x^{16} + x^{14} + x^{8} + x^{2} + 1,\\
p_9(x) &= x^{112} + x^{104} + x^{102} + x^{100} + x^{98} + x^{94} + x^{92} + x^{90} + x^{88} + x^{86} + x^{84}\\
&\quad + x^{80} + x^{78} + x^{72} + x^{68} + x^{66} + x^{56} + x^{54} + x^{50} + x^{44} + x^{42} + x^{40}\\
&\quad + x^{38} + x^{28} + x^{26} + x^{24} + x^{22} + x^{20} + x^{18} + x^{16} + x^{12} + x^{8} + x^{6} + x^{2},\\
p_{12}(x) &= x^{112} + x^{110} + x^{108} + x^{102} + x^{100} + x^{96} + x^{80} + x^{78} + x^{76} + x^{70} + x^{68}\\
&\quad + x^{62} + x^{60} + x^{54} + x^{52} + x^{46} + x^{44} + x^{38} + x^{36} + x^{32} + x^{16} + x^{14}\\
&\quad + x^{12} + x^{6} + x^{4} + 1,
\end{aligned}$$

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

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

$$\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{126} + x^{125} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115}\\
&\quad + x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{108} + x^{102} + x^{101} + x^{100}\\
&\quad + x^{97} + x^{94} + x^{93} + x^{89} + x^{86} + x^{85} + x^{84} + x^{82} + x^{80} + x^{79} + x^{78}\\
&\quad + x^{75} + x^{74} + x^{69} + x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58}\\
&\quad + x^{57} + x^{55} + x^{54} + x^{53} + x^{52} + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{41}\\
&\quad + x^{39} + x^{38} + x^{37} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{21} + x^{20} + x^{18}\\
&\quad + x^{17} + x^{16} + x^{15} + x^{12},\\
p_3(x) &= x^{128} + x^{123} + x^{120} + x^{119} + x^{116} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109}\\
&\quad + x^{107} + x^{104} + x^{103} + x^{102} + x^{99} + x^{97} + x^{95} + x^{92} + x^{91} + x^{89}\\
&\quad + x^{85} + x^{82} + x^{79} + x^{78} + x^{76} + x^{71} + x^{69} + x^{67} + x^{66} + x^{65} + x^{61}\\
&\quad + x^{57} + x^{56} + x^{54} + x^{52} + x^{50} + x^{46} + x^{43} + x^{41} + x^{40} + x^{37} + x^{29}\\
&\quad + x^{24} + x^{23} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{11} + x^{8},\\
p_6(x) &= x^{128} + x^{122} + x^{119} + x^{118} + x^{116} + x^{114} + x^{113} + x^{111} + x^{110} + x^{108}\\
&\quad + x^{107} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93}\\
&\quad + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{82} + x^{79} + x^{78}\\
&\quad + x^{73} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} + x^{60} + x^{57} + x^{55} + x^{53} + x^{52}\\
&\quad + x^{50} + x^{49} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{33} + x^{32}\\
&\quad + x^{29} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{16} + x^{13} + x^{11} + x^{9}\\
&\quad + x^{7} + x^{3} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{127} + x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{107} + x^{106} + x^{103}\\
&\quad + x^{102} + x^{100} + x^{96} + x^{95} + x^{94} + x^{92} + x^{76} + x^{75} + x^{74} + x^{71} + x^{70}\\
&\quad + x^{68} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{43}
\end{aligned}$$

$$
\begin{aligned}
&+x^{42}+x^{39}+x^{38}+x^{36}+x^{32}+x^{31}+x^{30}+x^{28}+x^{16}+x^{15}+x^{14}\\
&+x^{11}+x^{10}+x^{7}+x^{6}+x^{4},\\
p_{12}(x)={}&x^{128}+x^{127}+x^{126}+x^{123}+x^{122}+x^{119}+x^{118}+x^{116}+x^{108}+x^{107}\\
&+x^{106}+x^{103}+x^{102}+x^{99}+x^{98}+x^{95}+x^{94}+x^{91}+x^{90}+x^{87}+x^{86}\\
&+x^{84}+x^{80}+x^{79}+x^{78}+x^{76}+x^{68}+x^{67}+x^{66}+x^{63}+x^{62}+x^{60}\\
&+x^{52}+x^{51}+x^{50}+x^{48}+x^{44}+x^{43}+x^{42}+x^{39}+x^{38}+x^{35}+x^{34}\\
&+x^{31}+x^{30}+x^{27}+x^{26}+x^{23}+x^{22}+x^{20}+x^{12}+x^{11}+x^{10}+x^{7}\\
&+x^{6}+x^{3}+x^{2}+1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_{0}(x)={}&x^{144}+x^{141}+x^{140}+x^{136}+x^{134}+x^{131}+x^{130}+x^{128}+x^{124}+x^{121}\\
&+x^{120}+x^{119}+x^{117}+x^{116}+x^{115}+x^{114}+x^{113}+x^{112}+x^{110}\\
&+x^{107}+x^{104}+x^{103}+x^{102}+x^{101}+x^{100}+x^{98}+x^{97}+x^{91}+x^{88}\\
&+x^{84}+x^{79}+x^{76}+x^{74}+x^{72}+x^{71}+x^{69}+x^{68}+x^{67}+x^{66}+x^{65}\\
&+x^{63}+x^{62}+x^{61}+x^{58}+x^{57}+x^{52}+x^{51}+x^{50}+x^{48}+x^{47}+x^{45}\\
&+x^{44}+x^{42}+x^{41}+x^{40}+x^{39}+x^{37}+x^{36}+x^{35}+x^{33}+x^{31}+x^{30}\\
&+x^{27},\\
p_{3}(x)={}&x^{137}+x^{136}+x^{135}+x^{130}+x^{129}+x^{128}+x^{126}+x^{125}+x^{124}+x^{121}\\
&+x^{119}+x^{118}+x^{117}+x^{114}+x^{112}+x^{111}+x^{110}+x^{107}+x^{100}\\
&+x^{97}+x^{96}+x^{95}+x^{94}+x^{92}+x^{91}+x^{89}+x^{88}+x^{87}+x^{86}+x^{83}\\
&+x^{76}+x^{73}+x^{72}+x^{71}+x^{70}+x^{68}+x^{67}+x^{62}+x^{59}+x^{58}+x^{57}\\
&+x^{56}+x^{54}+x^{53}+x^{49}+x^{47}+x^{45}+x^{44}+x^{43}+x^{41}+x^{39}+x^{38}\\
&+x^{37}+x^{36}+x^{34}+x^{33}+x^{28}+x^{22}+x^{20}+x^{19}+x^{18}+x^{17}+x^{16}\\
&+x^{13}+x^{12}+x^{11}+x^{10}+x^{9},\\
p_{6}(x)={}&x^{138}+x^{136}+x^{132}+x^{130}+x^{126}+x^{122}+x^{120}+x^{106}+x^{102}+x^{90}\\
&+x^{84}+x^{82}+x^{78}+x^{76}+x^{72}+x^{68}+x^{66}+x^{64}+x^{62}+x^{50}+x^{48}\\
&+x^{44}+x^{40}+x^{38}+x^{36}+x^{32}+x^{28}+x^{24}+x^{18}+x^{16}+x^{12}+x^{10}\\
&+x^{8}+x^{6},\\
p_{9}(x)={}&x^{139}+x^{138}+x^{136}+x^{134}+x^{133}+x^{132}+x^{130}+x^{129}+x^{125}+x^{123}\\
&+x^{121}+x^{120}+x^{118}+x^{115}+x^{114}+x^{113}+x^{111}+x^{107}+x^{105}\\
&+x^{104}+x^{103}+x^{102}+x^{101}+x^{99}+x^{98}+x^{97}+x^{93}+x^{90}+x^{89}\\
&+x^{85}+x^{84}+x^{83}+x^{79}+x^{77}+x^{71}+x^{69}+x^{63}+x^{61}+x^{59}+x^{58}\\
&+x^{56}+x^{55}+x^{54}+x^{52}+x^{50}+x^{49}+x^{47}+x^{43}+x^{41}+x^{40}+x^{39}\\
&+x^{38}+x^{37}+x^{35}+x^{34}+x^{33}+x^{29}+x^{27}+x^{25}+x^{24}+x^{22}+x^{19}\\
&+x^{18}+x^{17}+x^{15}+x^{10}+x^{9}+x^{7}+x^{4}+x^{3},
\end{aligned}
$$

$$\begin{aligned}p_{12}(x) = {} & x^{140} + x^{132} + x^{116} + x^{112} + x^{108} + x^{96} + x^{92} + x^{80} + x^{76} + x^{68} + x^{44} \\ & + x^{32} + x^{20} + x^{16} + x^{4} + 1,\end{aligned}$$

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

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

$$\begin{aligned}p_{0}(x) = {} & x^{120} + x^{119} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} + x^{105} + x^{103} + x^{102} \\ & + x^{101} + x^{99} + x^{98} + x^{97} + x^{93} + x^{92} + x^{91} + x^{90} + x^{86} + x^{78} + x^{76} \\ & + x^{73} + x^{71} + x^{70} + x^{67} + x^{63} + x^{62} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} \\ & + x^{51} + x^{50} + x^{49} + x^{46} + x^{43} + x^{39} + x^{37} + x^{35} + x^{34} + x^{31} + x^{30} \\ & + x^{28} + x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18}, \\ p_{3}(x) = {} & x^{119} + x^{118} + x^{116} + x^{115} + x^{112} + x^{111} + x^{109} + x^{106} + x^{105} + x^{103} \\ & + x^{102} + x^{100} + x^{99} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} \\ & + x^{87} + x^{85} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{75} + x^{72} + x^{70} + x^{69} \\ & + x^{68} + x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57} + x^{55} + x^{54} \\ & + x^{52} + x^{51} + x^{48} + x^{47} + x^{45} + x^{42} + x^{41} + x^{31} + x^{30} + x^{28} + x^{27} \\ & + x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{10} \\ & + x^{9}, \\ p_{6}(x) = {} & x^{120} + x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{102} + x^{100} + x^{96} + x^{94} \\ & + x^{92} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{76} + x^{74} + x^{72} + x^{66} + x^{62} \\ & + x^{58} + x^{56} + x^{54} + x^{50} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34} + x^{28} \\ & + x^{26} + x^{22} + x^{16} + x^{14} + x^{10} + x^{6}, \\ p_{9}(x) = {} & x^{121} + x^{120} + x^{119} + x^{115} + x^{113} + x^{111} + x^{110} + x^{108} + x^{105} + x^{104} \\ & + x^{102} + x^{101} + x^{100} + x^{99} + x^{89} + x^{88} + x^{87} + x^{83} + x^{81} + x^{79} + x^{78} \\ & + x^{76} + x^{71} + x^{70} + x^{69} + x^{68} + x^{65} + x^{63} + x^{62} + x^{60} + x^{55} + x^{54} \\ & + x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} \\ & + x^{35} + x^{25} + x^{24} + x^{23} + x^{19} + x^{17} + x^{15} + x^{14} + x^{12} + x^{9} + x^{8} + x^{6} \\ & + x^{5} + x^{4} + x^{3}, \\ p_{12}(x) = {} & x^{122} + x^{120} + x^{114} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104} + x^{98} + x^{96} \\ & + x^{90} + x^{88} + x^{82} + x^{80} + x^{78} + x^{76} + x^{62} + x^{60} + x^{46} + x^{44} + x^{42} \\ & + x^{40} + x^{34} + x^{32} + x^{26} + x^{24} + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{8} \\ & + x^{2} + 1,\end{aligned}$$

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

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

$$\begin{aligned}p_{0}(x) = {} & x^{129} + x^{124} + x^{122} + x^{121} + x^{120} + x^{114} + x^{110} + x^{109} + x^{105} + x^{104} \\ & + x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{94} + x^{91} + x^{90} + x^{86} + x^{84} + x^{83} \\ & + x^{82} + x^{81} + x^{78} + x^{76} + x^{75} + x^{73} + x^{71} + x^{70} + x^{66} + x^{65} + x^{60}\end{aligned}$$

$$
\begin{aligned}
&+ x^{59} + x^{58} + x^{57} + x^{56} + x^{54} + x^{53} + x^{50} + x^{48} + x^{47} + x^{46} + x^{43}\\
&+ x^{41} + x^{39} + x^{38} + x^{37} + x^{36} + x^{33},\\
p_3(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{116} + x^{110}\\
&+ x^{109} + x^{106} + x^{103} + x^{101} + x^{100} + x^{99} + x^{94} + x^{93} + x^{90} + x^{88}\\
&+ x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{77} + x^{73} + x^{70} + x^{68} + x^{64} + x^{63}\\
&+ x^{61} + x^{59} + x^{58} + x^{57} + x^{54} + x^{52} + x^{49} + x^{47} + x^{45} + x^{44} + x^{41}\\
&+ x^{38} + x^{36} + x^{34} + x^{30} + x^{28} + x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{14}\\
&+ x^{12},\\
p_6(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117}\\
&+ x^{114} + x^{110} + x^{107} + x^{103} + x^{102} + x^{100} + x^{98} + x^{95} + x^{94} + x^{93}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{85} + x^{84} + x^{81} + x^{80} + x^{79} + x^{76} + x^{75}\\
&+ x^{74} + x^{73} + x^{72} + x^{69} + x^{66} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} + x^{54}\\
&+ x^{51} + x^{50} + x^{49} + x^{47} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{36}\\
&+ x^{35} + x^{34} + x^{32} + x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18} + x^{17} + x^{15}\\
&+ x^{14} + x^{12} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{127} + x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{107} + x^{106} + x^{103}\\
&+ x^{102} + x^{100} + x^{96} + x^{95} + x^{94} + x^{92} + x^{76} + x^{75} + x^{74} + x^{71} + x^{70}\\
&+ x^{68} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{43}\\
&+ x^{42} + x^{39} + x^{38} + x^{36} + x^{32} + x^{31} + x^{30} + x^{28} + x^{16} + x^{15} + x^{14}\\
&+ x^{11} + x^{10} + x^{7} + x^{6} + x^{4},\\
p_{12}(x) &= x^{128} + x^{127} + x^{126} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{108} + x^{107}\\
&+ x^{106} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{87} + x^{86}\\
&+ x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{68} + x^{67} + x^{66} + x^{63} + x^{62} + x^{60}\\
&+ x^{52} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{35} + x^{34}\\
&+ x^{31} + x^{30} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{12} + x^{11} + x^{10} + x^{7}\\
&+ x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{128} + x^{126} + x^{125} + x^{120} + x^{119} + x^{118} + x^{117} + x^{116} + x^{115}\\
&+ x^{114} + x^{113} + x^{112} + x^{110} + x^{109} + x^{108} + x^{102} + x^{101} + x^{100}\\
&+ x^{97} + x^{94} + x^{93} + x^{89} + x^{86} + x^{85} + x^{84} + x^{82} + x^{80} + x^{79} + x^{78}\\
&+ x^{75} + x^{74} + x^{69} + x^{68} + x^{66} + x^{65} + x^{63} + x^{62} + x^{60} + x^{59} + x^{58}\\
&+ x^{57} + x^{55} + x^{54} + x^{53} + x^{52} + x^{49} + x^{48} + x^{47} + x^{46} + x^{43} + x^{41}\\
&+ x^{39} + x^{38} + x^{37} + x^{34} + x^{33} + x^{31} + x^{30} + x^{29} + x^{21} + x^{20} + x^{18}\\
&+ x^{17} + x^{16} + x^{15} + x^{12},
\end{aligned}
$$

$$
\begin{aligned}
p_3(x) = {} & x^{128} + x^{123} + x^{120} + x^{119} + x^{116} + x^{114} + x^{113} + x^{111} + x^{110} + x^{109} \\
& + x^{107} + x^{104} + x^{103} + x^{102} + x^{99} + x^{97} + x^{95} + x^{92} + x^{91} + x^{89} \\
& + x^{85} + x^{82} + x^{79} + x^{78} + x^{76} + x^{71} + x^{69} + x^{67} + x^{66} + x^{65} + x^{61} \\
& + x^{57} + x^{56} + x^{54} + x^{52} + x^{50} + x^{46} + x^{43} + x^{41} + x^{40} + x^{37} + x^{29} \\
& + x^{24} + x^{23} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{11} + x^{8}, \\
p_6(x) = {} & x^{128} + x^{122} + x^{119} + x^{118} + x^{116} + x^{114} + x^{113} + x^{111} + x^{110} + x^{108} \\
& + x^{107} + x^{103} + x^{101} + x^{100} + x^{99} + x^{98} + x^{96} + x^{95} + x^{94} + x^{93} \\
& + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{86} + x^{85} + x^{84} + x^{82} + x^{79} + x^{78} \\
& + x^{73} + x^{72} + x^{71} + x^{68} + x^{67} + x^{64} + x^{60} + x^{57} + x^{55} + x^{53} + x^{52} \\
& + x^{50} + x^{49} + x^{44} + x^{43} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36} + x^{33} + x^{32} \\
& + x^{29} + x^{26} + x^{25} + x^{24} + x^{23} + x^{22} + x^{19} + x^{16} + x^{13} + x^{11} + x^{9} \\
& + x^{7} + x^{3} + x^{2} + 1, \\
p_9(x) = {} & x^{128} + x^{127} + x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{107} + x^{106} + x^{103} \\
& + x^{102} + x^{100} + x^{96} + x^{95} + x^{94} + x^{92} + x^{76} + x^{75} + x^{74} + x^{71} + x^{70} \\
& + x^{68} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{43} \\
& + x^{42} + x^{39} + x^{38} + x^{36} + x^{32} + x^{31} + x^{30} + x^{28} + x^{16} + x^{15} + x^{14} \\
& + x^{11} + x^{10} + x^{7} + x^{6} + x^{4}, \\
p_{12}(x) = {} & x^{128} + x^{127} + x^{126} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{108} + x^{107} \\
& + x^{106} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{87} + x^{86} \\
& + x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{68} + x^{67} + x^{66} + x^{63} + x^{62} + x^{60} \\
& + x^{52} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{35} + x^{34} \\
& + x^{31} + x^{30} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{12} + x^{11} + x^{10} + x^{7} \\
& + x^{6} + x^{3} + x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) = {} & x^{120} + x^{119} + x^{115} + x^{113} + x^{110} + x^{109} + x^{108} + x^{105} + x^{103} + x^{102} \\
& + x^{101} + x^{99} + x^{98} + x^{97} + x^{93} + x^{92} + x^{91} + x^{90} + x^{86} + x^{78} + x^{76} \\
& + x^{73} + x^{71} + x^{70} + x^{67} + x^{63} + x^{62} + x^{59} + x^{58} + x^{55} + x^{53} + x^{52} \\
& + x^{51} + x^{50} + x^{49} + x^{46} + x^{43} + x^{39} + x^{37} + x^{35} + x^{34} + x^{31} + x^{30} \\
& + x^{28} + x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{20} + x^{18}, \\
p_3(x) = {} & x^{119} + x^{118} + x^{116} + x^{115} + x^{112} + x^{111} + x^{109} + x^{106} + x^{105} + x^{103} \\
& + x^{102} + x^{100} + x^{99} + x^{96} + x^{94} + x^{93} + x^{92} + x^{91} + x^{90} + x^{89} + x^{88} \\
& + x^{87} + x^{85} + x^{82} + x^{81} + x^{79} + x^{78} + x^{76} + x^{75} + x^{72} + x^{70} + x^{69} \\
& + x^{68} + x^{67} + x^{66} + x^{65} + x^{64} + x^{63} + x^{61} + x^{58} + x^{57} + x^{55} + x^{54} \\
& + x^{52} + x^{51} + x^{48} + x^{47} + x^{45} + x^{42} + x^{41} + x^{31} + x^{30} + x^{28} + x^{27}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{24} + x^{22} + x^{21} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16} + x^{15} + x^{13} + x^{10}\\
&+ x^{9},\\
p_6(x) &= x^{120} + x^{116} + x^{114} + x^{110} + x^{106} + x^{104} + x^{102} + x^{100} + x^{96} + x^{94}\\
&+ x^{92} + x^{90} + x^{88} + x^{86} + x^{82} + x^{80} + x^{76} + x^{74} + x^{72} + x^{66} + x^{62}\\
&+ x^{58} + x^{56} + x^{54} + x^{50} + x^{46} + x^{44} + x^{40} + x^{38} + x^{36} + x^{34} + x^{28}\\
&+ x^{26} + x^{22} + x^{16} + x^{14} + x^{10} + x^{6},\\
p_9(x) &= x^{121} + x^{120} + x^{119} + x^{115} + x^{113} + x^{111} + x^{110} + x^{108} + x^{105} + x^{104}\\
&+ x^{102} + x^{101} + x^{100} + x^{99} + x^{89} + x^{88} + x^{87} + x^{83} + x^{81} + x^{79} + x^{78}\\
&+ x^{76} + x^{71} + x^{70} + x^{69} + x^{68} + x^{65} + x^{63} + x^{62} + x^{60} + x^{55} + x^{54}\\
&+ x^{53} + x^{52} + x^{49} + x^{47} + x^{46} + x^{44} + x^{41} + x^{40} + x^{38} + x^{37} + x^{36}\\
&+ x^{35} + x^{25} + x^{24} + x^{23} + x^{19} + x^{17} + x^{15} + x^{14} + x^{12} + x^{9} + x^{8} + x^{6}\\
&+ x^{5} + x^{4} + x^{3},\\
p_{12}(x) &= x^{122} + x^{120} + x^{114} + x^{112} + x^{110} + x^{108} + x^{106} + x^{104} + x^{98} + x^{96}\\
&+ x^{90} + x^{88} + x^{82} + x^{80} + x^{78} + x^{76} + x^{62} + x^{60} + x^{46} + x^{44} + x^{42}\\
&+ x^{40} + x^{34} + x^{32} + x^{26} + x^{24} + x^{18} + x^{16} + x^{14} + x^{12} + x^{10} + x^{8}\\
&+ x^{2} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{144} + x^{141} + x^{140} + x^{136} + x^{134} + x^{131} + x^{130} + x^{128} + x^{124} + x^{121}\\
&+ x^{120} + x^{119} + x^{117} + x^{116} + x^{115} + x^{114} + x^{113} + x^{112} + x^{110}\\
&+ x^{107} + x^{104} + x^{103} + x^{102} + x^{101} + x^{100} + x^{98} + x^{97} + x^{91} + x^{88}\\
&+ x^{84} + x^{79} + x^{76} + x^{74} + x^{72} + x^{71} + x^{69} + x^{68} + x^{67} + x^{66} + x^{65}\\
&+ x^{63} + x^{62} + x^{61} + x^{58} + x^{57} + x^{52} + x^{51} + x^{50} + x^{48} + x^{47} + x^{45}\\
&+ x^{44} + x^{42} + x^{41} + x^{40} + x^{39} + x^{37} + x^{36} + x^{35} + x^{33} + x^{31} + x^{30}\\
&+ x^{27},\\
p_3(x) &= x^{137} + x^{136} + x^{135} + x^{130} + x^{129} + x^{128} + x^{126} + x^{125} + x^{124} + x^{121}\\
&+ x^{119} + x^{118} + x^{117} + x^{114} + x^{112} + x^{111} + x^{110} + x^{107} + x^{100}\\
&+ x^{97} + x^{96} + x^{95} + x^{94} + x^{92} + x^{91} + x^{89} + x^{88} + x^{87} + x^{86} + x^{83}\\
&+ x^{76} + x^{73} + x^{72} + x^{71} + x^{70} + x^{68} + x^{67} + x^{62} + x^{59} + x^{58} + x^{57}\\
&+ x^{56} + x^{54} + x^{53} + x^{49} + x^{47} + x^{45} + x^{44} + x^{43} + x^{41} + x^{39} + x^{38}\\
&+ x^{37} + x^{36} + x^{34} + x^{33} + x^{28} + x^{22} + x^{20} + x^{19} + x^{18} + x^{17} + x^{16}\\
&+ x^{13} + x^{12} + x^{11} + x^{10} + x^{9},\\
p_6(x) &= x^{138} + x^{136} + x^{132} + x^{130} + x^{126} + x^{122} + x^{120} + x^{106} + x^{102} + x^{90}\\
&+ x^{84} + x^{82} + x^{78} + x^{76} + x^{72} + x^{68} + x^{66} + x^{64} + x^{62} + x^{50} + x^{48}\\
&+ x^{44} + x^{40} + x^{38} + x^{36} + x^{32} + x^{28} + x^{24} + x^{18} + x^{16} + x^{12} + x^{10}
\end{aligned}
$$

$$
\begin{aligned}
&+ x^{8} + x^{6},\\
p_9(x) &= x^{139} + x^{138} + x^{136} + x^{134} + x^{133} + x^{132} + x^{130} + x^{129} + x^{125} + x^{123}\\
&+ x^{121} + x^{120} + x^{118} + x^{115} + x^{114} + x^{113} + x^{111} + x^{107} + x^{105}\\
&+ x^{104} + x^{103} + x^{102} + x^{101} + x^{99} + x^{98} + x^{97} + x^{93} + x^{90} + x^{89}\\
&+ x^{85} + x^{84} + x^{83} + x^{79} + x^{77} + x^{71} + x^{69} + x^{63} + x^{61} + x^{59} + x^{58}\\
&+ x^{56} + x^{55} + x^{54} + x^{52} + x^{50} + x^{49} + x^{47} + x^{43} + x^{41} + x^{40} + x^{39}\\
&+ x^{38} + x^{37} + x^{35} + x^{34} + x^{33} + x^{29} + x^{27} + x^{25} + x^{24} + x^{22} + x^{19}\\
&+ x^{18} + x^{17} + x^{15} + x^{10} + x^{9} + x^{7} + x^{4} + x^{3},\\
p_{12}(x) &= x^{140} + x^{132} + x^{116} + x^{112} + x^{108} + x^{96} + x^{92} + x^{80} + x^{76} + x^{68} + x^{44}\\
&+ x^{32} + x^{20} + x^{16} + x^{4} + 1,
\end{aligned}
$$

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

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

$$
\begin{aligned}
p_0(x) &= x^{129} + x^{124} + x^{122} + x^{121} + x^{120} + x^{114} + x^{110} + x^{109} + x^{105} + x^{104}\\
&+ x^{103} + x^{101} + x^{100} + x^{98} + x^{97} + x^{94} + x^{91} + x^{90} + x^{86} + x^{84} + x^{83}\\
&+ x^{82} + x^{81} + x^{78} + x^{76} + x^{75} + x^{73} + x^{71} + x^{70} + x^{66} + x^{65} + x^{60}\\
&+ x^{59} + x^{58} + x^{57} + x^{56} + x^{54} + x^{53} + x^{50} + x^{48} + x^{47} + x^{46} + x^{43}\\
&+ x^{41} + x^{39} + x^{38} + x^{37} + x^{36} + x^{33},\\
p_3(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{123} + x^{122} + x^{120} + x^{119} + x^{116} + x^{110}\\
&+ x^{109} + x^{106} + x^{103} + x^{101} + x^{100} + x^{99} + x^{94} + x^{93} + x^{90} + x^{88}\\
&+ x^{87} + x^{85} + x^{83} + x^{80} + x^{79} + x^{77} + x^{73} + x^{70} + x^{68} + x^{64} + x^{63}\\
&+ x^{61} + x^{59} + x^{58} + x^{57} + x^{54} + x^{52} + x^{49} + x^{47} + x^{45} + x^{44} + x^{41}\\
&+ x^{38} + x^{36} + x^{34} + x^{30} + x^{28} + x^{25} + x^{24} + x^{22} + x^{21} + x^{20} + x^{14}\\
&+ x^{12},\\
p_6(x) &= x^{128} + x^{126} + x^{125} + x^{124} + x^{122} + x^{121} + x^{120} + x^{119} + x^{118} + x^{117}\\
&+ x^{114} + x^{110} + x^{107} + x^{103} + x^{102} + x^{100} + x^{98} + x^{95} + x^{94} + x^{93}\\
&+ x^{92} + x^{91} + x^{90} + x^{87} + x^{85} + x^{84} + x^{81} + x^{80} + x^{79} + x^{76} + x^{75}\\
&+ x^{74} + x^{73} + x^{72} + x^{69} + x^{66} + x^{65} + x^{64} + x^{62} + x^{60} + x^{58} + x^{54}\\
&+ x^{51} + x^{50} + x^{49} + x^{47} + x^{45} + x^{44} + x^{43} + x^{42} + x^{41} + x^{40} + x^{36}\\
&+ x^{35} + x^{34} + x^{32} + x^{27} + x^{24} + x^{23} + x^{22} + x^{21} + x^{18} + x^{17} + x^{15}\\
&+ x^{14} + x^{12} + x^{10} + x^{8} + x^{4} + x^{3} + x^{2} + 1,\\
p_9(x) &= x^{128} + x^{127} + x^{126} + x^{124} + x^{112} + x^{111} + x^{110} + x^{107} + x^{106} + x^{103}\\
&+ x^{102} + x^{100} + x^{96} + x^{95} + x^{94} + x^{92} + x^{76} + x^{75} + x^{74} + x^{71} + x^{70}\\
&+ x^{68} + x^{60} + x^{59} + x^{58} + x^{55} + x^{54} + x^{52} + x^{48} + x^{47} + x^{46} + x^{43}\\
&+ x^{42} + x^{39} + x^{38} + x^{36} + x^{32} + x^{31} + x^{30} + x^{28} + x^{16} + x^{15} + x^{14}\\
&+ x^{11} + x^{10} + x^{7} + x^{6} + x^{4},
\end{aligned}
$$

$$\begin{aligned}p_{12}(x) = &x^{128} + x^{127} + x^{126} + x^{123} + x^{122} + x^{119} + x^{118} + x^{116} + x^{108} + x^{107}\\ &+ x^{106} + x^{103} + x^{102} + x^{99} + x^{98} + x^{95} + x^{94} + x^{91} + x^{90} + x^{87} + x^{86}\\ &+ x^{84} + x^{80} + x^{79} + x^{78} + x^{76} + x^{68} + x^{67} + x^{66} + x^{63} + x^{62} + x^{60}\\ &+ x^{52} + x^{51} + x^{50} + x^{48} + x^{44} + x^{43} + x^{42} + x^{39} + x^{38} + x^{35} + x^{34}\\ &+ x^{31} + x^{30} + x^{27} + x^{26} + x^{23} + x^{22} + x^{20} + x^{12} + x^{11} + x^{10} + x^{7}\\ &+ x^{6} + x^{3} + x^{2} + 1,\end{aligned}$$

and the initial terms are [0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 1, 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]	821	[1376, 172]	1642	[2203, 2204]	2463	[2737, 265]
1	[3, 4]	822	[1377, 672]	1643	[2205, 2206]	2464	[2738, 2189]
2	[5, 6]	823	[1378, 1379]	1644	[2207, 435]	2465	[2739, 2740]
3	[7, 8]	824	[729, 1380]	1645	[442, 1198]	2466	[2741, 830]
4	[9, 10]	825	[1381, 625]	1646	[1110, 2208]	2467	[2742, 881]
5	[11, 12]	826	[1382, 1383]	1647	[995, 2209]	2468	[1830, 2743]
6	[13, 14]	827	[1384, 57]	1648	[2210, 402]	2469	[363, 388]
7	[15, 16]	828	[1385, 1386]	1649	[2211, 2212]	2470	[1101, 2744]
8	[17, 18]	829	[1387, 1388]	1650	[2213, 2207]	2471	[1295, 441]
9	[19, 20]	830	[786, 1389]	1651	[1965, 2214]	2472	[248, 2745]
10	[21, 22]	831	[1390, 239]	1652	[1058, 1882]	2473	[2746, 2747]
11	[23, 24]	832	[1391, 1392]	1653	[2215, 1965]	2474	[2748, 919]
12	[25, 26]	833	[1393, 776]	1654	[2216, 2217]	2475	[2749, 1983]
13	[27, 28]	834	[1394, 770]	1655	[2218, 1163]	2476	[2750, 2698]
14	[29, 30]	835	[513, 174]	1656	[2219, 2089]	2477	[2751, 283]
15	[31, 32]	836	[1395, 1396]	1657	[2220, 1007]	2478	[2752, 1120]
16	[33, 34]	837	[177, 488]	1658	[2221, 880]	2479	[2332, 2332]
17	[35, 36]	838	[1397, 579]	1659	[2222, 1842]	2480	[813, 2154]
18	[37, 38]	839	[503, 776]	1660	[2223, 1886]	2481	[2753, 322]
19	[39, 40]	840	[1398, 142]	1661	[2224, 2225]	2482	[1823, 2754]
20	[41, 42]	841	[1399, 589]	1662	[1004, 2226]	2483	[2755, 926]
21	[43, 44]	842	[1400, 1401]	1663	[2227, 472]	2484	[112, 2003]
22	[45, 46]	843	[1402, 1403]	1664	[2228, 2229]	2485	[2756, 251]
23	[47, 48]	844	[1404, 680]	1665	[2230, 2231]	2486	[2757, 1215]
24	[49, 50]	845	[150, 40]	1666	[1308, 2120]	2487	[2758, 2249]
25	[51, 52]	846	[1405, 1406]	1667	[1946, 2232]	2488	[2759, 2760]
26	[53, 54]	847	[1407, 1408]	1668	[2233, 2234]	2489	[2761, 2762]
27	[55, 56]	848	[1409, 1410]	1669	[822, 962]	2490	[937, 2763]
28	[57, 58]	849	[1405, 1411]	1670	[2235, 2194]	2491	[2764, 1040]
29	[59, 60]	850	[1412, 225]	1671	[2236, 1899]	2492	[2765, 1968]
30	[61, 62]	851	[1413, 1414]	1672	[1366, 2237]	2493	[2766, 1091]

31	[63, 64]	852	[1415, 1416]	1673	[2238, 2239]	2494	[2767, 2386]
32	[65, 66]	853	[1417, 1418]	1674	[2240, 2241]	2495	[2768, 258]
33	[67, 68]	854	[1419, 1420]	1675	[1347, 2242]	2496	[2402, 2769]
34	[69, 70]	855	[1421, 781]	1676	[2243, 2244]	2497	[302, 2257]
35	[71, 72]	856	[1422, 808]	1677	[1943, 2245]	2498	[2770, 2771]
36	[73, 74]	857	[1423, 616]	1678	[446, 289]	2499	[2772, 2023]
37	[75, 76]	858	[1424, 763]	1679	[896, 2246]	2500	[2773, 1297]
38	[77, 78]	859	[660, 1425]	1680	[2247, 2248]	2501	[2774, 912]
39	[79, 80]	860	[660, 624]	1681	[2249, 2250]	2502	[2775, 254]
40	[81, 82]	861	[1426, 646]	1682	[2251, 2252]	2503	[2776, 69]
41	[83, 84]	862	[1427, 1389]	1683	[2253, 2254]	2504	[2777, 476]
42	[85, 86]	863	[1428, 1388]	1684	[2186, 2255]	2505	[2778, 950]
43	[87, 88]	864	[1429, 1430]	1685	[2256, 100]	2506	[2779, 2029]
44	[89, 90]	865	[1431, 1432]	1686	[2257, 470]	2507	[2780, 1310]
45	[91, 92]	866	[1433, 481]	1687	[2258, 2259]	2508	[2716, 2781]
46	[93, 94]	867	[655, 1434]	1688	[1988, 2260]	2509	[2782, 982]
47	[95, 96]	868	[1435, 747]	1689	[116, 2261]	2510	[2783, 2784]
48	[97, 98]	869	[743, 1436]	1690	[1315, 2262]	2511	[2785, 2786]
49	[99, 100]	870	[1437, 60]	1691	[2263, 2264]	2512	[2787, 1167]
50	[101, 102]	871	[781, 1438]	1692	[2023, 1877]	2513	[2788, 1340]
51	[103, 104]	872	[628, 662]	1693	[1884, 1010]	2514	[2789, 2790]
52	[105, 106]	873	[624, 1439]	1694	[102, 845]	2515	[16, 2791]
53	[107, 108]	874	[1439, 626]	1695	[18, 2265]	2516	[2792, 1249]
54	[109, 110]	875	[1440, 1441]	1696	[904, 2183]	2517	[2793, 2794]
55	[111, 112]	876	[1442, 499]	1697	[2266, 2267]	2518	[2345, 2795]
56	[113, 114]	877	[650, 1430]	1698	[1898, 2008]	2519	[2796, 2797]
57	[115, 116]	878	[646, 1443]	1699	[2268, 2269]	2520	[2798, 1200]
58	[117, 118]	879	[1385, 638]	1700	[2270, 1034]	2521	[1156, 2799]
59	[119, 120]	880	[619, 658]	1701	[2271, 1023]	2522	[2800, 2801]
60	[121, 122]	881	[1444, 50]	1702	[2272, 109]	2523	[2802, 264]
61	[123, 124]	882	[643, 1445]	1703	[1992, 2273]	2524	[1309, 2803]
62	[125, 126]	883	[1446, 579]	1704	[1367, 1931]	2525	[2804, 954]
63	[127, 128]	884	[1447, 546]	1705	[2274, 2106]	2526	[2805, 2806]
64	[129, 130]	885	[581, 609]	1706	[421, 2275]	2527	[2807, 2808]
65	[9, 131]	886	[1448, 1449]	1707	[2276, 2277]	2528	[2703, 2676]
66	[132, 133]	887	[1450, 1451]	1708	[2278, 2279]	2529	[2809, 2405]
67	[134, 135]	888	[1452, 734]	1709	[2280, 2275]	2530	[2810, 2811]
68	[136, 137]	889	[1453, 590]	1710	[2281, 2282]	2531	[2812, 2813]
69	[39, 138]	890	[1454, 196]	1711	[2283, 2284]	2532	[1272, 2814]
70	[139, 140]	891	[1455, 512]	1712	[2285, 1063]	2533	[2815, 960]
71	[141, 142]	892	[1456, 696]	1713	[2286, 2287]	2534	[2816, 84]
72	[136, 143]	893	[1457, 601]	1714	[2288, 412]	2535	[84, 2817]
73	[144, 145]	894	[1458, 771]	1715	[2289, 1079]	2536	[2818, 460]
74	[146, 147]	895	[1459, 731]	1716	[2290, 366]	2537	[2819, 2820]

75	[148, 135]	896	[1460, 1461]	1717	[2291, 2292]	2538	[2821, 1192]
76	[43, 149]	897	[1462, 670]	1718	[2196, 2293]	2539	[2822, 1207]
77	[150, 138]	898	[576, 1463]	1719	[1981, 2294]	2540	[2823, 2824]
78	[151, 152]	899	[1464, 1465]	1720	[2295, 1892]	2541	[2825, 1900]
79	[153, 154]	900	[675, 536]	1721	[2296, 2297]	2542	[2826, 2045]
80	[155, 156]	901	[1412, 140]	1722	[2298, 2299]	2543	[2827, 2196]
81	[157, 158]	902	[1466, 152]	1723	[2300, 2301]	2544	[2828, 1364]
82	[159, 160]	903	[1467, 577]	1724	[2302, 2303]	2545	[2829, 986]
83	[161, 162]	904	[685, 512]	1725	[2225, 2304]	2546	[2830, 2831]
84	[163, 164]	905	[1468, 600]	1726	[1127, 1189]	2547	[2832, 1093]
85	[165, 166]	906	[1469, 1470]	1727	[2032, 2305]	2548	[2833, 2762]
86	[167, 168]	907	[609, 689]	1728	[2306, 2307]	2549	[2160, 2104]
87	[169, 170]	908	[243, 1471]	1729	[2308, 2309]	2550	[2834, 1870]
88	[171, 172]	909	[1472, 1473]	1730	[1916, 266]	2551	[2835, 2836]
89	[173, 174]	910	[648, 630]	1731	[2310, 2311]	2552	[2837, 2838]
90	[175, 176]	911	[1474, 1475]	1732	[902, 1332]	2553	[334, 2782]
91	[177, 178]	912	[641, 791]	1733	[68, 2312]	2554	[2143, 2839]
92	[179, 180]	913	[1432, 157]	1734	[2313, 2314]	2555	[2840, 2790]
93	[181, 182]	914	[1476, 692]	1735	[2315, 2316]	2556	[834, 2022]
94	[183, 184]	915	[1477, 1478]	1736	[2317, 2318]	2557	[2841, 2842]
95	[185, 186]	916	[239, 1479]	1737	[1862, 2121]	2558	[2843, 2844]
96	[187, 188]	917	[582, 1480]	1738	[2319, 2273]	2559	[1200, 1919]
97	[189, 190]	918	[1481, 1463]	1739	[2320, 1358]	2560	[2845, 991]
98	[191, 192]	919	[1376, 603]	1740	[2321, 973]	2561	[2846, 2009]
99	[193, 194]	920	[686, 489]	1741	[2322, 2323]	2562	[996, 1936]
100	[195, 196]	921	[237, 1482]	1742	[2324, 2325]	2563	[1202, 2847]
101	[197, 198]	922	[1483, 1484]	1743	[2326, 2327]	2564	[2848, 2211]
102	[199, 200]	923	[1456, 184]	1744	[2328, 867]	2565	[850, 1281]
103	[201, 202]	924	[1485, 1486]	1745	[1948, 2329]	2566	[2849, 1331]
104	[203, 204]	925	[726, 191]	1746	[2330, 2059]	2567	[2850, 2148]
105	[205, 194]	926	[1487, 1410]	1747	[2331, 2332]	2568	[2851, 1122]
106	[206, 207]	927	[1488, 1489]	1748	[2333, 2334]	2569	[2852, 2853]
107	[208, 209]	928	[1490, 1491]	1749	[2335, 2252]	2570	[2854, 1983]
108	[210, 211]	929	[1492, 1493]	1750	[2062, 918]	2571	[2855, 2279]
109	[212, 213]	930	[50, 1494]	1751	[2336, 106]	2572	[2856, 2249]
110	[214, 215]	931	[1495, 518]	1752	[1361, 1057]	2573	[2857, 1205]
111	[216, 217]	932	[1440, 1388]	1753	[2337, 1990]	2574	[2858, 1367]
112	[218, 219]	933	[1496, 497]	1754	[2338, 2339]	2575	[2859, 2860]
113	[220, 221]	934	[1497, 239]	1755	[2340, 2341]	2576	[2861, 2862]
114	[222, 223]	935	[1498, 1499]	1756	[2342, 2343]	2577	[2863, 342]
115	[224, 225]	936	[777, 1500]	1757	[2030, 2320]	2578	[2232, 939]
116	[226, 227]	937	[1501, 156]	1758	[2344, 2345]	2579	[2864, 1120]
117	[228, 229]	938	[1425, 1439]	1759	[2197, 2346]	2580	[2865, 1026]
118	[230, 231]	939	[1502, 662]	1760	[2200, 2347]	2581	[2866, 2867]

119	[232, 233]	940	[624, 625]	1761	[2348, 2349]	2582	[2868, 1054]
120	[234, 172]	941	[1503, 748]	1762	[1149, 2350]	2583	[817, 1902]
121	[235, 236]	942	[1423, 1500]	1763	[2351, 365]	2584	[4, 2869]
122	[237, 238]	943	[1504, 1505]	1764	[2352, 1136]	2585	[2870, 2871]
123	[239, 240]	944	[623, 1425]	1765	[2353, 2183]	2586	[2872, 2873]
124	[241, 242]	945	[659, 1506]	1766	[2354, 2355]	2587	[1923, 2874]
125	[243, 244]	946	[1387, 1441]	1767	[2356, 2357]	2588	[2875, 1187]
126	[245, 246]	947	[1507, 9]	1768	[888, 2358]	2589	[2876, 2686]
127	[247, 248]	948	[631, 634]	1769	[2359, 2225]	2590	[2877, 1303]
128	[249, 250]	949	[1508, 789]	1770	[2360, 2361]	2591	[2878, 117]
129	[251, 87]	950	[637, 1386]	1771	[2092, 2182]	2592	[874, 1067]
130	[252, 253]	951	[811, 563]	1772	[1070, 1130]	2593	[1956, 2029]
131	[254, 255]	952	[1444, 1509]	1773	[2362, 1250]	2594	[2879, 1053]
132	[256, 257]	953	[1432, 483]	1774	[2363, 301]	2595	[2880, 1842]
133	[258, 259]	954	[1510, 1511]	1775	[2364, 2155]	2596	[2881, 1279]
134	[260, 261]	955	[1512, 568]	1776	[2117, 2365]	2597	[1123, 2882]
135	[262, 263]	956	[1513, 43]	1777	[2366, 2367]	2598	[2883, 2884]
136	[264, 265]	957	[570, 598]	1778	[2368, 380]	2599	[2885, 1897]
137	[266, 267]	958	[512, 182]	1779	[2369, 2370]	2600	[2886, 1318]
138	[268, 269]	959	[1514, 1515]	1780	[2371, 2000]	2601	[2887, 2166]
139	[270, 29]	960	[206, 1516]	1781	[2372, 2068]	2602	[2888, 2889]
140	[271, 272]	961	[579, 1517]	1782	[2373, 279]	2603	[2890, 2776]
141	[273, 274]	962	[511, 575]	1783	[1959, 2374]	2604	[2891, 1058]
142	[275, 276]	963	[1457, 1379]	1784	[2267, 2375]	2605	[2892, 2893]
143	[277, 278]	964	[1518, 174]	1785	[2376, 1268]	2606	[1218, 2894]
144	[279, 280]	965	[585, 1519]	1786	[2377, 2378]	2607	[2895, 2008]
145	[281, 282]	966	[1452, 1520]	1787	[2379, 2380]	2608	[2896, 2897]
146	[283, 284]	967	[1521, 1522]	1788	[434, 2381]	2609	[2898, 1913]
147	[285, 286]	968	[1523, 638]	1789	[2382, 1182]	2610	[2899, 2900]
148	[287, 288]	969	[564, 61]	1790	[2383, 2384]	2611	[2901, 2835]
149	[289, 290]	970	[528, 1505]	1791	[1359, 2385]	2612	[1102, 2747]
150	[291, 292]	971	[1524, 1525]	1792	[2386, 1887]	2613	[2902, 2903]
151	[293, 294]	972	[541, 1494]	1793	[2346, 2000]	2614	[2068, 1167]
152	[295, 296]	973	[1526, 720]	1794	[2387, 366]	2615	[2904, 2905]
153	[297, 298]	974	[1527, 236]	1795	[2388, 2389]	2616	[2906, 2683]
154	[299, 300]	975	[1528, 1529]	1796	[2390, 1333]	2617	[2907, 890]
155	[301, 302]	976	[1530, 712]	1797	[6, 2075]	2618	[2908, 252]
156	[303, 304]	977	[659, 663]	1798	[2391, 2392]	2619	[2909, 2910]
157	[305, 306]	978	[1531, 1532]	1799	[2393, 18]	2620	[2882, 1204]
158	[307, 308]	979	[633, 632]	1800	[1173, 1128]	2621	[2911, 892]
159	[309, 310]	980	[754, 50]	1801	[2095, 381]	2622	[2912, 2913]
160	[311, 312]	981	[1383, 1533]	1802	[2394, 2294]	2623	[2914, 2831]
161	[313, 314]	982	[783, 623]	1803	[2307, 2395]	2624	[2915, 1253]
162	[315, 316]	983	[1425, 625]	1804	[2396, 2397]	2625	[1141, 2916]

163	[317, 318]	984	[1534, 1529]	1805	[2398, 2044]	2626	[2917, 306]
164	[319, 320]	985	[1504, 529]	1806	[2399, 1162]	2627	[2918, 1255]
165	[321, 322]	986	[1535, 1536]	1807	[2072, 2040]	2628	[2919, 1295]
166	[323, 324]	987	[621, 1438]	1808	[2400, 834]	2629	[2920, 409]
167	[325, 326]	988	[1537, 1538]	1809	[1281, 2122]	2630	[2921, 2922]
168	[327, 328]	989	[1539, 1523]	1810	[2401, 2402]	2631	[2923, 2770]
169	[329, 330]	990	[642, 1540]	1811	[467, 2403]	2632	[2924, 2197]
170	[331, 332]	991	[811, 518]	1812	[2404, 2308]	2633	[2925, 2303]
171	[333, 334]	992	[1541, 1542]	1813	[336, 825]	2634	[2303, 2926]
172	[335, 336]	993	[1543, 1544]	1814	[2405, 1097]	2635	[2927, 2051]
173	[337, 338]	994	[1545, 1546]	1815	[2406, 369]	2636	[2928, 1841]
174	[339, 340]	995	[498, 38]	1816	[2245, 2407]	2637	[1030, 2929]
175	[341, 342]	996	[1547, 227]	1817	[2184, 285]	2638	[2930, 1361]
176	[343, 344]	997	[1548, 1516]	1818	[2408, 1016]	2639	[419, 2931]
177	[345, 346]	998	[1549, 1550]	1819	[2409, 2410]	2640	[2392, 2932]
178	[347, 348]	999	[1551, 1552]	1820	[2411, 2150]	2641	[2933, 2245]
179	[349, 350]	1000	[52, 57]	1821	[868, 2412]	2642	[2934, 2935]
180	[351, 352]	1001	[1553, 1554]	1822	[2413, 2414]	2643	[2936, 958]
181	[353, 354]	1002	[697, 697]	1823	[2415, 1714]	2644	[2937, 2938]
182	[355, 356]	1003	[1555, 515]	1824	[2416, 635]	2645	[2939, 254]
183	[357, 358]	1004	[1556, 1557]	1825	[1490, 643]	2646	[2940, 2941]
184	[352, 359]	1005	[1558, 540]	1826	[1433, 1757]	2647	[2942, 2943]
185	[360, 361]	1006	[1559, 188]	1827	[1576, 656]	2648	[2944, 298]
186	[362, 363]	1007	[707, 712]	1828	[1533, 640]	2649	[2945, 963]
187	[364, 365]	1008	[1560, 1561]	1829	[2417, 1597]	2650	[2946, 2046]
188	[366, 367]	1009	[718, 184]	1830	[2418, 175]	2651	[2947, 2318]
189	[368, 369]	1010	[506, 1562]	1831	[1556, 1562]	2652	[2948, 2681]
190	[370, 371]	1011	[175, 1563]	1832	[1395, 556]	2653	[2949, 2950]
191	[310, 372]	1012	[1564, 61]	1833	[2419, 766]	2654	[1940, 2951]
192	[373, 374]	1013	[525, 1525]	1834	[2420, 1580]	2655	[2952, 2859]
193	[375, 376]	1014	[1559, 1554]	1835	[2421, 154]	2656	[2953, 1269]
194	[377, 378]	1015	[1565, 772]	1836	[1813, 625]	2657	[2954, 1218]
195	[379, 380]	1016	[182, 571]	1837	[1737, 1614]	2658	[2955, 2784]
196	[381, 382]	1017	[664, 1566]	1838	[1534, 1579]	2659	[2956, 2957]
197	[383, 384]	1018	[1567, 1568]	1839	[1424, 1568]	2660	[2683, 1872]
198	[385, 386]	1019	[1569, 1536]	1840	[2422, 1491]	2661	[2958, 2959]
199	[387, 388]	1020	[1570, 1571]	1841	[791, 1540]	2662	[2960, 1311]
200	[389, 390]	1021	[1572, 660]	1842	[787, 1588]	2663	[2961, 63]
201	[391, 392]	1022	[1573, 1574]	1843	[1795, 2423]	2664	[2962, 2963]
202	[393, 394]	1023	[1497, 1575]	1844	[2424, 2425]	2665	[2964, 868]
203	[395, 396]	1024	[635, 1475]	1845	[2426, 1458]	2666	[2965, 1873]
204	[397, 398]	1025	[1576, 1434]	1846	[1638, 1488]	2667	[2966, 2396]
205	[399, 400]	1026	[1495, 563]	1847	[41, 728]	2668	[2967, 2896]
206	[401, 402]	1027	[654, 1577]	1848	[2427, 42]	2669	[2968, 1019]

207	[403, 404]	1028	[1491, 1445]	1849	[1639, 1759]	2670	[2969, 1292]
208	[405, 401]	1029	[1578, 1579]	1850	[2428, 2429]	2671	[2970, 2015]
209	[406, 407]	1030	[778, 1580]	1851	[2430, 592]	2672	[2971, 1171]
210	[408, 104]	1031	[1535, 1581]	1852	[2431, 1654]	2673	[2972, 2973]
211	[409, 410]	1032	[1582, 1583]	1853	[146, 1401]	2674	[2974, 2457]
212	[411, 251]	1033	[784, 1532]	1854	[1657, 1411]	2675	[2555, 758]
213	[412, 413]	1034	[1507, 1584]	1855	[1628, 793]	2676	[1460, 611]
214	[414, 415]	1035	[1498, 1585]	1856	[2432, 795]	2677	[2975, 1632]
215	[416, 417]	1036	[1586, 32]	1857	[2433, 1630]	2678	[2976, 1508]
216	[418, 419]	1037	[1587, 1588]	1858	[2434, 2435]	2679	[1431, 653]
217	[420, 421]	1038	[1589, 1590]	1859	[1489, 1812]	2680	[1492, 2479]
218	[422, 423]	1039	[1591, 634]	1860	[2436, 2437]	2681	[2458, 2554]
219	[424, 425]	1040	[199, 204]	1861	[1703, 1529]	2682	[1401, 491]
220	[426, 427]	1041	[1592, 204]	1862	[1800, 782]	2683	[575, 504]
221	[428, 429]	1042	[490, 1593]	1863	[1435, 780]	2684	[1620, 1511]
222	[430, 373]	1043	[1549, 1594]	1864	[1738, 210]	2685	[2665, 1664]
223	[431, 432]	1044	[1595, 479]	1865	[1538, 619]	2686	[2471, 614]
224	[433, 434]	1045	[1596, 1509]	1866	[1815, 1383]	2687	[1632, 2644]
225	[435, 436]	1046	[483, 158]	1867	[55, 2438]	2688	[2977, 748]
226	[437, 438]	1047	[486, 544]	1868	[1757, 2439]	2689	[2978, 166]
227	[439, 440]	1048	[1597, 1598]	1869	[622, 536]	2690	[1578, 1529]
228	[441, 442]	1049	[1599, 590]	1870	[2440, 779]	2691	[1501, 213]
229	[443, 444]	1050	[1600, 207]	1871	[2441, 1395]	2692	[2979, 1795]
230	[445, 446]	1051	[1601, 1602]	1872	[2442, 672]	2693	[2579, 711]
231	[380, 447]	1052	[1513, 1603]	1873	[504, 1604]	2694	[2523, 56]
232	[448, 449]	1053	[218, 684]	1874	[2443, 547]	2695	[1689, 1386]
233	[450, 451]	1054	[1604, 548]	1875	[2444, 488]	2696	[61, 2980]
234	[452, 453]	1055	[1605, 1606]	1876	[2418, 772]	2697	[2981, 530]
235	[454, 455]	1056	[1371, 1607]	1877	[2445, 170]	2698	[155, 213]
236	[456, 457]	1057	[172, 574]	1878	[2446, 154]	2699	[2982, 183]
237	[458, 459]	1058	[1608, 170]	1879	[714, 703]	2700	[2450, 36]
238	[460, 461]	1059	[1609, 1371]	1880	[524, 2447]	2701	[1591, 632]
239	[462, 463]	1060	[1447, 1380]	1881	[2448, 547]	2702	[2647, 1584]
240	[464, 465]	1061	[1610, 1611]	1882	[719, 685]	2703	[2584, 1680]
241	[466, 467]	1062	[610, 1461]	1883	[1805, 506]	2704	[2455, 2479]
242	[468, 469]	1063	[1612, 586]	1884	[804, 175]	2705	[2649, 811]
243	[470, 471]	1064	[682, 130]	1885	[169, 1642]	2706	[1464, 1486]
244	[472, 473]	1065	[663, 782]	1886	[182, 1604]	2707	[1564, 2563]
245	[474, 475]	1066	[1613, 1506]	1887	[1699, 607]	2708	[1639, 1489]
246	[476, 477]	1067	[1613, 663]	1888	[720, 516]	2709	[2983, 1538]
247	[478, 479]	1068	[626, 659]	1889	[562, 518]	2710	[1814, 665]
248	[480, 481]	1069	[1574, 1614]	1890	[765, 768]	2711	[1437, 712]
249	[482, 211]	1070	[1572, 623]	1891	[560, 558]	2712	[2984, 1736]
250	[483, 484]	1071	[1615, 1425]	1892	[702, 190]	2713	[2985, 764]

251	[485, 171]	1072	[1616, 626]	1893	[795, 2449]	2714	[2986, 1710]
252	[486, 487]	1073	[1574, 1574]	1894	[2450, 2451]	2715	[2596, 1566]
253	[488, 489]	1074	[1617, 1618]	1895	[33, 1389]	2716	[2484, 561]
254	[490, 491]	1075	[1603, 149]	1896	[2452, 2453]	2717	[1770, 1515]
255	[492, 493]	1076	[1619, 1620]	1897	[599, 549]	2718	[1734, 692]
256	[494, 495]	1077	[1400, 147]	1898	[1481, 577]	2719	[46, 1418]
257	[496, 497]	1078	[1621, 1622]	1899	[482, 2454]	2720	[2987, 621]
258	[498, 499]	1079	[1623, 137]	1900	[2455, 1493]	2721	[741, 1618]
259	[500, 501]	1080	[1624, 204]	1901	[2456, 746]	2722	[2543, 589]
260	[502, 503]	1081	[1625, 42]	1902	[1372, 2457]	2723	[2470, 1404]
261	[181, 504]	1082	[1626, 45]	1903	[1773, 1472]	2724	[1413, 1681]
262	[505, 506]	1083	[1627, 1373]	1904	[2458, 1511]	2725	[2514, 1647]
263	[507, 508]	1084	[1628, 152]	1905	[1771, 143]	2726	[1594, 1631]
264	[509, 510]	1085	[1629, 1630]	1906	[2459, 1821]	2727	[2461, 2437]
265	[511, 512]	1086	[132, 1416]	1907	[2460, 2461]	2728	[1488, 1759]
266	[513, 514]	1087	[1550, 1631]	1908	[2462, 734]	2729	[2988, 194]
267	[515, 516]	1088	[1632, 1633]	1909	[2463, 795]	2730	[2989, 1468]
268	[517, 518]	1089	[1634, 198]	1910	[1404, 592]	2731	[1765, 2586]
269	[519, 520]	1090	[1635, 1411]	1911	[2464, 1651]	2732	[1493, 656]
270	[521, 154]	1091	[1636, 1410]	1912	[2463, 45]	2733	[615, 1500]
271	[522, 523]	1092	[1372, 587]	1913	[1793, 1410]	2734	[1530, 60]
272	[524, 520]	1093	[1637, 1604]	1914	[2465, 604]	2735	[2628, 1552]
273	[525, 526]	1094	[1446, 508]	1915	[2466, 1458]	2736	[2990, 642]
274	[527, 211]	1095	[1468, 236]	1916	[2467, 515]	2737	[2991, 1702]
275	[528, 529]	1096	[1638, 1639]	1917	[1780, 1639]	2738	[1558, 1522]
276	[530, 531]	1097	[147, 491]	1918	[230, 682]	2739	[2984, 1570]
277	[532, 533]	1098	[727, 42]	1919	[603, 685]	2740	[2992, 158]
278	[487, 534]	1099	[1640, 40]	1920	[1601, 141]	2741	[2993, 1474]
279	[535, 536]	1100	[1641, 1447]	1921	[1792, 1409]	2742	[2422, 643]
280	[537, 538]	1101	[543, 487]	1922	[683, 219]	2743	[1597, 1606]
281	[539, 540]	1102	[1608, 1642]	1923	[2457, 2468]	2744	[2623, 236]
282	[541, 542]	1103	[1643, 1644]	1924	[1602, 142]	2745	[479, 2480]
283	[543, 544]	1104	[1645, 1471]	1925	[2469, 1620]	2746	[2448, 183]
284	[545, 546]	1105	[1629, 1646]	1926	[2470, 2430]	2747	[1455, 575]
285	[547, 184]	1106	[8, 1647]	1927	[1621, 1549]	2748	[2994, 1608]
286	[548, 549]	1107	[1648, 1622]	1928	[2471, 1418]	2749	[1789, 2995]
287	[550, 551]	1108	[1649, 229]	1929	[1727, 2472]	2750	[2419, 711]
288	[552, 552]	1109	[1650, 1651]	1930	[2473, 230]	2751	[1820, 1468]
289	[553, 554]	1110	[1652, 1593]	1931	[574, 512]	2752	[2996, 1663]
290	[555, 556]	1111	[1653, 1654]	1932	[1664, 1821]	2753	[2997, 2998]
291	[557, 558]	1112	[1655, 1404]	1933	[2474, 1491]	2754	[2414, 1705]
292	[559, 529]	1113	[1656, 1622]	1934	[1746, 1739]	2755	[589, 1718]
293	[560, 162]	1114	[1657, 1406]	1935	[2475, 1532]	2756	[2999, 671]
294	[537, 561]	1115	[1658, 1377]	1936	[2476, 793]	2757	[1660, 1488]

295	[562, 563]	1116	[1659, 729]	1937	[1661, 198]	2758	[3000, 2995]
296	[167, 564]	1117	[1660, 1639]	1938	[45, 2449]	2759	[2460, 2436]
297	[565, 14]	1118	[1661, 677]	1939	[478, 2477]	2760	[3001, 2468]
298	[566, 149]	1119	[1374, 225]	1940	[2478, 2479]	2761	[2666, 492]
299	[567, 568]	1120	[1454, 1662]	1941	[2480, 1714]	2762	[2612, 196]
300	[569, 228]	1121	[1663, 1645]	1942	[2481, 1766]	2763	[1783, 3002]
301	[570, 233]	1122	[1637, 571]	1943	[57, 806]	2764	[3003, 1640]
302	[571, 548]	1123	[1664, 605]	1944	[2442, 2482]	2765	[3004, 2642]
303	[572, 489]	1124	[1665, 180]	1945	[1615, 624]	2766	[3005, 1372]
304	[508, 573]	1125	[1518, 514]	1946	[1667, 1572]	2767	[2546, 1518]
305	[574, 575]	1126	[663, 1572]	1947	[2483, 744]	2768	[494, 2646]
306	[576, 577]	1127	[782, 623]	1948	[2484, 538]	2769	[32, 2608]
307	[578, 579]	1128	[1666, 663]	1949	[2485, 1538]	2770	[2670, 805]
308	[580, 514]	1129	[1506, 782]	1950	[2486, 2479]	2771	[479, 807]
309	[581, 582]	1130	[1667, 782]	1951	[2487, 1707]	2772	[2999, 1377]
310	[583, 584]	1131	[1381, 1439]	1952	[1390, 1575]	2773	[2989, 235]
311	[585, 586]	1132	[1666, 1506]	1953	[2488, 32]	2774	[3006, 1432]
312	[587, 588]	1133	[1614, 1574]	1954	[2489, 651]	2775	[3007, 492]
313	[589, 590]	1134	[626, 662]	1955	[2476, 152]	2776	[1466, 793]
314	[591, 592]	1135	[1668, 1511]	1956	[1375, 1816]	2777	[3008, 3009]
315	[593, 594]	1136	[1669, 44]	1957	[135, 733]	2778	[3010, 1782]
316	[595, 596]	1137	[1670, 1671]	1958	[1391, 2423]	2779	[3011, 2519]
317	[597, 598]	1138	[1672, 43]	1959	[632, 730]	2780	[3004, 186]
318	[599, 171]	1139	[1673, 605]	1960	[1736, 1798]	2781	[2532, 3012]
319	[235, 600]	1140	[1674, 1611]	1961	[1748, 2490]	2782	[2592, 1425]
320	[601, 602]	1141	[1448, 1675]	1962	[2491, 2486]	2783	[3013, 1740]
321	[234, 603]	1142	[1676, 1677]	1963	[2492, 1762]	2784	[2486, 1493]
322	[604, 605]	1143	[682, 1678]	1964	[760, 701]	2785	[3014, 781]
323	[578, 508]	1144	[1679, 1680]	1965	[559, 1505]	2786	[2978, 764]
324	[606, 607]	1145	[788, 1681]	1966	[1685, 1436]	2787	[2672, 1702]
325	[608, 609]	1146	[1682, 1683]	1967	[2487, 1542]	2788	[717, 1702]
326	[610, 611]	1147	[1650, 1684]	1968	[791, 790]	2789	[3015, 2646]
327	[612, 613]	1148	[1685, 744]	1969	[754, 1509]	2790	[2627, 634]
328	[46, 614]	1149	[1686, 779]	1970	[792, 657]	2791	[32, 3016]
329	[615, 616]	1150	[1582, 749]	1971	[1711, 720]	2792	[3017, 553]
330	[617, 618]	1151	[1687, 1688]	1972	[178, 489]	2793	[3018, 785]
331	[619, 620]	1152	[1539, 1689]	1973	[644, 1581]	2794	[1496, 799]
332	[621, 622]	1153	[753, 1444]	1974	[2493, 1689]	2795	[500, 737]
333	[623, 624]	1154	[47, 1690]	1975	[2494, 1696]	2796	[706, 761]
334	[625, 626]	1155	[1691, 1451]	1976	[38, 1461]	2797	[163, 618]
335	[627, 623]	1156	[1692, 1693]	1977	[2495, 2496]	2798	[3019, 2998]
336	[625, 628]	1157	[1694, 1449]	1978	[2497, 1678]	2799	[1451, 3020]
337	[629, 630]	1158	[758, 1695]	1979	[2436, 2498]	2800	[3021, 613]
338	[631, 632]	1159	[1696, 166]	1980	[2499, 2500]	2801	[1477, 1631]

339	[633, 634]	1160	[715, 1697]	1981	[769, 2482]	2802	[3022, 2525]
340	[635, 636]	1161	[710, 766]	1982	[2501, 487]	2803	[651, 1630]
341	[637, 638]	1162	[1698, 164]	1983	[1623, 143]	2804	[2504, 740]
342	[639, 640]	1163	[1699, 771]	1984	[1408, 493]	2805	[3023, 2490]
343	[641, 642]	1164	[555, 1396]	1985	[2502, 9]	2806	[2591, 805]
344	[643, 644]	1165	[1700, 1701]	1986	[1755, 2453]	2807	[1749, 1677]
345	[645, 646]	1166	[179, 237]	1987	[1794, 616]	2808	[3024, 1812]
346	[647, 497]	1167	[694, 504]	1988	[1704, 538]	2809	[3025, 1683]
347	[648, 649]	1168	[1702, 684]	1989	[653, 483]	2810	[1747, 2486]
348	[650, 651]	1169	[1703, 1579]	1990	[2503, 10]	2811	[3026, 3027]
349	[652, 653]	1170	[1704, 561]	1991	[2504, 1742]	2812	[1691, 1677]
350	[654, 187]	1171	[1569, 1581]	1992	[1453, 1718]	2813	[2660, 1471]
351	[655, 656]	1172	[667, 1705]	1993	[2505, 751]	2814	[241, 3028]
352	[657, 658]	1173	[662, 1506]	1994	[2506, 754]	2815	[2473, 681]
353	[628, 659]	1174	[1706, 1707]	1995	[2507, 2508]	2816	[1705, 2625]
354	[627, 660]	1175	[1708, 499]	1996	[1377, 2482]	2817	[2625, 1561]
355	[661, 659]	1176	[1709, 1588]	1997	[2509, 685]	2818	[2983, 792]
356	[662, 663]	1177	[1710, 1585]	1998	[695, 553]	2819	[3029, 667]
357	[664, 665]	1178	[1383, 639]	1999	[2510, 180]	2820	[2992, 484]
358	[666, 529]	1179	[1544, 501]	2000	[770, 549]	2821	[2568, 1538]
359	[667, 668]	1180	[1711, 515]	2001	[1702, 219]	2822	[3030, 597]
360	[669, 670]	1181	[1701, 1598]	2002	[2511, 671]	2823	[3031, 1395]
361	[671, 672]	1182	[1553, 188]	2003	[575, 182]	2824	[2595, 1380]
362	[673, 674]	1183	[1712, 781]	2004	[2426, 606]	2825	[2656, 2456]
363	[675, 676]	1184	[1573, 1614]	2005	[1370, 1469]	2826	[2520, 526]
364	[197, 677]	1185	[1713, 1498]	2006	[2512, 230]	2827	[3032, 1767]
365	[678, 138]	1186	[1442, 38]	2007	[194, 2457]	2828	[1721, 14]
366	[679, 680]	1187	[1422, 1714]	2008	[1772, 571]	2829	[1421, 621]
367	[681, 682]	1188	[748, 1583]	2009	[2425, 1642]	2830	[3033, 1391]
368	[683, 684]	1189	[1502, 659]	2010	[1802, 45]	2831	[1708, 38]
369	[172, 685]	1190	[1715, 1388]	2011	[2513, 1549]	2832	[3034, 576]
370	[686, 687]	1191	[1709, 788]	2012	[2430, 680]	2833	[568, 2429]
371	[601, 688]	1192	[1716, 187]	2013	[499, 611]	2834	[1751, 761]
372	[582, 689]	1193	[1538, 657]	2014	[2514, 2515]	2835	[2493, 1523]
373	[690, 691]	1194	[1717, 1718]	2015	[1550, 1478]	2836	[2477, 807]
374	[692, 246]	1195	[1719, 143]	2016	[1727, 1761]	2837	[1589, 797]
375	[693, 232]	1196	[1720, 1721]	2017	[1769, 1671]	2838	[1587, 788]
376	[694, 182]	1197	[1722, 1409]	2018	[595, 228]	2839	[2563, 2980]
377	[695, 532]	1198	[232, 598]	2019	[1673, 1821]	2840	[3035, 500]
378	[507, 579]	1199	[1371, 1470]	2020	[1616, 628]	2841	[1521, 540]
379	[547, 696]	1200	[1723, 233]	2021	[2516, 733]	2842	[2479, 656]
380	[697, 552]	1201	[1724, 731]	2022	[551, 684]	2843	[1720, 594]
381	[698, 607]	1202	[1694, 1675]	2023	[1726, 697]	2844	[1672, 1603]
382	[487, 699]	1203	[1671, 1725]	2024	[2517, 1606]	2845	[2987, 781]

383	[700, 701]	1204	[803, 1463]	2025	[1379, 688]	2846	[669, 1484]
384	[702, 703]	1205	[1726, 552]	2026	[2432, 45]	2847	[731, 2634]
385	[704, 640]	1206	[127, 1727]	2027	[38, 611]	2848	[722, 2529]
386	[705, 564]	1207	[549, 172]	2028	[1810, 2518]	2849	[141, 2535]
387	[706, 701]	1208	[1728, 1725]	2029	[2427, 728]	2850	[1721, 1788]
388	[707, 60]	1209	[1636, 1729]	2030	[2519, 227]	2851	[3036, 1664]
389	[157, 484]	1210	[593, 1721]	2031	[2520, 1525]	2852	[3037, 2436]
390	[705, 168]	1211	[1730, 1719]	2032	[481, 2439]	2853	[1817, 1471]
391	[708, 524]	1212	[1605, 1598]	2033	[676, 2521]	2854	[3007, 1408]
392	[709, 620]	1213	[579, 573]	2034	[2522, 1560]	2855	[1602, 2535]
393	[710, 711]	1214	[1599, 1718]	2035	[1752, 213]	2856	[1808, 1408]
394	[59, 712]	1215	[566, 44]	2036	[1565, 175]	2857	[2424, 1608]
395	[713, 711]	1216	[485, 549]	2037	[2523, 2438]	2858	[3038, 723]
396	[714, 190]	1217	[1724, 1731]	2038	[1493, 1434]	2859	[1692, 691]
397	[517, 563]	1218	[1732, 1733]	2039	[530, 1768]	2860	[1519, 2661]
398	[715, 716]	1219	[1734, 245]	2040	[173, 514]	2861	[3013, 1383]
399	[717, 551]	1220	[231, 130]	2041	[544, 699]	2862	[2533, 1757]
400	[549, 603]	1221	[1735, 1736]	2042	[1491, 644]	2863	[3039, 1582]
401	[718, 696]	1222	[1528, 1579]	2043	[2475, 785]	2864	[594, 1788]
402	[719, 574]	1223	[617, 164]	2044	[1429, 651]	2865	[3040, 2414]
403	[553, 533]	1224	[1737, 1574]	2045	[805, 58]	2866	[3041, 1419]
404	[720, 721]	1225	[50, 542]	2046	[1445, 1536]	2867	[493, 691]
405	[722, 723]	1226	[1533, 523]	2047	[488, 687]	2868	[2511, 1377]
406	[724, 725]	1227	[1738, 1739]	2048	[2524, 2525]	2869	[8, 2515]
407	[726, 223]	1228	[1740, 639]	2049	[2526, 221]	2870	[3029, 2414]
408	[727, 728]	1229	[1741, 501]	2050	[2527, 61]	2871	[2985, 166]
409	[679, 592]	1230	[651, 1646]	2051	[224, 140]	2872	[2526, 2530]
410	[194, 587]	1231	[739, 1742]	2052	[2528, 2529]	2873	[535, 676]
411	[551, 219]	1232	[1743, 1651]	2053	[220, 2530]	2874	[1472, 735]
412	[729, 546]	1233	[1744, 1745]	2054	[2531, 2532]	2875	[3042, 748]
413	[180, 238]	1234	[1746, 210]	2055	[2485, 792]	2876	[3043, 1632]
414	[634, 730]	1235	[1747, 1492]	2056	[2533, 481]	2877	[3044, 1467]
415	[731, 732]	1236	[1748, 1745]	2057	[1715, 1441]	2878	[1778, 230]
416	[733, 734]	1237	[1749, 1451]	2058	[1770, 1725]	2879	[2657, 670]
417	[613, 735]	1238	[1750, 1631]	2059	[1771, 137]	2880	[629, 649]
418	[736, 737]	1239	[1751, 701]	2060	[2534, 141]	2881	[1671, 1515]
419	[632, 738]	1240	[1752, 156]	2061	[1790, 1719]	2882	[571, 770]
420	[739, 740]	1241	[522, 640]	2062	[512, 504]	2883	[1809, 1414]
421	[741, 742]	1242	[1753, 716]	2063	[1398, 2535]	2884	[2495, 2435]
422	[743, 744]	1243	[1541, 1707]	2064	[1653, 2464]	2885	[2465, 1664]
423	[745, 618]	1244	[1754, 9]	2065	[1807, 794]	2886	[2996, 1819]
424	[746, 747]	1245	[1622, 1594]	2066	[565, 1788]	2887	[3045, 2646]
425	[748, 749]	1246	[796, 1590]	2067	[1600, 1516]	2888	[3046, 1775]
426	[750, 751]	1247	[37, 499]	2068	[1393, 510]	2889	[3047, 2439]

427	[752, 642]	1248	[1755, 1756]	2069	[2536, 237]	2890	[3048, 199]
428	[753, 754]	1249	[1555, 720]	2070	[2537, 1467]	2891	[2528, 723]
429	[755, 756]	1250	[809, 1757]	2071	[2466, 606]	2892	[3049, 2659]
430	[757, 692]	1251	[1552, 746]	2072	[2538, 544]	2893	[222, 191]
431	[634, 738]	1252	[1758, 242]	2073	[2539, 681]	2894	[1731, 2634]
432	[758, 759]	1253	[1759, 1760]	2074	[1401, 1593]	2895	[2994, 2425]
433	[760, 761]	1254	[128, 1761]	2075	[1487, 1729]	2896	[1594, 1478]
434	[762, 763]	1255	[794, 1516]	2076	[1819, 1817]	2897	[1419, 1804]
435	[165, 764]	1256	[1403, 733]	2077	[1654, 1684]	2898	[2557, 142]
436	[765, 160]	1257	[755, 1762]	2078	[1793, 1729]	2899	[3037, 2461]
437	[713, 766]	1258	[1596, 50]	2079	[2469, 1668]	2900	[493, 1693]
438	[767, 561]	1259	[1763, 1764]	2080	[2540, 1548]	2901	[3050, 2477]
439	[704, 523]	1260	[750, 1688]	2081	[2541, 1419]	2902	[3031, 555]
440	[159, 768]	1261	[1765, 1766]	2082	[1584, 131]	2903	[1527, 600]
441	[769, 672]	1262	[1689, 638]	2083	[2434, 2496]	2904	[3015, 495]
442	[770, 171]	1263	[1767, 1768]	2084	[2542, 742]	2905	[2572, 788]
443	[698, 771]	1264	[1514, 1725]	2085	[2543, 1599]	2906	[3051, 2425]
444	[772, 176]	1265	[1669, 149]	2086	[2540, 794]	2907	[2632, 1639]
445	[773, 553]	1266	[1769, 1770]	2087	[2544, 558]	2908	[3052, 488]
446	[774, 555]	1267	[1730, 1771]	2088	[2445, 1642]	2909	[2573, 2477]
447	[775, 776]	1268	[603, 574]	2089	[548, 171]	2910	[3053, 210]
448	[777, 616]	1269	[1772, 1604]	2090	[505, 1556]	2911	[3054, 2652]
449	[778, 779]	1270	[1609, 1469]	2091	[2510, 237]	2912	[1537, 792]
450	[746, 780]	1271	[1674, 241]	2092	[183, 696]	2913	[1384, 805]
451	[781, 622]	1272	[583, 1733]	2093	[2545, 1467]	2914	[2609, 630]
452	[782, 660]	1273	[1773, 613]	2094	[2546, 580]	2915	[3055, 128]
453	[783, 660]	1274	[1774, 1775]	2095	[2538, 487]	2916	[1611, 3028]
454	[784, 785]	1275	[1509, 1494]	2096	[1819, 1645]	2917	[3056, 217]
455	[786, 34]	1276	[212, 156]	2097	[2547, 1740]	2918	[148, 1403]
456	[787, 788]	1277	[1776, 1777]	2098	[2548, 649]	2919	[3051, 1608]
457	[646, 789]	1278	[1778, 681]	2099	[1427, 34]	2920	[3005, 194]
458	[642, 790]	1279	[195, 1662]	2100	[2549, 723]	2921	[3057, 506]
459	[639, 523]	1280	[1779, 1640]	2101	[1723, 598]	2922	[3058, 1469]
460	[752, 791]	1281	[1635, 1406]	2102	[1547, 1816]	2923	[3050, 479]
461	[792, 619]	1282	[1780, 1488]	2103	[2550, 1411]	2924	[502, 775]
462	[151, 793]	1283	[1781, 1782]	2104	[1575, 240]	2925	[2645, 495]
463	[139, 225]	1284	[1739, 211]	2105	[1731, 732]	2926	[1544, 737]
464	[794, 207]	1285	[189, 703]	2106	[2457, 588]	2927	[3059, 197]
465	[795, 46]	1286	[1783, 1784]	2107	[245, 2551]	2928	[1774, 209]
466	[796, 797]	1287	[1785, 810]	2108	[1710, 1499]	2929	[223, 3060]
467	[798, 497]	1288	[1545, 1786]	2109	[1740, 1533]	2930	[2997, 2525]
468	[496, 799]	1289	[1787, 34]	2110	[757, 245]	2931	[609, 1480]
469	[800, 801]	1290	[800, 1680]	2111	[2474, 643]	2932	[692, 2551]
470	[802, 552]	1291	[13, 1788]	2112	[2534, 1602]	2933	[3061, 519]

471	[803, 577]	1292	[591, 680]	2113	[569, 596]	2934	[3049, 2664]
472	[804, 772]	1293	[567, 1789]	2114	[2517, 1598]	2935	[2531, 214]
473	[532, 554]	1294	[1790, 1771]	2115	[180, 1482]	2936	[2537, 576]
474	[805, 806]	1295	[1604, 770]	2116	[1799, 2552]	2937	[2648, 1689]
475	[807, 808]	1296	[508, 1517]	2117	[1732, 584]	2938	[2456, 1435]
476	[809, 481]	1297	[1378, 601]	2118	[1676, 1451]	2939	[1789, 2429]
477	[810, 811]	1298	[1459, 1731]	2119	[2449, 614]	2940	[1806, 145]
478	[812, 813]	1299	[1791, 131]	2120	[2553, 628]	2941	[1655, 2430]
479	[814, 815]	1300	[1512, 1789]	2121	[2553, 626]	2942	[3062, 1403]
480	[816, 817]	1301	[1792, 1793]	2122	[1592, 200]	2943	[2614, 1662]
481	[818, 819]	1302	[597, 233]	2123	[1620, 2554]	2944	[3063, 1819]
482	[820, 115]	1303	[802, 697]	2124	[1670, 1770]	2945	[1369, 1518]
483	[821, 822]	1304	[612, 1472]	2125	[1722, 1793]	2946	[3064, 524]
484	[823, 824]	1305	[231, 1678]	2126	[572, 687]	2947	[3065, 1392]
485	[825, 335]	1306	[1794, 1500]	2127	[1469, 1607]	2948	[3025, 3066]
486	[826, 827]	1307	[661, 662]	2128	[606, 771]	2949	[1476, 245]
487	[828, 424]	1308	[1439, 628]	2129	[2555, 2552]	2950	[3067, 1760]
488	[829, 830]	1309	[1795, 1392]	2130	[1791, 10]	2951	[2477, 2480]
489	[831, 832]	1310	[1509, 542]	2131	[1612, 1519]	2952	[3068, 1519]
490	[833, 834]	1311	[657, 620]	2132	[2449, 1418]	2953	[1658, 671]
491	[835, 836]	1312	[1796, 1508]	2133	[2497, 130]	2954	[3069, 1443]
492	[837, 838]	1313	[652, 1432]	2134	[1803, 1420]	2955	[3070, 1688]
493	[286, 839]	1314	[1797, 1566]	2135	[1643, 1632]	2956	[2491, 1492]
494	[840, 21]	1315	[1686, 1580]	2136	[2556, 1693]	2957	[3071, 48]
495	[841, 842]	1316	[1570, 1798]	2137	[1402, 135]	2958	[2478, 1493]
496	[843, 844]	1317	[594, 14]	2138	[2557, 2535]	2959	[2494, 165]
497	[845, 846]	1318	[596, 229]	2139	[1399, 1599]	2960	[3072, 1570]
498	[847, 848]	1319	[1379, 602]	2140	[1801, 195]	2961	[3073, 2449]
499	[849, 850]	1320	[1665, 237]	2141	[1407, 492]	2962	[2506, 1444]
500	[851, 852]	1321	[1458, 607]	2142	[2421, 2558]	2963	[3074, 2490]
501	[853, 854]	1322	[1799, 758]	2143	[2559, 763]	2964	[3075, 2414]
502	[855, 856]	1323	[1506, 1572]	2144	[772, 1563]	2965	[3030, 232]
503	[857, 858]	1324	[1800, 1572]	2145	[1394, 548]	2966	[3076, 2500]
504	[859, 860]	1325	[1743, 1684]	2146	[2560, 1664]	2967	[2667, 1419]
505	[861, 862]	1326	[1627, 229]	2147	[1818, 1663]	2968	[3077, 1570]
506	[863, 864]	1327	[1619, 1668]	2148	[147, 1593]	2969	[3078, 1663]
507	[865, 866]	1328	[1801, 1454]	2149	[2548, 630]	2970	[3055, 1727]
508	[867, 868]	1329	[1656, 1549]	2150	[1754, 1584]	2971	[2413, 667]
509	[869, 870]	1330	[1802, 795]	2151	[1474, 636]	2972	[3079, 128]
510	[856, 871]	1331	[1652, 491]	2152	[2561, 2438]	2973	[1645, 244]
511	[872, 355]	1332	[1624, 200]	2153	[2562, 1494]	2974	[3080, 1003]
512	[873, 874]	1333	[1489, 1760]	2154	[671, 2482]	2975	[3081, 2191]
513	[875, 876]	1334	[1803, 1804]	2155	[2527, 2563]	2976	[1206, 1928]
514	[877, 878]	1335	[681, 231]	2156	[767, 538]	2977	[3082, 3083]

515	[879, 880]	1336	[202, 677]	2157	[2564, 1766]	2978	[1873, 1053]
516	[881, 882]	1337	[1659, 1447]	2158	[2565, 790]	2979	[3084, 1859]
517	[88, 264]	1338	[1753, 1697]	2159	[2566, 1542]	2980	[966, 3085]
518	[883, 884]	1339	[503, 510]	2160	[1508, 1443]	2981	[3086, 3087]
519	[885, 886]	1340	[504, 571]	2161	[653, 157]	2982	[3088, 352]
520	[887, 888]	1341	[1805, 1556]	2162	[2567, 1436]	2983	[3089, 1057]
521	[889, 890]	1342	[774, 1395]	2163	[666, 1505]	2984	[410, 3090]
522	[891, 892]	1343	[1617, 742]	2164	[2568, 792]	2985	[1882, 2211]
523	[893, 894]	1344	[1806, 1617]	2165	[2569, 500]	2986	[3091, 2133]
524	[895, 896]	1345	[1807, 1548]	2166	[2570, 1575]	2987	[2312, 2286]
525	[897, 898]	1346	[1808, 492]	2167	[2571, 1786]	2988	[3092, 891]
526	[899, 900]	1347	[1548, 207]	2168	[2572, 1588]	2989	[3093, 1023]
527	[901, 902]	1348	[1625, 728]	2169	[2573, 479]	2990	[3094, 2075]
528	[903, 904]	1349	[1809, 1681]	2170	[1764, 791]	2991	[3095, 3096]
529	[905, 906]	1350	[1810, 1811]	2171	[2574, 2438]	2992	[1016, 923]
530	[886, 907]	1351	[1759, 1812]	2172	[1560, 2575]	2993	[3097, 3098]
531	[908, 909]	1352	[1644, 1633]	2173	[2447, 530]	2994	[3099, 2203]
532	[910, 831]	1353	[1813, 1439]	2174	[2574, 56]	2995	[2797, 3100]
533	[864, 911]	1354	[1814, 1566]	2175	[693, 597]	2996	[3101, 442]
534	[912, 913]	1355	[745, 164]	2176	[2444, 178]	2997	[3102, 2356]
535	[914, 915]	1356	[1815, 1740]	2177	[2576, 555]	2998	[3103, 2289]
536	[916, 917]	1357	[1716, 1577]	2178	[2544, 162]	2999	[3104, 1226]
537	[918, 919]	1358	[226, 1816]	2179	[2440, 1580]	3000	[3105, 474]
538	[920, 921]	1359	[203, 200]	2180	[2446, 2558]	3001	[1216, 1944]
539	[922, 923]	1360	[1663, 1817]	2181	[2577, 775]	3002	[3106, 3107]
540	[924, 925]	1361	[1467, 1463]	2182	[171, 603]	3003	[3108, 3109]
541	[70, 818]	1362	[580, 174]	2183	[2425, 170]	3004	[3110, 903]
542	[926, 927]	1363	[1818, 1819]	2184	[2578, 548]	3005	[3111, 1002]
543	[928, 929]	1364	[1719, 137]	2185	[521, 2558]	3006	[3112, 305]
544	[930, 931]	1365	[1820, 235]	2186	[1698, 618]	3007	[3113, 286]
545	[932, 933]	1366	[1526, 515]	2187	[1622, 1550]	3008	[3114, 879]
546	[934, 935]	1367	[604, 1821]	2188	[178, 687]	3009	[449, 3115]
547	[936, 937]	1368	[1822, 1823]	2189	[527, 2454]	3010	[3116, 1932]
548	[860, 938]	1369	[1824, 339]	2190	[807, 1714]	3011	[3117, 439]
549	[939, 940]	1370	[1825, 1826]	2191	[480, 1757]	3012	[2813, 3118]
550	[941, 424]	1371	[1827, 1828]	2192	[2500, 165]	3013	[3119, 2882]
551	[942, 943]	1372	[1829, 1830]	2193	[153, 2558]	3014	[3120, 3091]
552	[944, 945]	1373	[1831, 1832]	2194	[2420, 779]	3015	[3121, 2339]
553	[946, 947]	1374	[1833, 1834]	2195	[2579, 766]	3016	[64, 3122]
554	[948, 949]	1375	[1835, 970]	2196	[2559, 1568]	3017	[3123, 864]
555	[950, 951]	1376	[1836, 1837]	2197	[2578, 770]	3018	[3124, 2012]
556	[952, 953]	1377	[1838, 1839]	2198	[2580, 597]	3019	[2926, 886]
557	[954, 817]	1378	[1840, 1027]	2199	[2417, 1701]	3020	[2264, 3125]
558	[955, 956]	1379	[1841, 450]	2200	[2576, 1395]	3021	[3126, 3127]

559	[957, 958]	1380	[1842, 1843]	2201	[700, 761]	3022	[3128, 896]
560	[959, 960]	1381	[1224, 1072]	2202	[2581, 1474]	3023	[3129, 3130]
561	[884, 961]	1382	[1844, 1216]	2203	[2415, 808]	3024	[1303, 1906]
562	[962, 112]	1383	[1845, 893]	2204	[1736, 1571]	3025	[3131, 2264]
563	[963, 964]	1384	[1846, 1195]	2205	[2582, 810]	3026	[3132, 3133]
564	[965, 966]	1385	[1847, 1848]	2206	[49, 1509]	3027	[2691, 3134]
565	[967, 968]	1386	[890, 1849]	2207	[1757, 2583]	3028	[2241, 3135]
566	[923, 261]	1387	[1850, 1851]	2208	[1403, 1452]	3029	[22, 3136]
567	[969, 970]	1388	[1852, 1853]	2209	[2584, 801]	3030	[3137, 3138]
568	[971, 972]	1389	[1854, 1855]	2210	[2585, 775]	3031	[3139, 3140]
569	[973, 974]	1390	[1856, 464]	2211	[509, 776]	3032	[3141, 908]
570	[975, 976]	1391	[1857, 1858]	2212	[2509, 574]	3033	[3142, 3143]
571	[354, 977]	1392	[1859, 1860]	2213	[2481, 2586]	3034	[3144, 1863]
572	[978, 979]	1393	[1861, 97]	2214	[676, 2587]	3035	[3083, 3145]
573	[980, 981]	1394	[1134, 1862]	2215	[1438, 676]	3036	[3146, 1031]
574	[453, 859]	1395	[1275, 1863]	2216	[2561, 56]	3037	[3147, 3148]
575	[982, 983]	1396	[1864, 1865]	2217	[2565, 1540]	3038	[3149, 1141]
576	[984, 985]	1397	[1866, 980]	2218	[2441, 555]	3039	[1335, 2081]
577	[986, 987]	1398	[1867, 1868]	2219	[2588, 183]	3040	[3150, 3097]
578	[988, 989]	1399	[1869, 1870]	2220	[161, 558]	3041	[3151, 3152]
579	[990, 991]	1400	[1871, 835]	2221	[1503, 1582]	3042	[1893, 2131]
580	[992, 862]	1401	[1872, 1873]	2222	[2589, 1795]	3043	[3153, 2937]
581	[993, 257]	1402	[1874, 88]	2223	[2443, 183]	3044	[3154, 951]
582	[994, 995]	1403	[1875, 1876]	2224	[557, 162]	3045	[1232, 2943]
583	[104, 996]	1404	[1877, 1002]	2225	[762, 1568]	3046	[3155, 2154]
584	[997, 998]	1405	[1878, 1879]	2226	[515, 721]	3047	[1348, 3156]
585	[999, 1000]	1406	[1046, 1880]	2227	[773, 532]	3048	[3157, 3158]
586	[1001, 389]	1407	[1881, 1882]	2228	[2567, 744]	3049	[3159, 350]
587	[1002, 379]	1408	[1883, 1884]	2229	[1567, 763]	3050	[3160, 120]
588	[1003, 1004]	1409	[1885, 1886]	2230	[2590, 643]	3051	[3161, 1828]
589	[1005, 1006]	1410	[1887, 1888]	2231	[2591, 57]	3052	[3162, 831]
590	[1007, 1008]	1411	[1889, 1890]	2232	[2592, 624]	3053	[3163, 2067]
591	[1009, 891]	1412	[1891, 1892]	2233	[539, 1522]	3054	[457, 3164]
592	[1010, 1011]	1413	[1099, 820]	2234	[2593, 790]	3055	[3165, 2348]
593	[1012, 29]	1414	[1331, 1893]	2235	[168, 2563]	3056	[469, 2117]
594	[1013, 1014]	1415	[1894, 1037]	2236	[2594, 1766]	3057	[3166, 876]
595	[1015, 443]	1416	[1895, 1896]	2237	[2595, 546]	3058	[3167, 1152]
596	[94, 1016]	1417	[1897, 1898]	2238	[2596, 665]	3059	[3168, 1159]
597	[1017, 1018]	1418	[1342, 1831]	2239	[2597, 190]	3060	[312, 3169]
598	[1019, 1020]	1419	[1899, 1159]	2240	[31, 2598]	3061	[465, 2718]
599	[1021, 1022]	1420	[1900, 1901]	2241	[2502, 1584]	3062	[3170, 962]
600	[1023, 1024]	1421	[1902, 1903]	2242	[492, 2556]	3063	[3171, 2212]
601	[1025, 1026]	1422	[402, 401]	2243	[2599, 2456]	3064	[3172, 1907]
602	[1027, 1028]	1423	[1904, 1905]	2244	[2600, 1577]	3065	[2130, 3173]

603	[938, 873]	1424	[1906, 1897]	2245	[1696, 764]	3066	[3174, 3175]
604	[1029, 1030]	1425	[1323, 1069]	2246	[2601, 759]	3067	[2003, 1885]
605	[1031, 1032]	1426	[1907, 1908]	2247	[1417, 614]	3068	[3176, 2958]
606	[1033, 1034]	1427	[1909, 1910]	2248	[2461, 2498]	3069	[2318, 3177]
607	[979, 1035]	1428	[1911, 1255]	2249	[1603, 44]	3070	[3178, 3179]
608	[1036, 1037]	1429	[1912, 1913]	2250	[1408, 2556]	3071	[3180, 930]
609	[1038, 1039]	1430	[78, 1847]	2251	[2602, 1762]	3072	[1256, 2391]
610	[1040, 1041]	1431	[1914, 470]	2252	[1764, 642]	3073	[3181, 3182]
611	[1042, 1043]	1432	[1915, 1916]	2253	[2603, 2493]	3074	[3183, 990]
612	[1044, 1045]	1433	[1917, 314]	2254	[1687, 751]	3075	[1918, 1142]
613	[28, 1046]	1434	[1209, 1918]	2255	[2563, 62]	3076	[3184, 904]
614	[1047, 1048]	1435	[1919, 903]	2256	[1510, 2554]	3077	[3185, 2118]
615	[1049, 1050]	1436	[1920, 1921]	2257	[2459, 605]	3078	[3186, 2184]
616	[1051, 1052]	1437	[1922, 813]	2258	[2604, 2605]	3079	[3187, 3188]
617	[1053, 1054]	1438	[1903, 1923]	2259	[1577, 188]	3080	[3189, 1556]
618	[1055, 1056]	1439	[1129, 1126]	2260	[2606, 1784]	3081	[3190, 2500]
619	[1057, 1058]	1440	[1924, 1083]	2261	[1640, 138]	3082	[3191, 587]
620	[1059, 1060]	1441	[1925, 1926]	2262	[2532, 215]	3083	[2619, 1632]
621	[1061, 1062]	1442	[1927, 1042]	2263	[2607, 810]	3084	[3192, 2436]
622	[1063, 1064]	1443	[1928, 1929]	2264	[52, 805]	3085	[1519, 3193]
623	[1065, 872]	1444	[1930, 1265]	2265	[2598, 2608]	3086	[3194, 586]
624	[1066, 1021]	1445	[1931, 1932]	2266	[1450, 1677]	3087	[3024, 1760]
625	[1067, 1068]	1446	[1933, 1934]	2267	[587, 2468]	3088	[3075, 667]
626	[1069, 1070]	1447	[1935, 934]	2268	[2609, 649]	3089	[3195, 1608]
627	[945, 1071]	1448	[1936, 1937]	2269	[647, 799]	3090	[3196, 1727]
628	[1072, 1073]	1449	[72, 1938]	2270	[2610, 1498]	3091	[2541, 1803]
629	[1074, 1075]	1450	[1939, 1940]	2271	[1428, 1441]	3092	[2585, 503]
630	[1076, 1077]	1451	[1006, 1941]	2272	[1797, 665]	3093	[3197, 635]
631	[1078, 1079]	1452	[261, 1339]	2273	[596, 1373]	3094	[3078, 1819]
632	[1080, 1081]	1453	[1942, 1943]	2274	[2611, 245]	3095	[3014, 621]
633	[1082, 1083]	1454	[1944, 1207]	2275	[2612, 1662]	3096	[3198, 158]
634	[1084, 849]	1455	[1945, 1946]	2276	[2431, 2464]	3097	[3196, 128]
635	[1085, 1086]	1456	[1947, 1948]	2277	[2613, 195]	3098	[2620, 588]
636	[1087, 1088]	1457	[1949, 1950]	2278	[1626, 795]	3099	[3077, 1736]
637	[1089, 1090]	1458	[1951, 1952]	2279	[2614, 196]	3100	[536, 2521]
638	[1091, 1092]	1459	[1953, 1954]	2280	[1648, 1549]	3101	[2669, 232]
639	[1093, 898]	1460	[1955, 1956]	2281	[2433, 1646]	3102	[3199, 801]
640	[1094, 1095]	1461	[76, 1957]	2282	[2615, 1811]	3103	[1682, 3066]
641	[1096, 1097]	1462	[1958, 1959]	2283	[2616, 653]	3104	[1735, 1570]
642	[1098, 1099]	1463	[1863, 1960]	2284	[2617, 1523]	3105	[2626, 1522]
643	[1100, 1101]	1464	[1961, 866]	2285	[2618, 682]	3106	[690, 1693]
644	[919, 1102]	1465	[1962, 1963]	2286	[2619, 1644]	3107	[613, 1473]
645	[1103, 1104]	1466	[1964, 1965]	2287	[2620, 2468]	3108	[3200, 167]
646	[1105, 1106]	1467	[1966, 1276]	2288	[2536, 180]	3109	[3201, 747]

647	[1107, 1108]	1468	[1967, 877]	2289	[2542, 1618]	3110	[3038, 2529]
648	[1109, 1110]	1469	[1968, 331]	2290	[2512, 681]	3111	[2588, 547]
649	[1111, 1112]	1470	[1969, 1970]	2291	[2621, 526]	3112	[2545, 576]
650	[1113, 1075]	1471	[1971, 1972]	2292	[1523, 1386]	3113	[2662, 503]
651	[1041, 1114]	1472	[1014, 1973]	2293	[1767, 531]	3114	[3202, 2642]
652	[1115, 821]	1473	[1974, 1975]	2294	[552, 697]	3115	[2606, 3002]
653	[1116, 823]	1474	[1976, 1977]	2295	[668, 1560]	3116	[3056, 2652]
654	[1117, 1050]	1475	[1978, 1979]	2296	[2564, 2586]	3117	[3203, 159]
655	[1118, 1119]	1476	[1980, 1258]	2297	[2562, 542]	3118	[1677, 3020]
656	[1120, 1121]	1477	[1205, 1981]	2298	[2622, 772]	3119	[2560, 604]
657	[1122, 1123]	1478	[1982, 277]	2299	[2623, 600]	3120	[3073, 46]
658	[1124, 1125]	1479	[1983, 1984]	2300	[2483, 1436]	3121	[145, 1618]
659	[1126, 1127]	1480	[1985, 1986]	2301	[2597, 703]	3122	[128, 2472]
660	[1128, 1129]	1481	[1987, 1988]	2302	[2624, 1544]	3123	[3197, 1474]
661	[1130, 1131]	1482	[350, 1989]	2303	[1787, 1389]	3124	[145, 742]
662	[1132, 1133]	1483	[259, 1990]	2304	[2625, 2575]	3125	[810, 1495]
663	[1073, 1134]	1484	[1991, 1992]	2305	[644, 1536]	3126	[3204, 2649]
664	[1135, 1136]	1485	[1993, 980]	2306	[2626, 540]	3127	[2629, 210]
665	[1137, 1138]	1486	[1994, 1995]	2307	[481, 2583]	3128	[3205, 789]
666	[1139, 321]	1487	[1996, 1997]	2308	[506, 1557]	3129	[3206, 2605]
667	[1140, 1141]	1488	[1998, 1999]	2309	[544, 534]	3130	[3207, 2583]
668	[1142, 1143]	1489	[2000, 2001]	2310	[2571, 1546]	3131	[3208, 3009]
669	[1144, 1145]	1490	[2002, 2003]	2311	[2627, 632]	3132	[1781, 3209]
670	[1146, 1147]	1491	[2004, 2005]	2312	[135, 1452]	3133	[1577, 1554]
671	[1148, 1149]	1492	[2006, 1209]	2313	[2628, 2456]	3134	[191, 3060]
672	[880, 1150]	1493	[1119, 1040]	2314	[2629, 1739]	3135	[2598, 3016]
673	[1151, 1152]	1494	[100, 2007]	2315	[2630, 231]	3136	[2631, 2436]
674	[1153, 1154]	1495	[2008, 2009]	2316	[2631, 2461]	3137	[2977, 1582]
675	[1155, 1156]	1496	[2010, 72]	2317	[1610, 241]	3138	[3198, 484]
676	[1157, 1158]	1497	[2011, 2012]	2318	[2503, 131]	3139	[2590, 1491]
677	[1159, 1160]	1498	[2013, 2014]	2319	[2632, 1488]	3140	[2617, 1689]
678	[1161, 1162]	1499	[2015, 2016]	2320	[202, 198]	3141	[3210, 1472]
679	[361, 376]	1500	[2017, 2018]	2321	[1641, 729]	3142	[3211, 1419]
680	[1163, 1164]	1501	[2019, 1122]	2322	[1430, 1646]	3143	[2462, 1520]
681	[1165, 1166]	1502	[356, 2020]	2323	[2633, 2634]	3144	[3072, 1736]
682	[1167, 1168]	1503	[2021, 1273]	2324	[2635, 2493]	3145	[3212, 734]
683	[1169, 1170]	1504	[2022, 2023]	2325	[2636, 2637]	3146	[3042, 1582]
684	[1171, 1172]	1505	[2024, 2025]	2326	[2621, 1525]	3147	[2499, 2494]
685	[940, 1173]	1506	[2020, 1065]	2327	[2479, 1434]	3148	[3213, 1577]
686	[1174, 1175]	1507	[2026, 21]	2328	[2638, 1775]	3149	[3214, 2423]
687	[1176, 1177]	1508	[2027, 2028]	2329	[2639, 2640]	3150	[3215, 1452]
688	[427, 1178]	1509	[2029, 2030]	2330	[2539, 230]	3151	[3204, 810]
689	[257, 1179]	1510	[2031, 2032]	2331	[2641, 2519]	3152	[2990, 791]
690	[958, 1139]	1511	[388, 2033]	2332	[2519, 1816]	3153	[1551, 2456]

691	[1180, 1181]	1512	[2034, 2035]	2333	[185, 2642]	3154	[3039, 748]
692	[1182, 85]	1513	[2036, 89]	2334	[210, 2454]	3155	[2651, 217]
693	[1183, 450]	1514	[2037, 2038]	2335	[2643, 2500]	3156	[2550, 1406]
694	[1071, 1184]	1515	[394, 2039]	2336	[1668, 2554]	3157	[3216, 765]
695	[1185, 1186]	1516	[2040, 2041]	2337	[608, 582]	3158	[3201, 780]
696	[1187, 1188]	1517	[1934, 2042]	2338	[2513, 1622]	3159	[3074, 1745]
697	[1189, 944]	1518	[2043, 2044]	2339	[1409, 1729]	3160	[3034, 1467]
698	[1190, 1191]	1519	[2045, 2046]	2340	[1584, 10]	3161	[3040, 667]
699	[1192, 1193]	1520	[1876, 2047]	2341	[2615, 2518]	3162	[2979, 1391]
700	[1194, 1195]	1521	[2048, 822]	2342	[129, 1678]	3163	[3063, 1663]
701	[1196, 1197]	1522	[2049, 2050]	2343	[1644, 2644]	3164	[788, 1414]
702	[1198, 1093]	1523	[2051, 364]	2344	[2645, 2646]	3165	[2607, 2649]
703	[1060, 1199]	1524	[2052, 1996]	2345	[2647, 9]	3166	[2581, 635]
704	[400, 1200]	1525	[2053, 2054]	2346	[775, 510]	3167	[1382, 1740]
705	[1201, 1202]	1526	[2055, 2056]	2347	[1701, 1606]	3168	[3217, 715]
706	[1203, 117]	1527	[2057, 339]	2348	[2648, 1523]	3169	[586, 3193]
707	[1204, 1205]	1528	[2058, 2059]	2349	[2649, 1495]	3170	[2580, 232]
708	[367, 1206]	1529	[2060, 2061]	2350	[2639, 1777]	3171	[2991, 551]
709	[1207, 368]	1530	[1932, 2062]	2351	[2650, 199]	3172	[3191, 2457]
710	[1208, 1209]	1531	[2063, 464]	2352	[205, 1372]	3173	[2633, 732]
711	[1210, 1211]	1532	[2064, 2065]	2353	[2651, 2652]	3174	[3218, 1764]
712	[1212, 1213]	1533	[369, 1996]	2354	[1485, 1465]	3175	[3219, 3220]
713	[1214, 1215]	1534	[2066, 2067]	2355	[2653, 214]	3176	[3190, 2494]
714	[471, 1216]	1535	[1886, 2068]	2356	[1575, 1479]	3177	[3221, 1480]
715	[1217, 1218]	1536	[2069, 121]	2357	[2552, 759]	3178	[3222, 2642]
716	[1219, 1220]	1537	[2070, 302]	2358	[1451, 2654]	3179	[3223, 806]
717	[1221, 931]	1538	[2071, 2072]	2359	[2655, 2625]	3180	[3224, 3209]
718	[1222, 1223]	1539	[2073, 2074]	2360	[1524, 526]	3181	[3225, 532]
719	[1068, 1224]	1540	[2075, 2076]	2361	[2593, 1540]	3182	[3058, 1371]
720	[1225, 1226]	1541	[2077, 2078]	2362	[2656, 1552]	3183	[3224, 1782]
721	[1227, 1228]	1542	[2079, 2080]	2363	[2657, 1484]	3184	[3195, 2425]
722	[1229, 1230]	1543	[2081, 853]	2364	[2658, 2659]	3185	[3226, 2449]
723	[1231, 1232]	1544	[2082, 2083]	2365	[2552, 1695]	3186	[2982, 547]
724	[1233, 1234]	1545	[2084, 1042]	2366	[2660, 244]	3187	[2643, 2494]
725	[1235, 1236]	1546	[2085, 2086]	2367	[586, 2661]	3188	[3053, 1739]
726	[1237, 1238]	1547	[2087, 2035]	2368	[2662, 775]	3189	[3227, 338]
727	[1239, 1240]	1548	[2088, 2089]	2369	[2663, 1753]	3190	[3228, 321]
728	[1241, 1242]	1549	[2090, 2091]	2370	[1445, 1581]	3191	[3229, 3230]
729	[1243, 1244]	1550	[2089, 2092]	2371	[550, 1702]	3192	[3231, 2704]
730	[1079, 1245]	1551	[2093, 1919]	2372	[1483, 670]	3193	[1000, 3232]
731	[1246, 1247]	1552	[2094, 2095]	2373	[2658, 2664]	3194	[3233, 3234]
732	[1247, 1248]	1553	[463, 1098]	2374	[1611, 242]	3195	[3235, 331]
733	[288, 411]	1554	[1318, 2096]	2375	[1677, 2654]	3196	[3236, 24]
734	[1249, 403]	1555	[2097, 1227]	2376	[2665, 604]	3197	[3136, 1978]

735	[1250, 1251]	1556	[2098, 2099]	2377	[144, 1617]	3198	[2212, 2101]
736	[326, 1252]	1557	[338, 1958]	2378	[2613, 1454]	3199	[2803, 3237]
737	[1253, 1254]	1558	[2100, 2101]	2379	[2666, 1408]	3200	[3238, 2876]
738	[1255, 1256]	1559	[2102, 2103]	2380	[1649, 1373]	3201	[2182, 1009]
739	[1257, 1258]	1560	[2104, 2105]	2381	[536, 2587]	3202	[3239, 957]
740	[1259, 1260]	1561	[2106, 2107]	2382	[2594, 2586]	3203	[118, 1304]
741	[1261, 1262]	1562	[2044, 2108]	2383	[2622, 175]	3204	[3240, 318]
742	[1162, 1263]	1563	[1357, 2109]	2384	[545, 1380]	3205	[3164, 3241]
743	[1264, 1265]	1564	[2110, 125]	2385	[1634, 677]	3206	[3242, 833]
744	[1266, 1267]	1565	[2111, 343]	2386	[2467, 720]	3207	[1937, 408]
745	[322, 1268]	1566	[2112, 2113]	2387	[1728, 1515]	3208	[3243, 1225]
746	[1269, 361]	1567	[2001, 1269]	2388	[499, 1461]	3209	[3244, 3245]
747	[1270, 905]	1568	[2114, 2115]	2389	[1415, 133]	3210	[3246, 1974]
748	[1271, 1272]	1569	[1997, 1922]	2390	[2667, 1803]	3211	[3247, 3248]
749	[1273, 416]	1570	[2116, 2117]	2391	[2611, 692]	3212	[318, 2019]
750	[1274, 1275]	1571	[2118, 2119]	2392	[733, 1520]	3213	[3249, 1905]
751	[1276, 1277]	1572	[2120, 353]	2393	[2668, 2598]	3214	[3250, 3251]
752	[1278, 1279]	1573	[977, 1836]	2394	[2669, 597]	3215	[3252, 3253]
753	[1280, 1281]	1574	[2121, 452]	2395	[2480, 808]	3216	[3254, 3255]
754	[1282, 926]	1575	[2122, 1084]	2396	[2670, 57]	3217	[1092, 2266]
755	[1283, 1284]	1576	[1081, 1955]	2397	[2500, 1696]	3218	[3256, 1336]
756	[1285, 1286]	1577	[1848, 1336]	2398	[2671, 1710]	3219	[3257, 3258]
757	[1287, 476]	1578	[2123, 409]	2399	[520, 1767]	3220	[2239, 3259]
758	[1288, 468]	1579	[2124, 2125]	2400	[2672, 551]	3221	[3260, 3261]
759	[1289, 1290]	1580	[2126, 2127]	2401	[35, 2451]	3222	[3262, 1009]
760	[1291, 1292]	1581	[2005, 2128]	2402	[798, 799]	3223	[2385, 2776]
761	[1293, 1294]	1582	[2129, 2130]	2403	[2452, 1756]	3224	[3263, 1922]
762	[898, 1295]	1583	[2131, 2132]	2404	[2501, 544]	3225	[3264, 2099]
763	[1095, 1296]	1584	[1114, 1854]	2405	[1717, 590]	3226	[3265, 1047]
764	[1297, 319]	1585	[2133, 2134]	2406	[1368, 1377]	3227	[2589, 1391]
765	[1298, 1299]	1586	[2135, 2136]	2407	[519, 2447]	3228	[3036, 604]
766	[1300, 1301]	1587	[2137, 2078]	2408	[2577, 503]	3229	[3266, 178]
767	[1302, 1303]	1588	[1855, 462]	2409	[1700, 1597]	3230	[3267, 1379]
768	[1304, 1305]	1589	[2138, 1910]	2410	[1397, 508]	3231	[1785, 2649]
769	[1306, 1285]	1590	[2139, 2140]	2411	[2673, 1391]	3232	[1552, 1435]
770	[1307, 1308]	1591	[2141, 1851]	2412	[2414, 668]	3233	[2582, 2649]
771	[348, 1309]	1592	[2142, 2143]	2413	[2674, 2274]	3234	[2600, 187]
772	[1310, 1311]	1593	[473, 2144]	2414	[2675, 2676]	3235	[1712, 621]
773	[1312, 948]	1594	[2145, 1302]	2415	[1340, 301]	3236	[2599, 1552]
774	[1313, 952]	1595	[2146, 2062]	2416	[2677, 1087]	3237	[3221, 689]
775	[1314, 1315]	1596	[2147, 2148]	2417	[2678, 1952]	3238	[2630, 682]
776	[1311, 1316]	1597	[2149, 2150]	2418	[2679, 2680]	3239	[216, 2652]
777	[1317, 1318]	1598	[1191, 2151]	2419	[2681, 2682]	3240	[3044, 576]
778	[1168, 821]	1599	[2152, 2153]	2420	[306, 2683]	3241	[2601, 1695]

779	[824, 1319]	1600	[2154, 2145]	2421	[2684, 1091]	3242	[3054, 217]
780	[1320, 1321]	1601	[2155, 2156]	2422	[2685, 1931]	3243	[3268, 2605]
781	[1322, 1157]	1602	[2157, 2158]	2423	[2686, 2687]	3244	[724, 674]
782	[1133, 1323]	1603	[447, 288]	2424	[2688, 2689]	3245	[2653, 2532]
783	[1324, 1066]	1604	[983, 333]	2425	[2690, 2691]	3246	[3076, 2494]
784	[1325, 1326]	1605	[2159, 456]	2426	[2692, 348]	3247	[1595, 2477]
785	[1327, 1328]	1606	[1952, 2160]	2427	[2693, 275]	3248	[3213, 187]
786	[1329, 997]	1607	[1234, 2161]	2428	[2694, 2695]	3249	[2988, 1372]
787	[1330, 1331]	1608	[2162, 2163]	2429	[970, 2696]	3250	[1588, 1681]
788	[1332, 901]	1609	[2164, 1969]	2430	[839, 400]	3251	[1758, 3028]
789	[1333, 1334]	1610	[2165, 2166]	2431	[2697, 2698]	3252	[3269, 1701]
790	[1279, 1335]	1611	[2167, 2168]	2432	[2699, 93]	3253	[3267, 601]
791	[1336, 101]	1612	[2169, 2170]	2433	[365, 19]	3254	[3215, 733]
792	[1337, 1059]	1613	[1022, 1353]	2434	[2700, 2701]	3255	[3211, 1803]
793	[250, 1338]	1614	[1614, 1614]	2435	[2702, 2703]	3256	[3270, 197]
794	[1339, 1340]	1615	[1184, 1945]	2436	[274, 2370]	3257	[2604, 3271]
795	[1341, 1342]	1616	[1837, 1132]	2437	[2704, 2705]	3258	[1739, 2454]
796	[1343, 997]	1617	[2171, 1001]	2438	[2706, 2707]	3259	[214, 3012]
797	[1344, 1345]	1618	[292, 2172]	2439	[314, 2708]	3260	[3045, 495]
798	[1346, 1347]	1619	[2173, 396]	2440	[2101, 305]	3261	[3272, 1430]
799	[846, 1348]	1620	[2174, 249]	2441	[2709, 1864]	3262	[3022, 2998]
800	[1349, 1350]	1621	[2175, 2145]	2442	[2710, 2711]	3263	[2549, 2529]
801	[1351, 1352]	1622	[2176, 2177]	2443	[2712, 2713]	3264	[2673, 1795]
802	[1353, 1324]	1623	[2009, 93]	2444	[2714, 1176]	3265	[3273, 1597]
803	[1354, 1355]	1624	[2178, 2179]	2445	[2715, 2716]	3266	[3274, 947]
804	[1356, 1357]	1625	[2180, 2156]	2446	[2717, 2074]	3267	[3275, 427]
805	[1358, 1359]	1626	[2181, 2182]	2447	[2718, 2719]	3268	[3276, 1123]
806	[1292, 1360]	1627	[2183, 2184]	2448	[2720, 459]	3269	[3277, 2269]
807	[120, 1361]	1628	[2185, 2186]	2449	[2294, 317]	3270	[3278, 385]
808	[815, 1362]	1629	[2103, 1089]	2450	[2721, 1108]	3271	[3279, 1012]
809	[1363, 1364]	1630	[1075, 2187]	2451	[2722, 2723]	3272	[3280, 1110]
810	[1365, 1366]	1631	[2177, 2188]	2452	[2724, 2725]	3273	[3281, 1191]
811	[1268, 1367]	1632	[2189, 2190]	2453	[2726, 2727]	3274	[2993, 635]
812	[1368, 671]	1633	[2191, 2192]	2454	[2273, 2728]	3275	[2547, 1383]
813	[685, 575]	1634	[2193, 2194]	2455	[2729, 2682]	3276	[1462, 1484]
814	[1369, 580]	1635	[2195, 2196]	2456	[2730, 1270]	3277	[3033, 1795]
815	[1370, 1371]	1636	[892, 2197]	2457	[376, 119]	3278	[3282, 705]
816	[193, 1372]	1637	[1131, 1307]	2458	[2731, 2732]	3279	[673, 725]
817	[228, 1373]	1638	[2198, 1997]	2459	[2733, 2734]	3280	[134, 1403]
818	[1374, 140]	1639	[2199, 2200]	2460	[2735, 2736]	3281	[2416, 1474]
819	[678, 40]	1640	[2201, 280]	2461	[1868, 81]	3282	[2208, 965]
820	[1375, 227]	1641	[2202, 933]	2462	[1054, 2088]		

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	548	0	1096	1	1644	0	2192	0	2740	1
1	0	549	0	1097	0	1645	1	2193	1	2741	1
2	1	550	0	1098	1	1646	1	2194	1	2742	0
3	0	551	1	1099	1	1647	1	2195	0	2743	1
4	1	552	1	1100	1	1648	1	2196	0	2744	1
5	1	553	1	1101	1	1649	1	2197	0	2745	0
6	0	554	0	1102	1	1650	0	2198	1	2746	1
7	0	555	1	1103	1	1651	1	2199	0	2747	1
8	0	556	1	1104	1	1652	1	2200	1	2748	0
9	1	557	0	1105	1	1653	0	2201	1	2749	0
10	1	558	1	1106	0	1654	1	2202	1	2750	1
11	1	559	1	1107	1	1655	0	2203	0	2751	1
12	1	560	1	1108	1	1656	0	2204	1	2752	0
13	0	561	0	1109	0	1657	0	2205	1	2753	0
14	0	562	0	1110	1	1658	0	2206	0	2754	1
15	0	563	1	1111	0	1659	0	2207	0	2755	0
16	0	564	0	1112	0	1660	1	2208	0	2756	1
17	0	565	1	1113	0	1661	0	2209	1	2757	1
18	0	566	0	1114	0	1662	1	2210	1	2758	0
19	1	567	0	1115	0	1663	0	2211	1	2759	1
20	0	568	1	1116	0	1664	1	2212	0	2760	0
21	1	569	1	1117	1	1665	1	2213	0	2761	1
22	1	570	1	1118	0	1666	0	2214	0	2762	1
23	1	571	1	1119	1	1667	1	2215	0	2763	1
24	0	572	0	1120	1	1668	1	2216	1	2764	1
25	1	573	0	1121	0	1669	1	2217	1	2765	0
26	1	574	0	1122	0	1670	1	2218	0	2766	0
27	0	575	0	1123	1	1671	0	2219	0	2767	1
28	0	576	1	1124	1	1672	1	2220	0	2768	0
29	0	577	1	1125	0	1673	0	2221	0	2769	1
30	1	578	1	1126	1	1674	0	2222	0	2770	0
31	0	579	1	1127	0	1675	0	2223	1	2771	0
32	1	580	1	1128	0	1676	1	2224	0	2772	1
33	0	581	0	1129	0	1677	0	2225	1	2773	0
34	1	582	0	1130	1	1678	0	2226	0	2774	0
35	0	583	1	1131	0	1679	1	2227	0	2775	0
36	1	584	0	1132	0	1680	1	2228	1	2776	0
37	0	585	0	1133	0	1681	0	2229	0	2777	0
38	0	586	0	1134	1	1682	1	2230	1	2778	0
39	1	587	0	1135	1	1683	1	2231	0	2779	0
40	0	588	0	1136	1	1684	0	2232	0	2780	0
41	0	589	0	1137	1	1685	0	2233	1	2781	1
42	0	590	1	1138	1	1686	1	2234	0	2782	0

43	1	591	1	1139	0	1687	1	2235	1	2783	1
44	0	592	0	1140	0	1688	0	2236	0	2784	1
45	1	593	0	1141	1	1689	1	2237	0	2785	1
46	0	594	0	1142	1	1690	1	2238	0	2786	0
47	1	595	0	1143	1	1691	0	2239	1	2787	0
48	0	596	1	1144	1	1692	0	2240	0	2788	1
49	0	597	1	1145	1	1693	0	2241	0	2789	1
50	1	598	0	1146	1	1694	0	2242	1	2790	0
51	1	599	1	1147	0	1695	0	2243	1	2791	1
52	1	600	1	1148	0	1696	1	2244	0	2792	0
53	1	601	1	1149	1	1697	0	2245	1	2793	1
54	1	602	1	1150	1	1698	0	2246	1	2794	0
55	0	603	0	1151	1	1699	1	2247	1	2795	1
56	0	604	0	1152	1	1700	1	2248	0	2796	0
57	0	605	1	1153	1	1701	0	2249	0	2797	1
58	0	606	1	1154	1	1702	0	2250	0	2798	0
59	0	607	1	1155	0	1703	0	2251	1	2799	1
60	1	608	1	1156	0	1704	0	2252	1	2800	1
61	1	609	1	1157	0	1705	0	2253	1	2801	0
62	1	610	0	1158	0	1706	1	2254	1	2802	1
63	0	611	0	1159	1	1707	1	2255	0	2803	0
64	0	612	1	1160	0	1708	1	2256	0	2804	0
65	1	613	0	1161	0	1709	1	2257	1	2805	1
66	0	614	1	1162	0	1710	0	2258	1	2806	0
67	0	615	1	1163	1	1711	1	2259	0	2807	1
68	1	616	1	1164	1	1712	0	2260	0	2808	1
69	1	617	1	1165	1	1713	1	2261	1	2809	0
70	0	618	0	1166	0	1714	0	2262	1	2810	0
71	0	619	1	1167	1	1715	0	2263	0	2811	1
72	1	620	0	1168	0	1716	0	2264	1	2812	0
73	1	621	1	1169	0	1717	1	2265	0	2813	0
74	1	622	1	1170	0	1718	0	2266	0	2814	0
75	0	623	1	1171	0	1719	0	2267	0	2815	1
76	1	624	1	1172	0	1720	1	2268	1	2816	0
77	0	625	1	1173	0	1721	1	2269	1	2817	1
78	1	626	1	1174	1	1722	1	2270	1	2818	0
79	1	627	1	1175	1	1723	0	2271	0	2819	1
80	1	628	0	1176	1	1724	0	2272	0	2820	1
81	0	629	0	1177	0	1725	1	2273	1	2821	0
82	0	630	1	1178	0	1726	0	2274	0	2822	1
83	0	631	0	1179	0	1727	1	2275	1	2823	1
84	1	632	1	1180	1	1728	0	2276	1	2824	0
85	0	633	1	1181	0	1729	0	2277	1	2825	0
86	1	634	0	1182	0	1730	0	2278	1	2826	0

87	1	635	1	1183	0	1731	1	2279	0	2827	0
88	1	636	0	1184	1	1732	0	2280	1	2828	1
89	0	637	1	1185	1	1733	1	2281	0	2829	0
90	1	638	0	1186	0	1734	1	2282	1	2830	1
91	1	639	0	1187	1	1735	1	2283	1	2831	1
92	0	640	0	1188	0	1736	1	2284	0	2832	0
93	0	641	1	1189	0	1737	0	2285	0	2833	1
94	1	642	1	1190	0	1738	0	2286	1	2834	1
95	1	643	1	1191	1	1739	0	2287	1	2835	0
96	1	644	1	1192	0	1740	1	2288	0	2836	1
97	0	645	1	1193	1	1741	1	2289	0	2837	1
98	1	646	1	1194	1	1742	0	2290	0	2838	1
99	0	647	1	1195	0	1743	1	2291	1	2839	0
100	0	648	0	1196	1	1744	0	2292	0	2840	1
101	1	649	0	1197	1	1745	1	2293	0	2841	1
102	0	650	0	1198	0	1746	1	2294	1	2842	0
103	1	651	0	1199	1	1747	0	2295	1	2843	1
104	1	652	0	1200	0	1748	1	2296	1	2844	1
105	1	653	0	1201	0	1749	1	2297	1	2845	1
106	1	654	1	1202	0	1750	1	2298	1	2846	1
107	1	655	0	1203	0	1751	1	2299	1	2847	0
108	1	656	1	1204	1	1752	0	2300	0	2848	1
109	1	657	0	1205	0	1753	1	2301	1	2849	0
110	0	658	1	1206	0	1754	1	2302	0	2850	1
111	0	659	1	1207	0	1755	0	2303	1	2851	0
112	1	660	0	1208	0	1756	0	2304	1	2852	1
113	0	661	1	1209	0	1757	0	2305	1	2853	0
114	0	662	0	1210	0	1758	0	2306	0	2854	0
115	0	663	1	1211	0	1759	0	2307	1	2855	1
116	1	664	1	1212	0	1760	1	2308	0	2856	0
117	0	665	1	1213	1	1761	1	2309	1	2857	1
118	0	666	0	1214	1	1762	1	2310	1	2858	0
119	0	667	0	1215	0	1763	1	2311	0	2859	0
120	0	668	1	1216	0	1764	1	2312	1	2860	1
121	1	669	1	1217	0	1765	1	2313	1	2861	1
122	1	670	1	1218	0	1766	0	2314	0	2862	1
123	1	671	0	1219	1	1767	0	2315	1	2863	1
124	0	672	1	1220	0	1768	0	2316	0	2864	0
125	1	673	1	1221	1	1769	0	2317	1	2865	1
126	1	674	1	1222	1	1770	1	2318	0	2866	1
127	0	675	0	1223	1	1771	1	2319	0	2867	0
128	0	676	0	1224	0	1772	1	2320	0	2868	1
129	0	677	1	1225	1	1773	0	2321	1	2869	0
130	1	678	0	1226	1	1774	0	2322	1	2870	1

131	0	679	0	1227	0	1775	1	2323	0	2871	1
132	0	680	1	1228	1	1776	0	2324	0	2872	1
133	1	681	1	1229	1	1777	0	2325	0	2873	1
134	0	682	1	1230	0	1778	0	2326	1	2874	1
135	1	683	0	1231	1	1779	1	2327	0	2875	0
136	1	684	0	1232	1	1780	0	2328	0	2876	0
137	1	685	1	1233	0	1781	1	2329	1	2877	1
138	1	686	1	1234	1	1782	1	2330	1	2878	0
139	0	687	1	1235	0	1783	1	2331	0	2879	0
140	1	688	0	1236	1	1784	0	2332	0	2880	0
141	0	689	1	1237	1	1785	0	2333	1	2881	0
142	0	690	1	1238	1	1786	1	2334	1	2882	1
143	0	691	1	1239	1	1787	1	2335	1	2883	0
144	1	692	0	1240	0	1788	1	2336	1	2884	0
145	1	693	0	1241	1	1789	0	2337	1	2885	1
146	1	694	1	1242	1	1790	1	2338	1	2886	0
147	0	695	1	1243	1	1791	1	2339	1	2887	1
148	0	696	1	1244	1	1792	0	2340	0	2888	1
149	1	697	0	1245	0	1793	0	2341	1	2889	1
150	0	698	0	1246	0	1794	0	2342	0	2890	1
151	1	699	0	1247	0	1795	1	2343	0	2891	1
152	0	700	1	1248	0	1796	0	2344	0	2892	0
153	1	701	1	1249	0	1797	0	2345	1	2893	0
154	0	702	0	1250	1	1798	0	2346	0	2894	1
155	1	703	0	1251	1	1799	0	2347	0	2895	0
156	0	704	0	1252	0	1800	0	2348	1	2896	1
157	0	705	0	1253	0	1801	0	2349	0	2897	0
158	1	706	0	1254	0	1802	0	2350	1	2898	1
159	0	707	1	1255	1	1803	1	2351	1	2899	1
160	0	708	1	1256	0	1804	0	2352	1	2900	0
161	0	709	0	1257	1	1805	0	2353	1	2901	0
162	0	710	0	1258	1	1806	0	2354	0	2902	1
163	1	711	0	1259	1	1807	0	2355	1	2903	0
164	1	712	0	1260	0	1808	0	2356	0	2904	1
165	0	713	1	1261	1	1809	0	2357	1	2905	0
166	1	714	1	1262	1	1810	0	2358	1	2906	1
167	1	715	0	1263	0	1811	0	2359	0	2907	0
168	1	716	1	1264	1	1812	0	2360	1	2908	0
169	1	717	1	1265	1	1813	1	2361	0	2909	1
170	1	718	1	1266	0	1814	1	2362	0	2910	1
171	1	719	1	1267	0	1815	0	2363	0	2911	1
172	1	720	1	1268	0	1816	1	2364	1	2912	1
173	0	721	0	1269	1	1817	0	2365	1	2913	1
174	1	722	1	1270	0	1818	1	2366	0	2914	1

175	1	723	1	1271	0	1819	1	2367	0	2915	0
176	1	724	0	1272	1	1820	1	2368	0	2916	1
177	1	725	0	1273	0	1821	0	2369	1	2917	0
178	0	726	1	1274	0	1822	0	2370	0	2918	0
179	0	727	1	1275	0	1823	0	2371	0	2919	1
180	0	728	1	1276	1	1824	0	2372	1	2920	0
181	0	729	1	1277	0	1825	1	2373	1	2921	1
182	1	730	0	1278	0	1826	0	2374	1	2922	1
183	1	731	0	1279	0	1827	1	2375	0	2923	0
184	0	732	0	1280	1	1828	1	2376	0	2924	0
185	1	733	1	1281	0	1829	0	2377	1	2925	0
186	1	734	0	1282	0	1830	1	2378	1	2926	0
187	1	735	1	1283	1	1831	1	2379	1	2927	0
188	0	736	0	1284	0	1832	0	2380	1	2928	0
189	0	737	0	1285	0	1833	1	2381	1	2929	0
190	1	738	1	1286	1	1834	1	2382	0	2930	0
191	1	739	1	1287	0	1835	0	2383	1	2931	1
192	1	740	1	1288	0	1836	1	2384	1	2932	0
193	0	741	1	1289	1	1837	0	2385	1	2933	0
194	1	742	0	1290	0	1838	1	2386	0	2934	0
195	0	743	1	1291	0	1839	1	2387	0	2935	0
196	0	744	0	1292	1	1840	0	2388	1	2936	1
197	1	745	0	1293	0	1841	0	2389	1	2937	1
198	0	746	1	1294	1	1842	0	2390	0	2938	0
199	0	747	0	1295	0	1843	1	2391	0	2939	0
200	0	748	0	1296	0	1844	1	2392	1	2940	0
201	1	749	0	1297	0	1845	0	2393	0	2941	0
202	0	750	0	1298	1	1846	1	2394	0	2942	1
203	1	751	1	1299	1	1847	0	2395	1	2943	0
204	1	752	0	1300	1	1848	0	2396	0	2944	1
205	1	753	1	1301	0	1849	0	2397	0	2945	0
206	1	754	0	1302	1	1850	1	2398	0	2946	1
207	1	755	1	1303	1	1851	1	2399	0	2947	1
208	1	756	0	1304	1	1852	1	2400	0	2948	0
209	0	757	0	1305	0	1853	1	2401	0	2949	1
210	1	758	0	1306	0	1854	0	2402	0	2950	0
211	0	759	1	1307	1	1855	0	2403	1	2951	1
212	1	760	0	1308	0	1856	0	2404	0	2952	0
213	1	761	0	1309	1	1857	0	2405	1	2953	0
214	0	762	1	1310	0	1858	1	2406	0	2954	0
215	1	763	0	1311	0	1859	1	2407	0	2955	1
216	0	764	0	1312	0	1860	1	2408	1	2956	1
217	1	765	1	1313	0	1861	0	2409	1	2957	0
218	1	766	1	1314	0	1862	0	2410	0	2958	0

219	1	767	1	1315	1	1863	0	2411	1	2959	1
220	0	768	1	1316	0	1864	0	2412	1	2960	0
221	1	769	0	1317	0	1865	1	2413	0	2961	1
222	0	770	1	1318	1	1866	0	2414	1	2962	0
223	0	771	0	1319	0	1867	0	2415	0	2963	0
224	0	772	0	1320	1	1868	0	2416	0	2964	0
225	0	773	0	1321	0	1869	1	2417	0	2965	1
226	1	774	0	1322	0	1870	0	2418	1	2966	0
227	0	775	0	1323	0	1871	0	2419	1	2967	0
228	0	776	0	1324	0	1872	1	2420	1	2968	0
229	0	777	0	1325	1	1873	0	2421	0	2969	0
230	0	778	0	1326	0	1874	1	2422	0	2970	0
231	0	779	1	1327	1	1875	0	2423	0	2971	0
232	0	780	1	1328	0	1876	1	2424	1	2972	1
233	1	781	0	1329	0	1877	0	2425	0	2973	1
234	0	782	0	1330	0	1878	1	2426	0	2974	0
235	1	783	0	1331	1	1879	1	2427	0	2975	0
236	0	784	1	1332	1	1880	1	2428	1	2976	0
237	1	785	1	1333	1	1881	1	2429	0	2977	1
238	0	786	0	1334	1	1882	1	2430	1	2978	0
239	1	787	0	1335	1	1883	0	2431	1	2979	0
240	1	788	1	1336	0	1884	0	2432	0	2980	0
241	0	789	1	1337	0	1885	1	2433	0	2981	1
242	1	790	0	1338	1	1886	1	2434	1	2982	0
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245	1	793	1	1341	0	1889	0	2437	1	2985	1
246	1	794	1	1342	0	1890	1	2438	1	2986	0
247	0	795	0	1343	0	1891	1	2439	1	2987	1
248	0	796	0	1344	0	1892	0	2440	0	2988	1
249	0	797	0	1345	0	1893	0	2441	0	2989	0
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251	0	799	1	1347	0	1895	0	2443	1	2991	1
252	1	800	0	1348	1	1896	1	2444	0	2992	1
253	1	801	0	1349	0	1897	1	2445	0	2993	1
254	0	802	1	1350	0	1898	0	2446	1	2994	0
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256	0	804	0	1352	0	1900	1	2448	1	2996	0
257	1	805	1	1353	1	1901	0	2449	1	2997	0
258	1	806	1	1354	1	1902	0	2450	1	2998	1
259	1	807	0	1355	0	1903	0	2451	0	2999	1
260	0	808	1	1356	0	1904	1	2452	1	3000	0
261	0	809	1	1357	0	1905	1	2453	1	3001	0
262	1	810	1	1358	1	1906	1	2454	1	3002	1

263	1	811	0	1359	1	1907	1	2455	1	3003	1
264	1	812	0	1360	0	1908	0	2456	0	3004	0
265	0	813	1	1361	0	1909	1	2457	1	3005	0
266	1	814	0	1362	1	1910	0	2458	1	3006	0
267	0	815	1	1363	1	1911	0	2459	1	3007	0
268	1	816	0	1364	0	1912	1	2460	1	3008	0
269	0	817	0	1365	1	1913	0	2461	0	3009	0
270	0	818	1	1366	1	1914	1	2462	0	3010	0
271	1	819	0	1367	0	1915	1	2463	1	3011	0
272	1	820	0	1368	0	1916	0	2464	0	3012	0
273	0	821	1	1369	0	1917	0	2465	1	3013	1
274	1	822	1	1370	1	1918	0	2466	1	3014	1
275	0	823	0	1371	1	1919	0	2467	0	3015	1
276	1	824	1	1372	0	1920	1	2468	1	3016	0
277	0	825	0	1373	1	1921	0	2469	0	3017	0
278	0	826	1	1374	1	1922	0	2470	1	3018	1
279	1	827	1	1375	0	1923	1	2471	0	3019	0
280	0	828	0	1376	1	1924	1	2472	0	3020	1
281	1	829	1	1377	1	1925	0	2473	1	3021	1
282	0	830	0	1378	0	1926	1	2474	0	3022	1
283	1	831	0	1379	0	1927	0	2475	0	3023	1
284	1	832	0	1380	0	1928	0	2476	1	3024	1
285	0	833	0	1381	0	1929	1	2477	1	3025	0
286	0	834	1	1382	1	1930	1	2478	0	3026	1
287	0	835	1	1383	0	1931	0	2479	0	3027	0
288	1	836	0	1384	1	1932	1	2480	1	3028	0
289	1	837	1	1385	0	1933	0	2481	0	3029	1
290	1	838	0	1386	1	1934	1	2482	0	3030	1
291	0	839	1	1387	1	1935	0	2483	0	3031	1
292	1	840	0	1388	1	1936	1	2484	1	3032	0
293	1	841	1	1389	0	1937	0	2485	1	3033	1
294	0	842	0	1390	0	1938	1	2486	1	3034	0
295	0	843	1	1391	0	1939	0	2487	0	3035	1
296	1	844	0	1392	1	1940	0	2488	1	3036	0
297	1	845	0	1393	0	1941	1	2489	1	3037	1
298	0	846	1	1394	1	1942	0	2490	0	3038	0
299	0	847	1	1395	0	1943	0	2491	1	3039	1
300	1	848	1	1396	0	1944	1	2492	0	3040	1
301	1	849	1	1397	0	1945	1	2493	0	3041	1
302	1	850	1	1398	0	1946	1	2494	1	3042	0
303	0	851	1	1399	1	1947	0	2495	0	3043	0
304	0	852	1	1400	0	1948	1	2496	0	3044	1
305	0	853	1	1401	1	1949	1	2497	1	3045	1
306	1	854	0	1402	1	1950	1	2498	0	3046	1

307	1	855	0	1403	0	1951	0	2499	1	3047	1
308	1	856	1	1404	0	1952	0	2500	0	3048	1
309	0	857	1	1405	1	1953	1	2501	0	3049	0
310	1	858	1	1406	1	1954	1	2502	0	3050	0
311	0	859	0	1407	1	1955	1	2503	0	3051	1
312	0	860	0	1408	0	1956	0	2504	0	3052	0
313	0	861	1	1409	1	1957	1	2505	0	3053	1
314	1	862	1	1410	1	1958	0	2506	0	3054	1
315	0	863	0	1411	0	1959	1	2507	0	3055	0
316	0	864	1	1412	1	1960	1	2508	1	3056	0
317	1	865	1	1413	1	1961	1	2509	0	3057	1
318	1	866	0	1414	1	1962	1	2510	1	3058	1
319	1	867	0	1415	1	1963	0	2511	1	3059	0
320	1	868	0	1416	0	1964	0	2512	0	3060	0
321	0	869	1	1417	1	1965	1	2513	1	3061	0
322	0	870	0	1418	0	1966	0	2514	1	3062	1
323	1	871	0	1419	0	1967	0	2515	0	3063	1
324	1	872	0	1420	1	1968	0	2516	0	3064	1
325	1	873	1	1421	0	1969	0	2517	1	3065	1
326	0	874	0	1422	1	1970	0	2518	1	3066	0
327	1	875	1	1423	1	1971	1	2519	0	3067	0
328	0	876	0	1424	1	1972	0	2520	0	3068	0
329	1	877	0	1425	0	1973	1	2521	0	3069	0
330	1	878	1	1426	1	1974	0	2522	1	3070	1
331	1	879	0	1427	1	1975	1	2523	1	3071	0
332	1	880	1	1428	0	1976	0	2524	1	3072	0
333	1	881	1	1429	1	1977	0	2525	0	3073	1
334	1	882	1	1430	1	1978	1	2526	1	3074	0
335	1	883	0	1431	1	1979	1	2527	1	3075	0
336	1	884	0	1432	1	1980	1	2528	1	3076	0
337	0	885	0	1433	0	1981	0	2529	0	3077	0
338	0	886	1	1434	0	1982	0	2530	0	3078	0
339	1	887	0	1435	0	1983	0	2531	0	3079	1
340	1	888	0	1436	1	1984	0	2532	1	3080	0
341	1	889	0	1437	0	1985	0	2533	1	3081	0
342	0	890	1	1438	0	1986	0	2534	0	3082	1
343	1	891	1	1439	0	1987	0	2535	1	3083	1
344	1	892	0	1440	1	1988	0	2536	0	3084	0
345	1	893	1	1441	0	1989	0	2537	1	3085	1
346	1	894	0	1442	0	1990	0	2538	0	3086	1
347	0	895	1	1443	0	1991	0	2539	1	3087	1
348	0	896	1	1444	1	1992	0	2540	1	3088	0
349	0	897	0	1445	0	1993	0	2541	0	3089	0
350	1	898	1	1446	0	1994	0	2542	0	3090	1

351	0	899	1	1447	0	1995	0	2543	0	3091	0
352	0	900	0	1448	1	1996	1	2544	1	3092	1
353	0	901	1	1449	1	1997	0	2545	0	3093	0
354	1	902	0	1450	0	1998	1	2546	1	3094	0
355	1	903	0	1451	1	1999	1	2547	0	3095	1
356	0	904	1	1452	0	2000	1	2548	1	3096	0
357	1	905	0	1453	0	2001	0	2549	0	3097	1
358	0	906	0	1454	1	2002	1	2550	1	3098	1
359	0	907	1	1455	1	2003	0	2551	0	3099	0
360	1	908	1	1456	0	2004	0	2552	1	3100	1
361	0	909	1	1457	1	2005	1	2553	1	3101	0
362	1	910	0	1458	0	2006	0	2554	0	3102	0
363	0	911	0	1459	1	2007	1	2555	1	3103	1
364	1	912	1	1460	1	2008	1	2556	1	3104	1
365	0	913	1	1461	1	2009	0	2557	1	3105	0
366	0	914	1	1462	0	2010	0	2558	1	3106	1
367	1	915	0	1463	0	2011	1	2559	0	3107	0
368	0	916	1	1464	1	2012	1	2560	1	3108	1
369	1	917	0	1465	1	2013	1	2561	1	3109	1
370	1	918	0	1466	0	2014	1	2562	1	3110	0
371	1	919	1	1467	0	2015	0	2563	0	3111	0
372	0	920	1	1468	0	2016	1	2564	1	3112	0
373	1	921	1	1469	0	2017	0	2565	1	3113	0
374	0	922	1	1470	0	2018	0	2566	0	3114	0
375	0	923	0	1471	1	2019	0	2567	1	3115	0
376	1	924	0	1472	1	2020	0	2568	0	3116	0
377	1	925	1	1473	0	2021	0	2569	1	3117	0
378	1	926	1	1474	0	2022	1	2570	0	3118	0
379	0	927	1	1475	1	2023	0	2571	1	3119	1
380	0	928	1	1476	1	2024	1	2572	0	3120	1
381	0	929	0	1477	0	2025	0	2573	1	3121	1
382	0	930	1	1478	0	2026	0	2574	0	3122	0
383	1	931	1	1479	0	2027	0	2575	0	3123	0
384	0	932	1	1480	0	2028	0	2576	1	3124	1
385	0	933	0	1481	0	2029	0	2577	1	3125	1
386	0	934	1	1482	1	2030	0	2578	0	3126	1
387	0	935	1	1483	1	2031	0	2579	0	3127	0
388	1	936	0	1484	0	2032	1	2580	1	3128	1
389	0	937	0	1485	0	2033	0	2581	1	3129	1
390	0	938	0	1486	0	2034	1	2582	1	3130	0
391	1	939	0	1487	1	2035	0	2583	0	3131	0
392	0	940	1	1488	1	2036	0	2584	1	3132	1
393	0	941	0	1489	1	2037	1	2585	1	3133	0
394	0	942	1	1490	1	2038	1	2586	1	3134	1

395	1	943	1	1491	0	2039	1	2587	1	3135	0
396	1	944	1	1492	0	2040	0	2588	0	3136	0
397	1	945	1	1493	1	2041	1	2589	0	3137	1
398	0	946	1	1494	0	2042	0	2590	1	3138	0
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400	0	948	0	1496	0	2044	1	2592	0	3140	0
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403	1	951	0	1499	0	2047	1	2595	0	3143	0
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406	0	954	0	1502	0	2050	1	2598	0	3146	0
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408	1	956	0	1504	1	2052	1	2600	0	3148	1
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410	1	958	1	1506	0	2054	0	2602	1	3150	1
411	1	959	1	1507	0	2055	1	2603	1	3151	1
412	1	960	1	1508	0	2056	1	2604	1	3152	0
413	0	961	1	1509	0	2057	0	2605	0	3153	0
414	0	962	0	1510	0	2058	1	2606	0	3154	1
415	0	963	1	1511	1	2059	1	2607	0	3155	1
416	1	964	0	1512	1	2060	0	2608	1	3156	1
417	0	965	0	1513	0	2061	1	2609	1	3157	1
418	0	966	0	1514	1	2062	1	2610	1	3158	1
419	1	967	1	1515	0	2063	0	2611	0	3159	0
420	1	968	0	1516	0	2064	0	2612	1	3160	0
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422	1	970	0	1518	0	2066	1	2614	0	3162	0
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424	1	972	0	1520	1	2068	0	2616	1	3164	1
425	0	973	1	1521	1	2069	0	2617	0	3165	0
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427	0	975	1	1523	0	2071	1	2619	1	3167	1
428	1	976	1	1524	1	2072	0	2620	1	3168	0
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430	0	978	0	1526	1	2074	1	2622	1	3170	1
431	0	979	1	1527	0	2075	1	2623	1	3171	1
432	0	980	0	1528	1	2076	1	2624	0	3172	1
433	0	981	0	1529	0	2077	1	2625	1	3173	0
434	1	982	0	1530	1	2078	0	2626	0	3174	0
435	0	983	0	1531	0	2079	0	2627	0	3175	1
436	1	984	1	1532	0	2080	1	2628	1	3176	0
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439	0	987	1	1535	1	2083	1	2631	0	3179	1
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442	1	990	1	1538	1	2086	1	2634	1	3182	1
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446	0	994	0	1542	0	2090	1	2638	0	3186	0
447	0	995	1	1543	0	2091	1	2639	1	3187	1
448	0	996	1	1544	0	2092	1	2640	1	3188	1
449	0	997	0	1545	0	2093	0	2641	0	3189	0
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454	1	1002	0	1550	0	2098	1	2646	0	3194	1
455	0	1003	0	1551	0	2099	1	2647	1	3195	0
456	0	1004	1	1552	1	2100	0	2648	1	3196	1
457	1	1005	0	1553	0	2101	0	2649	0	3197	0
458	1	1006	1	1554	1	2102	1	2650	1	3198	0
459	0	1007	1	1555	0	2103	1	2651	1	3199	0
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461	0	1009	1	1557	0	2105	1	2653	1	3201	1
462	1	1010	0	1558	0	2106	1	2654	0	3202	0
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465	0	1013	0	1561	1	2109	1	2657	0	3205	1
466	0	1014	1	1562	1	2110	0	2658	1	3206	1
467	0	1015	0	1563	0	2111	0	2659	1	3207	0
468	1	1016	1	1564	0	2112	0	2660	0	3208	0
469	0	1017	1	1565	0	2113	1	2661	0	3209	0
470	1	1018	0	1566	0	2114	1	2662	0	3210	0
471	1	1019	0	1567	0	2115	0	2663	1	3211	1
472	0	1020	0	1568	1	2116	0	2664	0	3212	1
473	0	1021	1	1569	0	2117	0	2665	0	3213	1
474	1	1022	1	1570	0	2118	1	2666	1	3214	0
475	0	1023	1	1571	1	2119	1	2667	0	3215	1
476	1	1024	1	1572	1	2120	1	2668	0	3216	1
477	1	1025	1	1573	1	2121	1	2669	0	3217	0
478	0	1026	1	1574	1	2122	0	2670	0	3218	0
479	0	1027	1	1575	0	2123	0	2671	0	3219	1
480	0	1028	0	1576	1	2124	1	2672	0	3220	1
481	1	1029	0	1577	0	2125	1	2673	1	3221	1
482	0	1030	0	1578	0	2126	0	2674	0	3222	1

483	1	1031	1	1579	1	2127	0	2675	1	3223	1
484	0	1032	1	1580	0	2128	1	2676	1	3224	0
485	0	1033	1	1581	1	2129	1	2677	0	3225	1
486	1	1034	0	1582	1	2130	1	2678	0	3226	0
487	0	1035	1	1583	1	2131	1	2679	1	3227	0
488	1	1036	1	1584	0	2132	1	2680	0	3228	0
489	0	1037	1	1585	1	2133	1	2681	1	3229	1
490	0	1038	1	1586	1	2134	1	2682	1	3230	0
491	1	1039	1	1587	1	2135	1	2683	0	3231	0
492	1	1040	0	1588	0	2136	1	2684	0	3232	1
493	0	1041	0	1589	1	2137	1	2685	0	3233	1
494	0	1042	0	1590	1	2138	1	2686	0	3234	0
495	1	1043	1	1591	1	2139	1	2687	1	3235	0
496	1	1044	1	1592	0	2140	0	2688	1	3236	1
497	0	1045	1	1593	0	2141	1	2689	0	3237	1
498	1	1046	1	1594	1	2142	0	2690	0	3238	1
499	1	1047	1	1595	1	2143	0	2691	0	3239	0
500	1	1048	1	1596	1	2144	0	2692	0	3240	1
501	1	1049	1	1597	1	2145	1	2693	0	3241	1
502	0	1050	0	1598	1	2146	1	2694	1	3242	1
503	1	1051	1	1599	1	2147	1	2695	1	3243	0
504	0	1052	0	1600	0	2148	0	2696	1	3244	0
505	1	1053	1	1601	1	2149	1	2697	1	3245	1
506	0	1054	0	1602	1	2150	1	2698	1	3246	0
507	1	1055	0	1603	0	2151	0	2699	0	3247	1
508	0	1056	1	1604	0	2152	1	2700	1	3248	1
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510	1	1058	1	1606	0	2154	0	2702	1	3250	0
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513	1	1061	1	1609	0	2157	1	2705	0	3253	0
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515	0	1063	1	1611	1	2159	0	2707	0	3255	1
516	1	1064	1	1612	1	2160	0	2708	0	3256	0
517	1	1065	1	1613	1	2161	0	2709	0	3257	1
518	0	1066	1	1614	0	2162	1	2710	1	3258	0
519	0	1067	1	1615	1	2163	0	2711	0	3259	0
520	0	1068	1	1616	0	2164	0	2712	1	3260	1
521	0	1069	1	1617	0	2165	1	2713	1	3261	0
522	1	1070	1	1618	1	2166	0	2714	0	3262	1
523	1	1071	1	1619	1	2167	1	2715	0	3263	0
524	1	1072	0	1620	0	2168	0	2716	1	3264	1
525	0	1073	1	1621	0	2169	1	2717	1	3265	0
526	1	1074	0	1622	0	2170	1	2718	1	3266	1

527	1	1075	0	1623	0	2171	0	2719	0	3267	0
528	0	1076	1	1624	1	2172	0	2720	1	3268	0
529	0	1077	0	1625	1	2173	1	2721	1	3269	1
530	1	1078	0	1626	1	2174	0	2722	0	3270	0
531	1	1079	0	1627	0	2175	0	2723	1	3271	1
532	0	1080	1	1628	0	2176	0	2724	1	3272	0
533	1	1081	1	1629	1	2177	1	2725	1	3273	0
534	1	1082	1	1630	0	2178	1	2726	1	3274	1
535	1	1083	0	1631	1	2179	0	2727	0	3275	0
536	1	1084	0	1632	1	2180	1	2728	1	3276	0
537	0	1085	1	1633	0	2181	1	2729	1	3277	1
538	1	1086	0	1634	1	2182	1	2730	0	3278	0
539	1	1087	0	1635	0	2183	0	2731	1	3279	1
540	0	1088	1	1636	0	2184	0	2732	1	3280	0
541	0	1089	1	1637	0	2185	0	2733	1	3281	0
542	1	1090	0	1638	1	2186	0	2734	1	3282	0
543	1	1091	0	1639	0	2187	0	2735	1		
544	1	1092	0	1640	1	2188	0	2736	0		
545	1	1093	0	1641	1	2189	1	2737	1		
546	1	1094	0	1642	0	2190	0	2738	0		
547	0	1095	0	1643	1	2191	0	2739	1		

Université de Strasbourg, CNRS, IRMA UMR 7501, F-67000 Strasbourg, France
Email address: guoniu.han@unistra.fr

School of Mathematics and Statistics, Huazhong University of Science and Technology, Wuhan, PR China
Email address: huyining@hust.edu.cn