1145-05-1561 **Marisa Gaetz*** (mgaetz@mit.edu). *Anti-power $j$-fixes of the Thue-Morse word.*

Recently, Fici, Restivo, Silva, and Zamboni introduced the notion of a $k$-anti-power, which is a word of the form $w^{(1)}w^{(2)}\cdots w^{(k)}$, where $w^{(1)}, w^{(2)}, \ldots, w^{(k)}$ are distinct words of the same length. For an infinite word $w$ and a positive integer $k$, define $AP_j(w,k)$ to be the set of integers $m$ such that $w_{j+1}w_{j+2}\cdots w_{j+km}$ is a $k$-anti-power, where $w_i$ denotes the $i$-th letter of $w$. Define also $\mathcal{F}_j(k) = (2\mathbb{Z}^+ - 1) \cap AP_j(\mathbf{t}, k)$, $\gamma_j(k) = \min(AP_j(\mathbf{t}, k))$, and $\Gamma_j(k) = \sup((2\mathbb{Z}^+ - 1) \setminus \mathcal{F}_j(k))$, where $\mathbf{t}$ denotes the Thue-Morse word. In his 2018 paper, Defant shows that $\gamma_0(k)$ and $\Gamma_0(k)$ grow linearly in $k$. We generalize Defant's methods to prove that $\gamma_j(k)$ and $\Gamma_j(k)$ grow linearly in $k$ for any nonnegative integer $j$. In particular, we show that $1/10 \leq \liminf_{k\to\infty}(\gamma_j(k)/k) \leq 9/10$ and $1/5 \leq \limsup_{k\to\infty}(\gamma_j(k)/k) \leq 3/2$. Additionally, we show that $\liminf_{k\to\infty}(\Gamma_j(k)/k) = 3/2$ and $\limsup_{k\to\infty}(\Gamma_j(k)/k) = 3$. (Received September 23, 2018)