1106-05-2087 **David Rolnick** (drolnick@math.mit.edu) and **Praveen S. Venkataramana***
(venkap@mit.edu). *On the growth of Stanley sequences.*

A set is said to be *3-free* if no three elements form an arithmetic progression. Given a 3-free set A of integers $0 = a_0 < a_1 < \cdots < a_t$, the *Stanley sequence* $S(A) = \{a_n\}$ is defined using the greedy algorithm: For each successive $n > t$, we pick the smallest possible a_n so that $\{a_0, a_1, \ldots, a_n\}$ is 3-free and increasing. Work by Odlyzko and Stanley indicates that Stanley sequences may be divided into two classes. Sequences of Type 1 are highly structured and satisfy $\alpha n^{\log_2 3}/2 \leq a_n \leq \alpha n^{\log_2 3}$, for some constant α, while those of Type 2 appear chaotic and satisfy $\Theta(n^2/\log n)$. In this paper, we consider the possible values for α in the growth of Type 1 Stanley sequences. Whereas Odlyzko and Stanley assumed that $\alpha = 1$, we show that α can be any rational number that is at least 1 and for which the denominator, in lowest terms, is a power of 3. (Received September 15, 2014)