1067-08-1873   **Alex Zhai*** (`zhai@fas.harvard.edu`). *An Asymptotic Result on the Wilf Conjecture.*

Let Λ be a numerical semigroup, i.e. a cofinite subsemigroup of the non-negative integers, generated by k generators. The Wilf conjecture states that if we define $c(\Lambda) = \max(\mathbb{N} \setminus \Lambda) + 1$ and $c'(\Lambda) = |\Lambda \cap [0, c(\Lambda) - 1]|$, then $\frac{c'(\Lambda)}{c(\Lambda)} \geq \frac{1}{k}$. We prove the slightly weaker bound $\frac{c'(\lambda)}{c(\Lambda)} \geq \frac{1}{k} - \frac{m(\Lambda)}{2c(\Lambda)}$, where $m(\Lambda)$ is the smallest non-zero element of Λ. As a corollary, we find that for fixed k and any $\epsilon > 0$, the bound $\frac{c(\Lambda)}{c'(\Lambda)} \geq \frac{1}{k} - \epsilon$ holds for all but finitely many Λ. This result seems to be a step towards proving the Wilf conjecture, as most previous bounds focused on special cases. Finally, we discuss intuitive reasons for why the Wilf conjecture should hold and how our bounds might be improved. (Received September 22, 2010)