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Kourtney Fulton* (kourtneyfulton@yahoo.com). *Chains of idempotents in the Stone-Cech compactification of free semigroups*. Preliminary report.

For $n \in \mathbb{N}$, let S_n be the free semigroup on the generators $\{a_1, a_2, \dots, a_n\}$ and let S_ω be the free semigroup on the generators $\{a_n : n \in \mathbb{N}\}$. We show that there exists a sequence $\langle q_n \rangle_{n=1}^\infty$ of idempotents in βS_ω such that for each n , q_n is minimal in βS_n and $q_{n+1} < q_n$ under the usual ordering of idempotents, where $q \leq p$ if and only if $q = pq = qp$. Given any finite subset F of $\{q_n : n \in \mathbb{N}\}$, there is a continuous homomorphism $\varphi : \beta S_\omega \rightarrow S_\omega^* = \beta S_\omega \setminus S_\omega$ such that $\varphi[\beta S_\omega] = F$. On the other hand, if $\tau : S_\omega \rightarrow \{q_n : n \in \mathbb{N}\}$ has infinite range, then the continuous extension $\tilde{\tau} : \beta S_\omega \rightarrow \beta S_\omega$ of τ cannot be a homomorphism. (Received September 12, 2012)