1056-22-724 **Kendall Williams*** (kendallwilliams1983@yahoo.com). *Members of sums of idempotents in $\beta\mathbb{N}$.* Preliminary report.

Let $(S,\cdot)$ be a discrete semigroup. One may extend the operation on S to βS, the Stone-Čech compactification of S, making $(\beta S,\cdot)$ a compact right topological semigroup. If $a_1, a_2, ..., a_k \in \mathbb{Z}$ with $a_k > 0$ and $p = p + p \in \beta\mathbb{N}$, then $a_1p+a_2p+...+a_kp \in \beta\mathbb{N}$. If $A \in a_1p+a_2p+...+a_kp$, then there is a sequence $\langle x_t\rangle_{t=1}^{\infty}$ in $\mathbb{N}$ such that whenever $F_1, F_2, ..., F_k$ are finite subsets of $\mathbb{N}$ with $\max F_i < \min F_{i+1}$ for all $i \in \{1, 2, ..., k-1\}$, one has $\sum_{i=1}^{k} a_i \sum_{t\in F_i} x_t \in A$. We investigate what expressions must lie in members of $a_1p_1 + a_2p_2 + ... + a_kp_k$ where $p_1, p_2, ..., p_k$ are idempotents, not necessarily the same. For example, we show that if p and q are idempotents and $A \in a_1p + a_2q + a_3p$, then there exist sequences $\langle x_t\rangle_{t=1}^{\infty}$ and $\langle y_t\rangle_{t=1}^{\infty}$ such that whenever F_1, F_2, and F_3 are finite subsets of $\mathbb{N}$ with $\max F_1 < \min F_2$ and $\max F_2 < \min F_3$, one has $a_1\sum_{t\in F_1} x_t + a_2\sum_{t\in F_2} y_t + a_3\sum_{t\in F_3} x_t \in A$. (Received September 16, 2009)