1056-00-359   **John R Meuser*** (`jmeuser@gmail.com`), 15 Toddington Terrace, St.Louis, MO 63128.
m-Refinably Extendable Functions. Preliminary report.

A function is m-refinable if it can be written as a linear combination of its m-dilates and integer translates. The coefficients of this linear combination form a sequence called the *refinement sequence.* Let $f : [0, N) \to \mathbb{R}$ and pick a sequence of real numbers $\{c_i\}_{i=0}^N$ so that $c_0, c_N \neq 0$. Then a unique function $\tilde{f} : \mathbb{R} \to \mathbb{R}$ can be constructed so that $\tilde{f}|_{[0,N)} = f$ and $\tilde{f}$ is refinable with refinement sequence $\{c_i\}_{i=0}^N$. The construction of $\tilde{f}$ suggests a method for characterizing all compactly supported m-refinable functions. (Received September 01, 2009)