Wavelet coordinate systems are constructed by translating and dilating a single function in $L_2$ to form a basis or a frame for $L_2$. We are interested in what possible coordinate systems can be formed by just translations of a single function. It has previously been shown that for all $1 \leq p < \infty$, $L_p$ does not have an unconditional basis of translations of a single function. In contrast to this, we prove that for all $2 < p < \infty$ there exists a sequence of translations of a single function in $L_p$ which may be blocked to be an unconditional FDD for $L_p$. That is, there exists a function $F \in L_p$, a sequence of real numbers $(\lambda_j)_{j=1}^\infty$, and an increasing sequence of natural numbers $(n_j)_{j=1}^\infty$ with $n_1 = 1$ such that $(\text{span}_{n \leq i < n_j+1} T_{\lambda_i} F)_{j=1}^\infty$ is an unconditional FDD for $L_p$. In particular, for all $f \in L_p$ there exists a unique sequence of scalars $(a_i)_{i=1}^\infty$ such that

$$f = \sum_{j=1}^\infty \sum_{i=n_j}^{n_{j+1}-1} a_i T_{\lambda_i} F,$$

and the outside sum converges unconditionally. (Received January 13, 2015)