Abstract. Suppose that A is a subset of an abelian group G. To know the 3-*deck* of A is to know the number of occurrences in A of translates of each possible multiset $\{0, a, b\}$. The concept of the 3-deck of a set is naturally extended to L^1 functions on G. In this paper we study when the 3-deck of a function determines the function up to translations. The method is to look at the Fourier Transform of the function. Our emphasis is on the real line and the cyclic groups.