For a locally compact group $G$, the unitary operator $W$ on $L^2(G \times G)$ given by $W\xi(x, y) = \xi(x, x^{-1}y)$ encapsulates the structure of $G$. If $G$ is amenable then one can find simple tensors in $L^2(G) \otimes L^2(G)$ which, when acted upon by $W^*$ produce the square root of an (operator) bounded approximate diagonal for $L^1(G)$.

Using this approximate diagonal for a group algebra as a motivating example, this talk will discuss the relationship between these tensors and approximate identities and approximate translation invariant means. A general approach for approximate diagonals for predual algebras of locally compact quantum groups will be presented.