Abstract. Let $\alpha$ be an automorphism of the totally disconnected group $G$. The compact open subgroup, $V$, of $G$ is tidy for $\alpha$ if $[\alpha(V^\prime) : \alpha(V^\prime) \cap V^\prime]$ is minimised at $V$, where $V^\prime$ ranges over all compact open subgroups of $G$. Identifying a subgroup tidy for $\alpha$ is analogous to identifying a basis which puts a linear transformation into Jordan canonical form. This analogy is developed here by showing that commuting automorphisms have a common tidy subgroup of $G$ and, conversely, that a group $\mathfrak{H}$ of automorphisms having a common tidy subgroup $V$ is abelian modulo the automorphisms which leave $V$ invariant. Certain subgroups of $G$ are the analogues of eigenspaces and corresponding real characters of $\mathfrak{H}$ the analogues of eigenvalues.