There are various constructions of Rankin-Selberg integrals representing $L$-functions for pairs of irreducible, automorphic, cuspidal representations on a classical group $G$ and on $GL(n)$, respectively. Some of these constructions are restricted to cuspidal representations on $G$, which are globally generic, or admit certain other global models (Bessel models, Fourier-Jacobi models, periods). Recently, Cai, Friedberg, Ginzburg and Kaplan generalized the doubling method of Piatetski-Shapiro and Rallis ($n = 1$), and obtained global integrals which represent the $L$-functions above, without any restriction on the cuspidal representation on $G$. I will explain a method that shows how to drive the families of the integrals above, and, in principle, also new global integrals, from the generalized doubling integrals.