On a generalization of integro-differential operators

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Algebras of differential and integral operators together with one or more evaluations (i.e. multiplicative functionals) have been studied and used a lot in recent years. We generalize the setting by also allowing non-multiplicative functionals. Such functionals arise naturally as generalized evaluation operators acting on functions with singularities, for example. Similarities and differences to the standard setting, in particular regarding identities and normal forms, will be discussed.