A general method to study the convergence of nonlinear operators in Orlicz spaces

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We introduce a general setting in which we define nets of nonlinear operators whose domains are some set of functions defined in a locally compact topological group G. These nets assume the form

$$T_w f := z \mapsto \int_H \chi_w(z - h_w(t), L_{h_w(t)}(f)) d\mu_H(t),\ x > 0,$$

where H is a topological group with (left-invariant) Haar measure μ_H, $(\chi_w)_w$ is a net of Kernels functions defined on $G \times \mathbb{R}$, h_w are homeomorphism from H to G and $L_{h_w(t)} : L(G) \to \mathbb{R}$ are linear operators.

We analyze the behavior of such nets, and detect the fairest assumption which are needed for the nets to converge in Orlicz spaces. As a consequence, we give a result of convergence in a subspace of a Orlicz space.