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Walter Tholen* (tholen@mathstat.yorku.ca), 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada. *Lax Algebra Meets Topology*.

In this talk we combine two research directions, namely the development of a lax-algebraic framework for categories of interest to topologists and analysts, and the exploration of some key topological concepts, like spartion nad compactness, in an abstract category which comes equipped with an axiomatic notion of "closed" or "proper" map. Hence, we will discuss various candidates for such notions in the context of the category of lax (T,V) -algebras, with a Set-monad T laxly extended to the category of sets and V -valued-relations, for a quantale V . Suitable categories of ordered sets, metric spaces, topological spaces, closure spaces, and approach spaces all fit into this framework. We will give applications of the general topological theory in these contexts.

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