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John W Neuberger* (jwn@unt.edu). *Using a Lie generator to determine if a semidynamical system is local or global.*

Suppose that X is a complete separable metric space and T is either a global or local (in time) jointly continuous semidynamical system on X . Denote by $C(X)$ the space of all bounded continuous real-valued functions on X and

$$A = \{(f, g) \in C(X)^2 : g(x) = \lim_{t \rightarrow 0^+} \frac{1}{t}(f(T(t)x) - f(x)), x \in X\}.$$

Theorem: T is global if and only if A has no positive eigenvalue. Possible applications to concrete systems such as Navier-Stokes are discussed. (Received January 01, 2011)