1113-46-149 **J. W. Neuberger*** (`jwn@unt.edu`), UNT, Dept. Mathematics, 1155 Union Circle #311430, Denton, TX 76203-5017. *A Linear Condition Determining Local or Global Existence for a Nonlinear Semigroup of Transformations.*

Suppose X is a complete separable metric space and T is a strongly continuous semigroup of transformations on X. There are two notions of a generator for T, call the first one B, the conventional generator and the second one A, the Lie Generator. Roughly,

- $B = \{(x,y) \in X^2; |y = \lim_{t\to 0+} \frac{1}{t}(T(t)x - x);$
- $A = \{(f,g) \in L(X)^2 | g(x) = \lim_{t\to 0+} \frac{1}{t}(f(T(t)x) - f(x)), x \in X.$

where L denotes the set of bounded continuous real functions on X. Theorem. The semigroup T exists globally in time if and only if A has a positive eigenvalue. (Received August 18, 2015)