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**Dhruba R Adhikari*** (dadhikar@chuma1.cas.usf.edu), Deparmtent of Mathematics, University of South Florida, 4202 E Fowler Ave PHY114, Tampa, FL 33620-5700, and **Athanassios G Kartsatos** (hermes@math.usf.edu), Department of Mathematics, University of South Florida, 4202 E Fowler Ave PHY114, Tampa, FL 33620-5700. *Topological Degree Theories and Nonlinear Operator Equations in Banach Spaces.*

Let $X$ be a real Banach space and $G_1$, $G_2$ two nonempty, open and bounded subsets of $X$ such that $0 \in G_2$ and $\overline{G_2} \subset G_1$. The problem $(*)$ $Tx + Cx = 0$ is considered, where $T : X \supset D(T) \to X$ is an accretive or monotone operator with $0 \in D(T)$ and $T(0) = 0$, while $C : X \supset D(C) \to X$ can be, e.g., one of the following types: (a) compact; (b) continuous and bounded with the resolvents of $T$ compact; (c) demicontinuous, bounded and of type $(S_+)$ with $T$ positively homogeneous of degree one; (d) quasi-bounded and satisfies a generalized $(S_+)$-condition w.r.t. the operator $T$, while $T$ is positively homogeneous of degree one. Solutions are sought for the problem $(*)$ lying in the set $D(T+C) \cap (G_1 \setminus G_2)$. The degree theories of Leray and Schauder, Browder, Skrypnik, Kartsatos and Skrypnik are used. The excision and additivity properties of these degree theories are employed, and the main results are significant extensions or generalizations of previous results by Krasnoselskii, Guo, Ding and Kartsatos, and other authors, involving the relaxation of compactness conditions and/or conditions on the boundedness of the operator $T$. (Received September 21, 2006)