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Teffera M. Asfaw* (tasfaw@mail.usf.edu), University of South Florida, Department of Mathematics and Statistics, Tampa, FL 33620-5700, and **Athanassios G. Kartsatos**. *A Browder topological degree theory for multi-valued pseudomonotone perturbation of maximal monotone operators*. Preliminary report.

Let X be a real reflexive locally uniformly convex Banach space with locally uniformly convex dual space X^* . Let G be a bounded open subset of X . Let $T : X \supset D(T) \rightarrow 2^{X^*}$ be maximal monotone, possibly with $0 \notin T(0)$, and $S : X \rightarrow 2^{X^*}$ bounded, pseudomonotone and such that $0 \notin \overline{(T + S)(D(T) \cap \partial G)}$. Following Browder, we construct a topological degree theory for the sum $T + S$, with the degree mapping, $d(T + S, G, 0)$ defined by

$$d(T + S, G, 0) = \lim_{\varepsilon \downarrow 0^+} d_{S_+}(T + S + \varepsilon J, G, 0),$$

where d_{S_+} is the degree for bounded (S_+) -perturbations of maximal monotone operators. In addition, we develop an analogous degree theory for possibly unbounded pseudomonotone operators $S : X \rightarrow 2^{X^*}$. The uniqueness and the invariance, under suitable pseudomonotone homotopies, of these degree mappings are also included herein. As applications of our main results, we give some associated mapping theorems as well as degree theoretic proofs of known results by De Figueiredo, Kenmochi and Le.

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