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Bernd S. W. Schroeder* (schroeder@coes.LaTech.edu), Program of Mathematics and Statistics, Louisiana Tech University, Ruston, LA 71272. *Can We Change the Paradigm for Reconstruction?*

The reconstruction problem for ordered sets asks if every ordered set with at least four elements is identifiable (up to isomorphism) from its multi-set of unlabelled one-point-deleted subsets. The set reconstruction problem asks if every ordered set with at least four elements is identifiable from its set (not the multi-set) of unlabelled one-point-deleted subsets. This talk starts by characterizing those ordered sets that have two distinct isomorphic one-point-deleted subsets. These are the ordered sets for which reconstruction and set reconstruction are not equivalent.

Subsequently we extract a strong sufficient criterion for reconstructibility from the work of Bollobas. With methods similar to the characterization of sets with two distinct isomorphic one-point-deleted subsets, it is shown that the class of ordered sets that do not satisfy the criterion is contained in the union of three small classes of ordered sets. Consequently, the paradigm for reconstruction of ordered sets may be about to change from the initial expansion of knowledge by reconstructing ever more classes and parameters to an “endgame” that can focus on the “remaining classes” exhibited in this talk.

Similar results are presented for graphs. (Received August 25, 2006)