1004-54-29 **H. L. Bentley*** (`lbentley@math.utoledo.edu`), 5640 Richfield Center Road, Berkey, OH 43504.
Motley Merotopological Spaces. Preliminary report.

Katětov's merotopic spaces can be axiomatized as are uniform spaces via uniform covers, but with the "star-refinement" axiom omitted. Merotopic spaces which also carry a topology, with a single very natural axiom relating the two structures have been called merotopological spaces. Herrlich has shown how the concept of a collection of subsets of the space being "near" can be a basis for a set of axioms equivalent to the ones for uniform covers. The "union axiom" of proximity spaces states that if a pair of sets A and B are such that the union of A and B is near a set C, then A is near C or B is near C. The union axiom of merotopological spaces has this same flavor but concerns a pair of collections of subsets of the space. We are concerned here with a stronger union axiom (one which involves not just a pair of collections, but an arbitrary number of them) and we call the resulting spaces motley merotopological spaces. We explore the relationships of the motley spaces to several previously studied classes, and we tell which category theoretic constructions preserve motleyness. (Received January 02, 2005)