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ON T_0' SPACES

By Ivan L. Reilly.

In a recent note Lee [1] considered a separation property weaker than the T_1 property but independent of the T_0 property, and which he called T_0'. A topological space (X,T) is called a T_0' space if and only if for any point x not in a closed subset A of X there is an open set containing A but not x. The purpose of this note is to point out that these spaces were first introduced by Shanin [3] in 1943, and they have been considered by several authors usually under the name of R_0 spaces. The reader is referred to the paper by Naimpally [2] for a disucssion of the importance of this separation property.

In order to show the equivalence of T_0' and R_0 spaces we use the following characterization of the R_0 property as a definition. A topological space (X, T) is R_0 if and only if for each open set G containing a point x, the closure of $\{x\}$, denoted by $\bar{x}$, is contained in G.

THEOREM. *A topological space is T_0' if and only if it is R_0.*

PROOF. Let (X, T) be T_0', G be open and $x \in G$. Then there is an open set U containing $X-G$ but not x. Hence $x \in X-U \subset G$ and $X-U$ is closed, so that $\bar{x} \subset X-U \subset G$.

Conversely, if (X,T) is R_0, A is closed and $x \notin A$ then x is contained in the open set $X-A$ so that $\bar{x} \subset X-A$. Thus $U=X-\bar{x}$ is open and contains A but not x.

University of Auckland,
Auckland,
New Zealand.

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[3] N. A. Shanin, *On separation in topological spaces*, Doklady URSS 38 (1943), 110—113.