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Autor: Iséki, Kiyoshi
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ON A NEW CLASS OF TOPOLOGICAL SPACES

Kiyoshi Iséki

To the memory of Professor J. Karamata

In this short Note, I shall define a new class of topological spaces.

Let R be a Hausdorff space (i.e. T_2-space). R is said to be *H-closed* if there is a point common to the closures of all sets of any collection of open sets with the finite intersection property. As is well known, a compact T_1-space is characterized by the condition: there exists a subbasis Φ for the closed sets of R such that there is a point common to all sets of any collection of sets of Φ having the finite intersection property.

On the other hand, a H-closed space is not characterized by replacing a subbasis in the condition above into an open basis. Therefore we shall consider the following condition on *an open basis* Φ in R.

(A) *There is a point common to the closures of all sets of any collection of* Φ *with the finite intersection property.*

As shown by the following simple examples, a topological space satisfying the condition (A) defines a new class of topological spaces.

In any discrete space, we can take an open basis Φ satisfying the condition (A). Any H-closed space (or compact space) has an open basis satisfying the condition (A). Further, an arbitrary product of T_2-spaces with the condition (A) is a T_2-space satisfying the condition (A). On the other hand, the space of all rational numbers is not a topological space with the condition (A).