Journal of the Mathematical Society of Japan Vol. 8, No. 3, July, 1956

Note on an absolute neighborhood extensor for metric spaces.

By Yukihiro KODAMA

(Received May 6, 1955)

1. Introduction

Recently, K. Morita [4] has introduced the following idea. Let X be a topological space and $\{A_{\alpha}\}$ a closed covering of X. Then X is said to *have the weak topology with respect to* $\{A_{\alpha}\}$, if the union of any subcollection $\{A_{\beta}\}$ of $\{A_{\alpha}\}$ is closed in X and any subset of $\bigcup_{\beta} A_{\beta}$ whose intersection with each A_{β} is closed relative to the subspace topology of A_{β} is necessarily closed in the subspace $\bigcup_{\beta} A_{\beta}$.

E. Michael [3] has introduced the following notion. A topological space X is called an *absolute extensor* (resp. *absolute neighborhood extensor*) *for metric spaces* if, whenever Y is a metric space and B is a closed subset of Y, then any continuous mapping from B into X can be extended to a continuous mapping from Y (resp. some neighborhood of B in Y) into X. A topological space X is called an *absolute retract* (resp. *absolute neighborhood retract*) *for metric spaces* if, whenever X is a closed subset of a metric space Y, there exists a continuous mapping from Y (resp. some neighborhood of Y in X) onto X which keeps X pointwise fixed. We shall use the following abbreviations as Michael [3]:

AE = absolute extensor.
ANE = absolute neighborhood extensor.
AR = absolute retract.
ANR = absolute neighborhood retract.

The purpose of this paper is to establish the following theorem.

THEOREM. *Let X be a topological space having the weak topology with respect to a closed covering $\{A_{\alpha}\}$. We assume that, for each finite subcollection $\{A_{\alpha_1}, A_{\alpha_2}, \cdots, A_{\alpha_n}\}$ of $\{A_{\alpha}\}$ with non-void intersection,* $\bigcap_{i=1}^{n} A_{\alpha_i}$