

## Quotients of some identifying subcategories of the topological category

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**Abstract.** In this paper, let  $\mathbf{K}$  denote an identifying subcategory of the category of all topological spaces such that the front adjunction mapping is a quotient mapping for any topological space. The objects in  $\mathbf{K}$  are called  $\mathbf{K}$ -spaces. Note that  $\mathbf{K}$  is reflective and  $\mathbf{Top}_i$  ( $i = 0, 1$  and  $2$ ) is a special case for  $\mathbf{K}$ . For a  $\mathbf{K}$ -space  $X$ , we give sufficient and necessary conditions for  $X/R$  to be a  $\mathbf{K}$ -space. Meanwhile, we get the Isomorphism Theorem for  $\mathbf{K}$ -spaces, with a particular emphasis on  $T_i$  spaces. For a  $T_i$  space  $(X, \tau)$ , we obtain the sufficient and necessary conditions for  $X/R$  to be  $T_i$  only in terms of the given equivalence relation and the space itself. Especially, when  $X$  is  $T_2$ , we find that  $X/R$  is  $T_2$  if and only if  $R \subseteq (X, \tau_R) \times (X, \tau_R)$  is closed. Moreover, we obtain the congruence relation of posets from the topological perspective.

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