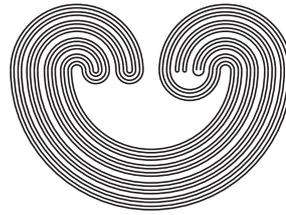


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## CONCERNING GENERALIZED QUASIMETRIC AND QUASI-UNIFORMITY FOR TOPOLOGICAL SPACES

by

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## CONCERNING GENERALIZED QUASIMETRIC AND QUASI-UNIFORMITY FOR TOPOLOGICAL SPACES

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**ABSTRACT.** In this paper, we give a construction of generalized quasimetric for an arbitrary quasi-uniform space. Here we also note that the generalized quasimetric in [5] for an arbitrary topological space gives the Pervin's quasi-uniformity for the space. Finally, we study some categorical relations between quasi-uniform spaces and generalized quasimetric spaces.

### 1. INTRODUCTION

It is well known that not every topological space is generated from some metric space, i.e., there are topological spaces which are not metrizable. Hence, until now many mathematicians have constructed different kinds of generalizations of metrics and have represented arbitrary topological spaces in terms of those generalized versions of metrics (see [4], [5]). In [5], Kopperman gave such a generalization and that was further modified in [7]. Here, in this paper, we have considered this modified version and have defined the quasi-uniformity, which arises quite naturally from this generalized version of metric. Pervin [10] proved that the topology  $\tau$  of any topological space  $(X, \tau)$  is induced by some transitive quasi-uniformity, a subbase for which is given by the collection,  $\{T(G, X \setminus G) : G \in \tau\}$ , where  $T(G, X \setminus G)$  stands for  $(X \times X \setminus (G \times (X \setminus G)))$ . In this context we have observed that the particular generalized quasimetric construction for any arbitrary topological space in [5], actually gives rise to the Pervin's quasi-uniformity for that topological space. For detailed discussion regarding quasi-uniformization of topological spaces [2] and [9] may be consulted.

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