ON TWO PROBLEMS OF HARRIS CONCERNING RC-PROXIMITIES

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Abstract. We give an example that settles the first and third problems posed recently by Douglas Harris [1]. The example shows that comparable RC-proximities on an RC-regular space need not give rise to comparable regular-closed embeddings, and that an RC-regular space need not have a largest regular-closed embedding.

Consider the minimal regular but not completely regular space \( Z \) constructed in [2]. Let \( T \) be the dense discrete subspace of \( Z \) consisting of points none of the coordinates of which are infinite limit ordinals. Let \( \delta \) be the discrete proximity on \( T \) and let \( \delta' \) be the RC-proximity on \( T \) induced by the unique RC-proximity on \( Z \). Then \( \delta > \delta' \) and the ideal spaces corresponding to \( \delta \), \( \delta' \) are \( \beta T \) and \( Z \) respectively. Since \( Z \) is not compact, there is no continuous function from \( \beta T \) onto \( Z \) and hence \( \beta T \) is not larger than \( Z \). It is now also clear that \( T \) has no largest regular-closed embedding.

References


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