On Countable Dense and \( n \)-homogeneity
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Abstract. We prove that a connected, countable dense homogeneous space is \( n \)-homogeneous for every \( n \), and strongly 2-homogeneous provided it is locally connected. We also present an example of a connected and countable dense homogeneous space which is not strongly 2-homogeneous. This answers Problem 136 of Watson in the Open Problems in Topology Book in the negative.