Some conditions which imply quasi-developability

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Abstract

In this paper quasi-developable spaces, quasi-\(\mathcal{W}\Delta\)-spaces, quasi-semi-stratifiable spaces and spaces with quasi-\(G_\alpha^*\)-diagonal are studied. It is shown that every quasi-\(\mathcal{W}\Delta\), quasi-semi-stratifiable space is a quasi-developable space. A regular space is quasi-semi-stratifiable if and only if it is a quasi-\(\beta\)-space with quasi-\(G_\alpha^*\)-diagonal. A regular space is quasi-semi-stratifiable if and only if it is a quasi-\(\alpha\) quasi-\(\beta\)-space. A regular quasi-\(\beta\)-space is a quasi-Moore space if and only if it is a quasi-\(\gamma\)-space. A quasi-first-countable quasi-semi-stratifiable space is quasi-developable. A regular quasi-\(q\)-space is a quasi-Moore space if and only if it is a quasi-semi-stratifiable space.

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1 Definitions

In 1971 H.Bennett [?], introduced the idea of quasi-developbility. A countable family \(\{G_n : n \in N\}\) of collections of open subsets of a space \(X\) is called a quasi-development for \(X\) provided for each point \(p\) in \(X\) and each open set \(R\) containing \(p\) there is a natural number \(n\) such that some element of \(G_n\) contains \(p\) and each element of \(G_n\) that contains \(p\) is contained in \(R\). If in addition, it is required that each \(G_n\) be an open cover of \(X\), then \(\{G_n : n \in N\}\) is said to be a development for \(X\). A topological space with a quasi-development is called a