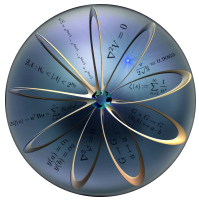

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uniform structure of a metric space

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Let (X, d) be a metric space. There is a natural uniform structure on X, which induces the same topology as the metric. We define a subset V of the Cartesian product $X \times X$ to be an entourage if and only if it contains a subset of the form

$$V_\varepsilon = \{(x, y) \in X \times X : d(x, y) < \varepsilon\}$$

for some ε.