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Cover quasi-uniformities in frames. (English)

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Quasi-uniformities (that is, not necessarily symmetric uniformities) on a set X are normally studied via entourages (that is, special subsets of $X \times X$). This has been done successfully in the point-free context, too. However, because the point-free representation of the square $X \times X$ is not without difficulties, there was an interest in an approach to quasi-uniformities via covers. Based on the (spatial) ideas from Ganter and Steinlage, a cover-type quasi-uniformity was developed by Frith (and others) using biframes, the point-free variant of bitopologies.
In the present paper, the authors show that this detour can be avoided by giving a variant of the paircover definition that avoids the need of a biframe structure. Indeed they present a concept of a cover-type quasi-uniformity structure that is directly defined in frames. Their new approach is then shown to be equivalent to the one based on the notion of a biframe.

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