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Weil uniformities for frames. (English summary)

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The notion of uniformity on the lattice of open sets in a topological space was introduced by E. E. Reed and W. J. Thron [Math. Nachr. **36** (1968), 237–253; MR0229204 (37 #4778)]. The concept of uniformity was extended to locales by J. R. Isbell [Math. Scand. **31** (1972), 5–32; MR0358725 (50 #11184)]. In each of the aforementioned articles the authors indicated that the state of knowledge of products prevented them from describing the theory of uniformities in terms of entourages. P. Fletcher and the reviewer [Monatsh. Math. **112** (1991), no. 4, 271–279; MR1141095 (93c:54020)] showed how to define an entourage uniformity on a frame by using functions from the given frame into itself. The resulting category was called the category of entourage uniform frames. In the paper under review, the author gives an alternative definition of an entourage uniformity, which he calls a Weil uniformity. Let L be a frame. The entourages in a Weil uniformity are certain subsets of the product $L \times L$ called C-ideals. He proves that his concept of uniformity is equivalent to those defined previously by showing that the category of Weil uniform frames is isomorphic to the category of entourage uniform frames.

Reviewed by *Worthen Hunsaker*