MR3620304 06D22 54C05

Picado, Jorge (P-CMBR); **Pultr, Aleš** (CZ-KARLMP-AM)

Localic maps constructed from open and closed parts. (English, Persian summaries)

Categ. Gen. Algebr. Struct. Appl. **6** (2017), *no. 1,* 21–35, 2 (*Persian pp.*).

The authors prove that, just like in spaces, if a locale L is covered by open sublocales $\{U_i \mid i \in I\}$, and for each i there is a localic map $f_i \colon U_i \to M$ such that f_j and f_k agree on the intersection $U_j \cap U_k$, then there is exactly one localic map $f \colon L \to M$ such that $f|U_i = f_i$ for every i. The map is given by $f(x) = \bigwedge\{f_i(a_i \to x) \mid i \in I\}$. They also prove a similar result showing how to build a localic map from localic maps on finitely many closed sublocales that cover the locale. Their proofs use categorical methods. In the second part of the paper they consider the question of when a mapping (not necessarily localic) between two locales has the property that the set-theoretic preimage of every closed (resp. open) sublocale is closed (resp. open). The answer for closed sublocales is that the mappings in question are precisely the ones that have left adjoints. Thus, localic maps are among them. For open sublocales, the answer is that there should exist a mapping in the opposite direction that satisfies a certain property.   *Oghenetega Ighedo*