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1. Logic

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Syntactic view on locally generated categories: abstract and concrete cases

Characterizations of locally α-generated categories will first be presented, in syntactic terms and in terms of essentially algebraic theories. It will be compared to the well-known locally presentable case. The "concrete" version of the problems deal with categories of Σ-structures closed (in the category of all Σ-structures) under limits and α-directed unions and, respectively, α-directed colimits. The finitely presentable case was solved by H. Volger in the 70's, and a solution to the locally α-generated case will be presented, together with relevant examples. Presentations in syntactic terms of the α-presentable and α-generated objects in these categories will be investigated along the way.