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Book Review

Colin McLarty. *Elementary Categories, Elementary Toposes*. Oxford University Press, Oxford, 1991, xiii + 265 pages.

1 Introduction Writing an introductory book on category theory and topos theory is a serious challenge, particularly if one wants to reach logicians, philosophical logicians, and philosophers. The reason is simple: students in those fields are not usually exposed to the vast sample of mathematical structures like monoids, groups, vector spaces, rings, fields, topological spaces, manifolds, and so on, which are used as examples and motivation for categorical structures and definitions. This is a serious problem since examples play a crucial role in the understanding and learning of a discipline. One therefore has to find a way to circumvent this difficulty, either by finding simple examples, if this is possible, which are nevertheless interesting and relevant enough or presenting the field in such a way that the reader can, maybe with the help of an instructor, construct her own examples as she goes along. Colin McLarty, in his book *Elementary Categories, Elementary Toposes*, has opted for the latter approach. His sole presupposition is that the reader is skilled at abstraction and the only real prerequisite is a familiarity with logic and formal systems in general. The bet is to present category theory and topos theory "as if" they were easy and almost mere formal languages. Learning category theory then becomes, more or less, learning the "language" of commutative diagrams and diagram chasing, and learning topos theory amounts to, again approximating roughly, learning a certain higher-order type theory which is related to this diagrammatic language in a certain systematic manner.

Anyone with the required skill will certainly benefit immensely from McLarty's well-organized and clear book. All the basic definitions are given and whenever a new concept is introduced, the author takes the time to motivate it and indicates how one can think about it informally. The book covers the fundamental notions of category theory and topos theory. The choice of some topics might surprise some readers, but it is clear that it is not innocent and that it follows a definitive point of view of the subject, though it is never mentioned nor discussed explicitly. McLarty, who has published many papers on technical as well as philosophical aspects of topos theory and categorical logic, is faithful to the *spirit* of those theories and certainly wants the reader to understand what this spirit is by putting it in practice. By learning and doing category theory and topos theory the way it is presented in this book, the reader will