

645-49. ANDERS KOCK, The University of Chicago, Chicago, Illinois 60637. On the codensity monad of a functor.

If $y : \underline{A} \rightarrow \underline{B}$ is a functor with \underline{A} a small category and \underline{B} a left complete one (having inverse limits), one can define an endofunctor T on \underline{B} by sending an object B to the inverse limit of the obvious composite functor $(B, y) \rightarrow \underline{A} \rightarrow \underline{B}$. The indexcategory (B, y) is the commacategory as defined by Lawvere, Proceedings of the Conference on Categorical Algebra, La Jolla, 1965, pp. 1-20. Then there is a very natural way of equipping T with the structure of a monad on \underline{B} . ("Monad" means "triple" in the sense of Eilenberg and Moore, Illinois J. Math. 9 (1965), 381-398; in this paper a certain factorization for a monad is given, denoted $\underline{B} \rightarrow \underline{B}^T \rightarrow \underline{B}$.) Theorem. If y is a full and faithful inclusion, then the composite functor $\underline{A} \rightarrow \underline{B} \rightarrow \underline{B}^T$ preserves direct limits. (Received February 20, 1967.)

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