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Totality of colimit closures

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Abstract: Adámek, Herrlich, and Reiterman showed that a cocomplete category \mathcal{A} is cocomplete if there exists a small (full) subcategory \mathcal{B} such that every \mathcal{A} -object is a colimit of \mathcal{B} -objects. The authors of the present paper strengthened the result to totality in the sense of Street and Walters. Here we weaken the hypothesis, assuming only that the colimit closure is attained by transfinite iteration of the colimit closure process up to a fixed ordinal. This requires some investigations on generalized notions of generators.

Keywords: cocomplete category, (almost-) \mathcal{E} -generator, colimit closure, cointersection, total category

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