Cockett, J. R. B.; **Cruttwell, G. S. H.**; **Gallagher, J. D.**
Differential restriction categories. (English) Zbl 1260.14004
Theory Appl. Categ. 25, 537-613 (2011).

In [*R. F. Blute, J. R. B. Cockett* and *R. A. G. Seely*, Theory Appl. Categ. 22, 622–672 (2009; Zbl 1262.18004)] the authors proposed a more direct approach to differential calculus than their previous [Math. Struct. Comput. Sci. 16, No. 6, 1049–1083 (2006; Zbl 1115.03092)]. In the latter a differential category is an additive symmetric monoidal category with a comonad and a differential combinator, while in the former their emphasis moves from the linear notion to structures resembling the coKleisli category. The present paper proposes to combine cartesian differential categories with restriction categories of *J. R. B. Cockett* and *S. Lack* [Theor. Comput. Sci. 270, No.1–2, 223–259 (2002; Zbl 0988.18003), Theor. Comput. Sci. 294, No. 1–2, 61–102 (2003; Zbl 1023.18005), Math. Struct. Comput. Sci. 17, No. 4, 775–817 (2007; Zbl 1123.18003)] so as to allow partiality of maps.

Reviewer: Hirokazu Nishimura (Tsukuba)

MSC:

14A20	Generalizations (algebraic spaces, stacks)
18D10	Monoidal, symmetric monoidal and braided categories
18C20	Algebras and Kleisli categories associated with monads
12H05	Differential algebra
32W99	Differential operators in several variables
58A99	General theory of differentiable manifolds

Keywords:

differential category; cartesian differential category; restriction category; differential restriction category

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