## On effective descent morphisms of lax comma categories of ordered sets

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In this talk we focus on the study of effective descent morphisms, a class of morphisms that plays a key role in Grothendieck descent theory. In a category A with pullbacks, a morphism  $f: A \to B$  is said to be *effective for descent* (respectively *descent*) if the change-of-base functor  $f^*: A/B \to A/A$ , obtained by pulling back along f, is monadic (respectively premonadic). Effective descent morphism are always pullback stable regular epimorphisms, and the two classes coincide whenever A is Barr-exact or locally cartesian closed. This is not the case of categories of topological nature, like the category of topological spaces and continuous maps, or the category of metric spaces and non-expansive maps, or the category Ord of (pre)ordered sets (*i.e.* not necessarily anti-symmetric) and monotone maps. The usual step towards the understanding of these morphisms carries the problem to a more handy setting and extracts conclusions using the so-called obstruction lemma. This is what we outline in this talk, for the case of Ord (as obtained in [4]) and of lax comma categories of ordered sets, reporting on results of [1, 2, 3].

## References

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