1103-18-22 **Marta C. Bunge*** (marta.bunge@mcgill.ca), McGill University, Department of Mathematics and Statistics, Montreal, Quebec H3A 2K6, Canada. *Pitts Monads and a Lax Descent Theorem.*

For M the symmetric monad (M.Bunge and A.Carboni 1995) on the 2-category B of toposes bounded over a base topos S with a natural numbers object, the M-maps (M.Bunge and J.Funk 2006) are the S-essential geometric morphisms. By a "KZ monad" we mean here a Kock-Zoeberlein monad (A. Kock 1975). A "Pitts KZ monad" on a 2-category B is introduced as a KZ monad M on B that satisfies the analogue of Pitts' theorem (A.M.Pitts 1996) on comma squares along S-essential geometric morphisms. There is a dual notion of Pitts co-KZ monad N on any 2-category B. The purpose of this talk is to state and prove the following general lax descent theorem: If M is a Pitts KZ monad on a 2-category B of categories with pullbacks and stable finite colimits, such that B has an objects classifier which is an M-algebra, then every surjective M-map is of effective lax descent. There is a dual version for Pitts co-KZ monads. These theorems have several applications for morphisms of toposes and of locales. The Pitts monads involved are the symmetric monad, the lower and upper power locale monads, and a "coherent monad" introduced for the intended application (M.Zawadowski 1995, I.Moerdijk and J.J.C. Vermeulen 2000). (Received July 29, 2014)