

Abstracting sheafification-like adjunctions via the tripos-to-topos construction

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The main purpose of this talk is to abstract and generalize several known sheafification-like adjunctions for toposes (arising as instances of the tripos-to-topos construction) as “geometric” morphisms of triposes. In particular, we will focus on three specific cases: the ordinary sheafification for localic toposes, particular instances of the sheafification-like adjunction between the ex/reg and the ex/lex completion of a regular category presented in [1], and finally the sheafification-like adjunction between Set and a realizability topos [2]. To achieve this goal, we will combine the tripos-to-topos construction [3] with the full existential completion [4,5] and the characterization of toposes arising as ex/lex completions [6], taking advantage of the careful 2-categorical analysis of the tripos-to-topos construction presented in [7] and of the presentation of such a construction in terms of exact completions described in [8]. This talk is based on a joint work with Maria Emilia Maietti.