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*Kleene's minimization as a construction.*

Kleene's normal form theorem in recursion theory states that every recursive function can be obtained by performing one minimization of a primitive recursive function. The purpose of this talk is to describe how one may view Kleene's theorem as a construction using an object in a restriction category which admits bounded minimization. The construction embeds the original category into a larger setting with exactly the same total maps but many more partial maps.

Implicit computational settings, which implement some functional complexity class such as (LOGSPACE, PTIME, PSPACE, ...), when viewed through the exception monad, provide a restriction category in which the "natural numbers" admit bounded minimization. Performing the construction on these settings produces Turing categories whose total maps are precisely the maps of the given functional complexity class. Thus this construction provides a link between the abstract recursion theoretic approaches to complexity – using Turing categories – and the implicit complexity settings. (Received August 18, 2014)