

## A MODEL-THEORETIC LOOK AT EXPONENTIAL FIELDS

JONATHAN KIRBY

An exponential function is a homomorphism from the additive group of a field to its multiplicative group. The most important examples are the real and complex exponentials, and these are naturally studied analytically.

However, one can also study the algebra of exponential fields and their logical theory. It turns out that the natural ways to do this take one outside the usual finitary classical logic of model theory and into positive/coherent logic, geometric logic, or other infinitary logics, or to the more algebraic and abstract setting of accessible categories.

I will describe some of this story, focussing on the more algebraic aspects of existentially closed exponential fields.

This is joint work with Levon Haykazyan.