1135-03-1100 **Jeremy Avigad*** (avigad@cmu.edu), Department of Philosophy, Baker Hall 161, Carnegie Mellon University, Pittsburgh, PA 15213. *Mathematical Language from a Design Perspective.*

Among the sciences, mathematics is characterized by the level of precision used in making claims and justifying them. This fact has made it possible for logicians to develop idealized descriptions of mathematical language and rules of inference, in order to model key aspects of mathematical reasoning. That, in turn, makes it possible to develop computational tools to support such reasoning with better means of computation, verification, and search.

But there is a gap between informal mathematical language and these idealized versions. When we read an ordinary mathematical text, we rely on a deep-seated understanding of mathematical norms and conventions, as well as the subject matter before us, to disambiguate expressions and fill in information that is only implicit in the written text. For many computational applications, this information has to be made fully explicit.

The goal, then, is to design formal mathematical languages that approximate the power, efficiency, and flexibility of informal language, while at the same time providing fully explicit and unambiguous representations of mathematical knowledge. In this talk, I will describe some of the challenges that brings, and some of the mechanisms that logicians and computer scientists have developed to address them. (Received September 19, 2017)