1150-03-648 **Roy T Cook*** (cookx432@umn.edu), 831 Heller Hall, 271 19th Ave S, Minneapolis, MN 55455.
Neo-logicist Foundations for Mathematics.

In the late 19th century, Gottlob Frege attempted to reduce all of mathematics to logic - a view that has come to be called logicism. Frege's logicism centered on second-order logical principles known as abstraction principles, and he successfully derived an abstraction principle known as Hume's Principle (which is consistent, and in turn entails full second-order Peano arithmetic) from his logical principles. Unfortunately, Frege's attempt ran afoul of the Russell paradox: his Basic Law V is inconsistent. In the late 20th century, however, a revised version of this approach, known as neo-logicism, arrived on the philosophical scene. According to neo-logicism, we can reduce all of mathematics to (consistent) abstraction principles like Hume's Principle, which can be seen as implicit definitions of mathematical concepts (the concept "Cardinal Number" in the case of Hume's Principle). In this talk I will outline the neo-logicist approach to the foundations of mathematics, present the main outstanding problem facing neo-logicism (the "Bad Company Problem", which amounts to providing an account of the line demarcating the "good" abstraction principles such as Hume's Principle from the "bad" principles such as Basic Law V), and sketch my own solution to this puzzle. (Received July 16, 2019)