

Neo-Fregeanism: Revising Frege's Notion of Identity in the Philosophy of Language and Mathematics

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Since the middle 1990's, I have been working on a new approach to the foundations of mathematics, one that is based on a new version of type theory called "First Order Logic with Dependent Sorts" (*FOLDS*). This is an extension to the classical Russell-Ramsey type theory, and it has the ambition of serving as the logical basis of a fully comprehensive foundational system, in the spirit of Frege's *Grundgesetze der Arithmetik*. The novelty of the approach lies in a new systematic and "relativistic" conception of identity. In this, identity is no longer a primitive as it is in Frege; rather, it is defined on the basis of the logic of *FOLDS*. Identity becomes type-dependent; it becomes meaningless to ask if entities of different types are identical (equal) or not. Category theory, and its extension to higher dimensional categories, a currently emerging branch of abstract mathematics, is a natural environment for the *FOLDS* language and the *FOLDS* identity concept. In the talk, I will make an attempt to relate my mathematical work to the philosophy of mathematics of Frege and of subsequent thinkers.