In the critical discussion of Gottlob Frege’s logic in Edmund Husserl’s *Philosophy of Arithmetic*, Husserl outlines his objections to the use Frege makes of Leibniz’s principle of the substitutivity of identicals in the *Foundations of Arithmetic*. In the 1903 appendix to *Basic Laws II*, Frege linked these same criticisms with Russell’s paradox when, without mentioning Husserl’s name, he traced the source of the paradox to points Husserl had made in the *Philosophy of Arithmetic*. For many philosophical, linguistic and historical reasons these two facts have gone virtually uncommented. In the belief that Husserl’s discussion of identity and substitutivity in Frege’s theory of number may actually be able to shed light on some dark areas surrounding the significance of Russell’s paradox for logic and epistemology, I propose here to examine Husserl’s criticisms and systematically tie his arguments in with observations made by Bertrand Russell and others who have studied Frege’s work.

First, however, I must preface my discussion with a short historical digression aimed at showing how Husserl fit into Frege’s intellectual world and his competency to deal with Frege’s ideas. This is necessary because Husserl is not generally thought of as having been someone who could have understood Frege’s work in 1891. Louis Couturat, Alonzo Church and Dallas Willard are among the very few people who seem to have noticed that Husserl wrote anything worthwhile or insightful at all about Frege’s logic in the *Philosophy of Arithmetic*. Husserl is most often wrongly thought of as having been a kind of intellectual infant when he wrote it, and for a long time it was thought that his intellectual awakening only began in 1894 with Frege’s bitter review of the book.

The many people who still underrate Husserl’s ability in 1891 to publish an insightful work concerning the philosophy of arithmetic are not, however, in possession of the facts for during the years in which his philosophical ideas were developing, Husserl actually had the unusual...
privilege of directly participating in the early development of the very mathematical, logical and philosophical ideas that would go on to determine the course of philosophical thought in English-speaking countries in the twentieth century. He was, in fact, directly and intimately involved in the earliest discussions of such pivotal issues in twentieth century logic, mathematics, and analytic philosophy as number theory, the continuum problem, set theory, the axiomatic foundations of geometry, Russell’s paradox, infinity, function theory, intentionality, intensionality, analyticity, identity, sense and reference, and completeness, all of which are philosophical issues which still, a hundred years later, present thorny problems for philosophers, filling the pages of the journals and books they read. Husserl’s ideas now need to be knit back into the intellectual context that produced them.

WEIERSTRASS, BRENTANO, STUMPF AND CANTOR

It was Karl Weierstrass’s courses on the theory of functions that, in the late 1870s and early 1880s, first awakened Edmund Husserl’s interest in seeking radical foundations for mathematics. Husserl was impressed by his teacher’s emphasis on clarity and logical stringency. He was receptive to Weierstrass’s efforts to further the work begun by Bernard Bolzano to instill rigor in mathematical analysis and to transform the “mixture of reason and irrational instincts” it then was into a purely rational discipline. Weierstrass exercised a deep influence on Husserl and in 1883 Husserl became his assistant. It was from Weierstrass, Husserl once said, that he acquired the ethos of his scientific striving.

After serving as Weierstrass’s assistant for a year, Husserl travelled to Austria to study under Franz Brentano. Like Weierstrass, Brentano was working on Bolzano’s ideas, and under Brentano, Husserl studied Bolzano’s writings and the Paradoxes of the Infinite in particular. Brentano was then engaged in reforming logic and was vigorously trying to revise old traditions, paying particular attention to matters of linguistic expression. He was influenced by British empiricism and Michael Dummett, for one, considers him to have been, “roughly comparable to Russell and Moore” in England. Russell himself actually explicitly acknowledged the kinship between his own ideas and those of