

Mauro Mariani
Bolzano e Cantor

Dipartimento di Filosofia, Università di Pisa, Italia
e-mail: mariani@fls.unipi.it

For many centuries the predominant opinion of philosophers and mathematicians was that infinite is only potential (quite in Aristotle's sense of power) and that actual infinite is, on the contrary, intrinsically not consistent. Among the first, Bolzano has "proved" that actual infinite exists and that no contradiction arises if there is a biunivocal correspondence between an infinite set and many of its proper subsets. To be sure, Bolzano's *Paradoxes of Infinite* had a powerful influence on Cantor's views about actual infinite, but their theories are in many respects at odds. Indeed, according to Bolzano, if there is a biunivocal correspondence between sets A and B this does not imply that A is as great as B ; therefore we cannot define cardinal numbers by means of the notion of biunivocal correspondence. Moreover he maintains that a whole is greater than its parts. Bolzano claims that infinite sets can be different in size and that there are infinite numbers: but, following his point of view, he characterizes them in a way by no means compatible with Cantor's. In conclusion Bolzano's insights on infinite do not prefigure Cantor's theories, rather they constitute an alternative approach to infinite which some modern mathematicians pay attention to.