I will use the term “problem of exactness” in order to refer to the assessment of norms in order to
decide the best solution for a mathematical problem, their influence on mathematical activity and
the criticism they eventually raised. My specific contribution to clarify this problem will concern
the study of a particular class of norms, that I will call, "simplicity norms", or shortly "simplicity"
for reasons that are obvious upon the consideration of the extant literature. In particular I will deal
with the constraints imposed by Descartes upon the construction of problems in geometry, as they
are neatly explicited in a passage from the third book of La Géométrie.
Descartes' requirement can be thus resumed: among the appropriate geometrical means available to
solve problems of a certain class, one must select, the "simplest" one. The simplest solution to a
geometric problem is given by the curves of the simplest class, e.g., those associated with equations
of lowest possible degree (dimensional simplicity).
However, the choice of measuring the appropriateness of solving methods to problems at issue by
algebra runs into elementary purity objections, particularly because cognitively simple or pure
solutions are explicitly by Descartes excluded as flawed.
I will therefore interrogate myself on the rationale for Descartes' preference for dimensional
simplicity. Starting from a suggestion made by Henk Bos, I will consider the role of the structuring
power of algebra for the classification of curves and problems, and conclude that the choice for
dimensional simplicity can be explained in the backdrop of Descartes' concern for improving
ancient classifications of curves.