

## PREFACE

Not long ago, in the nineties, no one doubted that a “digital revolution” was in the making—in architecture as in all aspects of life, science, and art. Today (early 2010) the very expression “digital revolution” has fallen into disuse, if not into disrepute; it sounds passé and archaic, at best the reminder of an age gone by. Yet digital technologies, now ubiquitous, have already significantly changed the way architecture is designed and made. They are changing how architecture is taught in schools, practiced, managed, even regulated. Etymologically, as well as politically, the notion of a revolution implies that something is or has been turned upside down. It may be too soon to tell if the digital is a revolution in architecture, but it is not too soon to ask what may be upended if it is. If the digital is a “paradigm shift,” which paradigm is shifting? If architecture has seen a “digital turn,” what course has turned?

This work will trace the rise of some aspects of modernity that have marked the history of Western architecture. They all relate to one key practice of modernity: the making of identical copies—of nature, art, objects, and media objects of all sorts. From the beginning of the Early Modern Age, and until very recently, the cultural demand and the technical supply of identical copies rose in sync. Identical copies inspired a new visual culture, and prompted new social and legal practices aimed at the protection of the original and its owner or creator. At the same time, new cultural technologies and new machines emerged and were developed to produce and mass-produce identical replications: from printed images and text set with moveable type to the

industrial assembly line, from perspectival images to photography to the Xerox machine.

Two instances of identity were crucial to the shaping of architectural modernity. The first was Leon Battista Alberti's invention of architectural design. In Alberti's theory, a building is the identical copy of the architect's design; with Alberti's separation in principle between design and making came the modern definition of the architect as an author, in the humanistic sense of the term. After Alberti's cultural revolution, the second wave of identical copies in architecture came with the industrial revolution, and the mass production of identical copies from mechanical master models, matrixes, imprints, or molds. Industrial standardization generates economies of scale—so long as all items in a series are the same.

The modern power of the identical came to an end with the rise of digital technologies. All that is digital is variable, and digital variability goes counter to all the postulates of identity that have informed the history of Western cultural technologies for the last five centuries. In architecture this means the end of notational limitations, of industrial standardization, and, more generally, of the Albertian and authorial way of building by design.

This book recounts the rise and fall of the paradigm of identity, and shows that digital and premechanical variability have many points in common. It discusses the rise of new forms of postindustrial digital craftsmanship by showing their relation to hand-making and to the cultures and technologies of variations that existed before the humanistic and modern rise of machine-made, identical copies. The first part of the book is a synopsis of the general argument; the second focuses on the mechanical rise and the digital fall of identical copies. A bit of repetition is inevitable, but the argument is simple—symmetrical, in a sense—with a beginning, climax, and end.

This chronicle situates today's computational tools in architecture within the ambit of a centuries-old tradition, with all of its twists and turns, of which the digital represents the most recent. Technologies change rapidly—"new" technologies in particular. To predict, and even interpret, new developments in cultural technologies on the basis of their recent history is risky, as one needs to extrapolate from a curve that is too short and build on evidence that has not been sifted by time. A more distant vantage point entails a loss of detail, but may reveal the outlines of more general trends. I shall endeavor to highlight some of these trends, and accordingly offer some conclusions—almost a morality, as in old tales.

In addition to the many friends, colleagues, and publishers that are mentioned in the book, special thanks are due to Megan Spriggs, who edited earlier drafts of most chapters, to Cynthia Davidson, who turned those chapters into a book, and to Peter Eisenman, who found a title for it.