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Minimalism

Designing Simplicity

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To Anne. For being there.

Foreword

The most important ideas are often quite simple ones. And the most important among these is simplicity itself. Simplicity has always been appreciated and understood best in the applied arts, such as design. To a distressing extent, it has been lost to modern science and engineering, supplanted by systematic methodologies that tackle practical problems by enumerating all possible cases, and then addressing each case in turn. The resulting gibberish is often not experienced as a design, is nearly unintelligible to thoughtful humans, and, at best, may function at only the most mediocre level of "correctness."

Fortunately, in many arenas of real life, scientists and engineers are kept away from actually designing anything of consequence. Agonizing, tedious and unilluminating task analyses and the cumbersome, inscrutable and marginally effective systems they help to define are created by scientists and engineers and for other scientists and engineers. There is sometimes justice in design!

I come to design work form science, superbly trained in the intellectual traditions that underwrite bloated and otiose designs. In the early 1980s, I was a scientist is IBM's Thomas Watson Research Center. Then, as now, science and engineering were enabling ever-faster processing of ever-larger datasets. Microcomputers were poised to turn secretaries and managers, teachers and school children, parents and grandparents into "users." Computer science, the computing industry, and the world's information were about to be transformed. You could feel it in the halls of the Watson Center. But something was wrong. The user interfaces and user support materials upon which all this possibility depended were arcane or, as we later termed it, unusable.

For me, the path to epiphany was a series of "thinking aloud" investigations of people asked to verbalize their interpretations, plans, and experiences as they tried to learn and use microcomputers and office applications. Being immersed fro many hours in these quite unhappy early examples of human–computer interaction sharped my outlook on technology, on learning, and on what people-as-users need, want, and do. It changed the course of my professional life.

My Colleagues and I come to realize that the failure of these early human–computer interactions was not due to inadequate motivation or knowledge on the part of users. It was not due to insufficient guidance in the user interface or support from online and paper documentation. Rather, we realized the people

we studied were trying too hard to make sense of jargon-ridden nonsense. We came to see that the user interface and other support overwhelmed users with too much useless information and misleading guidance. Human beings are sense makers. But these early designs failed to recognize that, and they failed to leverage or support it. Our users were in effect penalized by these designs for trying and for thinking.

I am very pleased to see Hartmut Obendorf's book, *Minimalism: Designing Simplicity*. The specific challenges of user interface and information design that my colleagues and I wrestled with in the early 1980s are thankfully to a considerable extend behind us now. the solutions from that time have been embodied in designs that will go onward through standard mechanisms of technology emulation and evaluation. We called these deigns "minimalist" to emphasize that user interface and online information presentations should be simplified to their essence. Instead of the scientific and engineering design virtues of systematicity and comprehensiveness, we promoted the virtue of enabling self-directed exploration and sense-making through simplicity.

New categories of devices and new categories of human–computer interactions will always re-raise the fundamental challenge of creating design that effectively embody simplicity, designs that leverage and support human sense-making. It will fall to each succeeding generation of designers to discover and analyze what minimalism means in operational detail, and to implement it pervasively in the contexts of their own new design genres.

Designers, today and in the future, will be aided in this endeavor by incisive articulations of the foundations of minimalism. Indeed, such work is critical. For in technical design arenas, like human–computer interaction, the Zeitgeist of science and engineering is the majority culture. In such design arenas, the tension between systematic and comprehensive methods, on the one hand, and minimalism and simplicity, on the other, is an abiding dynamic. Obendorf's study is a significant contribution to articulating the foundations of minimalism in this contested space of design methods and values. I believe it will be an important text for designers of human–computer interactions for many years to to come.

John Carroll

Preface

I have only made this letter longer because I have not the time to make it shorter.
—Blaise Pascal

While writing this book, one question kept nagging me: Why explain minimalism at that length? What follows is my attempt at reducing the number of words:

> Simple, powerful systems are an ideal of interaction design—and hard to find in the wild. Reduction is the path to simplicity, and minimalism describes paths to approach reduction. This book invites you to learn about minimalism and make sense of reduction—perhaps, unraveling some of the mysteries of simplicity. As the ultimate thought model, minimalism is a tool to think about the simple and to discover and instantiate patterns for designing simplicity.

If you choose to embark on this journey, you will encounter minimalism in the form of paintings and music that might be strange at first encounter and still hard to accept after long exposure as they take reduction to the extreme. You will find that many different ways of reduction coexist, some of which can be described using different types of minimalism. If you follow further, you will find how simplicity connects to minimalism and why simplicity may be one path towards successful products. In the end, I hope to convince you that understanding minimalism helps to understand and change the ways of design. This will need a few more words.

Who Should Read this Book?

As a book with both theoretical and empirical parts, different audiences can take different paths through the text. Practitioners, *software engineers*, *designers,* and *usability experts* are similarly targeted as those who are more

interested in the theoretical framework, be it from the perspective of art or from human-computer interaction.

For all readers, the first chapter is designed as both introduction and synopsis. It starts with ideas leading to and defining this book but also introduces and discusses the four notions of minimalism that form the core of the argumentation. If there is only one chapter you have time for, read this.

The *usability expert* might find the discussion of norms, guidelines, and expert lore in terms of minimalism (Chapters 4 & 5) to provide some reflection of his/her own practical experience. Examples from analog and digital designs (Chapter 6) can help to form an idea of the different notions of minimalism used in this book (Section 3.3) and form the background for the design of development processes and roles (Chapter 7).

The *designer* might appreciate the discussion of real-world designs (Chapter 6) and will want to refer to the definition of minimalism (Section 3.3) later. The Minimal Design Game (Section 7.2) and—should he/she work with software—the other techniques discussed (Section 7.3ff) might provide inspiration for his/her design practice. The interaction of aesthetics and minimalism might be of most interest in the reflective part (Chapter 9).

The *software engineer* will want to parse the definitions of minimalism (Section 3.2), and then directly skip to the software development methods defined in this book (Chapter 7), perhaps stopping by some design rules (Chapter 5). He/She might then want to read more about the defined notions of minimalism in the closing discussion of design examples (Section 6.5) before jumping to the conclusions (Chapter 11).

Readers seeking a deeper understanding of the *minimalist standpoint* and its development will find manifold sources for the definition of minimalism in human-computer interaction in the discussion of the sources underlying this work in art and music history (Chapter 2). They will also want to follow the derivation of the notions of minimalism for human-computer interaction and understand the limits of this work (Chapters 3 & 10).

Readers who have become interested in minimalism and the evolution of different forms of simplicity might find value in the discussion of the four notions of minimalism and the changes to the original definition that were added by the discussion and application of minimalism in this book (Chapter 8).

The Structure of this Book

This book's content is divided into Parts I–V, where Part I, *Designing for an Age of Complexity*, delivers a *synopsis of minimalism* that briefly touches upon the perspectives proposed in this book and illustrates their application to the analysis of existing designs. Reading this part should provide you with an understanding of what minimalism refers to in this book without filling in the details.

Part II, *Defining Minimalism*, retraces the history of minimalism in art and music in Chapter 2; this chapter follows a historical rather than a conceptual order and aims not at a single definition of minimalism but instead tries to illustrate both the breadth of concepts underlying works characterized as minimal, and the recurrence of attributes of minimal art in different disciplines. Chapter 3 defines four kinds of minimalism for interaction design, namely functional, structural, constructional and compositional minimalism.

Part III, *Rethinking Minimalism*, connects the concepts developed in this book to the existing literature in human-computer interaction. In Chapter 4, norms, rules and guidelines are examined for similarity with minimalist concepts, and in Chapter 5, knowledge for interaction design that is based on practical experience is discussed in terms of reduction.

Part IV, *Applying Minimalism*, puts the four notions of minimalism to the test. In Chapter 6, different products of design are examined for their minimalistic qualities and possible problems created by reduction. While all examples—a mixture of research prototypes and commercial applications—apply reduction in some way and at some point, there is a surprising variation in results. Chapter 7 tries to find a more constructive approach to minimalism and discusses how reduction can both directly and indirectly be integrated in development processes; existing methods such as personas and scenarios, and methods based on agile development and participatory design are discussed for their contribution to reduction.

Part V, *Refining Minimalism*, finally aims to lead the discussion back to a more theoretical level. Chapter 8 revisits the notions of minimalism and re-evaluates the product and process threads for the changes they have brought about for the understanding of minimalism. Chapter 9 discusses the interaction of aesthetics and minimalism in design, and Chapter 10 marks down limitations and questions left unanswered. Finally, Chapter 11 follows the discussion with some conclusions.

Hamburg, Germany Hartmut Obendorf

Acknowledgments

As this book took shape more than five years and grew with every encounter and experience, I am indebted to all who contributed and supported me: I would like to thank you all.

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Thank you.

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