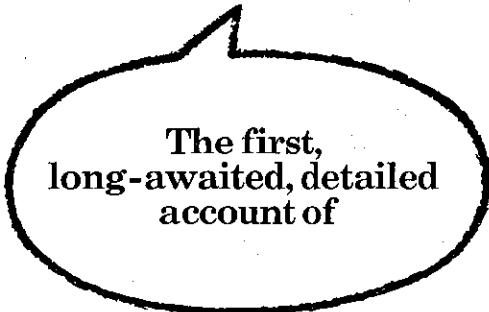


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The first,
long-awaited, detailed
account of

Smalltalk-80

The Language and its Implementation
Adele Goldberg and David Robson
XEROX Palo Alto Research Center



ADDISON-WESLEY PUBLISHING GROUP

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Advances in the design and production of computer hardware have brought many more people into direct contact with computers. Similar advances in the design and production of computer software are required in order that this increased contact be as rewarding as possible.

The **Smalltalk-80** system is a result of a decade of research into creating computer software that is appropriate for producing highly functional and interactive contact with personal computer systems.

This book is the first detailed account of the **Smalltalk-80** system. It is divided into four major parts:

Part One - an overview of the concepts and syntax of the programming language.

Part Two - an annotated and illustrated specification of the system's functionality.

Part Three - an example of the design and implementation of a moderate-size application.

Part Four - a specification of the **Smalltalk-80** virtual machine.

The first part introduces the **Smalltalk** approach to information representation and manipulation. Five words - *object*, *message*, *class*, *instance*, and *method* - make up the vocabulary with which Smalltalk is discussed. These terms are defined and the syntax of the Smalltalk-80 programming language is introduced.

The second part of the book contains specifications of the kinds of objects already present in the **Smalltalk-80** programming environment. New kinds of objects can be added by a programmer, but a wide variety of objects come with the standard system. The messages that can be sent to each kind of object are listed, commented upon, and illustrated.

The third part of the book is an example of adding new kinds of objects to the system. It describes the addition of an application to model discrete, event-driven simulations such as car washes, banks, or information systems. Some readers may find it useful to read the third part of the book immediately after reading the first part, referring to the specifications in the second part whenever the meaning of a **Smalltalk-80** expression is not clear.

The fourth part of the book specifies how the **Smalltalk-80** virtual machine can be implemented. This virtual machine provides object-oriented storage, message-oriented processing and graphically-oriented interaction. It is primarily of interest to readers who wish to implement a **Smalltalk-80** system, or to readers who wish to understand the implementation of a message-oriented system in detail.

Writing the first book about the **Smalltalk-80** system was a complex task, partially due to the sociology of the system's creation, and partially due to the diverse kinds of information people require about such a system. We can divide the different reasons for the complexity of this task into four categories:

- Smalltalk is a vision.
- Smalltalk is based on a small number of concepts, but defined by unusual terminology.
- Smalltalk is a graphical, interactive programming environment.
- Smalltalk is a big system.

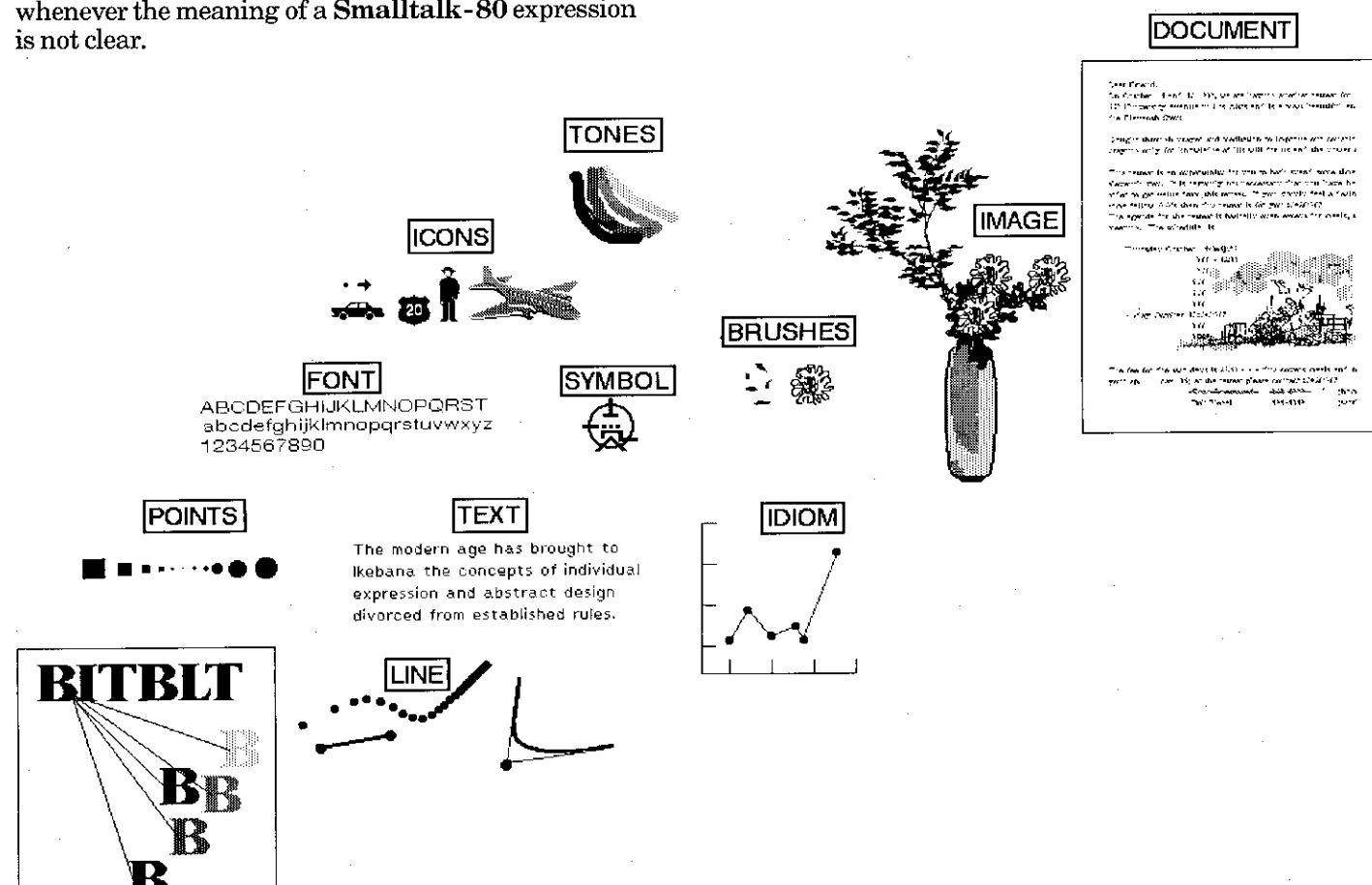
Adele Goldberg and David Robson are members of the Software Concepts Group at the Xerox Palo Alto Research Center (PARC), the team responsible for the development of Smalltalk-80. This detailed description of Smalltalk-80 is the first in a series of four books on this revolutionary programming environment.

Forthcoming books in the Addison-Wesley Smalltalk-80 Series:

Smalltalk 80: The Interactive Programming Environment (11372-4)

Smalltalk 80: Creating a User Interface and Graphical Applications (11370-8)

Smalltalk 80: Bits of History, Words of Advice (11669-3)



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The first,
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