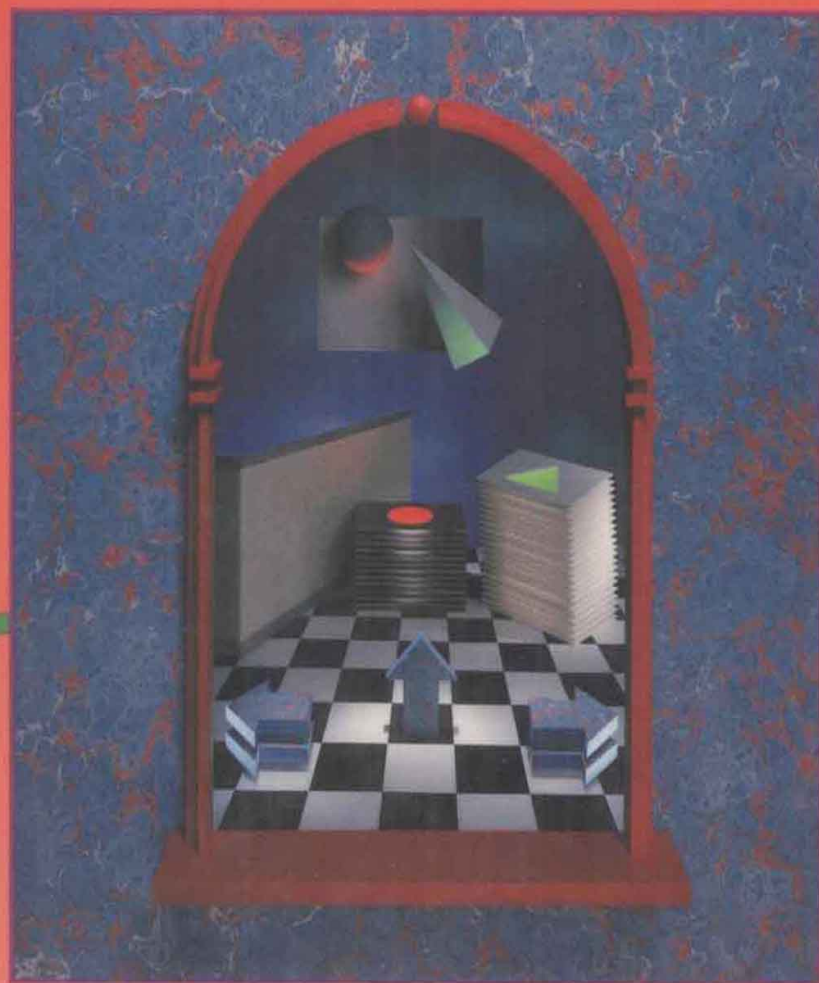


HyperTalk™ Programming

Includes Version 1.1



Includes HyperTalk Language Poster

D a n S h a f e r

HyperTalk™ Programming

Dan Shafer

HAYDEN BOOKS

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For patience beyond endurance,

support beyond expectation,

love beyond measure,

joy unsurpassed ...

For Carolyn

Preface

Programming the Macintosh just got easier. Thanks to Bill Atkinson and HyperCard and to his colleague Dan Winkler and HyperTalk, programming the Macintosh is no longer the arduous and intricate task it once was.

This book helps you take advantage of this awesome new power to control your Macintosh world the way you want it controlled. If you are an experienced programmer, you will be exposed to the inner workings and object-like concepts in HyperTalk so that the underlying elegance of the language is revealed. If HyperTalk is your first language — or if you are one of the hundreds of thousands of people who learned BASIC but gave up programming since the advent of more difficult-looking Pascal and C — you will gain a ground-level introduction to HyperTalk as a language and be taken all the way through complex script development.

The focus of this book is on the HyperTalk language, not on how to design and build stacks. Shortly after HyperTalk became available, the lack of documentation was evident. Early books had to be printed before some aspects of the language were “frozen” in design. Even the early documents of the Apple

Programmers and Developers Association (APDA) had trouble staying current.

This book was completed in a short time in an effort to bring you current and useful information at the beginning of what promises to be a major revolution in the way people view and use the Macintosh. But nothing was sacrificed for the sake of time. Every useful command, function, property, and operator in HyperTalk is covered, along with conceptual material and detailed instructions and examples on the use of external commands and functions written in Pascal and C. You'll find tips, traps, and techniques gathered from the experiences of dozens of "stackheads" who began developing scripts in HyperTalk almost before HyperCard was a known quantity.

What's in Here?

This book has 26 chapters and 3 appendices. Chapters 1 and 2 cover background material about HyperTalk and the HyperCard environment. Chapter 3 is a refresher course in the basics of HyperCard design. Chapters 4 and 5 introduce essential, practical information about HyperTalk programming, such as how to use the script editor and HyperTalk naming conventions.

Then in Chapter 6 we begin our exploration of the operation of the HyperTalk programming language itself. We cover intensively the following topics:

- system messages (Chapter 6)
- keyboard, mouse, and file I/O operations (Chapter 7)
- control structures and logical operators (Chapter 8)
- controlling stack flow, card flow, and interaction (Chapter 9)
- text and data management routines (Chapter 10)
- dialog boxes and their use in HyperTalk (Chapter 11)
- menu management (Chapter 12)

- the use of visual and graphics effects (Chapter 13)
- sound and music (Chapter 14)
- math (Chapter 15)
- action-taking commands (Chapter 16)
- property-related commands (Chapter 17)
- communications commands (Chapter 18)
- script and other related commands (Chapter 19)

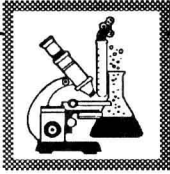
Chapters 20-24 cover more advanced topics, including practical advice from experienced HyperTalk programmers, how to extend the power of HyperCard and HyperTalk itself, how to design stacks for maximum effect, and a survey of free and shareware programming tools. Chapters 25 and 26 contain two substantial scripts that you can examine, take apart, modify, and learn from. To order a disk containing these scripts, see the disk offer at the back of this book.

Appendix A is a complete alphabetical vocabulary listing of HyperTalk's commands, operators, functions, messages, and properties. Appendix B is an ASCII chart that comes in handy when you use some of HyperTalk's commands. Appendix C tells you where you can get more information about HyperTalk and HyperCard.

In keeping with one of the key principles of hypertext called chunking, several of the chapters are short. I've done this so that material about one topic is all together without extraneous material to distract you.

Laboratory Exercises

In hands-on exercises throughout Chapters 6-19, you build small demonstration scripts that show how commands work and interact. These "In the Laboratory" segments are marked by a special icon that looks like this:



When you see one of these icons, plan on being at your Mac and ready to type in a script or message to see how something works. I have emphasized hands-on experiments because HyperTalk is not the kind of language you learn sitting passively and reading this book or any other. HyperTalk, like the HyperCard environment of which it is an integral part, requires interaction on your part. Don't just *read* these lab exercises, *experience* them.

Programs Mentioned

Throughout the book, but especially in Chapters 21, 22, and 24, I mention free and shareware programs. You can usually obtain these programs from several sources, some of which are outlined in Appendix C.

Shareware programs are developed by people who enjoy "hacking" at the Macintosh and like to see some reward for their efforts but who don't want to put their programs into usual marketing channels. Some incredibly good software is shareware. But shareware only lasts if people who use shareware products pay the usually nominal fee to the developer. So if you use and enjoy someone's shareware product, take the time to send him or her a check. You'll contribute to the likelihood that more good shareware will appear over time.

I should add that for the most part, mentioning these programs does not mean that I or recommend them, or that they are the best of their kind available. It means only that I've used them, they work for me, and I think you might find them helpful. If you find more useful stacks and programs, let me know.

Contacting Me

I try to be accessible to my readers. After all, you are the most important ingredient in the recipe of whatever success I may ultimately enjoy. This is my twelfth computer book and I've enjoyed each of them. But I've enjoyed more the interaction with readers.

If you find a bug, have a question, want to argue, or have things to share for future editions of this book and related books, please contact me. I can be reached electronically on CompuServe (71246,402), GENie, and MCI Mail (DSHAFFER both places). Or you can write me at 277 Hillview Avenue, Redwood City, California 94062. But please don't call me at home; I'm buried under stacks anyway.

Enough of the Commercial Already

I know you're itching to get into scripting, so I won't take any more of your time. Thanks for buying this book and realizing the immense potential of HyperTalk. I think you'll be pleasantly surprised at the elegance of the language and how easy it is to learn and use.

Enjoy!

Acknowledgements

This is my twelfth computer book in about two years. More than any other book I have written, this one has been a group effort. It is only fitting that these persons stand up and take a bow. Unfortunately, unless this book wins me a Pulitzer, they won't get that chance, so they'll have to settle for these heart-felt thanks.

So a sincere vote of appreciation to

- Bill Atkinson and Dan Winkler for creating this fabulous new tool. What a vision!
- Danny Goodman for writing the pioneering book in this field from which we have all learned so much and for being there on CompuServe when I had questions.
- Mike Holm, HyperCard product manager, and Moira Cullen, HyperCard evangelist, both at Apple Computer, for uplifting words, votes of confidence, and lots of information and help.
- David Leffler, manager of the HyperCard test team, for sharing dozens of stacks, lots of insights, and many hours of time he didn't have to help make this book accurate.
- Steve Maller, a fellow laborer at the word processor and a better-than-average hacker, who spent many hours

helping me understand XCMDs and XFCNs. Many of the insights in Chapter 22 are his, and the fact that some of his stacks are on my recommended list is a far greater testimonial to his prowess than to my judgment.

- David Gewirtz, president of Softpress Publishing Inc., a fellow stackhead and writer, who helped smooth out wrinkles, kicked ideas around, and became a good friend.
- Several people at Apple Computer and elsewhere who reviewed all or parts of my manuscript and provided helpful suggestions. These people, in no particular order, include: Chris Knepper of Apple Developer Technical Support; Mark “The Red” Harlan; James Redfern of Apple’s HyperTalk testing team; and Jason Gervich and Alan Spragens of Apple’s Customer Publications group. Although each contributed in his own way, I am the only one responsible for any errors.
- Bill Gladstone, my agent, for recognizing the potential in HyperCard as a book topic and hanging in there with me as we designed the book and presented it to Sams.
- My editors, who were, as usual, patient and caring people. I love writing for Howard W. Sams and their Macintosh Library largely because of people like Greg Michael, Jennifer Ackley, Kathy Ewing, Fred Amich, and Susan Pink Bussiere. Despite a crunching schedule, they maintained their sense of humor. They’re among the best.
- Celeste Design, who did the incredible cover art (you didn’t *notice*? By all means stop right now and take a look). I hope someone offers to give me the original drawing; I’d like to frame it and hang it in my office. It would give this place a touch of class!
- My wife, Carolyn, who always plays a major role in everything I do. I honestly don’t know where I’d be without her. But on this book, her contribution was both more tangible and more significant. She handled the page production and brought it in on time despite having to work with me in the next room. Guess it must be love, eh?
- Tomás Hernández, who not only assisted Carolyn in production but saved our necks when we had hardware problems on the weekend when there was no service available. Tomás has also made a number of valuable art

contributions and served as a kibitzer and companion during long nights of writing and preparation.

—Finally, people I “met” on CompuServe and a dozen bulletin boards around the country, including especially Michael Long of Nine to Five Software, who have been of immeasurable help.

I hope all these people feel part of this effort. To the extent that they didn’t feel that way during the hectic writing and production schedule, I hope this makes up in some small way.

Thanks, all.

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