



# Software Abstractions: Logic, Language, and Analysis (MIT Press)

By Daniel Jackson

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**Software Abstractions: Logic, Language, and Analysis (MIT Press)** By Daniel Jackson

In *Software Abstractions* Daniel Jackson introduces an approach to software design that draws on traditional formal methods but exploits automated tools to find flaws as early as possible. This approach -- which Jackson calls "lightweight formal methods" or "agile modeling" -- takes from formal specification the idea of a precise and expressive notation based on a tiny core of simple and robust concepts but replaces conventional analysis based on theorem proving with a fully automated analysis that gives designers immediate feedback. Jackson has developed Alloy, a language that captures the essence of software abstractions simply and succinctly, using a minimal toolkit of mathematical notions. This revised edition updates the text, examples, and appendixes to be fully compatible with Alloy 4.

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In *Software Abstractions* Daniel Jackson introduces an approach to software design that draws on traditional formal methods but exploits automated tools to find flaws as early as possible. This approach -- which Jackson calls "lightweight formal methods" or "agile modeling" -- takes from formal specification the idea of a precise and expressive notation based on a tiny core of simple and robust concepts but replaces conventional analysis based on theorem proving with a fully automated analysis that gives designers immediate feedback. Jackson has developed Alloy, a language that captures the essence of software abstractions simply and succinctly, using a minimal toolkit of mathematical notions. This revised edition updates the text, examples, and appendixes to be fully compatible with Alloy 4.

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## **Editorial Review**

### Review

Those who have to learn and use the modern generation of formal methods -- streamlined, lightweight, and highly automated -- will welcome the appearance of the second edition of Daniel Jackson's book on the Alloy language and its analyser. Jackson's writing, like his language design, is full of good taste, and he makes an intelligent and compelling argument for the construction of automated software abstractions as the central activity in software development. Every serious software engineer should read this book.

**(Jim Woodcock, University of York, UK)**

In an area plagued by unnecessary complexity, Alloy shows there is still room for economy and elegance in software design. Readers of this book will enjoy a rare opportunity to learn how to write less in order to say more, without ambiguity. In short, to learn how to be productive.

**(José N. Oliveira, University of Minho)**

Relational modeling is a powerful but subtle craft. This book applies the Alloy tool suite to pithy examples to educate everyone from working practitioners to researchers. Its joyful and informal tone mask the depth of accumulated wisdom in these pages.

**(Shriram Krishnamurthi, Brown University)**

### About the Author

Daniel Jackson is Professor in the Department of Electrical Engineering and Computer Science and leads the Software Design Group at the Computer Science and Artificial Intelligence Lab at MIT.

## **Users Review**

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#### **Mandy Conway:**

Do you have favorite book? For those who have, what is your favorite's book? Publication is very important thing for us to find out everything in the world. Each book has different aim or even goal; it means that reserve has different type. Some people sense enjoy to spend their time for you to read a book. They can be reading whatever they consider because their hobby is reading a book. What about the person who don't like reading a book? Sometime, individual feel need book if they found difficult problem as well as exercise. Well, probably you will want this Software Abstractions: Logic, Language, and Analysis (MIT Press).

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