

PURELY FUNCTIONAL DATA STRUCTURES

Most books on data structures assume an imperative language like C or C++. However, data structures for these languages do not always translate well to functional languages such as Standard ML, Haskell, or Scheme. This book describes data structures from the point of view of functional languages, with examples, and presents design techniques so that programmers can develop their own functional data structures. It includes both classical data structures, such as red-black trees and binomial queues, and a host of new data structures developed exclusively for functional languages. All source code is given in Standard ML and Haskell, and most of the programs can easily be adapted to other functional languages.

This handy reference for professional programmers working with functional languages can also be used as a tutorial or for self-study.

PURELY FUNCTIONAL DATA STRUCTURES

CHRIS OKASAKI
COLUMBIA UNIVERSITY



PUBLISHED BY THE PRESS SYNDICATE OF THE UNIVERSITY OF CAMBRIDGE
The Pitt Building, Trumpington Street, Cambridge, United Kingdom

CAMBRIDGE UNIVERSITY PRESS
The Edinburgh Building, Cambridge CB2 2RU, UK www.cup.cam.ac.uk
40 West 20th Street, New York, NY 10011-4211, USA www.cup.org
10 Stamford Road, Oakleigh, Melbourne 3166, Australia
Ruiz de Alarcón 13, 28014 Madrid, Spain

© Cambridge University Press 1998

**This book is in copyright. Subject to statutory exception and
to the provisions of relevant collective licensing agreements,
no reproduction of any part may take place without
the written permission of Cambridge University Press.**

First published 1998
First paperback edition 1999

Typeface Times 10/13 pt.

A catalog record for this book is available from the British Library

Library of Congress Cataloging in Publication data is available

ISBN 0 521 63124 6 hardback
ISBN 0 521 66350 4 paperback

Transferred to digital printing 2003