José C. Pinheiro
Douglas M. Bates

Mixed-Effects Models in S and S-PLUS

With 172 Illustrations

Springer

José C. Pinheiro
Department of Biostatistics
Novartis Pharmaceuticals
One Health Plaza
East Hanover, NJ 07936-1080
USA
jose.pinheiro@pharma.novartis.com

Douglas M. Bates
Department of Statistics
University of Wisconsin
Madison, WI 53706-1685
USA
bates@stat.wisc.edu

Library of Congress Cataloging-in-Publication Data
Pinheiro, José C.
Mixed-effects models in S and S-PLUS / José C. Pinheiro, Douglas M. Bates
p. cm. — (Statistics and computing)
Includes bibliographical references and index.
ISBN 0-387-98957-9 (alk. paper)
I. Bates, Douglas M. II. Title. III. Series.
QA76.73.S15P56 2000
005.13'3—dc21 99-053566

Printed on acid-free paper.

Printed in the United States of America. (HAM)

9 8 7 6 5 SPIN 10995662

Springer Verlag is a part of *Springer Science+Business Media*

springeronline.com

Contents