Lattice-Ordered Groups

An Introduction

by

Marlow Anderson

The Colorado College, Colorado Springs, Colorado, U.S.A.

and

Todd Feil

Department of Mathematical Sciences, Denison University, Granville, Ohio, U.S.A.

D. Reidel Publishing Company

A MEMBER OF THE KLUWER ACADEMIC PUBLISHERS GROUP



Dordrecht / Boston / Lancaster / Tokyo

Library of Congress Cataloging in Publication Data



Anderson, Marlow, 1950-

Lattice-ordered groups : an introduction / by Marlow Anderson and Todd Feil.

p. cm.—(Reidel texts in the mathematical sciences)

Bibliography: p. Includes indexes.

ISBN-13: 978-94-010-7792-7 e-ISBN-13: 978-94-009-2871-8

DOI: 10.1007/978-94-009-2871-8

1. Lattice ordered groups. I. Feil, Todd, 1951- II. Title.

III. Series.

QA171.A553 1987

512'.22—dc 19

87-28598

CIP

Published by D. Reidel Publishing Company, P.O. Box 17, 3300 AA Dordrecht, Holland.

Sold and distributed in the U.S.A. and Canada by Kluwer Academic Publishers, 101 Philip Drive, Norwell, MA 02061, U.S.A.

In all other countries, sold and distributed by Kluwer Academic Publishers Group, P.O. Box 322, 3300 AH Dordrecht, Holland.

All Rights Reserved

© 1988 by D. Reidel Publishing Company, Dordrecht, Holland Softcover reprint of the hardcover 1st edition 1988

No part of the material protected by this copyright notice may be reproduced or utilized in any form or by any means, electronic or mechanical including photocopying, recording or by any information storage and retrieval system, without written permission from the copyright owner

Contents

Chapter	1: Fundamentals										
		tion 1:	Preliminaries and Basic Examples								
	Sec	tion 2:	Subobjects and Morphisms	•	•	•	•	•	•	•	. 1
Chapter	2:	Bernau	s representation for Archimedean ℓ -groups								15
Chapter	3:	The Co	nrad-Harvey-Holland Representation		•				•	•	21
Chapter	4 :	: Representable and Normal-valued \(\ell\)-groups									
	Sec	tion 1:	The Lorenzen Representation for ℓ -groups								26
	Sec	tion 2:	Normal-valued ℓ -groups	•	•		•	•	•		29
Chapter	5:	Holland	's Embedding Theorem								32
Chapter	6:	Free <i>l</i> -g	roups								38
Chapter	7 :	Varietie	s of ℓ -groups								
	Sec	tion 1:	The lattice of Varieties								47
	Sec	tion 2:	Covers of the Abelian Variety								57
	Sec	tion 3:	The Cardinality of the lattice of L-group Varieties								62
Chapter	8:	8: Completions of Representable and Archimedean \(\ell\)-groups									
	Sec	tion 1:	Completions of Representable L-groups								64
	Sec	tion 2:	Completions of Archimedean ℓ -groups			•			•		70
Chapter	9:	The La	eral Completion					•			77
Chapter	10:	Finite	valued and Special-valued L-groups								86
Chapter	11:	Group	s of Divisibility								102
Append	i x : <i>I</i>	A Menag	erie of Examples								
	Sec	tion 1:	Varieties of ℓ -groups								109
	Sec	tion 2:	Torsion and Radical Classes of L-groups								115
	Sec	tion 3:	Examples of Lattice-ordered Groups	•			•	•			121
Bibliogr	aphy	,				•					151
Subject	Inde	ex		•		•			•		185
Authori	[m.d.a										100