

TABLE OF CONTENTS

Preface	vi
Notes for the reader	xi
Acknowledgements	xii
Chapter 1. Algebras	1
1.1 Subalgebras and idempotence	1
1.2 Homomorphisms and entropicity	5
1.3 Words and absolutely free algebras	8
1.4 Identities and modes	12
1.5 Congruences and varieties	16
1.6 Supplementary exercises	23
Chapter 2. Varieties of Modes	24
2.1 Convex sets and barycentric algebras	24
2.2 Semigroup modes - normal bands	27
2.3 Constructing new varieties	29
2.4 Free algebras on two generators	36
2.5 Modules and Mal'cev modes	39
2.6 Recognising convex sets	44
2.7 Free algebras and generating functions	50
2.8 Supplementary exercises	55
Chapter 3. Modals	56
3.1 Submodes and modals	56
3.2 Examples of modals	59
3.3 Walls and compact elements	61
3.4 Equivalence of general and arithmetical modals	65
3.5 Free modals over modes	68
3.6 Sinks, modals, and distributive lattices	73
3.7 Modals of compact convex sets	78
3.8 Supplementary exercises	86
Chapter 4. Numbers and binary modes	88
4.1 Reflexions on the integers	88
4.2 Dyadic rational intervals	91
4.3 Commutative quasigroup modes	93
4.4 Dyadic rational simplices	95
4.5 Commutative binary modes	98
4.6 Models and modal theory	102

Chapter 5.	Dissemilattices and lattices	106
5.1	Varieties of dissemilattices	107
5.2	Compound operations	113
5.3	Dissemilattices of subsemilattices	117
5.4	The embedding theorem	122
5.5	Representations of left normal bandoids	126
Chapter 6.	Structure and extension theory	131
6.1	Sinks and envelopes	131
6.2	Lallement sums	134
6.3	Strict sums of dissemilattices	139
6.4	The structure of modals of submodes	142
6.5	Supplementary exercises	148
References		150
Alphabetical index		154
Index of (non-alphabetical) notation		158