

U. Grenander

Pattern Synthesis

Lectures in Pattern
Theory Volume 1



Springer-Verlag New York · Heidelberg · Berlin
1976

TABLE OF CONTENTS

INTRODUCTION	1
CHAPTER 1. THE GENERATORS	6
1. Generators and Their Properties	6
2. Abstract Generators	10
3. Concrete Generators	13
4. Sources of Generators	20
CHAPTER 2. THE CONFIGURATIONS	23
1. Rules and Restrictions	23
2. The Bond Structure	24
3. Free Configurations	33
4. Linnear Connection Type	34
5. Bounded Arity Greater Than Two	37
6. Free Type Connections	42
7. Partial Order Connection Type	51
8. Other Connection Types	53
9. Full Graph Structure	60
10. Probabilities on $\mathcal{L}(\mathcal{R})$	63
11. Mapping in Configuration Space	91
CHAPTER 3. THE IMAGES	94
1. The Image Algebra	94
2. Abstract Sequence Images	105
3. Other Abstract Images	130
4. Temporal and Other One-Dimensional Patterns	143
5. Plane Patterns	170
6. Spatial Patterns	229
7. Space-time Patterns: Motion and Behavior	236
8. Space-time Patterns: Growth and Decay	264
9. Boolean Patterns	329

CHAPTER 4. THE DEFORMATIONS	360
1. Deformations on Generators, Configurations, Images	360
2. Automorphic Deformations	371
3. Changes in Contrast	390
4. Background Deformations	411
5. Incomplete Observations	435
6. Indirect Observations	454
7. Other Deformations	470
APPENDIX	479
NOTES	483
BIBLIOGRAPHY	493
INDEX	502