

CHAPTER 1 : BINARY RELATIONS : DEFINITIONS, REPRESENTATIONS,  
BASIC PROPERTIES.

1.1. <i>Binary relations</i> . . . . .	1
1.2. <i>Graph representation of binary relations</i> . . . . .	2
1.3. <i>Coding the binary relations</i> . . . . .	2
1.4. <i>Matrix representation of binary relations</i> . . . . .	2
1.5. <i>Basic properties of binary relations</i> . . . . .	3
1.6. <i>Particular binary relations</i> . . . . .	4
1.7. <i>Graph interpretation of the properties</i> . . . . .	4
1.8. <i>Algebraic interpretation of the properties</i> . . . . .	5
1.9. <i>References</i> . . . . .	5

CHAPTER 2 : THE CONCEPT OF PREFERENCE STRUCTURE.

2.1. <i>Preference, indifference, incomparability</i> . . . . .	6
2.2. <i>Preference structure.</i> . . . . .	6
2.3. <i>Important agreement</i> . . . . .	7
2.4. <i>Characteristic relation of a preference structure</i> . . . . .	7
2.5. <i>Graph representation of a preference structure.</i> . . . . .	8
2.6. <i>Coding the preference structure</i> . . . . .	8
2.7. <i>Example</i> . . . . .	9
2.8. <i>References</i> . . . . .	10

CHAPTER 3 : USUAL PREFERENCE STRUCTURES

3.1. <i>Tournament structure</i> . . . . .	11
3.2. <i>Total order structure</i> . . . . .	14
3.3. <i>Weak order structure</i> . . . . .	18
3.4. <i>Total interval order structure</i> . . . . .	22
3.5. <i>Total semiorder structure</i> . . . . .	35
3.6. <i>Partial order structure</i> . . . . .	41
3.7. <i>Quasi order structure</i> . . . . .	48
3.8. <i>References</i> . . . . .	52

## CHAPTER 4 : TWO NEW PREFERENCE STRUCTURES

4.1. <i>Partial interval order structure</i> . . . . .	54
4.2. <i>Partial semiorde structure</i> . . . . .	61
4.3. <i>References</i> . . . . .	64

## CHAPTER 5 : COMPLETE VALUED PREFERENCE STRUCTURES

5.1. <i>Definition</i> . . . . .	65
5.2. <i>Important remark</i> . . . . .	65
5.3. <i>Particular case</i> . . . . .	65
5.4. <i>Graph representation</i> . . . . .	66
5.5. <i>Matricial representation</i> . . . . .	66
5.6. <i>Particular complete valued preference structures</i> . . . . .	67
5.7. <i>Binary relations and various properties related to a complete valued preference structure</i> . . . . .	68
5.8. <i>Characterizations of the families defined in section 5.6.</i> . . . .	74
5.9. <i>Functional representation of a valued preference structure</i> . . . . .	77
5.10. <i>Roberts homogeneous families of semiorde</i> . . . . .	82
5.11. <i>Families of weak orders</i> . . . . .	83
5.12. <i>Summary</i> . . . . .	84
5.13. <i>Examples</i> . . . . .	85
5.14. <i>References</i> . . . . .	86

## CHAPTER 6 : COMPLETE TWO-VALUED PREFERENCE STRUCTURES

6.1. <i>Introduction</i> . . . . .	87
6.2. <i>Two-valued preference structures with constant thresholds</i> . . . . .	88
6.3. <i>Example</i> . . . . .	91
6.4. <i>References</i> . . . . .	92