

Contents

1 Cognitive Science: History, Techniques and Methodology	1
1.1 The Shaping of Cognitive Science	1
1.2 Something About the Brain	3
1.3 Behavioural Techniques	5
1.4 Neuroimaging Techniques	6
1.4.1 Structural Neuroimaging	7
1.4.2 Functional Neuroimaging	8
1.5 Single-Case Studies Versus Group Studies	14
1.6 Conclusions	15
References	15
2 Cognitive and Neural Aspects of Face Processing	19
2.1 Do Faces Represent a “Special” Category of Stimuli for Our Visual System?	20
2.1.1 Domain-Specific Hypothesis	20
2.1.2 The Expertise Hypothesis	24
2.2 How Does Face Recognition Take Place?	26
2.3 What is the Neural Underpinning of Face Processing?	28
2.4 What is the Speed of Face Processing?	31
2.4.1 Neurophysiological Investigations	31
2.4.2 Behavioural Investigations	32
2.5 Are We Born with “Face-Specific” Cognitive and Neural Mechanisms?	33
2.5.1 Behavioural Studies in Infants	34
2.5.2 Neuroimaging Studies in Infants	35
2.6 Are Face Processing Skills Heritable?	36
2.7 Conclusions	37
References	37
3 Prosopagnosia: The Inability to Recognize Faces	41
3.1 Acquired Prosopagnosia	41
3.1.1 History of the Condition	41
3.1.2 Causes (Aetiologies) of Acquired Prosopagnosia	43

3.1.3	Clinical and Neural Features of Acquired Prosopagnosia . . .	43
3.1.4	Is Acquired Prosopagnosia Affecting Only the Processing of Faces?	45
3.2	Congenital Prosopagnosia	47
3.2.1	What is it and Why do We Study it?	47
3.2.2	Behavioural Features of Congenital Prosopagnosia: Towards the Diagnosis	48
3.2.3	Performance on Behavioral Tasks	49
3.2.4	Other Behavioural Characteristics of Congenital Prosopagnosics	52
3.2.5	Non-face Processing Assessment	53
3.2.6	Prevalence of Congenital Prosopagnosia	54
3.2.7	The Genetic Basis of CP	56
3.2.8	Neural Features of Congenital Prosopagnosia	58
3.2.9	Neurophysiological Correlates	60
3.2.10	Can We “Cure” Prosopagnosia?	61
3.3	Conclusions	64
	References	64
4	Can I Recognize Faces Without Knowing it? Evidence of Covert Face Recognition in Prosopagnosia	69
4.1	Covert Recognition: A General Description.	69
4.2	Covert Face Recognition in Congenital Prosopagnosia	70
4.2.1	Behavioural Techniques	70
4.2.2	Autonomic Response	72
4.2.3	Electrophysiological Techniques	72
4.3	The Relation Between Different Forms of Covert Face Recognition	73
4.4	A Neuroanatomical Model of Congenital Prosopagnosia	74
	References	76
5	Stories from People who Share their Lives with Congenital Prosopagnosia	79
5.1	Introduction	79
5.2	Cases of Adult Congenital Prosopagnosia	79
5.3	Cases of Children with Face Recognition Difficulties	86
5.3.1	Summary of Cases	91
5.3.2	Face Recognition Impairments and Social Problems	91
5.3.3	Face Recognition Impairments and General Visual Processing Difficulties	92
5.3.4	Isolated Face Recognition Problems	93
5.4	Conclusions	93
5.5	What to do in the Event You Believe to have Congenital Prosopagnosia?	94
	References	94

<http://www.springer.com/978-3-642-40783-3>

Prosopagnosia

When all faces look the same

Rivolta, D.

2014, XII, 95 p. 30 illus., 1 illus. in color., Hardcover

ISBN: 978-3-642-40783-3