

Elizabeth Irvine

Consciousness as a Scientific Concept

A Philosophy of Science Perspective

 Springer

Contents

1 The Scientific Study of Consciousness	1
1.1 (Anti-) Introduction	1
1.2 A Brief History of Consciousness Science	3
1.3 Current State of the Science: Theories and Taxonomies of Consciousness	5
1.4 Assessing the Science of Consciousness	8
1.5 The Plan	10
References	11
2 Subjective Measures of Consciousness	15
2.1 Introduction	15
2.2 Immediate Retrospection: Attention and Consciousness	17
2.3 Introspective Training: The Boundaries of Consciousness	19
2.4 Introspective Training: The Perceptual Awareness Scale	22
2.4.1 What Does the PAS Measure?	22
2.4.2 Is the PAS an Exhaustive Measure?	25
2.4.3 Response Bias	26
2.4.4 Natural Response Categories?	28
2.5 Summary: Subjective Measures and Introspective Approaches	29
2.6 Type 2 Confidence Ratings as a Measure of Consciousness	30
2.6.1 Comparisons Between d' and a'	32
2.6.2 Comparing Thresholds for d' and a'	34
2.6.3 Bias and Phenomenological Validity	34
2.7 Conclusion	36
References	37
3 Measures of Consciousness and the Method of Qualitative Differences	41
3.1 Introduction	41
3.2 Sensitivity d' as a Measure of Consciousness	42
3.2.1 d' , Decision-Making and Confidence Ratings	44

3.3	Process Dissociation and Consciousness as Control	46
3.3.1	Control as Inhibition.....	47
3.4	Qualitative Differences and Taxonomies of Consciousness	49
3.4.1	Access and Phenomenal Consciousness	49
3.4.2	Exclusion Failure, Phenomenal and Access Consciousness ..	50
3.5	Which Qualitative Differences? Differences in What?	51
3.6	Conclusions	53
	References	54
4	Dissociations and Consciousness	57
4.1	Introduction	57
4.2	Single Dissociations and Measures of Consciousness	58
4.2.1	Single Dissociations and Measures of Consciousness	59
4.3	Interpreting Dissociations	62
4.3.1	Dissociations and Interpretive Frameworks: Ventral and Dorsal Perceptual Streams	63
4.3.2	Dissociation Methods in Consciousness Science: The Exclusion Failure Paradigm	64
4.4	Tasks, Measures, Manipulations and Interpretive Frameworks.....	66
4.5	Conclusions	67
	References	68
5	Converging on Consciousness?	71
5.1	Introduction	71
5.2	A Pre-Condition for Successful Integration and Convergence	72
5.3	Neurophysiological Measures of Consciousness	75
5.3.1	Early vs. Late ERPs	77
5.3.2	Early Transient vs. Late Sustained Neural Synchrony	79
5.3.3	Local vs. Global Recurrent Processing.....	80
5.3.4	Experimental Protocols: Production, Measurement and Detection Procedures	82
5.4	Convergence: Where It's at	83
5.4.1	Behavioural-Behavioural (BB)	83
5.4.2	Neurophysiological-Neurophysiological (NN)	84
5.4.3	Behavioural-Neurophysiological (BN).....	85
5.4.4	Learning from the Lack of Convergence	86
5.5	Convergence Towards What?	86
5.6	Conclusion	89
	References	91
6	Conscious Mechanisms and Scientific Kinds.....	93
6.1	Introduction	93
6.2	Property Clusters and Scientific Kinds	94
6.3	Mechanisms and Distinctions in Consciousness Science	95
6.3.1	Craver's Account of Mutual Manipulability	97

6.4	Global Neuronal Workspace Theory	99
6.4.1	The Many Forms of Reportability	100
6.4.2	Demarcating Mechanisms of Reportability	101
6.4.3	Contents and Consciousness	105
6.4.4	Identifying an Appropriate Function	108
6.5	The Neural Stance: Local Recurrent Processing	109
6.5.1	Local vs. Global Recurrent Processing	110
6.5.2	Questions of Content	111
6.5.3	The Function of Recurrent Processing: Running the Argument Both Ways	114
6.6	Mechanisms and Scientific Kinds	115
6.7	Conclusions	118
	References	119
7	Content-Matching: The Case of Sensory Memory and Phenomenal Consciousness	123
7.1	Introduction	123
7.2	Partial Report Superiority	124
7.3	The Structure of Sensory Memory: Visible and Informational Persistence	126
7.3.1	One Store, Two Stores	128
7.3.2	Is Sensory Memory Iconic?	129
7.3.3	Visual Detail in Natural Scenes	130
7.3.4	Summary	130
7.4	Interpretations and Reports	131
7.5	Conclusion	132
	References	133
8	Content-Matching: The Contents of What?	135
8.1	Introduction	135
8.2	Conflicting Contents: Reports vs. Behaviour	136
8.2.1	Richness/Internalism	136
8.2.2	Hybrid Theories	137
8.2.3	Sensori-Motor Contingencies/Externalism	137
8.2.4	Sparseness	138
8.3	Modelling Perception	138
8.4	Partial Report Superiority, Change Blindness and Inattentional Blindness	140
8.4.1	Gist and Item-Specific Information in Conscious Content ...	142
8.5	Demarcating Conscious Content	143
8.6	Identity Claims and Content-Matching	145
8.7	Conclusion	148
	References	149

9 Scientific Eliminativism: Why There Can Be No Science of Consciousness	151
9.1 Introduction	151
9.2 Identifying Target Phenomena	152
9.2.1 Underspecification	152
9.2.2 Taxonomic Errors	153
9.2.3 Misidentification	153
9.3 Scientific Eliminativism	154
9.3.1 The Argument from Scientific Method	154
9.3.2 The Argument from Scientific Kinds	157
9.3.3 Epistemological Factors	158
9.3.4 Pragmatic Factors	160
9.3.4.1 The Concept Is Entrenched	161
9.3.4.2 The Concept Promotes Stability, Continuity and Generality	162
9.3.4.3 The Concept Can Be Used Unambiguously	162
9.4 Summary	163
9.5 Why This Account Is Different	164
9.6 Eliminating What from Where?	165
References	168
10 Conclusion	171
Appendix: Dice Game	175
Index	179