Contents

1 Introduction 1
References 11

2 Technical artefacts 13
2.1 Demarcation 13
2.2 Two conceptual frameworks 18
2.3 Terminology 20
2.4 The structure-function conception of technical artefacts 22
2.5 Functions: two story lines 30
2.5.1 Functions and physical capacities 31
2.5.2 Functions and human intentions 35
2.6 The dual nature of technical artefacts 38
2.7 Conclusion 43
References 44

3 Theories of technical functions 47
3.1 Teleology and function theories 47
3.2 Functional properties 50
3.3 Epistemic and ontological theories of functions 53
3.4 Function assignments and mind-dependent theories of function 59
3.5 Theories of technical functions 62
3.5.1 Searle: screwdriver philosophy 63
3.5.2 Preston: proper functions 69
3.5.3 Houkes and Vermaas: the ICE-theory 76
3.6 Conclusion 85
References 86

4 Proper functions and technical artefact kinds 89
4.1 Normativity and technical functions 89
4.2 Function theories and technical kinds 98
4.3 Technical artefact kinds 101
4.4 Use-proper functions versus kind-proper functions 106
4.5 Three kinds of technical functions 111
4.6 Adequacy conditions 115
4.7 A theory of technical functions and of technical artefact kinds 117
4.8 Conclusion 122
References 123

5 Engineering design 127
5.1 Engineering design and making technical artefacts 127
5.2 Engineering design and science 131
5.3 Engineering design: from function to structure 135
5.4 Means-end reasoning 141
5.5 Designing plans 143
5.6 A technical design 146
5.7 Formal modelling of functional design features 150
5.8 The traditional design paradigm 155
5.8 Conclusion 158
References 159

6 The moral significance of technical artefacts 163
6.1 Introduction 163
6.2 Technological agency 165
6.3 Technical artefacts without intrinsic moral significance 169
6.4 Technical artefacts with intrinsic moral significance 171
6.5 Technical artefacts as moral agents 173
6.6 Technical artefacts with inherent moral significance 179
6.7 The meaning of technical artefacts 182
6.8 An example: the meaning of buildings 187
6.9 Conclusion 191
References 193

7 Epilogue 195
7.1 The dual nature of technical artefacts 195
7.2 Socio-technical systems: more hybridity 197
References 201

Name Index 203