

Contents

1	Enhancing Knowledge: Tracking the External World	1
1.1	The Ignorance-Preserving Nature of Abduction	2
1.2	The Eco-Cognitive Model (EC-Model) of Abduction: Cutdown and Fill-Up Problems	6
1.3	The EC-Model of Abduction	10
1.4	Abductive Virtues Vindicated. How Does Abduction Supply Knowledge?	13
1.4.1	Why Does Abduction Enhance Knowledge? Instinct, Inference, and Synechism: Mind and Matter Intertwined	15
1.5	Enhancing Knowledge through Reward and Punishment and the Inductive Risk	19
1.5.1	Beneficial and Detrimental Dissent: Inductive Risk	20
1.6	Tracking the External World: Enhancing Predictive Knowledge	22
1.7	Tracking the External World through Scientific Knowledge	25
1.8	Tracking Human Behavior. Rendering Human Behavior Predictable through Ethics	26
	References	28
2	Distributed Model-Based Science: Scientific Models Are Not Fictions	31
2.1	Models and Fictions	31
2.2	Models Are Not Fictions. The Inconsistency of the Argument of Imperfect Fit	33
2.3	Models Are Distributed	36
2.4	Perception-Action Common Coding as an Example of “On-line” Manipulative Abduction	39
2.5	Model-Based Ignorance	42
	References	44

3	Not Everything in Scientific Cognition Is Evidence-Based: The Epistemology of Evidentially Inert Knowledge Enhancing	47
3.1	The Epistemology of Evidentially Inert Knowledge-Enhancing: Guessing Conventions in Science	48
3.1.1	Dismissing Conventions	51
3.2	The Epistemology of Evidentially Inert Knowledge-Enhancing: Abducing Scientific Models Versus Abducing Fictions	54
3.2.1	Dynamic Versus Static View of Scientific Models and the Revival of the Demarcation Problem	57
3.3	Mathematics, Deduction, and Manipulative Abduction	60
	References.	63
4	Epistemic Warfare: Are Scientific Models Fictions or Epistemic Weapons?	65
4.1	Are Scientific Models Fictions or Epistemic Weapons?	65
4.2	Scientific Models as Fictions in a Dynamic Perspective and Fictions as “ <i>Façons de Parler</i> ”	69
4.3	Are the In-Vitro Model or a Geometrical Diagram Fictions?	72
4.4	Confounding Static and Dynamic Aspects of the Scientific Enterprise	74
4.5	Resemblance and Feyerabend’s Counterinduction.	78
4.6	Galileo’s Modeling Vindicated	82
	References.	86
5	The Genealogy of Abduction: ὁ Ἀπαγωγή Geometry, and Logic Intertwined.	89
5.1	Naïve Genealogy of Logic: Abduction and <i>Arche</i> -Validity.	89
5.1.1	Knowledge-Enhancing Abduction and <i>Arche</i> -Validity	91
5.1.2	Deduction as Eco-Cognitive Immunization: Removing the Origins of Truths	93
5.2	Aristotle’s ὁ Ἀπαγωγή and Its Eco-Cognitive Openness.	96
5.3	Geometry and Logic: The Role of Constructions and Middle Terms in Abduction.	100
5.3.1	ὁ Ἀπαγωγή and Geometry.	101
5.3.2	ὁ Ἀπαγωγή, Dialectics, and Logic.	102
5.3.3	Geometry and Logic Intertwined: ὁ Ἀπαγωγή and Its Eco-Cognitive Openness	104
5.4	Dialectics, Rules of Interrogation, Syllogisms: Dialectical Logic Versus Syllogistic Logic?	107
5.5	Abduction and Aristotelian Enthymeme from Signs	109
	References.	111

6 Maximizing Cognition in Science: Affirming Truths Implies Negating Truths: Irrelevance and Implausibility Excultated.	115
6.1 Reprise: Ignorance-Preserving, Immunization, Validity, ὁ Ἀπαγωγή Now	116
6.1.1 Ignorance-Preserving and Knowledge Enhancing Abduction	116
6.1.2 Eco-Cognitive Immunization: De-Moralizing Truth	116
6.1.3 “Recognizing” Validity	118
6.1.4 ὁ Ἀπαγωγή Now.	119
6.2 EC-Model of Abduction and Logic: Relevance and Plausibility Relativized.	120
6.2.1 Inferential Problems: Input and Output Versus Premisses and Conclusions	120
6.2.2 Irrelevance and Implausibility Excultated.	125
6.2.3 Becoming Relevant, Becoming Plausible: The Role of Ignorance and of Creative Agency	126
6.2.4 Abduction and the Production of a Deduction	129
References.	132
7 Science Maximizes Abducibility: The Optimization of Eco-Cognitive Situatedness in Ampliative Inferences.	135
7.1 Abductive Cognition and the Optimization of the Eco-Cognitive Situatedness	135
7.1.1 A Logic of Abduction Is Eco-Cognitively Disciplined	135
7.1.2 Anthropomorphizing the Logic of Abduction	138
7.1.3 A Logic of Abduction Is Naturalized	140
7.1.4 A Logic of Abduction Is Distributed: Benacerraf’s Dilemma Revisited	142
7.1.5 Deductive Consequence Repels Information, Logic Programs Are Information-Sensitive	144
7.2 Comparing Traditional Demonstrative Inferences and Abductive Inferences	148
7.2.1 Some Basic Cognitive Features of Traditional Demonstrative Inferences	148
7.2.2 Abductive Inferences.	149
7.2.3 Multimodal Abduction Is Present in Traditional Deductive Proofs: The Role of Definitory and Strategic Rules	154
References.	158

8 Human Creative Abduction Assaulted: Impoverishing Epistemological Niches 161

8.1 “Knowledge in Motion” Defended: Favoring Scientific Abduction through the Eco-Cognitive Openness. 162

8.1.1 Marketing Technoscientific Results. 165

8.2 Jeopardizing Human Abduction through Impoverished Epistemological Niches. 168

8.2.1 Epistemic Irresponsibility I: Expensive Drugs Now and the Undisciplined Commodification of Abduction in Science 168

8.2.2 Epistemic Irresponsibility II: How to Avoid the Eco-Cognitive Shutdown of Creative Abduction. 173

8.2.3 Epistemic Irresponsibility III: Neoliberalism Assaults to Epistemic Integrity of Biopharmaceutical Research. 177

8.3 Optimizing the Eco-Cognitive Situatedness: Human Creative Abduction Between Academia and Corporations 182

8.3.1 “The Symbiotic Model of Innovation” and the Precompetitive Collaborations 184

8.4 Computational Invasive “Subcultures” Jeopardize Human Creative Abduction in Science 187

8.5 Science Impoverished: Encouraging Epistemic Irresponsibility Through Ignorance 191

References. 194

Conclusion 199

Lexicon of Abductive Cognition in Science 205

Index 219



<http://www.springer.com/978-3-319-59255-8>

The Abductive Structure of Scientific Creativity

An Essay on the Ecology of Cognition

Magnani, L.

2017, XVIII, 230 p., Hardcover

ISBN: 978-3-319-59255-8