
CONTENTS

<i>Acknowledgements</i>	v
Introduction	1
1. Theoretical and Doctrinal Framework	5
I. The Theoretical Basis of Negligence.....	6
A. Prioritising Coherence	6
B. Corrective and Distributive Justice.....	8
C. The Moral Basis of Corrective Justice: Aristotelian Corrective Justice and Kantian Right	10
D. Incoherence of Consequentialist Theories.....	12
E. Moving Beyond Formalism to the Legal System—Combining Kantian Right and Societal Morality	16
F. The Place of Causation in Corrective Justice-Based Interpersonal Responsibility	20
II. The Doctrinal Framework.....	21
A. Identifying Issues of Interpersonal Responsibility in the Duty of Care.....	22
B. Distinguishing Damage, Causation and Quantification	24
C. Framing the Causation Question: Breach of Duty	29
III. Conclusion.....	29
2. Identifying the Proper Function of Causation	31
Part I: Identifying the Function of Causation in Negligence	32
I. The Demands on Causation	32
A. The Limited Role of Causation in Negligence	33
B. The Robustness of the Philosophical Account.....	36
II. Causation in the Philosophy of Hume and Mill.....	37
A. Hume: Contiguity, Priority, Constant Conjunction and Necessity	37
B. Mill: The Addition of ‘Plurality’ and ‘Complexity’	39
i. Complexity of Causes	39
ii. Plurality of Causes	41

Part II: Tests for Causation	42
I. Complexity and Plurality of Causes as Necessary and Sufficient Conditions	43
A. But-For and NESS in Simple Cases	44
B. Over-determined Causation	47
i. But-For, NESS and Pre-Emption	47
ii. But-For, NESS and Duplication	48
II. Overcoming Potential Problems with NESS	50
A. Defining Key Causal Terms	51
B. Applying NESS to Indivisible Damage: The Problem of Asymmetrical Duplication	53
i. The Solution to Asymmetrical Duplication	54
ii. Indivisible Damage: The Question of Apportionment.....	58
C. Applying NESS to Divisible Damage.....	61
i. Calculating Apportionment of Divisible Damage.....	63
Part III: Using NESS to Overcome Common Problems with Exceptional Legal Tests.....	65
I. The Current State of the <i>Wardlaw</i> Test	66
A. The Facts of <i>Bonnington Castings v Wardlaw</i>	66
II. Defining Damage: Divisibility of Damage or Divisibility of Trigger?	68
A. Divisibility of Damage in <i>Wardlaw</i>	68
B. Divisibility of Exposures to Harmful Agent.....	69
III. Using NESS to Clarify the Material Contribution to Harm Test.....	71
A. Asking the Right Questions: The Limits of the But-For Test.....	71
B. Evidential Element: A Material Contribution to Harm.....	72
C. Conceptual Element: A Material Contribution to Harm	73
D. Applying NESS to Divisible Damage.....	74
E. Applying NESS to Indivisible Damage	75
F. Over-determined Indivisible Damage: Causation in <i>Bailey</i>	76
IV. Conclusion.....	80
3. Proof of Causation	81
I. Standards of Proof in Science and Law	83
A. The Balance of Probabilities Standard of Proof.....	83
B. Scientific Standards of Proof.....	88
i. The Standards of Proof in Law and Science	88
ii. The Nature of the Legal and Scientific Inquiries.....	91

II.	Epidemiological Evidence.....	93
A.	Epidemiological Studies: Design.....	95
B.	The Relative Risk	96
C.	The p-value and Confidence Intervals	97
D.	Moving from Association to Causation: The Bradford Hill Criteria.....	99
E.	Expert Evidence	101
i.	Expert Witnesses	101
ii.	Avoiding Judges' Guesswork.....	103
III.	Using (and Misusing) Epidemiological Evidence in Negligence	105
A.	Misusing Epidemiological Evidence: The Flaws of the 'More than Doubles the Risk' Test.....	105
i.	The Conflation of the Conceptual and Evidential Elements of Causation in the 'Doubles the Risk' Approach.....	107
ii.	Doubling of Risk in Epidemiology.....	108
B.	Using Epidemiological Evidence: The Place of Epidemiological Evidence in Standard Tests of Causation.....	113
i.	Admissibility.....	113
ii.	Personalising the Evidence: The Straw Man of 'Naked Statistics'	115
iii.	Personalising the Evidence: Using Epidemiological Evidence in Proof of Individual Causation.....	117
IV.	Conclusion.....	121
4.	Loss of a Chance	122
Part I: Loss of a Chance: Proportionate Recovery for Physical Harm..... 123		
I.	Orthodox Negligence Principles in <i>Hotson and Gregg</i>	124
A.	The Facts of <i>Hotson</i>	124
B.	Distinguishing Damage, Causation and Quantification	125
C.	The 'Hook' Argument.....	126
D.	The Vicissitudes Principle	127
E.	The Facts of <i>Gregg v Scott</i>	129
F.	Pain and Suffering	130
G.	Loss of Life Expectancy	131
II.	Loss of a Chance and the Balance of Probabilities Standard of Proof	133
A.	Resolving <i>Hotson</i> and <i>Gregg</i> on the Balance of Probabilities	134
B.	Proof in <i>Hotson</i>	136

C.	Proof in <i>Gregg</i>	137
D.	Reliability of the Evidence in <i>Gregg</i>	138
E.	Personalising the Evidence in <i>Gregg</i>	139
F.	Rejecting 'Chance' Conceived as a Proportion of the Physical Outcome	140
Part II: The 'Lost Opportunity' as Damage.....		145
I.	The Patient's Autonomy Interest	146
A.	The Loss Suffered by the Claimant.....	148
B.	The Place of Autonomy within the Doctor-Patient Relationship	153
i.	The Focus of the Doctor's Duty of Care	153
ii.	The Nature and Extent of the Uncertainty	155
C.	The Limited Scope of Loss of Opportunity as Damage.....	156
II.	Orthodox Application of the Remaining Negligence Doctrines	158
A.	Quantifying the Loss	159
5.	The Evidentiary Gap	164
I.	Defining the Evidentiary Gap	165
A.	The Evidentiary Gap Relating to Dermatitis: <i>McGhee v National Coal Board</i>	166
B.	The Evidentiary Gap Relating to Mesothelioma: <i>Fairchild v Glenhaven Funeral Services</i>	167
C.	Analysis of the Evidentiary Gap.....	169
i.	NESS and Identifying the Problem: Locating the Evidentiary Gap	170
ii.	NESS: Separating the Conceptual from the Evidential Aspects of the Legal Solution	172
II.	Evidential Solutions: The Inferential Approach	173
A.	The Inferential Approach to <i>McGhee</i>	175
B.	The Issues Concealed by an Inferential Approach	177
C.	Closing the Evidentiary Gap	180
III.	Risk of Harm as the Gist of the Negligence Action: <i>Barker v Corus (UK) plc</i>	182
A.	The Decision in <i>Barker v Corus</i>	182
B.	Analysis of the 'Risk as Gist' Approach.....	186
i.	The Inconsistency of the Physical Harm Requirement	186
ii.	Physical Harm and Risk: A Shift in Perspectives	189
iii.	What is 'Risk'?	189
iv.	Can Risk Constitute Damage?	191
v.	Calculating Risk and Probability.....	191
vi.	'Increase in Risk' or 'Contribution to Risk'?	193

C.	Can Risk Constitute Damage in Corrective Justice?	194
i.	Objective Risk: The Evidentiary Gap Prevents Proof that the Defendant Created an Objective Risk.....	195
ii.	Subjective/Epistemic Risk: Lacks the Moral Significance to be Damage.....	196
iii.	The Difficulty of Explaining Why Epistemic Risk Deserves Compensation	197
D.	Epistemic Risk: The Conflation of Breach and Damage.....	200
IV.	Theoretical Approaches to the ‘Evidentiary Gap’	201
A.	Dispelling Possible Misconceptions.....	202
i.	<i>McGhee</i> : The Defendant Definitely Caused the Damage.....	202
ii.	<i>Fairchild</i> : The ‘Innocent Claimant’ Argument.....	203
iii.	Reformulating Damage in the Innocent Claimant Argument	206
B.	Where Next?.....	210
i.	Mesothelioma.....	210
ii.	Other Diseases Involving an Evidentiary Gap	211
iii.	The Single Harmful Agent Rule: <i>Wilsher v Essex Area Health Authority</i>	212
iv.	What is a Single Harmful Agent?.....	214
v.	Limiting the <i>Fairchild</i> Exception to Mesothelioma.....	216
V.	Conclusion.....	222
	Conclusion.....	223
	<i>Bibliography</i>	227
	<i>Index</i>	237