

Studien zum vergleichenden Privatrecht

Studies in Comparative Private Law

Band / Volume 22

Patentability and Morality

**A Comparative Perspective on How Legal Culture
Shapes Morality within Patent Law**

By

Stefan Papastefanou



Duncker & Humblot · Berlin

STEFAN PAPASTEFANOU

Patentability and Morality

Studien zum vergleichenden Privatrecht

Studies in Comparative Private Law

Band/Volume 22

Patentability and Morality

A Comparative Perspective on How Legal Culture
Shapes Morality within Patent Law

By

Stefan Papastefanou



Duncker & Humblot · Berlin

The Bucerius Law School Hamburg
accepted this work as thesis in the year 2022.

Bibliographic information of the German national library

The German national library registers this publication in
the German national bibliography; specified bibliographic data
are retrievable on the Internet about <http://dnb.d-nb.de>.

All rights reserved. No part of this book may be reproduced, translated,
or utilized in any form or by any means, electronic or mechanical,
without the expressed written consent of the publisher.

© 2024 Duncker & Humblot GmbH, Berlin

Typesetting: 3w+P GmbH, Rimpar

Printing: CPI books GmbH, Leck

Printed in Germany

ISSN 2364-8155

ISBN 978-3-428-18859-8 (Print)

ISBN 978-3-428-58859-6 (E-Book)

Printed on non-aging resistant (non-acid) paper
according to ISO 9706 ☺

Internet: <http://www.duncker-humblot.de>

To Jake & Amir

Acknowledgements

First, I wish to show my appreciation to my supervisor Prof. Dr. Dana Beldiman of the *Bucerius Law School*. Her guidance, support, and encouragement have been invaluable throughout this project. I am deeply grateful for her assistance at every stage of the research project. In particular, aspects of the U.S. legal system were much more approachable with the unrelenting patience and support of Prof. Beldiman. Her encouragement made it possible for me to realize my first international academic research projects.

Additionally, the assistance provided by Prof. Dr. Kung-Chung Liu of the *Singapore Management University* was greatly appreciated. His help and insights regarding Chinese patent law, in particular, were of utmost significance. Without his understanding and wisdom, it would not have been possible to identify and analyze original Chinese sources to the same extent. Furthermore, Prof. Liu provided me with significant networking opportunities throughout China and Southeast Asia. I owe the direction of my academic career, in large part, to the efforts of Prof. Liu.

My gratitude extends to the *Friedrich-Naumann-Stiftung für die Freiheit* for the generous scholarship to undertake the research project and to allow me to take part in several international research conferences. These conferences offered substantial insights in academic thinking and provided important networking opportunities. In particular, the networking events and academic conferences were hugely important in helping me to achieve independent publications on a national level.

Furthermore, I would like to thank the *Applied Research Centre for Intellectual Assets and the Law in Asia* of the Singapore Management University. Their generous scholarship opportunity enabled the research required for the inclusion of the part of this thesis on Chinese law. The PhD program provided by the research center was of immense academic and personal value.

Finally, I wish to express my gratitude to *Schmidt, von der Osten & Huber*, law firm in Essen, Germany. They provided a significant scholarship for this project and offered academic as well as personal support through their scholarship program and networking opportunities.

Hamburg, August 2023

Stefan Papastefanou

Contents

Preamble	15
A. Introductory Remarks	17
I. Research Questions and Scientific Interest	20
II. Methodology and Content	21
1. Methodological Approach	21
a) Methodological Structure	23
b) Concept of Ethics within the Thesis	26
2. Scope	27
a) National Security and Patent Secrecy	27
b) European Unitary Patent	27
c) EU “Biotech Directive”	27
d) Theories of Law	28
e) Philosophical Approaches to Morality	28
f) Patentability Assessments of Specific Technologies	29
III. Overview of Sources	29
B. The Interplay of Technology and Morality	32
I. Examples of Recent Technological Development with Moral Considerations	32
1. Biotechnology as a Trailblazer of Patent Morality	33
a) Basics of CRISPR Gene-Editing	34
b) Moral Debate Regarding CRISPR Gene-Editing	35
c) Similarities between CRISPR Gene-Editing and Stem-Cell Research	38
d) Summary	40
2. Weapon Technology and Moral Concerns	40
a) Global Relevance of Modern Weapon Technology	41
b) Fundamental Differences to Conventional Weapon Technology	43
aa) Railgun Basics	43
bb) Laser Weapon System Basics	44
cc) Advantages of the Emerging Weapon Systems	44
c) Areas of Moral Concern	45
II. Potential Moral Considerations with Regard to Modern Weapon Technology	45
1. Moral Concerns of the Heat Ray	46
2. UN Convention CCW	46

3. Significance of International Treaties	47
4. Potential Violations of National Law	48
a) Potential Violation of Sect. 311, 309 StGB	49
b) Applicability	49
c) Ionizing Radiation	50
d) Potential to Violate Regulations on Ionizing Radiation	51
5. Relationship of Legal Violations and Patentability	51
a) International Treaties and Patentability	51
b) National Law and Patentability	52
III. Conclusion	53
C. Moral Considerations in Patentability in European and German Patent Law . . .	55
I. Art. 27 (2) TRIPS and Respective Regulations	55
1. Relevance of Art. 27 (2) TRIPS for the Interpretation of Subsequent Regulation	56
2. Regulatory Approaches in the EU and Germany	58
3. Art. 53 (a) European Patent Convention	58
4. Sect. 2 (1) PatG in German Law	60
II. Ordre Public and Morality on a European Level	62
1. Determining the Meaning of Ordre Public and Morality	62
2. Relevant Contracting States	64
a) Differences in the Understanding of Ordre Public within the EPC Contracting States	66
aa) Lowest Standard – Validity of the Patent in One Contracting State ..	66
(1) Comparison of Art. 53 EPC and Art. 139 EPC	70
(2) Relationship of EPO and National Interpretation	70
(3) Relevance of the Report by the EU Commission	71
bb) Medium Standard – Validity in the Designated State of the Application ..	73
cc) Strictest Standard – Validity in All Contracting States	74
b) Discussion of the Legal Arguments	76
c) Conclusion	78
3. Jurisprudence	78
a) <i>Briistle</i> Case	79
aa) Factual and Legal Background	80
bb) Legal Procedure	81
(1) Role of the European Court of Justice	82
(2) Referring the Case back to the German Federal Court of Justice ..	83
b) Analysis of the Reasoning	84
aa) Dogmatic Criticism of the Decision	84
bb) General Criticism of the EU Biotech Directive	86

4. Conclusive Summary and Relevance	87
a) Fundamental Principles of Ordre Public or Morality	88
b) Characteristics of Human Dignity in Biotechnological Inventions	88
c) Specific Arguments Concerning Ethics in Biotechnological Inventions ..	93
d) Identifying Abstract Characteristics	95
III. Fundamental Considerations of Morality in German Legal Literature	96
1. Factual and Legal Background of the German Provision	96
2. General Considerations Regarding the Morality Provision	97
a) Fundamental Objections to the Provision	97
b) Arguing in favor of the Morality Provision	100
3. Subject of the Examination Process	101
a) Relevant Moment and Geographic Scope	102
b) European Union vs European Unity	104
4. Understanding Ordre Public in Morality in German Legal Culture	105
a) Ordre Public and Morality as Ethical Considerations	107
b) Ordre Public and Morality across the German Legal System	111
c) Morality as a Social Concept Instead of a Legal Concept	113
d) The Unique Relationship of Immorality and Illegality in Patent Law ..	115
e) Interim Result	116
f) Identifying Elements of Morality and Ordre Public in Patent Law	117
aa) Essential Constitutional Principles as a Significant Element?	118
bb) Approaches to Define Ordre Public in German Legal Literature ..	120
5. Meaningful Distinction of Morality and Ordre Public?	121
a) Attempts to Distinguish between the two Terms	121
b) Concepts of Proportionality in Ordre Public and Morality	124
c) Technicality of Patents in Relation to Morality as an Independent Ap- proach	126
d) Limitations of the Proposed Differences between Morality and Public Order	126
e) Conclusion	129
IV. Commercial Exploitation as a Requirement of Moral Violations	130
1. TRIPS Considerations and the Term itself	130
2. Standard for Commercial Use	132
a) German Jurisprudence Regarding Commercial Use	133
b) Legal Discussion of Commercial Use	135
c) <i>Romandini's Case Group Solution</i>	137
3. Relevant Moment of Commercial Exploitations	140
a) Black Letter Analysis of Art. 53 EPC and Art. 27 (2) TRIPS	140
b) Black Letter Analysis of the German Patent Act	143
c) Interim Result	145

V. Conclusion	145
D. Patentability and Moral Concerns in U.S. Patent Law	147
I. Historic Development	147
1. Genesis of the Moral Utility Doctrine	148
2. Specific Decisions Regarding the Moral Utility Doctrine	149
a) Gambling Devices	149
aa) Legal Analysis of the Reasoning	150
bb) Historic Development of Morality with regard to Gambling Devices	151
b) Deceptive Devices or Devices with Mischievous Tendencies	152
aa) Legal Analysis of the Reasoning	153
bb) Decline of the Moral Utility Doctrine	154
3. Recent Development and Status Quo	155
II. Rise of Biotechnology and Genetic Engineering	157
1. Jeremy Rifkin as the “Most Hated Man in Science”	159
2. Re-Introducing Morality Concerns into U.S. Patent Law	160
3. Myriad Breast Cancer Genes Patent Case	162
4. Ultimate Place of Morality within the Patent Subject Matter Doctrine?	166
5. Influence on Canadian Jurisprudence	167
III. The Role of Human Dignity in the U.S. Patent System	170
1. Historical Development within the U.S. Legal System	170
a) Historical Background of the Introduction of Human Dignity	171
b) Legal Assessment of Human Dignity within the U.S.	172
c) Comparing U.S., German and European Approaches to Human Dignity	174
2. Relevance of Human Dignity for the Patent Law System	175
a) Discussing the Legal Reasoning	176
b) Human Dignity in the Context of Biotechnology as a Precedent	177
3. Summary	178
IV. Differences in Judicial Arguments	179
V. Morality and Patentability in Relation to State Powers	180
VI. Conclusion and Recommendations	182
E. Morality and Patentability in Chinese Patent Law	184
I. Chinese Legal Culture and Patent Law	184
II. Development of Patentability Concerns in China	185
III. Morality and Chinese Legal Culture	187
1. Governmental Influence on the Legal Culture in China	188
2. Moral Considerations in Chinese Culture	189
3. Morality in the Context of Legal Culture	191
IV. Conclusion	197

F. Summary and Comprehensive Assessment	199
Bibliography	204
Index	228

Preamble

The main impetus for undertaking a study of this research topic was the fact that it is, inherently, both complex and simple. Patent law regulation and patentability requirements are complex legal ideas. They raise difficult legal questions that have global relevance because intellectual property is not restricted by physical borders or even physical objects. Yet, being untethered from physicality, these complex constructs also lend themselves to easy and logical answers within their own legal systems. Simultaneously, moral questions are much simpler to ask. Framing a question about the morality of human enhancement or weapon technology is relatively easy and does not require a legal education. However, the answers to these questions can be extremely complex. Moral considerations originate from philosophical, religious and metaphysical viewpoints. As such, the topic of patent law and morality illustrates how different cultures take account of moral considerations in their own understanding of patent law. The beauty of this topic is that it combines difficult questions with arguably simple answers and simple questions with impossibly complex answers.

Once the research concept had been developed further, it became clear that there was virtually no limit to the extent of the different theoretical approaches. In addition, the implications of this for technological advancement and practical significance became apparent. As such, a decision was made to restrict the thesis to a specific theoretical approach. That approach was the cultural aspects of patent law systems and more specifically, the legal culture and its substantial influence on patent law. Therefore, the analysis was focused on the different national and supranational approaches towards morality in patent law. Selecting practically relevant but also culturally different legal regimes in a comparative analysis was chosen as the most promising approach.

The development of the academic discussion was not without challenges and dead ends. Organizing and structuring an analysis on various different cultural, legal and moral aspects of several national patent systems was much more difficult than anticipated. Language and translation issues represented another difficulty, especially in the context of Chinese patent law. Even attempts to identify consistent terms that adequately expressed each national understanding of “morality” or “ordre public” turned out to be futile. Parts of the thesis required countless rewrites to include shifts in academic perspective. Additionally, the fundamental approach of the thesis turned out to be academically underdeveloped in the existing legal literature and jurisprudence.

While these difficulties and challenges existed, it was possible to overcome them or to regard them as opportunities as the thesis developed. In the end, the project provided a result that had diverged significantly from the initial ideas. However, ultimately, the dynamic development of the thesis also substantially contributed to the fun and excitement of the entire endeavor.

A. Introductory Remarks

In many of the world's significant patent systems, the implementation of aspects of public policy relating to morality within the patenting procedures has been subject to substantial legal discussion and controversial development. Conventionally, the concept of an "invention" in patent law was defined according to the creation and alteration of inanimate matter.¹ However, morality concerns in patent law have been dealt with in many varying ways in past centuries. With the emergence of advanced biotechnology and controversies surrounding it, all major patent law jurisdictions have had to address the issue either by legislation or through case law. The recent development of CRISPR gene-editing remains one of the most controversial areas of research. Therefore, biotechnology has become the center point of legal discussion about morality in patent law. However, other areas of technology also raise moral concerns which have not been subject to a broader legal review or a discussion of the implications for patent law at all. Following on from the controversies around biotechnology, patentability requirements based on moral concerns have become more important. National and supranational patent patentability approaches differ significantly. Addressing the differences in the patent law regimes requires an overview of the different and, in particular, less well-established cases of moral ambiguity in technology. A review of recent controversies and developments would contribute to this as well.

In all the relevant patent law jurisdictions around the world, essential elements of patentability are much more similar than the essentials in other areas of law and even intellectual property law. Those elements of patent law usually include a decision on what kinds of inventions are patentable in general. Therefore, a comparative analysis of the aforementioned moral concerns is very pragmatic and could provide useful insights into patent law and fundamental principles in general. Once such elements are identified, the emphasis of each element in each national patent law will be analyzed.

The aim of this project is to showcase how legal culture influences morality within patent law regimes. It also provides insights into the challenges arising in the area of patent law and morality. Ultimately, the thesis suggests approaches to better understand the concept of morality in patent law and how to address moral issues in a more consistent manner.

¹ Mills, Biotechnological Inventions: Moral Restraints and Patent Law 7; Peng, Patenting Stem Cell Inventions in China, 21.