Artificial Intelligence & Intellectual Property

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Overview

I. Introduction

II. What is the problem of "AI & IP"?

III. The legal status quo

IV. Conceptional critique

V. Reconceptualization

Introduction

What is Artificial Intelligence (AI)?

What is AI?

- John McCarthy (1955 proposal for Dartmouth Conference)

  The objective of AI is to explore ways to make "a machine that could reason like a human, was capable of abstract thought, problem-solving and self-improvement."

  McCarthy believed that "every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it."

- Herbert Simon predicted in 1965 that "machines will be capable, within twenty years, of doing any work a man can do."
- Marvin Minsky proclaimed in 1967 that "within a generation … the problem of creating 'artificial intelligence' will substantially be solved."

What is AI?

The study of how to produce machines that have some of the qualities that the human mind has, such as the ability to understand language, recognize pictures, solve problems, and learn.

(Cambridge Dictionary)

What is AI?

- The "AI effect"
  - "AI is whatever has not been done yet."
  - Elaine Rich (1983): "Artificial Intelligence is the study of how to make computers do things at which, at the moment, people are better."
- Open-ended definition of "AI"
  - essential: contrast to "human intelligence" or "natural intelligence"
  - consequence: by definition – difference in treatment

Examples

Examples

AARON (computer program written by Harold Cohen)

AARON, Two Friends with Potted Plant (1994)

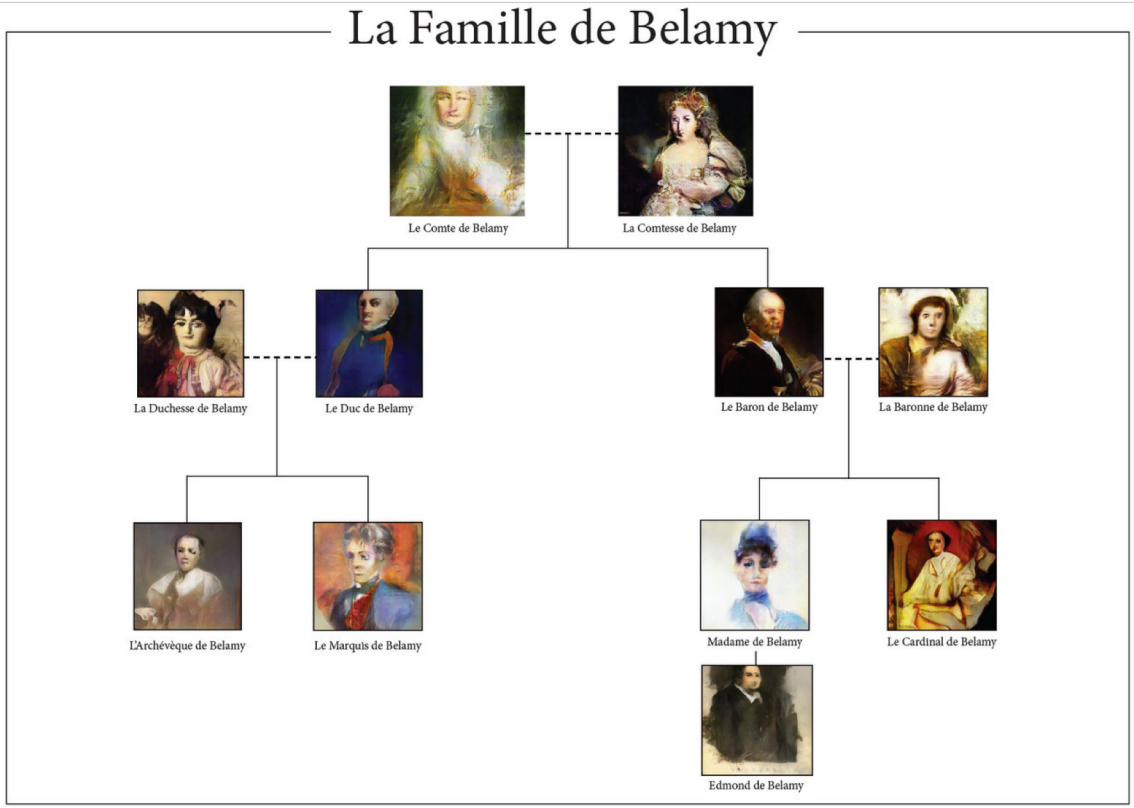
AARON, Two Women with Decorated Background (1994)

AARON, Meeting on Gauguin's Beach (1985)

Examples

"Portrait of Edmond Belamy"
Obvious (Paris-based collective of artists)

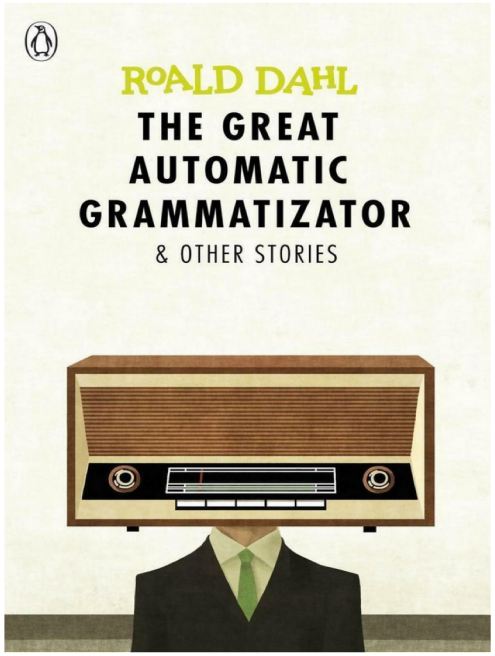
Christie's Prints & Multiples sale (US$ 432,500)



Examples

Franz Schubert (1822), Symphony No. 8 – B minor, D 759 (The "Unfinished"), completed by Huawei AI (final part, London)

Examples



A rather unsuccessful author realizes that the rules of language and grammar are determined by certain "mathematical" principles. He manages to create a machine that can write prize-winning short stories and novels in minutes.

The story ends on a fearful note, as more and more human writers are forced to license their names to the machine. (© 1954)

Examples

United States Patent 6,647,395 (Kurzweil , et al. November 11, 2003)

Poet personalities

ABSTRACT: A method of generating a poet personality including reading poems, each of the poems containing text, generating analysis models, each of the analysis models representing one of poems and storing the analysis models in a personality data structure. ...

BACKGROUND: This invention relates to generating poetry from a computer.

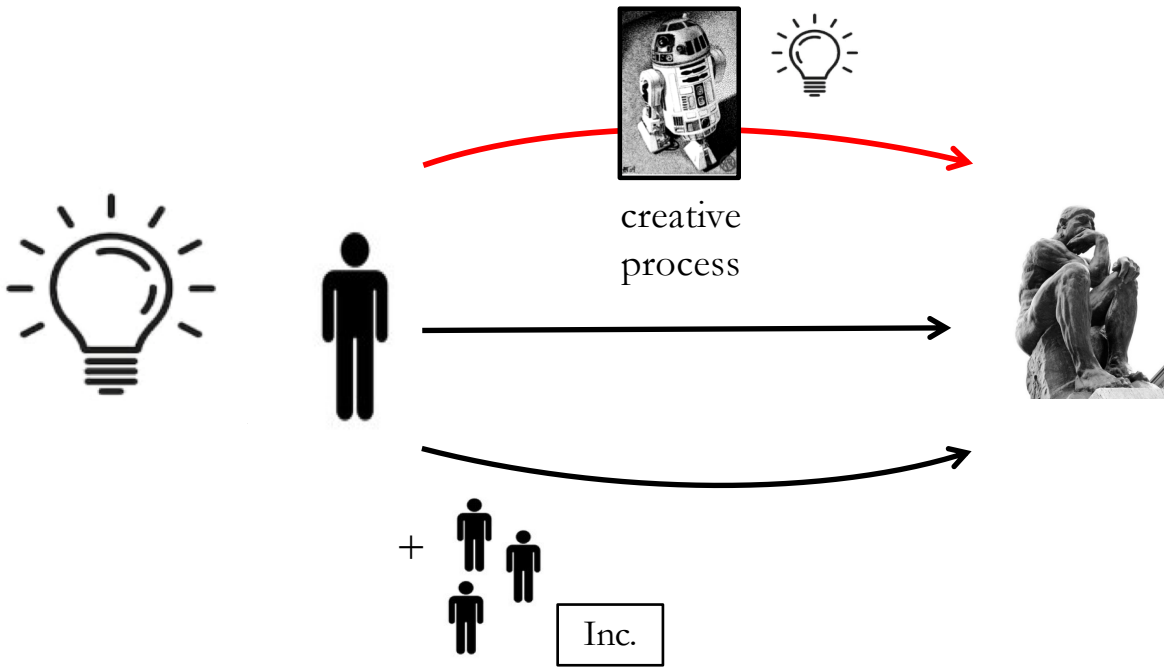
A computer may be used to generate text, such as poetry, to an output device and/or storage device. The displayed text may be in response to a user input or via an automatic composition process. Devices for generating poetry via a computer have been proposed which involve set slot grammars in which certain parts of speech, that are provided in a list, are selected for certain slots. …

What is the problem of "AI & IP"?

What is the problem of "AI & IP"?

- We are in the midst of a third computer-enabled technological shift
  - no longer 1980s reproduction issues
  - no more 1990s sharing and remix issues
- New: era of "digital authorship"
  - computers (= robots, AI) are enabled to produce art and other creative works – virtually all by themselves
  - So-called digital works are often hardly distinguishable from the products of human authorship

What is the problem of "AI & IP"?

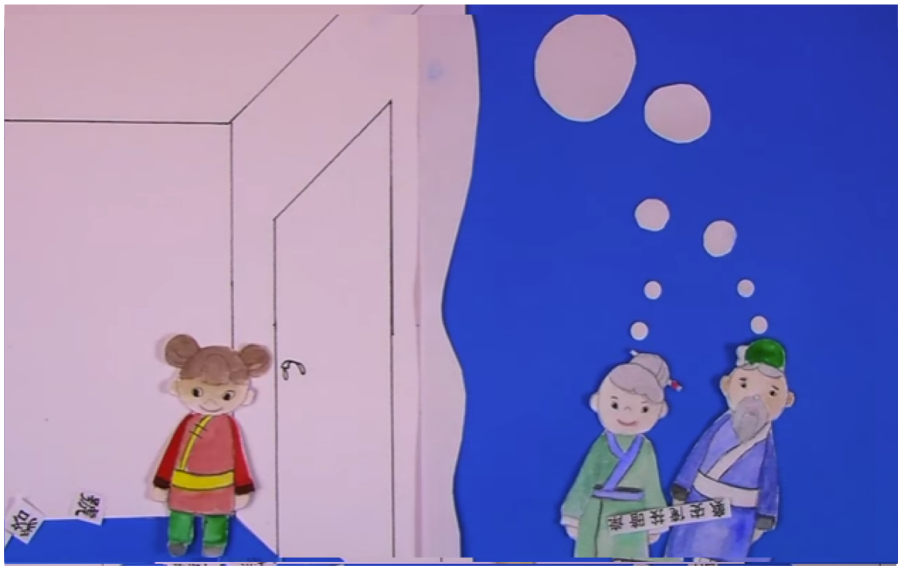


What is the problem of "AI & IP"?

- Consequences
  - Traditional concept of the "romantic author" is segmented into its components
  - Creativity, creation processes, and creative products are being separated from the once central paradigm of the "human author"
  - Issue: the more AI autonomy in creation, the less human basis for copyright exists …
- Question: Is AI or will it ever be creative in the sense that humans are creative – in the legal (copyright) sense?
- Two perspectives
  (1) Result-oriented perspective: quality of the "work"
  (2) Process-oriented perspective: quality of the "author" or "creator"

Does "AI creativity" exist?

- Result-oriented perspective
  - Turing Test (1950) (modified)
    - presenting results of AI creation to human arbiters
    - if they cannot tell the difference, AI is "creative"
  - Critique: Searle's "Chinese Room Hypothetical" (1984)
    - "Strong AI" has a "human mind"
    - Outer appearance is insufficient …
- Problem: a "work" as such cannot tell whether it deserves protection as a "creation"

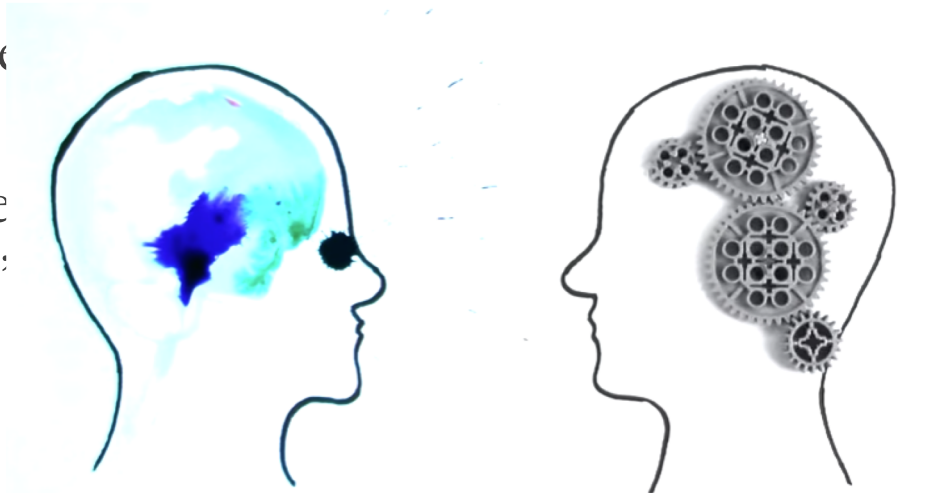


Does "AI creativity" exist?

- Process-oriented perspective
  - Unpredictability
    - Unclear: computers can be programmed to act randomly, but this is not an intrinsic trait of their nature
  - Novelty
    - Problem:. concept of "novelty" in copyright law sets a rather modest standard (see *infra*)
  - Autonomy
    - AI can act independently from human input and control, but remains limited to program's framework
  - Self-consciousness, self-criticism, and ability to have emotions
    - Critique: machines can never become "creative" for lack of self-consciousness

Does "AI creativity" exist?

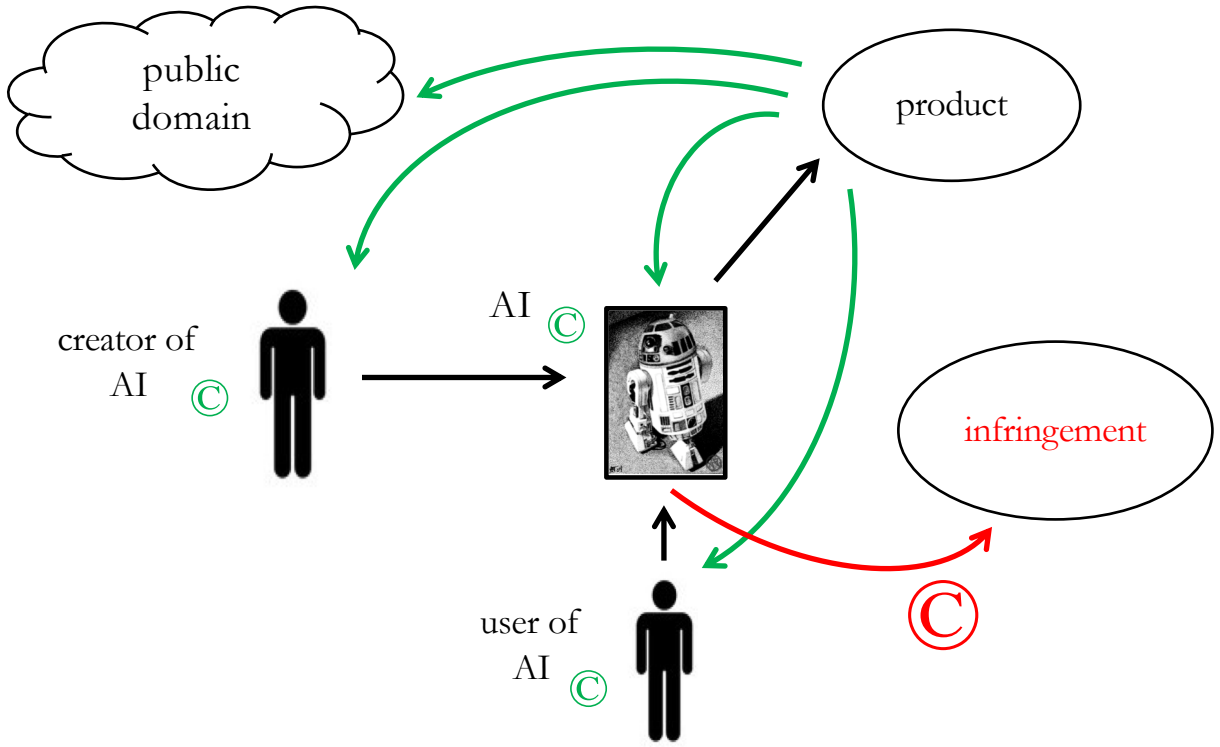
- But: human inte stry, psychology …)
- Only difference
- "Meat machine



- Question: Is the difference "quantitative" or "qualitative"?

The legal status quo

Overview


public domain
product
creator of AI ©
AI ©
infringement
user of AI ©
©

To begin with: the "Electronic Person"

- Starting point: there is no "electronic person"
- Consequences
  - "Ownership" is difficult to establish for the AI (robot, software …) since it lacks legal personhood
  - Rights *in the AI* (as such) do vest in its creator
  - But: AI creator has no statutory right *in the AI's products* (if produced autonomously)
  - Who is the right owner?

To begin with: the "Electronic Person"

- U.S. Register of Copyrights, Sixty-Eighth Report (1966)
  - "crucial question" is "whether the 'work' is basically one of human authorship, with the computer merely being an assisting instrument, or whether the traditional elements of authorship in the work … were actually conceived and executed not by man but by a machine"
  - Compendium (Office Practices, 2014): no registration for works produced by machines without "any creative input or intervention from a human author"
- EU Parliament: Report "Civil Law Rules on Robotics" (2017)
  - Suggestion to provide for rules concerning "autonomous robots" (with respect to civil liability); status of electronic persons considered
  - But: at the moment, no need to provide for more extended AI legal autonomy and personality

European copyright law

- Anthropocentric concept of the "author" requires a human being to create
  - No statutory concept of "authorship" in EU secondary law
  - CJEU case law
    - *Infopaq* (2009), *Football Dataco* (2011), and *Painer* (2011): "work" must be the "author's own intellectual creation", reflecting a free and creative choice and the author's "personal touch stamp"
    - Mainstream position: machine creation is not "free" beyond its program restrictions, and a "personal" stamp can only exist if there is a "natural person"
  - Personality rights theory (civil-law) and economic arguments against copyright protection
- General rule: no copyright protection for non-human creations

European copyright law

- Exception: UK Copyright, Designs and Patents Act 1988

  Section 9: Authorship of work.

  (1) In this Part "author", in relation to a work, means the person who creates it. ...

  (3) In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken.

- Similar rules in New Zealand, Republic of Ireland, Hong Kong, South Africa, and India

US copyright law

- Also anthropocentric
  - *Trade-Mark Cases* (S.Ct. 1879): works eligible for copyright protection are limited to "the fruits of intellectual labor" and "depend upon work of the brain"
  - *Burrow-Giles Lithographic Co. v. Sarony* (S.Ct. 1884): copyright is "the exclusive right of a man to the production of his own genius or intellect" regardless of his reliance on a machine (copyrightability of photographs)
  - *Bleistein v. Donaldson Lithographing Co.* (S.Ct. (Holmes J.) 1903): "The copy is the personal reaction of an individual upon nature. Personality always contains something unique … something irreducible, which is one man's alone.. That something he may copyright."
  - *Feist Publications, Inc. v. Rural Telephone Service Co.* (S.Ct. 1991): "As a constitutional matter, copyright protects only those constituent elements of a work that possess more than a de minimis quantum of creativity.

US copyright law

- Status quo
  - Evolution from "genius" to "personality" and "creativity"
  - Consequence: reduction of the threshold …
  - But: still based on a paradigm of the *human* creator
- Academic suggestion (*not* the law!)
  - Work-made-for-hire doctrine extended to AI productivity
  - Vesting rights in the AI creator or user (or the respective employer) …

US copyright law

17 U.S. Code, § 101

Except as otherwise provided in this title, as used in this title, the following terms and their variant forms mean the following: ...

A "work made for hire" is –

(1) a work prepared by an employee within the scope of his or her employment; or

(2) a work specially ordered or commissioned for use as a contribution to a collective work, as a part of a motion picture or other audiovisual work, as a translation, as a supplementary work, as a compilation, as an instructional test, as a test, as answer material for a test, or as an atlas, …

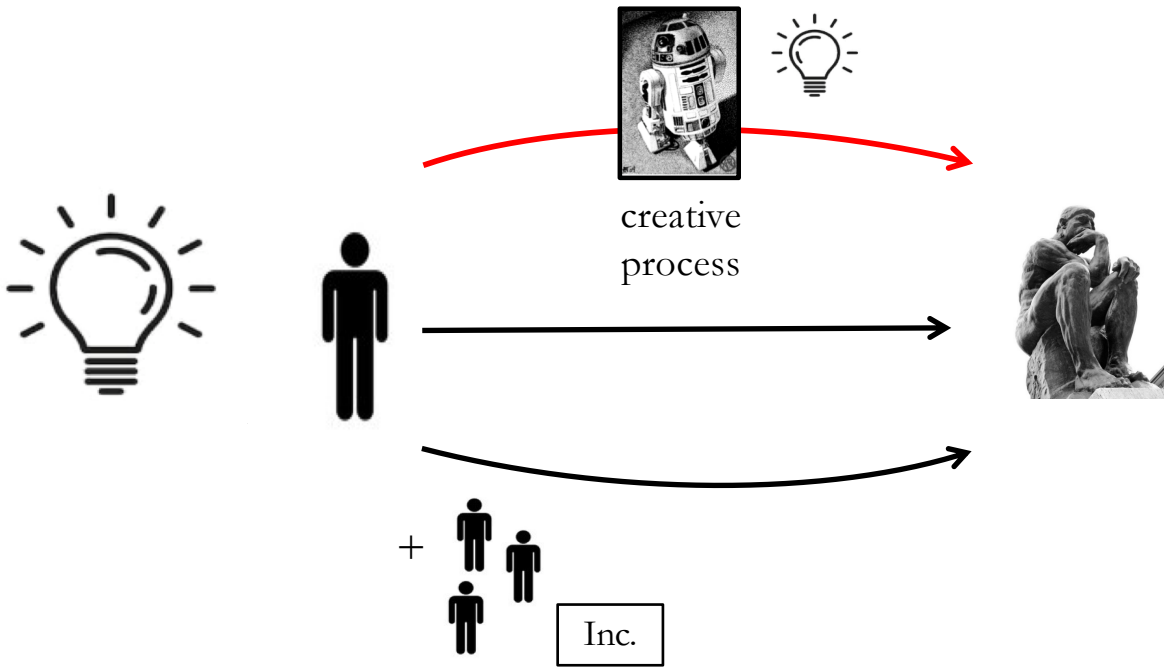
US copyright law

17 U.S. Code, § 201

(a) Initial Ownership. - Copyright in a work protected under this title vests initially in the author or authors of the work. The authors of a joint work are coowners of copyright in the work.

(b) Works Made for Hire. - In the case of a work made for hire, the employer or other person for whom the work was prepared is considered the author for purposes of this title, and, unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all of the rights comprised in the copyright. ...

Summary

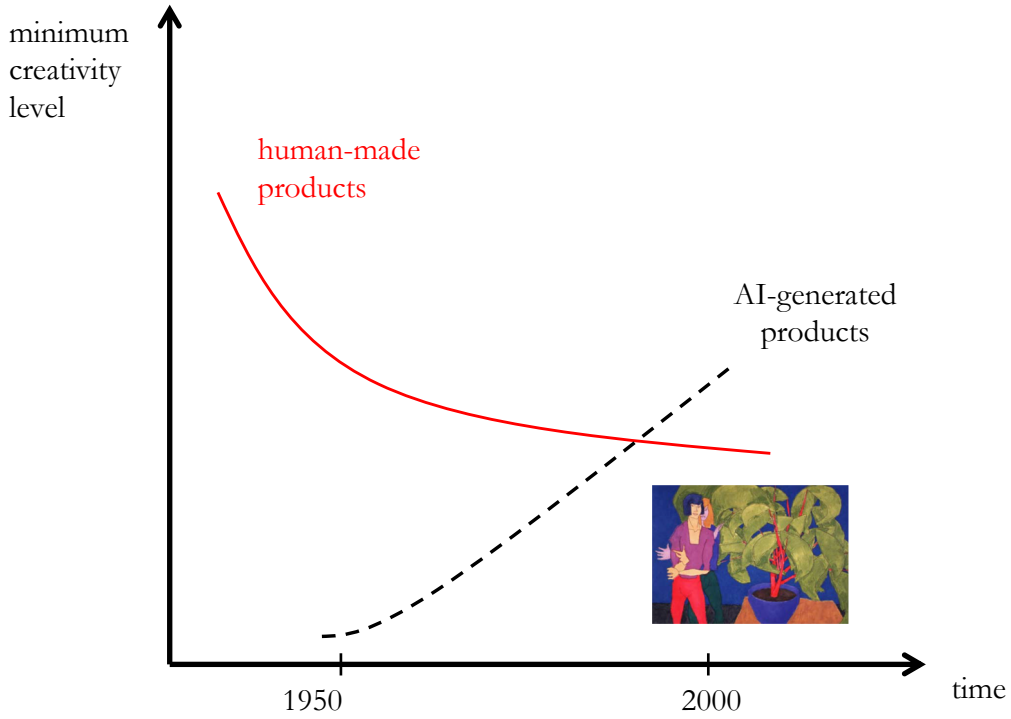


Conceptional critique

"Personality paradox"

- Legal status quo is a paradox with respect to "work", "author", or "creator" evaluation and assessment
- Two developments
  (1) Constant trend to lower the threshold for copyright protection (concerning human creativity)
  (2) Growing capacities of AI creation, growing "quality" of AI-generated products
- Consequence
  - Many "works" of human creation only display a "modicum of creativity" but do receive protection
  - By contrast, protection is excluded *per definitionem*, no matter how elaborate and unique AI products are

“Personality paradox”



Legal philosophy

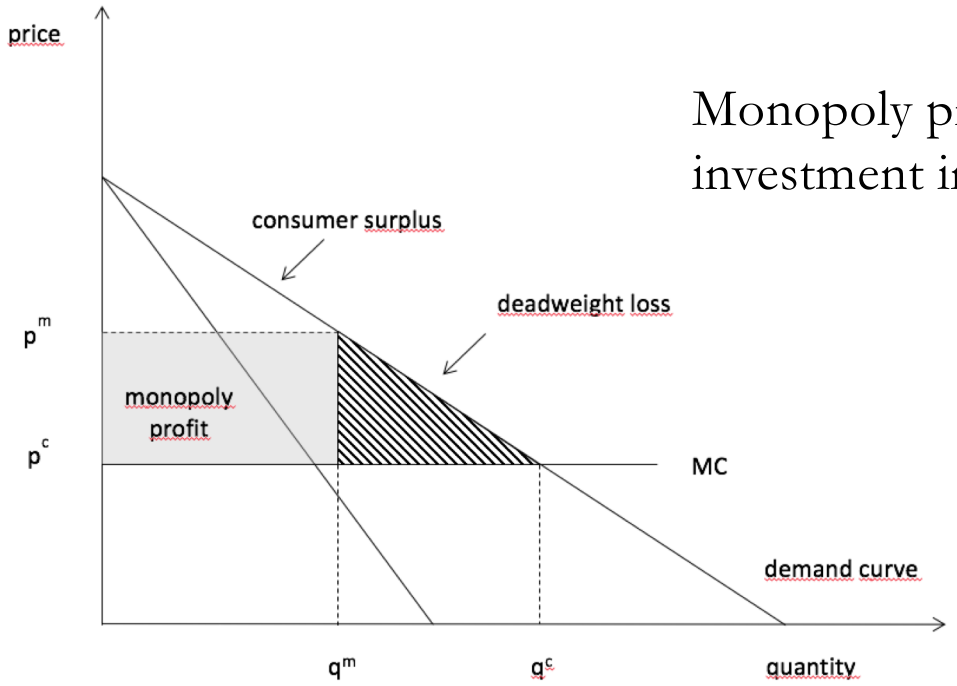
- Personality theory (Kant, Hegel – civil-law copyright)
  - Intellectual work embodies the creator's personality or will
  - Property is an extension of the human personality and a means to self-actualization
  - Applied to AI creations: link to human personhood is more than weak …
- Work labor theory (Locke)
  - Every man should be the proprietor of the product of his labor
  - Note: Locke never intended theory for IP
  - But: may justify rights in products created by AI …

Legal philosophy

Economic foundations

- Economic model (utilitarian justification, common-law copyright)
  - Mainstream position: granting rights for AI creativity is over-protection
  - Argument: there can be no direct "incentive" for an "AI creator" …
  - Consequence: so-called meta-benefits must remain non-appropriated and go into the public domain
- Critique:
  - Computation: value of AI is determined by value of *all* benefits that can be derived from using the AI

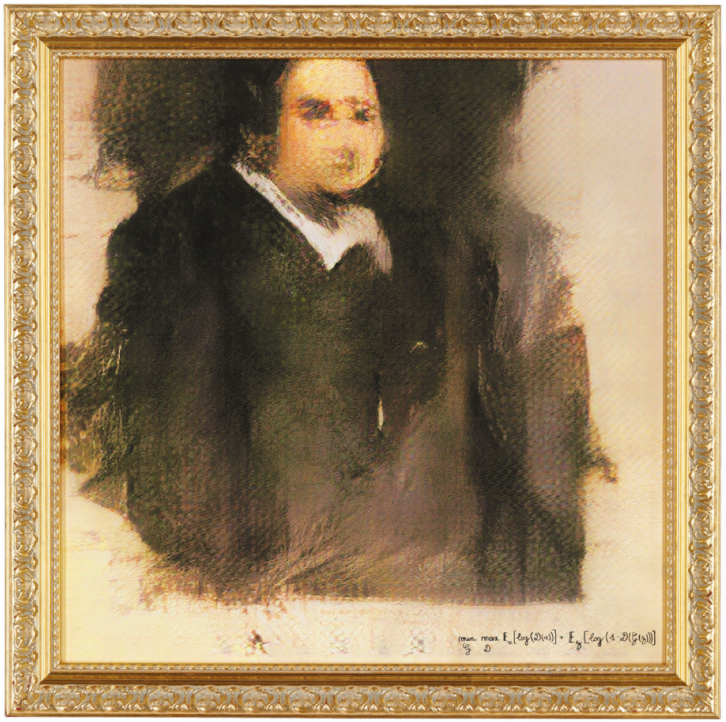
Economic foundations



Monopoly profit (static inefficiency) *equals* investment in creativity (dynamic efficiency)

Economic foundations

- Critique (cont'd)
  - "All benefits" (of AI) also includes commercialization of *AI-generated products*
  - Hence: ownership of rights in AI creativity is essential
  - Practical example: Christie's sale of "Edmond Belamy" for US$ 432,500 (with a starting price around US$ 10,000)



"Wrong" incentives

- Status quo: void of norms (= "ownership vacuum")
- Consequence: AI creators/users: will try to deceive the public about the AI-nature of AI-generated works
  - Procedural/evidence issues: "Who created it?"
  - "Full copyright protection" with term of 70 years *p.m.a.*
  - in sum: "maximum" rights for AI-generated products (due to combination of secrecy/deception/AI-ownership attachment)

“Wrong” incentives

… And how will you sell them? Who will you say has written them?

We’ll set up our own literary agency, and we’ll distribute them through that. And we’ll invent all the names we want for the writers.

Roald Dahl, The Great Automatic Grammatizator (1954)

“Wrong” incentives

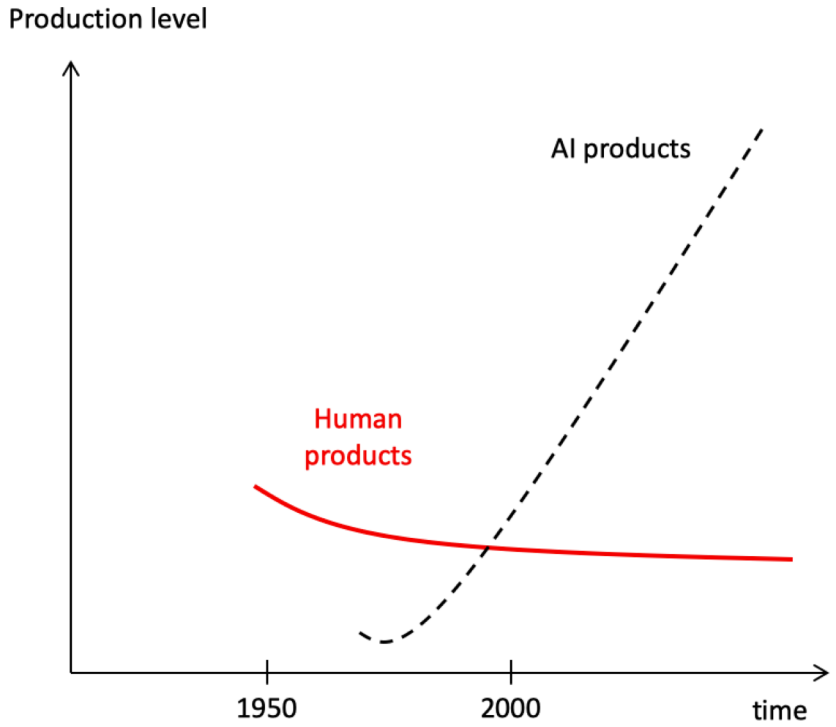
And in six months the machine was completed. Now that it was ready for action, no one was allowed near it, excepting Mr. Bohlen and Adolph Knipe.

Roald Dahl, The Great Automatic Grammatizator (1954)

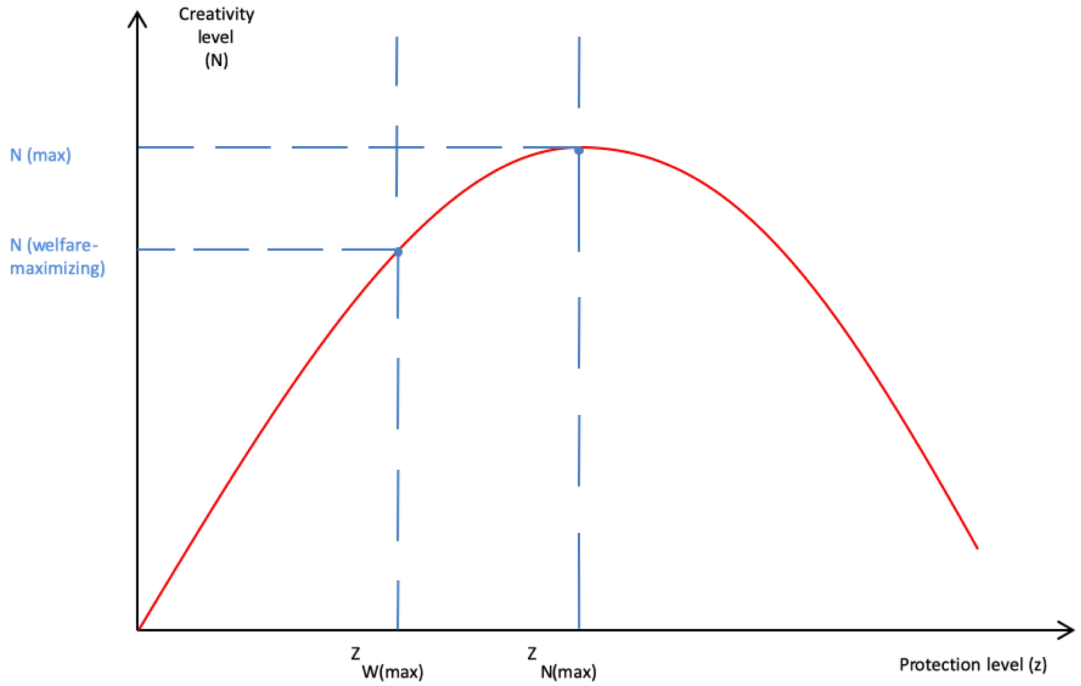
Cultural impoverishment?

- Starting point
  - Incentivizing AI creativity through copyright protection spurs production of AI and AI creativity
- Consequence
  - AI production and "production by AI" increase …
  - Result: AI dominance, products of human creativity may ultimately become a niche market
- Problem: human creation may become irrelevant or even impossible …

Cultural impoverishment?



Cultural impoverishment?



Cultural impoverishment?

‘Nowadays, Mr. Bohlen, the hand-made article hasn't a hope. It can't possibly compete with mass-production, especially in this country — you know that. ...

And stories — well — they're just another product, like carpets and chairs, and no one cares how you produce them so long as you deliver the goods. We'll sell them wholesale, Mr. Bohlen! We'll undercut every writer in the country! We‘ll corner the market!‘ ...

Roald Dahl, The Great Automatic Grammatizator (1954)

Cultural impoverishment?

‘We still got too much competition. Why don't we just absorb all the other writers in the country?‘

... ‘Don't know what you mean, my boy. You can't just absorb writers.‘

‘Of course you can, sir. Exactly like Rockefeller did with his oil companies. Simply buy 'em out, and if they won't sell, squeeze 'em out. It's easy!‘ ...

Roald Dahl, The Great Automatic Grammatizator (1954)

Summary

- *Caveat*: copyright law provides the background and basis for evolution of human culture
- Hence: balancing of the conflicting interests in AI innovation and in protection of human culture
  - Political decision, empirical data needed
  - Framework
    - No genuine copyright protection required (and possible (at least in civil-law systems))
    - Minimum protection: AI creations must not fall into the public domain
    - Maximum protection: no moral-rights regime, no full and genuine copyright

Reconceptualization

Reconceptualization

- Is there a need to protect AI creations and what kind of right must be assigned?
  - No genuine copyright (in the civil-law sense)
  - Instead: neighboring right or lower-level protection under a *sui generis* right
    - Policy: protection of investment
    - Legal doctrine: analogy in protection for previously unpublished works (cf. Art. 4 Directive 2006/116/EC (Term Directive)), protection of photographs, rights of producers of phonograms, rights of the "maker of a database" (Art. 7 Directive 96/9/EC)
    - Applicability?
      - Methodologically: Is there a gap and can the existing rules be used for gap-filling?
      - Rather not: protection by means of neighboring rights rather is an exception
    - Maybe: national unfair competition law may apply (misappropriation doctrine)

Reconceptualization

- Who owns rights in AI creativity?
  - AI as an "electronic person"?
  - Creator of AI (programmer) or user of AI (owner)?
  - Disseminator of AI-generated works? (cf. protection for previously unpublished works (cf. Art. 4 Directive 2006/116/EC (Term Directive))
  - Issue: Autonomy of AI creation …

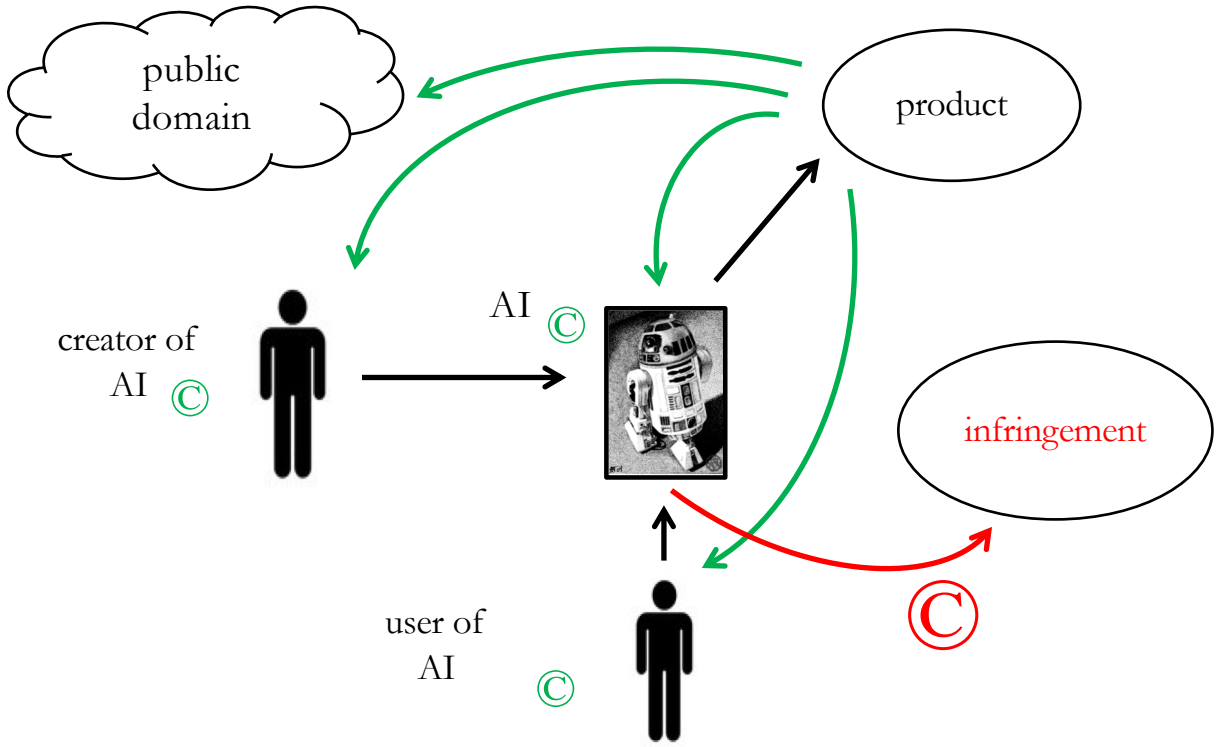
Reconceptualization

- What is the adequate term of protection?
  - Recap: balancing costs and benefits with respect to AI creators' incentives
  - Existing copyright alternatives (neighboring rights) provide for terms of 25 and 50 years
  - Problem: may be too long, considering the risk of drying up the public domain (see *supra* AI dominance)
  - Political decision-making: best founded on empirical studies …

Reconceptualization

- Who is liable if creative AI activity comes along with an infringement of copyrights (or other rights)?

Reconceptualization

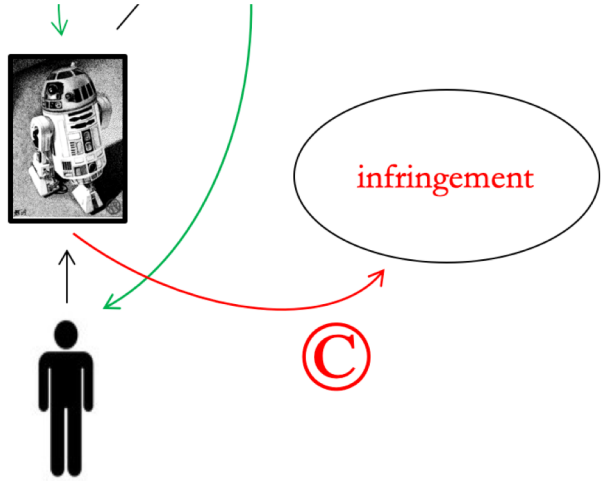


Reconceptualization

- Who is liable if creative AI activity comes along with an infringement of copyrights (or other rights)?
  - AI as an "electronic person"?
  - Creator of AI (programmer)?
  - User of AI (owner)?
  - Disseminator of AI-generated works?
- Essential element: contribution to "mal-functioning"
  - Problem: AI autonomy (self-learning) …
  - Primary contributor: creator and user
  - Secondary liability: disseminator

Reconceptualization

- Can AI-driven infringements be justified (e.g., as a parody (fair use))?
  - Problem: Civil-law jurisdictions assign freedom of speech to *human* activities only …
  - Counter-position: "marketplace of ideas" …



Thank you!

Tim W. Dornis holds the Chair in Private Law, International Private and Economic Law, and Comparative Law at Leuphana Law School.

He studied law and economics in Germany (First & Second State Exam, Ph.D. (Dr. iur.), at Eberhard-Karls-Universität Tübingen) and in the United States (Columbia University, LL.M. (James Kent Scholar), and Stanford Law School, J.S.M. (SPILS Fellow)).

Before his appointment, Professor Dornis spent several years practicing in an international law firm and as a judge. He also is a Global Professor of Law at NYU Law School, and he is admitted to practice in New York.