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European Patent Law II

Intellectual Property Rights

(35E00800)

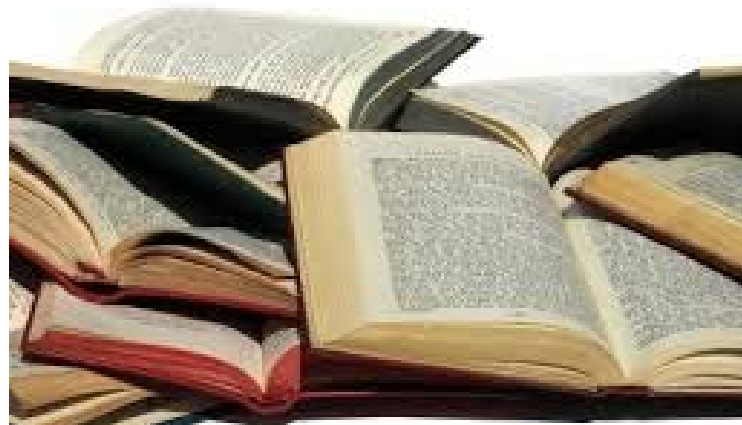
Aalto University, 20.11.2017

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Readings

- » Kur, Annette & Dreier, Thomas, *European Intellectual Property Law. Text, Cases & Materials* (EE Publishing, 2013), Ch. 3



Patentability Requirements

- » 1) Patentable subject matter
 - » Exclusions
 - » Art. 52 EPC
 - » Exceptions
 - » Art. 53 EPC
- » 2) Novelty
 - » Art. 54-55
- » 3) Inventive Step
 - » Art. 56 EPC
- » 4) Industrial applicability
 - » Art. 57
- » 5) Disclosure
 - » Art. 83

Patentability Requirements

- » Article 52 (1) EPC
 - » European patents shall be granted for
 - » **Any inventions**, in all fields of technology
 - » **New**
 - » **Involve an inventive step**
 - » **Susceptible of industrial application**

<https://www.epo.org/law-practice/legal-texts/html/epc/2013/e/ar52.html>

Patentable Subject Matter

Article 52 (2) (3) EPC – Exclusions (non-inventions)

- » Not inventions: discoveries, scientific theories and mathematical methods, aesthetic creations, schemes, rules and **methods for performing mental acts, playing games or doing business, and programs for computers**, presentations of information **as such**.

Article 53 EPC – Exceptions (Inventions not patentable)

- » European patents shall not be granted in respect of
- » (a) **inventions the commercial exploitation of which would be contrary to “ordre public” or morality**; such exploitation shall not be deemed to be so contrary merely because it is prohibited by law or regulation in some or all of the Contracting States
- » (b) **plant or animal varieties or essentially biological processes** for the production of plants or animals; this provision shall not apply to microbiological processes or the products thereof
- » (c) **methods for treatment of the human or animal body by surgery or therapy and diagnostic methods** practised on the human or animal body; this provision shall not apply to products, in particular substances or compositions, for use in any of these methods.

Exclusions

» Rationale:

- » Abstract ideas/concepts should be available to all man, not restricted exclusively to none
- » Need for "physical" connection in order to enable traceable liability

» Examples:

- » "Software patents"
- » Business methods patents

Invention Requirement

- » Negative, not positive definition of invention in the EPC
 - » EPC: Computer programs and methods for doing business “as such” are not inventions → Not patentable
- » Interpretation by case law (not EU, but EPO case law!)
 - » EPO BoA: Invention implies a requirement of technical character → Computer programs and methods for doing business “as such” are not technical

"As such" Exclusions

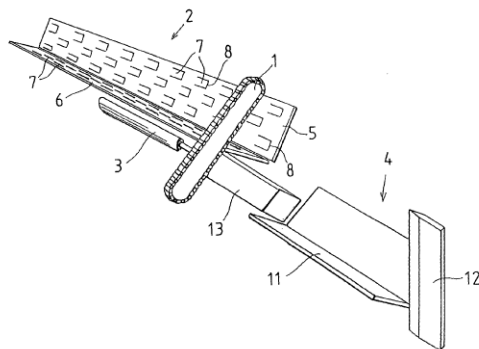


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- » "As such" = non technical
- » Problem: How to interpret "technical" for software/Buss. meth?

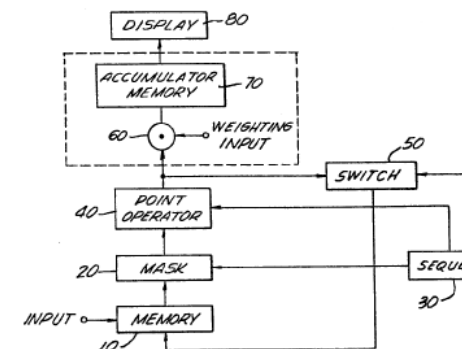
» Main challenges:

- » No geometrical representation
- » Components without physical implementation (*modules* having a structure)
- » Intangible final result



- A chopping machine for cutting and splitting a timber, said chopping machine comprising a crosscutting device (1) for cutting the timber, a feeder (2) for feeding the timber, a splitting apparatus (4) operated by a splitting cylinder (3) for splitting a block cut off the timber, said feeder comprising two elongated supporting surfaces (5,6) forming a substantially horizontal trough open in upward direction...

1. A method of digitally processing images in the form of a two-dimensional data array having elements arranged in rows and columns in which an operator matrix of a size substantially smaller than the size of the data array is convolved with the data array...
2. Apparatus for carrying out the method in Claim 1 including data input means (10) for receiving said data array, and said data array to generate an operator matrix for scanning said data array to generate the required convolution of the operator matrix and the data array, characterised in that there are provided feedback means (50) for transferring the output of the mask means (20) to the data input means, and control means (30) for causing the scanning and transferring of the output of the mask means (20) to the data input means to be repeated a predetermined number times.



”As such” - EPO Interpretations

- » 1985 Guidelines: amendment to take into account CII patentability on the grounds of **technical contribution**:
 - » “To be an invention, a CII must provide a technical contribution to the known arts” [T0208/84- *VICOM*]
- » Late 1990s: shift to **further technical effect**
 - » “To be patentable a CII must produce some further technical effects that go beyond the normal interaction between the program and the computer” [T1173/97 & T 0935/97- *Computer Programs Product/IBM*]
- » “Any hardware approach”: shift to **inventive step**
 - » “If the claim involves the use of some physical hardware (however mundane) the invention is deemed to have technical character” [T0931/95 - *Pension Benefits*, T0258/03 - *Hitachi*, T424/03 - *Microsoft Data transfer*]
 - » NB: **Comvik approach** for inventiveness!
- » Referral to Enlarged BoA - G03/8:
 - » Issue at stake: interpretation of Art. 52 (2) (3) EPC
 - » Answers:
 - » Procedurally not referable – no decision
 - » But in dicta – “Any hardware approach”

Exceptions

- » Rationale:
 - » Socio-economic considerations
 - » Need for a workable and repeatable technical solution in order to be subject of property relationship
- » Examples:
 - » Biotech patents
 - » Patents on Human Embryonic Stem Cells (hESC)

Biotech Patents - Sources

EPC

EU Directive 98/44/EC (Biotech Directive)

» Art. 53

- » Biotechnology is patent eligible (Art. 3).
- » Not patentable:
 - 1.1. plant and animal varieties (Art. 4)
 - 1.2. essentially biological processes for the production of plants or animals (Art. 4)
 - a. **But patentable if technical feasibility not confined to plant/animal variety**
 2. the human body cannot constitute patentable inventions. (Art. 5)
 - 2.1. **But an element isolated from the human body may be**
 4. Inventions where commercial exploitation would be contrary to *ordre public* or morality. In particular:
 - (a) processes for cloning human beings;
 - (b) processes for modifying the germ line genetic identity of human beings;
 - (c) **uses of human embryos for industrial or commercial purposes;**
 - (d) processes for modifying the genetic identity of animals which are likely to cause them suffering without any substantial medical benefit to man or animal, and also animals resulting from such processes. (Art. 6)
 - No discretion for MS; no exhaustive list



Invention vs Discovery

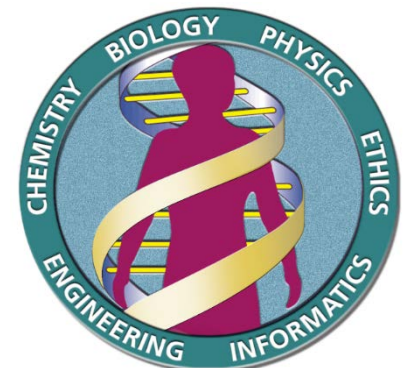
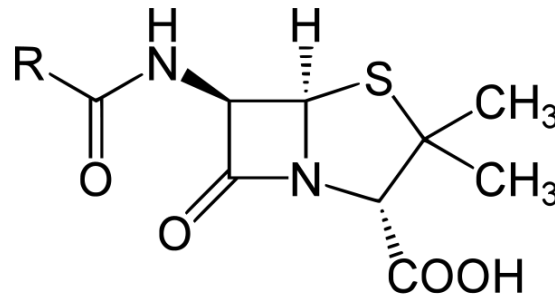
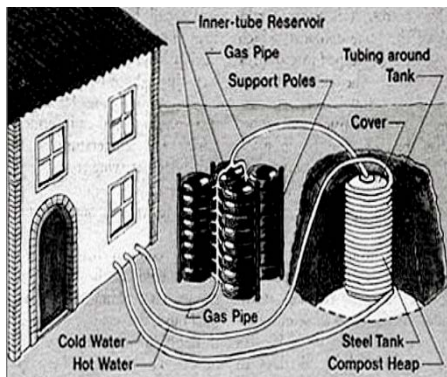


- » (Reminder from the Exclusions)
- » If a new property of a known material or article is found out, that is mere discovery and unpatentable because discovery as such has no technical effect and is therefore not an invention within the meaning of Art. 52(1). If, however, that property is put to practical use, then this constitutes an invention which may be patentable.
 - » Example : the discovery that a particular known material is able to withstand mechanical shock would not be patentable, but a railway sleeper made from that material could well be patentable.
- » To find a previously unrecognised substance occurring in nature is also mere discovery and therefore unpatentable. However, if a substance found in nature can be shown to produce a technical effect, it may be patentable.
 - » Example I: a substance occurring in nature which is found to have an antibiotic effect.
 - » Example II: if a microorganism is discovered to exist in nature and to produce an antibiotic, the microorganism itself may also be patentable as one aspect of the invention.
 - » Example II: a gene which is discovered to exist in nature may be patentable if a technical effect is revealed, e.g. its use in gene therapy.

(EPO Guidelines, Part G-II, Para 3.1)

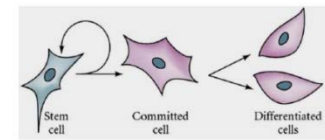
Biotech Examples – Patenting ‘Life’

- » ‘Dolly’, the cloned sheep (1997)
- » Human genome project (2003)
- » Genetically modified crops
- » Biofuel (1930s)
- » Penicillin (1928)
- » Use of yeast to make beer (6000 BC)

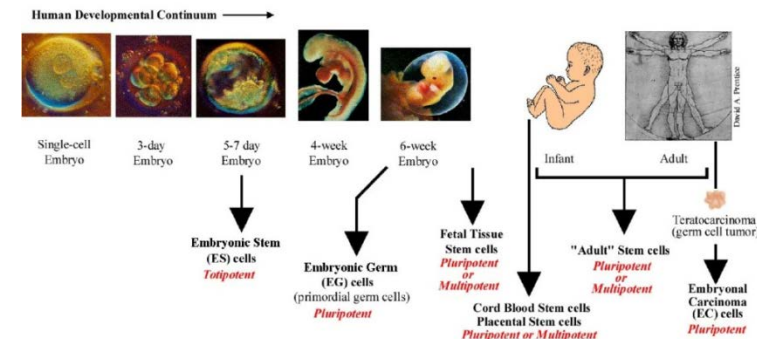


Morality – Patents on hESC

- » Embryonic Stem cells: are derived from embryos. Most embryonic stem cells are derived from embryos that develop from eggs that have been fertilized *in vitro* (not derived from eggs fertilized in a woman's body) and then donated for research purposes with informed consent of the donors
- » Moral concern: we must both use and destroy a human embryo (destroy a human life?) to produce valuable embryonic stem cells cultures. The ethical dilemma lies in between:
 - » The duty to prevent or alleviate suffering
 - » The duty to respect the value of human life
- » The moral status of the embryo is a controversial and complex issue. Several perspectives, e.g.:
 - » The embryo has full moral status from fertilization onwards;
 - » There is a cut-off point at 14 days after fertilization;
 - » The embryo has increasing status as it develops;
 - » The embryo has no moral status at all.



Stem Cells



EPO Decisions on Morality

» **”Edinburgh patent” Case**

- » Related to *animal* transgenic stem cells
- » Does ”human” include also ”animal” in the scientific taxonomy?
- » The OD of the EPO interpreted Art. 6 Biotech Dir. and the question broadly:
 - » Patent amended to exclude mention on human or animal embryonic stem cells
 - » ”not only commercial uses of human embryos *as such* are excluded from patentability, but also human embryonic stem cells *per se* are unpatentable”

» **WARF Case – ”Primate embryonic stem cells”**

- » Claim : A cell culture comprising primate embryonic stem cells [...] (i.e. stem cells products); a method for preparing embryonic stem cells from primate blastocysts
- » Refused by the Examining Division (June 2004) based on the Edinburgh patent reasoning (immorality); Applicant filed an appeal; In decision T1374/04 (November 2005) the Technical Board decided to refer questions of law to the Enlarged Board of Appeal
- » Decision of the Enlarged Board of Appeal (G2/06, 25.11.2008):
 - » Rule 28(c) EPC forbids the patenting of uses **and products** involving human embryos, including cells derived therefrom.
 - » Human stem cell cultures which at the filing date could be prepared exclusively by a method **which necessarily involved the destruction** of the human embryos **are not patentable.**

Case c-34/10 Brüstle



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Trial

- » Mr Brüstle had invented a way to produce, from embryonic stem cells, specialised cells for treating neurological diseases such as Parkinson's, starting with embryonic stem cells.
- » On application by *Greenpeace e.V.* the *Bundespapentgericht* (Federal Patent Court, Germany) ruled that the patent was invalid in so far as “it covers processes for obtaining precursor cells from human embryonic stem cells”
- » Brüstle appealed before the *Bundesgerichtshof* (BGH, Federal Court of Justice, Germany)
 - » BGH stayed the proceedings and sought for a preliminary ruling from the CJEU (C-34/10)

CJEU Decision

- » **Unpatentable invention**
- » **Question 1: What is meant by "human embryo" within the context of the Directive?**
 - » The concept of “human embryo” must be understood in a broad sense (*focus on “the potential to commence the process of development of a human being”*); this broad definition covers all currently available means to produce human Embryonic Stem Cells
- » **Question 2: What is meant by the expression 'uses of human embryos for industrial or commercial purposes'?**
 - » “The use of human embryos for purposes of scientific research which is the subject matter of a patent application cannot be distinguished from industrial and commercial use”
- » **Question 3: Patentability where the patent is silent on using human embryos but they are nevertheless required?**
 - » An invention is excluded from patentability where the implementation of the process requires either the prior destruction of human embryos or their prior use as base material (even if in the patent application the description of that process does not refer to the use of human embryos)

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Novelty in a Nutshell

- » The invention needs to be 'new' before the State grants a monopoly
- » *Quantitative* to what has been previously disclosed
- » Q: What are we comparing 'newness' against?
 - » How far back in time does one look?
 - » If something has not been seen in 100 years, is it new? What about 50? 25?
 - » What if it's never been described in writing, but by word of mouth or occasional use? What if 'few' people know about it?
 - » What about international use? Does this make it 'new' under for e.g. European (EPC) patent law?
 - » What if something similar is known? How is something substantially new?

EPC 54 - Novelty

- » “(1)An invention shall be considered to be new if it does not form part of the **state of the art**. (2) The state of the art shall be held to comprise **everything made available to the public** by means of a written or oral description, by use, or in any other way, before the date of filing of the European patent application [...]”

→ *Absolute (or universally) novelty*

- » Absence of novelty (not its presence)
- » No grace period for inventor’s pre-filing disclosures (except EPC Art. 55)
- » Relevant point of time: filing/priority date

Right of Priority

- » “Any person who has duly filed, in or for any State party to the Paris Convention for the Protection of Industrial Property or any Member of the World Trade Organization, an application for a patent, a utility model or a utility certificate, or his successor in title, shall enjoy, for the purpose of filing a European patent application in respect of the same invention, a right of priority during a period of twelve months from the date of filing of the first application.” [Art. 87 EPC]
- » The priority date is the effective date of filing for the purpose of examining novelty and inventive step
- » Requirement for validly claimed priority:
 - » Same applicant/legal successor
 - » Same inventions (in both applications)
 - » The prior application must be the first application in respect to that particular invention
 - » Subsequent application filed within 12 months from the first

State of the Art

- » “State of the art” should be understood as “state of technology” → only information relevant to a field of technology is included
- » Includes all information made available to the public anywhere in the world (universally), in any language, at any time before the date of filing/priority by means of
 - » Description (in writing or orally)
 - » Use (e.g. Experiments, offer for sale, exposition)
 - » Or any other way (e.g. Recording of videos, Internet)
- » Prior rights included
 - » Un-published (co-pending) patents (even though they are published on or after the filing date and thus the inventor would not know about them)
- » Strictly confidential and secret information (bound by a relationship of confidence) not included in state of the art

EPC 55 – Non prejudicial disclosures

- » 6-months grace period only in the specific cases mentioned
- » “(1) For the application of [Article 54](#), a disclosure of the invention shall not be taken into consideration if it occurred **no earlier than six months preceding the filing** of the European patent application and if it was due to, or in consequence of:
 - » (a) an **evident abuse in relation** to the applicant or his legal predecessor, or
 - » (b) the fact that the applicant or his legal predecessor has displayed the invention at an **official, or officially recognised, international exhibition** falling within the terms of the Convention on international exhibitions signed at Paris on 22 November 1928 and last revised on 30 November 1972.
- » (2) In the case of [paragraph 1\(b\)](#), paragraph 1 shall apply only if the applicant states, when filing the European patent application, that the invention has been so displayed and files a supporting certificate within the time limit and under the conditions laid down in the Implementing Regulations.”

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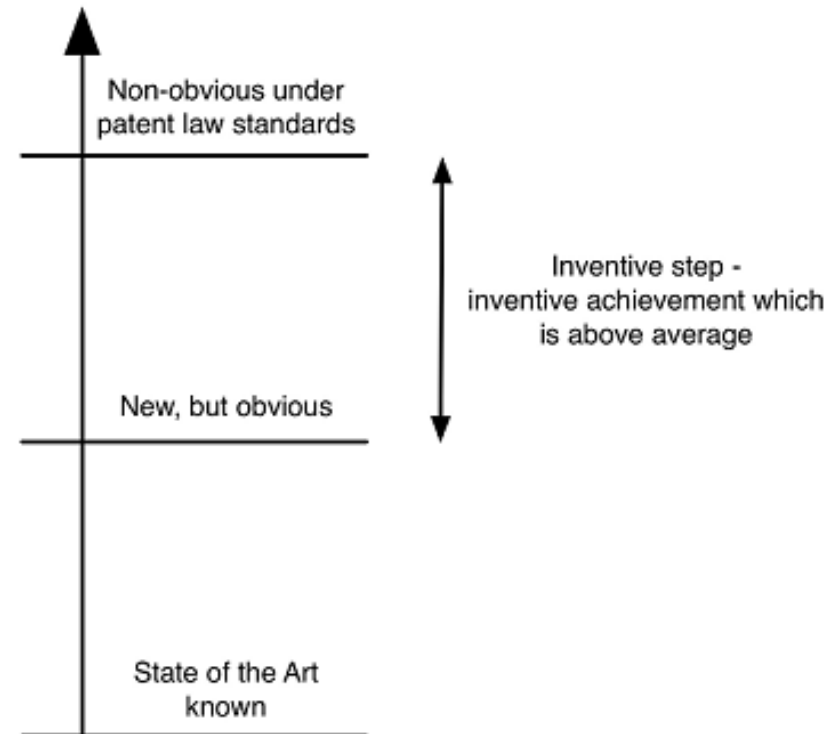
Inventive Step in a Nutshell

- » Inventive step/non-obviousness
- » The invention needs to be sufficiently 'inventive' before the State grants a monopoly
- » *Qualitative* different to what has been previously disclosed
 - » The extent of the patent monopoly should correspond to and be justified by the *technical contribution* to the state of the art, so that everything falling within a valid claim has to be inventive
- » Assessed after and separately from novelty
- » Q: How different should the invention be from the prior art? Would the invention have been obvious to a person having ordinary skills in the art (person skilled in the art - PSITA)? How much is the PSITA supposed to know?

EPC 56 – Inventive Step

- » “An invention shall be considered as involving an inventive step if, having regard to the state of the art, it is **not obvious to a person skilled in the art**. [...]”

Technical Development



- » Judicially constructed/artificial
- » May be a team of people
- » The PSITA is expected to know only the prior art. He/she has no knowledge of the invention as disclosed in the application
- » The PSITA “should be presumed to be a skilled practitioner in the relevant *technical* field who is possessed of average knowledge and ability with normal means and a capacity for routine work and is aware of what was common general knowledge in the art at the relevant date” (Guidelines for examination, Part C-IV, 11.3)
- » The PSITA is conservative, he/she is not creative and has no imagination (T 500/91)
- » The PSITA is bound by prejudices in his field and has no inventive capacity (T 455/91 & T 39/93)
 - » E.g. Textbooks and general technical literature are considered to form part of the PSITA’s common general knowledge, while the information that require a comprehensive search to be obtained is regarded as outside of such general knowledge

EPO Approach

- » Problem-and-Solution-Approach:
 - » 1) Identifying the closest prior art (i.e. the most relevant piece of prior art) and determining the difference(s) between the invention and the closest prior art;
 - » 2) determining the technical effect brought about by the difference(s), and that defines the objective technical problem (i.e., in the view of the closest prior art, the technical problem which the claimed invention addresses and solves → reasonable expectation of success, not hope for success);
 - » 3) examining whether or not the claimed solution to the objective technical problem would have been obvious for the skilled person in view of the state of the art in general.
 - » Could/Would approach: "the point is not whether the skilled person could have arrived at the invention by adapting or modifying the closest prior art, but whether he **would have done** so because the prior art incited him to do so in the hope of solving the objective technical problem or in expectation of some improvement or advantage" (Guidelines for examination)

- » [COMVIK Approach: Adapted version of the problem-solution approach for applications with claims comprising both technical and non-technical features (T 641/00 (COMVIK))]

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Industrial Applicability in a Nutshell

EPC, 57: "An invention shall be considered as susceptible of industrial application if it can be made or used in any kind of industry, including agriculture."

- » Wide interpretation
- » There must be notion of a market
- » The invention must be commercially and practically valuable
 - » Not abstract/intellectual creation
 - » It matters with theoretical inventions that cannot be commercialised
 - » Problems with chemistry, biotech and genetics
 - » Case C-493/12 *Eli Lilly and Company Ltd v Human Genome Sciences Inc.*

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Disclosure in a Nutshell

- » Need to be sufficient disclosure for the patentee to deserve the monopoly
- » Patents as social contracts: monopoly vs disclosure
- » Q: how much needs to be disclosed?

- » [Reminder: the patent document is composed by two parts – the description and the claims]

- » Art. 83: “The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art” → *Sufficiency requirement*
- » Art. 84 EPC: “The claims shall define the matter for which protection is sought. They shall be clear and concise and be supported by the description” → *The description must support the claims*
- » No “Best mode” requirement (cf. U.S.)
- » Possible problems with chemistry, biological inventions and genetics