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Exclusions from Patentability
Software-related Inventions

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Legal background

Article 52 EPC

(1) European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.

(2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
   (a) discoveries, scientific theories and mathematical methods;
   (b) aesthetic creations;
   (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
   (d) presentation of information.

(3) The provisions of paragraph 2 shall exclude patentability...only to the extent to which a European patent application...relates to such subject-matter or activities as such.
Overview

Technical Character:

Is there an invention?

Technical Contribution:

Is there a contribution in a technical field? Is there an inventive step?
Boards of Appeal case law: Art. 52(2) EPC lists non-technical matter

- Convincing: Science, Art, Human Behaviour, Business...
- Less Convincing: Computer programs

This defines non-inventions as non-technical

- European tradition in patent law, Rules 27, 29, 30 EPC

Inventions must have technical character

Primary indications of technical character

- Technical field (Rule 27(1) a) EPC)
- Technical problem (Rule 27(1) c) EPC)
- Technical features (Rules 29(1) and 30(1) EPC)
Technical character

싱< Yes or No? ⊗

⊙ An aesthetically pleasing design
⊙ A method for manufacturing a product with this pattern
⊙ A method of time series prediction
⊙ Such a predictor used in controlling a power plant
⊙ A new mother wavelet function
⊙ A new mother wavelet function in speech compression
⊙ A classifier
⊙ A classifier used to recognise faces
⊙ The wave theory of light
⊙ Optical pattern recognition
Computer Program Product (T1173/97 and T935/97)

The EPC requires a distinction

- Computer programs are not generally allowed (Art. 52(2)c EPC)
- ... but also are not excluded from patentability under all circumstances (only "as such", Art. 52(3) EPC)

Decisive criterion: "technical character"

- Computer programs do not automatically have technical character by the mere fact that program execution requires and affects electric currents
- A "further" technical effect beyond the basic electronical interactions must be claimed

The mere mention of computer programs in a claim doesn't hurt but doesn't help either
Case law (Boards of Appeal) has developed several indications of technical character:

**A further technical effect is established if the computer program ...**

... controls a working or manufacturing process

- An X-ray device (T26/86)
- Computer tomographic equipment etc.
Indications of technical character

...if the computer program acts on **physical data** such as

- data representing an image (T208/84)
- control values (T110/90)
- a TV signal (T163/85)

**Not physical data** are

- abstract numbers/symbols (time series prediction, formula design)
- money, business data (T1053/98)
- text (T0121/85, T22/85)
Indications of technical character

... if the computer program affects the way the computer operates

- Operating systems, Database management (T6/83)
- File organization and user interfaces (T769/92)
- Saves memory/Increases speed (T107/87)

... or has a structure involving technical considerations (T769/92)

- Technical necessities influence non-technical matter
- Selection of claimed non-technical features requires technical knowledge and anticipates technical realisation
Technical Character: Yes or No?

- A computer program for enabling a financial transaction
- A computer program for realising a game
- A computer program for evaluating a mathematical function

- A distributed system architecture supporting the transaction
- A user interface enabling a new manual game control
- A space-efficient data structure for representing the function
- A dedicated data structure enabling a technical method
  (T1194/97)
Technical character - Technical contribution

**Technical character** is required for any invention (Art. 52(2) EPC). Technical character is determined *without having regard to prior art documents* only from the presence of (further) technical effects/considerations.

**Technical contribution** relates to those technical effects the claimed subject-matter provides over the state of the art. Lack of technical contribution implies that there is no inventive step within the meaning of Article 56 EPC.
Technical character of claimed invention is checked

- No technical character $\rightarrow$ No invention according to Article 52(1) EPC
- Otherwise:

Examination on **Novelty** and **Inventive step**

- Determination of the **technical contribution**
- If it exists: Examination of the inventive step via the "problem and solution approach"
The problem and solution approach

- Determination of the closest prior art
- Determination of the difference in technical effect of the claimed invention compared to this prior art
- Formulation of the objective technical problem. "How to achieve the effect (differently)?"
- Would the solution of the technical problem be obvious to the skilled person given the state of the art?
Is there a priori a technical effect?

- yes
  - are all features known in combination from prior art?
    - yes: lack of novelty, Art. 54 EPC
    - no: no technical contribution, lack of inventive step (T931/95)

- no: no technical character, excluded under Art. 52(2),(3) EPC

Determination of the closest prior art

difference over the prior art

Formulation of the Technical Problem

a technical effect arising from problem/solution?

- yes: is the solution of the technical problem obvious?
  - yes: invention is novel and inventive: further EPC reg. to be verified
  - no: lack of inventive step (Art. 56 EPC)

- no: no technical contribution, lack of inventive step (T931/95)
Technical contribution

Technical contribution: Yes or No?

A lampshade with a new pattern printed on it

- A specific pattern could be pure art but could also be designed to change overall lighting conditions

A squash ball coloured in a particular shade of blue

- A specific colour may represent an aesthetic creation or be chosen for its perceptive value
Technical effect

- Attribution of a technical effect - and hence patentability - may not be intrinsic to the claimed entity...
- ... but may rely entirely on the description!

- Technical effect must consciously brought about to solve a technical problem
- Technical effect and technical problem must be clearly described
Description and technical contribution

Description mentions technical and non-technical effects
- Mathematical method "useful for forecasting the weather and predicting stock values"; "Formula can be used in technical field X" (but typically used in economics; eg. game theory); Pattern "useful for its aesthetic value or for a variety of technical effects".

If possible, limit to technical application
- The mathematics/pattern per se is not technical
- Is the suggested technical application sufficiently supported/disclosed?
- Claims are to be limited and description is to be amended

What if no technical application is described at all?
- Assumptions about "typical" application. Suffice? (eg. classifiers being commonly used in pattern recognition; cf. neural networks)
Mixture of technical and non-technical features

Questions:
- What is the invention? (ie, what contributes the technical character?)
- What is the technical problem? (ie, what is given, what is sought?)
- Who is the skilled person?

Decisions:
- T26/86
- T931/95
- T641/00
... on technical character

**Methods** only involving economic concepts and practice of doing business (lack technical character and hence) are not inventions according to the EPC. The use of technical (e.g. computing) means in some of the method steps does not confer technical character to the claimed method.

An **apparatus** constituting a physical entity or concrete product suitable for performing or supporting an economic activity is (technical and hence) an invention according to the EPC.

Inventions must have a technical character which is determined a priori. Inventions must show a technical contribution over the prior art in a field not excluded from patentability.
Pension Benefit System T931/95

... on technical contribution

- Closest prior art was a pension plan described in the application (no document)
- Improvement envisaged by the invention is an essentially economic one and hence cannot contribute to inventive step
- Person skilled in the art is an application programmer, having knowledge of the concept and structure of the improved pension benefit system etc.
  **The fiction of prior knowledge**
- The technical features do not show an inventive step
Problem and Solution Approach

- Find the **technically** closest prior art

- Determine the difference in technical effect of the claimed invention compared to this prior art

- Objective technical problem:
  "How to achieve the effect (differently?)" assuming given the features not contributing to technical character (viz. "non-technical features")

- Would the problem and its solution be obvious to the person of **technical** skill, given the state of the art?
Thank you for your attention

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