Patent Protection for Computer Software in Europe

Current Legislation & Implications in practice

Dr. Ralph Nack
Software patents –
    a very controversial topic

The Basics

Copyright protects authors but doesn't hurt any honest person. Patents, in contrast, are 20-year monopolies that the government grants on broad and general ideas. Patents are potential weapons against all of us.

Click here if you don't know what a patent is, or to refresh your memory.

Software developers are perfectly protected without patents. Everyone who writes a computer program automatically owns the copyright in it. It's copyright law that made Microsoft, Oracle, SAP and the entire software industry so very big. It's the same legal concept that also protects books, music, movies, paintings, even architecture.

Many of the world's richest people owe their wealth to copyright law. Some examples are: Bill Gates, Paul Allen and Steve Balmer (Microsoft), Larry
Software patents –
 a very controversial topic
Software patents – a very controversial topic
Outline

■ What is a “software patent”? 
■ Differences between copyright and patent protection for computer software 
■ Is software always patentable? 
  – Analyzing Statutory Provisions: Legal background of the controversy 
  – Case Law Analysis 
■ Looking behind the scenes: economic background of the controversy 
■ Conclusions
What is a “software patent”? 

“Software invention” is a very broad term:
- In theory, software can perform any task
- Consequence: A “software invention” can be in any field of human endeavor
- E.g.: adventure game vs. automated sales control vs. operating system
What is a “software patent”?

- Elements of a Patent:
  - Written description
  - Drawings
  - Claims

- The claims actually define the scope of protection

- Description/drawings explain the claims
What is a “software patent”? 

- EP 0 216 931 (expired)
  - Title: “Image Rotating System”
  - Owner: Mitsubishi

- Problem: Rotating a graphical object, in particular on a screen.

- Rotating objects involves complex computations.

- How to make these computations more efficient?
What is a “software patent”?

Claims

1. A system for rotating an image by an arbitrary angle comprising: an image memory for storing two-dimensional image data (121); a transformation angle determining section (111) for determining both a skew angle (θx) in a horizontal direction and a skew angle (θy) in a vertical direction of the original two-dimensional image data stored in said image memory, based on a desired rotation angle (θ); a first X-axis skew transformation section (112) for obtaining second two-dimensional image data (122) which results from skewing first two-dimensional image data stored in said image memory as the original two-dimensional image data in a horizontal direction by the angle as determined by said transformation angle determining section; a first Y-axis skew transformation section (113) for obtaining third two-dimensional image data (123) which results from skewing said second two-dimensional image data in a vertical direction by the angle as determined by said transformation angle determining section; and a second X-axis skew transformation section (114) for obtaining fourth two-dimensional image data (124) which results from skewing said third two-dimensional image data in a horizontal direction once again by the angle as determined by said transformation angle determining section (111);

wherein the skew transformation for implementing the rotation processing is performed with skew transformation matrices represented by the following equations:

\[
\begin{align*}
\xi_1 &= \begin{pmatrix}
1 & -\tan\theta/2 \\
0 & 1
\end{pmatrix} \\
\xi_2 &= \begin{pmatrix}
1 & 0 \\
\sin\theta & 1
\end{pmatrix}
\end{align*}
\]

and

\[
\begin{align*}
\theta_x &= \theta/2 \\
\theta_y &= \arctan(\sin\theta).
\end{align*}
\]

■ Software may be claimed as
   – a process,
   – a system,
   – a machine,
   – a signal, or
   – a data carrier.

■ In the claim, the software is described by its **function**, not by source or object code.

■ The respective **function** is protected by the patent.
Difference between copyright/patent protection for computer software

- Protection of the algorithm (functional elements) vs. protection of the expression (source code and object code)
- Protection against independent developments
- Duration of protection
- Possible advantages/disadvantages of patent protection for computer programs
Analyzing Statutory Provisions:
Art. 52 EPC

- Article 52 (1) EPC
  - Inventions in a field of technology which are
  - new,
  - involve an inventive step,
  - and are susceptible for industrial application

- Article 52 (2) (c), (3) EPC
  - Business methods and computer programs “as such” are excluded from patentability
Analyzing Statutory Provisions:
Application of Art. 52 (1) EPC

Are software inventions “inventions in a field of technology” (Art. 52 [1] EPC)?:

- Literal meaning of “invention” is very broad
- Literal meaning of “technology” is very broad ("means for a purpose")
- **Problem:** Which areas of technology are covered by Patent Law?
- G 03/08: “We do not attempt to define the term “technical”.”
Analyzing Statutory Provisions:
Application of Art. 52 (2) (c), (3) EPC

- Exclusion of computer programs/business methods “as such”:
  - Courts are very reluctant to apply/explain this provision
  - The wording “as such” is very ambiguous; no reasonable interpretation possible
  - Legal history: “as such” means “narrow interpretation”
Old Case Law regarding Art. 52 EPC

- Only “technical” inventions are patentable, Art. 52 (1) EPC. But: When is an invention deemed to be “technical”?
  - The “core theory”: The invention must show new physical elements; an improved software element is not sufficient
  - The “whole content approach”: The invention is patentable, if a physical element is mentioned in the claim
  - Inconsistent approaches!
Analysis of T 931/95, 
*Pension Benefits System/ PBS Partnership*

- There is no basis in the EPC for distinguishing between "new features" of an invention and features of that invention which are known from the prior art when examining whether the invention concerned may be considered to be an invention within the meaning of Article 52(1) EPC. Thus there is no basis in the EPC for applying this so-called contribution approach for this purpose.

- The facts and arguments necessary for deciding on inventive step have been produced in the proceedings before the first instance in the context of the "contribution" approach as applied by the examining division in order to decide that the invention as claimed did not constitute an invention within the meaning of Article 52(1). This approach is so very closely related to examination with regard to the requirement of inventive step that the examining division decided in fact implicitly that there was lack of inventive step under Article 56 EPC.
Analysis of T 931/95,  
_Pension Benefits System/ PBS Partnership_

- In the decision under appeal the closest prior art is identified as the "existing private pension plans" described in the application. The decision furthermore explains that it would not be possible to understand from the application any technical problem or contribution provided by the claimed subject-matter to the prior art.

- Indeed, the improvement envisaged by the invention according to the application is an essentially economic one, i.e., lies in the field of economy, which, therefore, cannot contribute to inventive step.

- The assessment of inventive step has thus to be carried out from the point of view of a software developer or application programmer, as the appropriate person skilled in the art, having the knowledge of the concept and structure of the improved pension benefits system and of the underlying schemes of information processing as set out for example in the present method claims.
Analysis of T 931/95, 
*Pension Benefits System/ PBS Partnership*

**Summary:**
- Art. 52 (1, 2) EPC is not a substantial limitation of patentability;
- EPC 2000 Examination Guidelines:
  - “prima facie test” for Art. 52 (1, 2); there must be a “further technical effect”, which however may be known in the prior art
  - This is a merely a claim drafting issue, no substantial limitation of patentability.
  - Or: “technical considerations necessary” to achieve the invention (T 769/92)
- However: New interpretation of the Inventive Step Requirement, Art. 56 EPC: There must be a “technical” contribution to the state of the art (same as EPC 2000 Examination Guidelines)!
  - Only “technical” features of the invention can contribute to the inventive step
  - All “non technical” features of the invention are assumed to be within the prior art
Analysis of T 641/00,
Two identities/ COMVIK

- It is legitimate to have a mix of technical and "non-technical" features (i.e. features relating to non-inventions within the meaning of Article 52(2) EPC) appearing in a claim, even if the non-technical features should form a dominating part.
- It follows that the Board, although allowing a mix of technical and non-technical features to be claimed, considered the technical part of the invention as the basis for assessing inventive step.
- Further, where a feature cannot be considered as contributing to the solution of any technical problem by providing a technical effect it has no significance for the purpose of assessing inventive step.
- Finally, the identification of the skilled person may also need careful consideration. The skilled person will be an expert in a technical field. If the technical problem is concerned with a computer implementation of a business, actuarial or accountancy system, the skilled person will be someone skilled in data processing, and not merely a businessman, actuary or accountant.
Analysis of T 641/00,
Two identities/ COMVIK

- **Summary:**
  - Art. 52 (1, 2) EPC is not a substantial limitation of patentability.
  - However: New interpretation of the Inventive Step Requirement, Art. 56 EPC: There must be a “technical” contribution to the state of the art!
Analysis of T 258/03,  
*Auction Method/HITACHI*

- *A method involving technical means is an invention within the meaning of Article 52(1) EPC*
- *Method steps consisting of modifications to a business scheme and aimed at circumventing a technical problem rather than solving it by technical means cannot contribute to the technical character of the subject-matter claimed*
Analysis of T 258/03,
*Auction Method/HITACHI*

- **Summary:**
  - Art. 52 (1, 2) EPC is not a substantial limitation of patentability.
  - EPC 2000 Examination Guidelines: Requirement of a “further technical effect”
    - Mere claim drafting issue, no substantial limitation of patentability
  - However: New interpretation of the *Inventive Step Requirement*, Art. 56 EPC: There must be a “technical” contribution to the state of the art!
Analysis of G 03/08,
*Referral pursuant Article 112 (1) (b) EPC*

- Article 52 EPC, discussion of the “further technical effect” requirement set forth in some old TBA decisions:
  - “technical effect” = *an effect which goes beyond the “normal” physical interactions between the program (software) and the computer (hardware) on which it runs*
  - However, the “further technical effect” does **NOT** need to be new
    - “*By taking this position the Board [TBA in T 1173/97 – Computer Program Product/IBM] consciously abandoned the so-called ‘contribution approach’.*”
    - “*Suppose a patent application claims a cup carrying a certain picture (e.g. a company logo). (...) According to this view a claim to a cup is clearly not excluded from patentability by Article 52 (2) EPC.*”
    - “*The present position of the case law is thus that a claim in the area of computer programs can avoid exclusion under Articles 52(2)(c) and (3) EPC merely by explicitly mentioning the use of a computer or a computer-readable storage medium.*”
  - Consequently, the “further technical effect” requirement is **not a material limitation of the scope of patentable subject matter**, but rather a (questionable) claim drafting issue.
Analysis of G 03/08,
Referral pursuant Article 112 (1) (b) EPC

- Article 56 EPC: Modified inventive step requirement
  - “It is also quite clear from the case law of the Boards of Appeal since T 1173/97 that if a claim to program X falls under the exclusion of Articles 52(2) and (3) EPC, a claim which specifies no more than "Program X on a computer-readable storage medium," or "A method of operating a computer according to program X," will always still fail to be patentable for lack of an inventive step under Articles 52(1) and 56 EPC. Merely the EPC article applied is different.
  - While the Enlarged Board is aware that this rejection for lack of an inventive step rather than exclusion under Article 52(2) EPC is in some way distasteful to many people, it is the approach which has been consistently developed since T 1173/97 and since no divergences from that development have been identified in the referral we consider it not to be the function of the Enlarged Board in this Opinion to overturn it.”
Conclusion

■ “Actual Contribution Approach”:
  – A software invention is patentable, if there is an achievement in the field of technology.
  – Therefore:
    - Do not ask: “Is ‘software’ patentable?”
    - But rather ask: “Is THIS software patentable?”

■ But: What is “technology” in terms of patent law?
  – More about this in Part II after the coffee break!
Practical consequences?

- Let's re-draft article 52 EPC!
  - Suggestion: “European patents shall be granted contributions (inventions) which are new, which involve an inventive step, which are susceptible of industrial application, and which are in the field of technology.”
Economic background of the controversy

- Two competing business models:
  - Proprietary business model
  - “Open Source” or GNU business model
- Against software patents: “Open Source” or GNU business model
- Pro software patents: Proprietary business model
Economic background of the controversy

- The proprietary business model:
  - The manufacturer of the software seeks patent protection for specific functions of the software.
  - The manufacturer licenses its patents to the customer for the use of the respective software.
  - The physical copies of the software are distributed together with the license.
  - The manufacturer indemnifies the customer with respect to third party’s rights.
  - License fees = revenue of the manufacturer
    - Revenues are made on the “primary market”.
Economic background of the controversy

- The Open Source business model:
  - “When we speak of free software, we are referring to freedom, not price.” (Preamble of the GNU License)
  - Companies charge for the development of the software and/or the distribution of physical copies of the software and/or other software related services (like server administration).
  - The manufacturers usually do not indemnify the customer with respect to third party’s rights.
  - Charges for software related services etc. = revenue of the companies
    - Revenues are made on the “secondary market”.
Contact

Dr. Ralph Nack
Rechtsanwalt
Munich

+49-(0) 89-28 628-163
Ralph.Nack@noerr.com