

G 1/19

The decision and take-home messages
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Agenda

- The referring decision - T 489/14
- The Enlarged Board's analysis in G 1/19
- Take-home messages

Background

Article 52(2) & (3) EPC

The following in particular shall not be regarded as inventions within the meaning of paragraph 1:

(...)

(c) schemes, rules and methods for performing **mental acts**, playing games or doing business, and **programs for computers**;

(...)

(3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein **only to the extent** to which a European patent application or European patent relates to such subject-matter or activities **as such**.

The exemption to the exemption

- Claims directed to a **computer-implemented** method or a **device cannot be objected to** under Article 52(2) and (3) EPC
 - any method involving the use of a computer and any computer have technical character and thus represent inventions in the sense of Article 52(1) EPC (G 3/08)
- Thus, the real hurdle is inventive step

Inventive step for computer-implemented inventions: COMVIK T 641/00

- Features that cannot be considered as contributing to the solution of any technical problem by providing a technical effect have no significance for the purpose of assessing inventive step
- Phrased differently:
 - non-technical features are at best disregarded in the assessment of inventive step;
 - where the claim refers to an aim to be achieved in a non-technical field, this aim may legitimately appear in the formulation of the objective technical problem

The referring decision – T 489/14 (EP 1 546 948) (I/IV)

A computer-implemented method of modelling pedestrian crowd movement in an environment...
simulating movement of a plurality of pedestrians through the environment...
providing a provisional path...
determining a dissatisfaction function(...) and a frustration function...
identifying obstructions...
determining whether [a] preferred step is feasible...



Main purpose: designing a venue such as a railway station or stadium

- Create or import an architectural venue design in CAD system
- Specify the constituents of a pedestrian population
- Perform a number of simulations of pedestrian flows which the designer can specify at high level (based, e.g., on entrances, exits and flow rate)

T 489/14 (II / IV)

- Without the feature “computer-implemented”, the scope of claim 1 encompasses methods for performing mental acts as such
 - If its implementation on a computer were to be considered the only technical aspect of the claimed method, the conclusion would be that the method lacks inventive step over a known general-purpose computer
 - Using a computer to calculate the trajectories of hypothetical pedestrians as they move through a modelled environment may not bring about a result in any way different from using a computer to perform any other type of calculation
 - Clear-cut case?
- No because of T 1227/05

T 489/14 (III / IV)

- T 1227/05:
 - The numerical simulation of a noise-affected circuit was considered a functional technical feature
 - Simulation ideally allows a designed circuit to be developed so accurately that a prototype's chances of success can be assessed before it is built
- By analogy, the pedestrian simulation method can be used to predict the performance of a designed environment
- The Board was not fully convinced by the decision's reasoning:
 - The cognitive process of theoretically verifying the design appeared to be fundamentally non-technical
 - Any algorithmically specified procedure that can be carried out mentally can be carried out more quickly on a computer

T 489/14 (IV/IV)

- The Board intended to deviate from the interpretation and explanations of the EPC given in decision T 1227/05
- The uniform application of the law was at issue

Questions referred

1. In the assessment of inventive step, can the computer implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such?
2. If the answer to the first question is yes, what are the relevant criteria for assessing whether a computer implemented simulation claimed as such solves a technical problem? In particular, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?
3. What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design?

Questions accepted

1. In the assessment of inventive step, can the computer implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such?
2. ~~If the answer to the first question is yes, what are the relevant criteria for assessing whether a computer implemented simulation claimed as such solves a technical problem? In particular~~For the assessment of whether a computer-implemented simulation claimed as such solves a technical problem, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?
3. What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design?

The answers I

1. In the assessment of inventive step, can the computer implemented simulation of a technical system or process solve a technical problem by producing a technical effect which goes beyond the simulation's implementation on a computer, if the computer-implemented simulation is claimed as such?

A computer-implemented simulation of a technical system or process that is claimed as such can, for the purpose of assessing inventive step, solve a technical problem by producing a technical effect going beyond the simulation's implementation on a computer.

The answers II

2. For the assessment of whether a computer-implemented simulation claimed as such solves a technical problem, is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process?

For that assessment it is not a sufficient condition that the simulation is based, in whole or in part, on technical principles underlying the simulated system or process.

The answers III

3. What are the answers to the first and second questions if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design?

The answers to the first and second questions are no different if the computer-implemented simulation is claimed as part of a design process, in particular for verifying a design.

How did we get there?

- The decision was reached taking into consideration
 - 23 *Amicus curiae* briefs
 - Legal background
 - Computer-implemented inventions as eligible subject matter
 - Inventive step of computer-implemented inventions; COMVIK approach
 - G 3/08 (the opinion that never was...): establishment that mental acts may involve technical considerations...

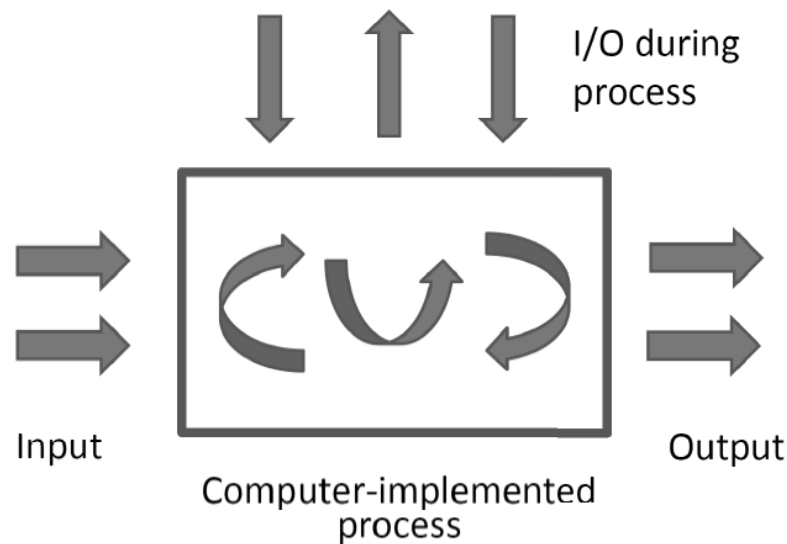
Two-hurdle approach

- A claim to a computer-implemented invention must involve at least one technical feature to avoid being a non-invention; inventive step of the claim is assessed based on an analysis of the features in the claim that "contribute to a technical solution to a technical problem".
- Third intermediate hurdle/step: to assess inventive step, each feature in the claim is analysed to determine whether it contributes to the technical character of the claimed invention.
 - The claim language is "filtered" to exclude in the analysis those features that do not contribute to the technical character.

The important findings in the decision

- Broad definition of “technicality” accepted – turning point is the technical contribution derived from the invention
- A feature considered technical *per se* does not necessarily contribute to the technical character of the invention; on the other hand a non-technical feature can contribute
- A technical contribution derived from a further use of the outcome of the simulation has to be implicitly or explicitly specified in the claim
 - Relevant for the T 1227/05 case...
- The features making the technical contribution have to do it over the entire scope of the claim

Where can the technical effect exist in a simulation



Arrows show interactions that are not abstract data input, output or transfer: Input can e.g. be a measurement and output can be a control signal and I/O can be both. The internal arrows can represent adaptations of the computer (allocation of storage space, prioritization of computations, etc).

Conclusion is that input and output always constitute data, but that a link to physical reality cannot be a prerequisite: technicality must be interpreted broadly

Leading to the answers

- The evaluation of inventive step can include non-technical features if these contribute to a technical character – for instance in the ultimate use of the result of the simulation or if they require that the computer or its function is adapted.
- Consequently, a simulation process can be inventive due to effects beyond the process as such (Answer 1)
- Not stated in Answer 2: it is neither sufficient, nor necessary, that the simulation is based on technical principles the underlie the simulated system.
 - Indirect criticism of T 1227/05: not relevant that the simulated system is itself technical
 - But: T 1227/05 is OK, because the simulation possessed a technical function

What have we learned?

- Most important lesson: the notion of “a technical feature” in a patent claim must be interpreted broadly to mean a feature, which provides a technical contribution. The feature need not be technical as such.
- Not stated in the answers:
 - The inventive step must be derived from a technical character that applies to the entire scope of the claimed subject matter
 - Any technical character beyond the claimed process has to be at least implicitly specified in the claim

What happens to the pedestrian simulation case?

- Preliminary opinion of TBoA dated 4 May 2021
 - G 1/19 provides that calculated numerical data reflecting the physical behaviour of a system modelled in a computer cannot establish the technical character of an invention in accordance with the COMVIK approach
 - The data produced by the claimed method, which reflects the behaviour of a crowd moving through an environment, does not contribute to a technical effect for the purpose of assessing inventive step
 - Non-technical uses are envisaged by the Board, e.g. games
 - Not inventive
- Oral proceedings on 26 November 2021

Thank you for your attention
Questions welcome!