



FÉDÉRATION INTERNATIONALE DES CONSEILS
EN PROPRIÉTÉ INTELLECTUELLE

INTERNATIONAL FEDERATION OF
INTELLECTUAL PROPERTY ATTORNEYS

INTERNATIONALE FÖDERATION
VON PATENTANWÄLTEN

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RE \\\ FICPI submission of written statement for consideration with case G 1/19, before the Enlarged Board of Appeal

Dear Mr. Crasborn,

In accordance with Article 10 of the Rules of Procedure of the Enlarged Board of Appeal, FICPI, the International Federation of Intellectual Property Attorneys, respectfully submits the attached written statement for consideration with respect to case G 1/19 before the Board of Appeal.

Yours sincerely,

Roberto Pistolesi
Secretary General

Enc.



Written statement for case G 1/19 before the Enlarged Board of Appeal

30 August 2019

Founded over 100 years ago, **FICPI** is the international representative association for IP attorneys in private practice throughout the world, with about 5,500 members in 86 countries and regions, including European patent attorneys, national patent attorneys and patent agents in all EPC contracting and extension states.

FICPI aims to study all administrative or legislative reforms and all improvements to international treaties and conventions, with the object of facilitating the exercise by inventors and IP owners of their rights, of increasing their security, and of simplifying procedure or formalities.

In pursuance of this aim, **FICPI** strives to offer well balanced opinions on proposed international, regional and national legislation based on its members' experience with a great diversity of clients having a wide range of different levels of knowledge, experience and business needs of the IP system.

FICPI is pleased to have the opportunity to provide this written statement in accordance with Article 10 of the Rules of Procedure of the Enlarged Board of Appeal for case G 1/19.

I. Summary

FICPI's view is that the decisive question when determining whether a simulation contributes to the technical character of a claim or not should not be whether the concept of "simulation" as such is technical, but rather what is the context of the actual simulation and what the simulation contributes in the context in question. If a sufficiently well-defined simulation step contributes to a reproducible and useful technical effect in the particular context in which it is claimed, the simulation step should be considered to be a technical feature. This determination should not be made solely on the basis of whether the simulation step itself or the claim has any direct connection to the real world or if it could theoretically be performed in the mind of a human being. Hence, it is not a necessary condition that the simulation should be based, at least in part, on technical principles underlying the simulated system or process.

II. Case G 1/19

Case G 1/19, being based on T 0489/14, broadly relates to computer-implemented simulations of systems and processes and the technicality of such simulations.



1. The referred case

T 0489/14 is an appeal against the refusal of European patent application No. 03793825.5, with claims directed to a computer-implemented simulation of an agent moving through an environment as well as to a method of designing a building comprising such a simulation step.

The Examining Division refused the application on the ground of lack of inventive step, basically owing to a finding of lack of technical character of the simulation step.

The Board of Appeal acknowledged the existence of previous case law (such as T 1227/05) finding that simulations of technical systems can have technical character. At the same time, the Board of Appeal expressed doubts about this and came to the conclusion that it was inclined to go against this previous jurisprudence in the present case.

2. Referred questions

The following questions were referred to the Enlarged Board of Appeal:

- 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?*

III. FICPI's comments

1. Background and legal framework

A "simulation" may be defined as an imitation of a system or process based on a defined model of the system or process. Computer-implemented simulations are typically based on numerical model definitions and numerical calculations and may take place entirely in a computer, including both the model definition itself and the results produced by the simulation. Hence, such simulations need not *per se* interact with physical reality in any way, apart from the electrical currents generated in the computer's circuitry.

Simulations may be used to investigate the behaviour of physical systems or processes in the absence of an actual physical instantiation of the system or process in question. Since producing such a physical embodiment may be costly in terms of physical resources, time and so on, a simulation may be an efficient alternative.



Furthermore, simulations may allow the investigation of properties of systems or processes on massive scales, in ways that are not practically feasible to perform in physical reality. For instance, the statistical behaviour of a system or process can be evaluated using a large set of different initial and boundary conditions.

Simulations also have great value in investigating, in particular optimizing, the behaviour of a technical/physical system as well as the interaction between humans and the system in question under conditions that can hardly or not at all be investigated in an actual physical installation, since it would result in the destruction of the system and/or even be dangerous. Examples are the operation of a system beyond the specified design limits or in hazardous situations, such as in the event of an accident, fire or the like.

However, in FICPI's view, the use of simulations may have even broader applicability. For instance, a computer game can be seen as a simulation of a purely virtual system (the game world). In other instances, simulations may be used in relation to a physical system or process but with the purpose of determining information for use strictly outside of the simulated system or process. For example, qualitative or quantitative parameter values may be calculated with respect to a particular system based on a simulation of the system in question and then used for evaluation or monitoring purposes.

In recent years, the use of simulations in product design, manufacturing, testing and verification has increased. Also, virtual systems are becoming increasingly common in many fields of technology. Today, for many engineers, the use of computer tools performing different types of simulations is standard. For instance, in physics modelling systems and augmented reality tools, simulation may be used as a building block.

In parallel to this development, the work of many engineers today relates to systems that are purely digital without any direct connections to physical reality. In other words, both the input to such a system, the internal processing of the system and any output from the system may be only information.

Hence, simulations may interact with physical reality in different ways or may completely lack any such interactions.

To this end, one important question is whether or not an effect of a claimed solution must relate to the real world in order to have a technical effect and therefore contribute to the technical character of the solution.

It is noted that a single feature of a claim that contributes to a technical effect has been considered to provide technical character to the whole claim such that the claimed subject-matter may be regarded as an invention according to Article 52 EPC (T 258/03). In inventive step analysis under Article 56 EPC, however, this is often less relevant, since any feature that is not technical as such, or that fails to interact with technical features to contribute to a technical effect, is ignored. As a result, in practice it is often relevant on a feature-by-feature level if a feature in question is technical or not. Specifically, the question whether an individual feature or set of features must affect the real world to be technical is important. However, the discussion in G 3/08, reasons 12.3, seems to indicate that such a "real world effect" may actually not be a necessary condition for a technical effect to be present.



Another important aspect is whether or not a method can be performed in the mind of a person and thus be excepted from patentability under Article 52(2)(c) EPC. One may argue that any method explicitly stating that it is computer-implemented (or similar) falls outside of this exception. However, in practice this may also lead to a finding of lack of inventive step if it is considered that all other features of a claimed solution can be mentally performed, and the solution therefore merely consists in a straight-forward automation of a genuinely non-technical method.

Hence, an important question seems to be whether the “simulation” as such is a technical or a non-technical building-block. Phrased differently, does the simulation cause a “further technical effect” in the sense of T 1173/97; G 3/08 reasons 10?

In relation to this question, it is interesting to note the distinction between a computer program as such (the set of instructions forming the program) and the act of executing a computer program (performing the instructions). This was elaborated on in G 3/08, reasons 11.2. In the opinion of FICPI, it is the computer program as such which is excluded from patentability under Article 52(2)(c).

A similar situation obtains in relation to simulations. Namely, the defined model on which the simulation is based is not the same thing as the simulation being run on the defined model. In other words, any effect caused by the formulation of the model is generally not identical to an effect caused by the simulation. It may also be the case that the former has no technical effect while the latter does.

2. The referring case (T 0489/14)

In the European patent application which is the subject of the appeal, the simulation is based on a defined model of the behaviour of a human agent (a pedestrian) in a crowd of other such human agents. Therefore, the questions arise as to whether the entities being simulated are technical or not and whether this is important to the question of the possible technical character of the simulation. Namely, since the behaviour of human agents is at least partly determined by non-technical aspects such as culture, does this mean that a simulation based on a model of such inherently non-technical agents is also non-technical?

Furthermore, claim 1 of the fourth auxiliary request specifies a method for designing a building structure comprising the simulation step in question. This provides a connection to the physical world via the building. However, as the claim relates to the design process rather than to the actual building or directly to its construction, the connection is not direct. Leaving to one side the literal recitation of computer-implementation, such a design process could take place entirely in the mind of a human being.

IV. FICPI’s opinion

1. General

From FICPI’s point of view, the predictability of the European patent system is important. The system should also be fit for purpose in the sense that inventors coming up with novel, inventive and



industrially applicable solutions in any field of technology can benefit from the rights conferred by a European patent covering such solutions.

At the same time, according to the EPC, the current position at least is that European patents should not be granted for solutions that are not “technical”.

Hence the question at the heart of the referral is what is to be considered “technical”.

Given the fact that normal engineering work today consists in relatively large part of work in or with virtual systems or environments, with varying degrees of connection to the real world, it seems artificial to draw this line where there is no longer any direct connection to the physical world. Put differently, from the point of view of the engineer, it would be counter-intuitive to disqualify a method from patentability merely because it is directed to or comprises a simulation that as such has no direct connection to the physical world.

In any human endeavour, the physical world will at some point become relevant, albeit in an indirect manner in some cases. For instance, computer games manifest via input and output devices on the computer on which they run; and warehouse logistics systems manifest in articles being inserted or removed. Whether or not a claim refers directly to such a manifestation should not be decisive of whether a patent right can be granted.

For computer simulations, an eventual physical manifestation may occur in the form of a direct input to a production process; or an early warning in a surveillance system. In other cases, a simulation step may be used merely as one among several interacting building blocks, such as in a feedback loop for finding the optimal solution to a particular problem.

On the other hand, simulations may also be used in clearly non-technical contexts, such as when actually being performed purely in the mind of a human being or when part of an otherwise non-technical context. For instance, a simulation of monetary results in a financial decision tree analysis would probably not be technical.

Having said this, in FICPI’s view the decisive question when determining whether a simulation contributes to the technical character of a claim or not should not be whether the concept of “simulation” as such is technical, but rather what is the context of the actual simulation and what the simulation contributes in the context in question. If a sufficiently well-defined simulation step contributes to a reproducible and useful technical effect in the particular context in which it is claimed, the simulation step should be considered to be a technical feature. This determination should not be made solely on the basis of whether the simulation step itself or the claim has any direct connection to the real world or if it could theoretically be performed in the mind of a human being.

One rationale behind this view is that one may view simulation as a tool just like any other that is available to the technically skilled person. As in the case of a hammer, which may be used to drive a nail into a wooden plank or as a part of an artist’s installation, a simulation may be used for both technical and non-technical purposes.

Going one step further, one may even argue that the virtual model of a simulation is every bit as real



as actual reality. Like the physical world, such a model may be governed by well-defined laws, where the laws stipulated by the model are ultimately grounded, via the implementation of the model on a computer or the like, in the laws of nature.

Regarding the question of the technical character of the simulated entities, FICPI observes that any simulation needs a defined model to work. The question of whether such a model is defined in terms of statistical or simplified properties of per se technical or non-technical entities would in most cases be of lesser importance, since it is the simulation results that may or may not contribute to a technical effect.

It goes without saying that in order to be able to produce repeatable results, any simulation would need to be sufficiently well-defined, both in terms of the model used and the actual simulation performed. This question, however, is primarily one of clarity. This is also pointed out by the Board of Appeal in the referring case.

2. Recommended answers to the referred questions

a) Question 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?

Yes.

b) Question 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?

The relevant criteria relate to the context in which the simulation step is claimed, in particular with respect to the technicality of the effect actually achieved by the simulation step in that context.

A technical effect may be achieved when the simulation is based at least in part on technical principles underlying the simulated system or process. However, such underlying principles may as such also be non-technical, as long as the simulation step considered as such brings about a technical effect in the relevant context. For instance, the use of a simplified model of a human pedestrian moving through a crowd and performing a simulation using such a model to determine the aggregate behaviour of a crowd of such pedestrians in a particular environment may not be based on underlying principles that are technical as such (since the behaviour of the agents only make technical sense when viewed on an aggregate, statistical level). However, such a simulation step may still make a technical contribution in the particular context (such as in relation to the designing of a building) in which the crowd analysis is



applied.

Hence, it is not a necessary condition that the simulation should be based, at least in part, on technical principles underlying the simulated system or process.

c) Question 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 would be the same. It would be necessary to analyse the context of the design process in question.

IMPORTANT NOTE:

The views set forth in this paper have been provisionally approved by the Bureau of FICPI and are subject to final approval by the Executive Committee (ExCo). The content of the paper may therefore change following review by the ExCo.

The International Federation of Intellectual Property Attorneys (FICPI) is the global representative body for intellectual property attorneys in private practice. FICPI's opinions are based on its members' experiences with a great diversity of clients having a wide range of different levels of knowledge, experience and business needs of the IP system.

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FICPI has national sections in Argentina, Austria, Belgium, Brazil, Chile, China, Czech Republic, Greece, Hungary, India, Ireland, Israel, Malaysia, Mexico, Netherlands, New Zealand, Romania, Russia, Singapore, South Korea, Spain, Turkey and the United States of America, a regional section covering for the Andean States (Bolivia, Colombia, Ecuador, Perú and Venezuela), a provisional national section in Poland and individual members in a further 41 countries and regions.

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