

Enlarged Board of Appeal
Boards of Appeal of the European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
Germany

FAO: Mr W. Crasborn, The Registrar

1 September 2019

By epoline

Dear Sir or Madam,

Case number: G 01/19

European patent application no. 03793825.5

Applicant: Bentley Systems (UK) Limited

Our ref: PJP/40617EP1

In response to the communication from the Enlarged Board of Appeal dated 10.05.2019, we make the following observations in relation to the questions referred to the Enlarged Board of Appeal by the Technical Board of Appeal 3.5.07 in interlocutory decision T 0489/14.

Introduction

Under reason 19 of the interlocutory decision, the Technical Board of Appeal stated its reasons for referring questions to the Enlarged Board of Appeal.

In its statement, the Technical Board of Appeal signalled its wish to deviate from the interpretation and explanations of the EPC given on this point in decision T 1227/05.

Unsurprisingly, the Appellant considers that the deciding Board in T1227/05 adopted an approach which is correct. In our view, the Board rightly recognised the *technical* importance of simulations, understood the practical issues in claiming them and set out an approach for assessing claims to simulations which is workable.

It should be noted that the Appellant proposed questions to the Technical Board of Appeal (which correspond essentially to the questions now being referred to the Enlarged Board of Appeal) which were intended to confirm that the approach taken in T 1227/05 was indeed correct.

Thus, in the Appellant's view, the Technical Board of Appeal should not deviate from the interpretation and explanations of the EPC given on this point in decision T 1227/05 and that the answer to the first referred question should be "yes".

We shall now provide comments on a key point made by the Technical Board of Appeal in the interlocutory decision and the two doubts expressed by the Technical Board about the reasoning of deciding Board in decision T 1227/05.

Technical effect

Under reason 11, the Technical Board of Appeal sets out an underlying reason it would tend to answer the first question in the negative:

In the Board's view, **a technical effect requires, at a minimum, a direct link with physical reality, such as a change in or a measurement of a physical entity.** Such a link is not present where, for example, the parabolic trajectory followed by a hypothetical object under the influence of gravity is calculated. Nor can the Board detect such a direct link in the process of calculating the trajectories of hypothetical pedestrians as they move through a modelled environment, which is what is claimed here. **In fact, the environment being modelled may not exist and may never exist.** And the simulation could be run to support purely theoretical scientific investigations, or it could be used to simulate the movement of pedestrians through the virtual world of a video game. [our emphasis in bold]

We submit that a technical effect does not necessarily require a direct link with physical reality.

The Technical Board of Appeal points out that the environment being modelled may not exist and may never exist.

This seems to suggest that if the environment being modelled came into existence (*e.g.*, was built or made) and the simulation resulted in a change in the physical environment or resulted in the physical environment coming into existence which embodied the model, then there would be a direct link with physical reality and, thus, a technical effect.

This seems to set an unduly high bar, particularly if the effect ultimately results from the simulation. Features of a claim to computer-implemented simulation should be considered in the assessment of inventive step if the simulation has the **potential** to produce a technical effect.

A parallel can be drawn to a computer program and the way that the computer program may have the **potential** to cause a further technical effect when executed on a computer.

As pointed out under reason 36 of the interlocutory decision, an effect can be taken into account even though it is only achieved when the program is executed:

In decision T 1173/97 it was held that a computer program had technical character if, when run on a computer, it produced a “further” technical effect going beyond the normal physical interactions between program and computer (headnote and reasons 6; see also G 3/08, reasons 10). Although a computer program product itself did “not directly disclose the said effect in physical reality”, it had the potential to produce the effect, namely when it was executed on a computer, and there was no good reason for distinguishing between a direct technical effect and the potential to produce a technical effect (reasons 9.4).

It is now established practice at the EPO that, in assessing a claim directed to a computer program, the effect produced by the computer program is to be taken into account in the assessment of inventive step even though it is achieved only when the program is executed on the computer. This is despite the fact that the computer program could, conceivably, not actually be run and indeed may never be run on a computer.

Therefore, we submit that if a simulation could result in a technical effect in another entity (in this case a physical reality once a direct link is established), then it too (like a computer program) should be protectable.

The Technical Board of Appeal goes on to say in reason 11:

In this context, the Board notes that the Enlarged Board of Appeal in decision G 2/07, reasons 6.4.2.1, stated that “[h]uman intervention, to bring about a result by utilising the forces of nature, pertains to the core of what an invention is understood to be”. It appears to the Board that using a computer to calculate the trajectories of hypothetical pedestrians as they move through a modelled environment does not utilise the forces of nature to bring about a result in any way different from using a computer to perform any other type of calculation.

In our view, this extract should be read in context of the rest of the Enlarged Board’s decision. G2/07 stated:

6.4.2 Human intervention

In decision T 320/87 (supra) the Board held that a further criterion for delimiting unpatentable essentially biological processes from patentable processes was the **totality of human intervention** in the process and **its impact on the result achieved**.

[...]

6.4.2.1 The systematic context and objective purpose of the exclusion in Article 53(b) EPC

[...]

Human intervention, to bring about a result by utilising the forces of nature, pertains to the core of what an invention is understood to be. Like national laws, the EPC does not define the term “invention”, but **the definition** that was given many years ago in the “Red Dove” (“Rote Taube”) decision of the German Federal Court of Justice (“Bundesgerichtshof”), BGH 27.3.1069, X ZB 15/67 **set a standard which still holds good today and can be said to be in conformity with the concept of “invention” within the meaning of the EPC.**

In that decision, in the version of the translation into English published in 1 IIC (1970), 136, the German Federal Court of Justice defined **the term “invention” as requiring a technical teaching. The term technical teaching was characterised as “a teaching to methodically utilize controllable natural forces to achieve a causal, perceivable result”** (point 3 of the Reasons). In its German original (GRUR 1969, 672, point 3 of the Reasons), that passage reads: “eine ...Lehre zum planmäßigen Handeln unter Einsatz beherrschbarer Naturkräfte zur Erreichung eines kausal übersehbaren Erfolges”. (our emphasis in bold)

In our view, the required “technical teaching” can be achieved if the simulation reflects technical principles or considerations underlying the process or system being simulated (*c.f.*, the second referred question).

The result can be seen in the model which represents a technical description of the process or system being simulated and, potentially, the real-world process or system.

Turning now to the doubts expressed about the reasoning of the deciding Board in T 1227/05.

The Board of Appeal expressed two doubts in reason 15:

First, although a computer-implemented simulation of a circuit or environment is a tool that can perform a function “typical of modern engineering work”, it assists the engineer only in the **cognitive process of verifying the design of the circuit or environment**, i.e. of studying the behaviour of the virtual circuit or environment designed. The circuit or environment, when realised, may be a technical object, but the cognitive process of theoretically verifying its design appears to be fundamentally non-technical.

Second, the decision appears to rely on the greater speed of the computer-implemented method as an argument for finding technicality. But any algorithmically specified procedure that can be carried out mentally can be carried out more quickly if implemented on a computer, and it is not the case that the implementation of a non-technical method on a computer necessarily results in a process providing a technical contribution going beyond its computer implementation (see e.g. decision T 1670/07 of 11 July 2013, reasons 9).

In relation to the first doubt, regardless of whether a computer-implemented simulation assists the engineer, it is still a tool nevertheless.

Moreover, in the present case, simulation is a tool whose implementation has been motivated – not by the technical considerations concerning the internal functioning of the computer – but by the system being simulated. The simulation relies on a new way of modelling pedestrians based in part on the insight that human interactions can be expressed and modelled in the same way as physical interactions. Such behaviour can be observed and measured thereby allowing human and physical interactions to be combined and so lead to a more realistic simulation.

The fact that the simulation reflects technical principles or considerations underlying the process or system being simulated should also address the second doubt.

In the present case, a computer is not just being used to perform a series of simple calculations more quickly. The model needs to be constructed first and the model reflects technical principles or considerations underlying the process or system being simulated.

Thus, although speed and convenience are no doubt helpful, a simulation amounts to more than simply a series of calculations.

It is noted that the interlocutory decision, under reason 48, mentions the judgement of the High Court of England and Wales in *Halliburton v Comptroller-General of Patents* [2011] EWHC 2508 (Pat) stating that

In *Halliburton v Comptroller-General of Patents* [2011] EWHC 2508 (Pat), the High Court of England and Wales considered a similar method of designing a drill bit with the help of simulation, again not including a step of producing the designed bit (see paragraphs 16 to 18 of the judgment). The High Court construed the claim as being limited to a simulation process carried out on a computer, which meant that the method did not fall within the mental act exclusion (paragraphs 65 and 70). Nor was the invention, being a method of designing a drill bit, a computer program as such or within any of the other exclusions (paragraphs 71 and 72). Since designing drill bits was a highly technical process, capable of being applied industrially, since drill bit designers were highly skilled engineers, and since the problems to be solved with wear and ability to cut rock were technical problems with technical solutions, finding a better way of designing drill bits in general was itself a technical problem (paragraph 74).

It would seem that technical considerations concerning the system being simulated is a *sine qua non* for a patentable claim directed to simulation. If a non-technical process or product is being simulated then there would be no technical considerations to consider and thus it is unlikely that a technical effect could arise.

Thus, the answer to the second referred question (specifically, “*is it a sufficient condition that the simulation is based, at least in part, on technical principles underlying the simulated system or process*”) should be “yes”.

In relation to the third question, the answers to the first and second questions would be the same if the computer implemented simulation is claimed as part of a design process.

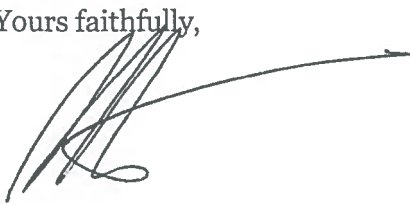
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Final remark

We hereby request oral proceedings be appointed.

Yours faithfully,

A handwritten signature in black ink, consisting of several overlapping loops and a long horizontal stroke extending to the right.

Pawel Piotrowicz

Authorised Representative