Software – Virtual Disclosure at the EPO

In the 2016 decision T 2440/12-Fluid flow simulation/SIMCON, Technical Board of Appeal 3.5.07 has found that a commercially available software package makes the methods it embodies available to the public because it could be run byline in a virtual machine (VM).

As is well known, a claimed method is not novel in Europe if it has been made available to the public before the effective filing date. In *Fluid flow simulation/SIMCON*, the patentee sold software embodying the invention before the effective filing date of their European patent. The relevant question was whether the software, which could be implemented on a computer, is a public disclosure of the method as claimed.

The patentee argued that the software does not enable the skilled person to reconstruct the mathematical model that underlies the claimed method. The claim was presented in the terminology of the model for simulation of fluid flow, including the use of a framework of rod elements and a surface mesh. When the software is used or its code analysed, these mathematical constructs are not discernible.

On the other hand, the opponent argued that the software represents the same method in another format, namely in computer-readable machine code. The machine code itself may not convey the relevant information to a user that cannot understand it. However, that code can be translated via disassembly of the software into human-readable assembly code. Alternatively, the information can be deduced by executing the software step-by-step on a VM to reveal all the operations performed by the processor.

The patentee successfully argued that a user would have been restricted by copyright from disassembling the software. A European copyright directive (91/250/EEC) restricts decompilation of software. Although the Board were unsure that a similar restriction applies in all of the states in which the software could have been used, the doubt was enough to push the Board away from the disassembly argument. However, the Board were happy to follow the VM argument.

A VM is a piece of software that works like a separate computer inside a host computer. The VM allows the user to follow the operations instructed by software performed on the VM. The state of the VM can be saved and restored later. This makes it theoretically possible to determine what operations have been performed by comparing saved VM states. According to the VM argument, by running the fluid flow simulation software on a VM, it would be theoretically possible to understand the details of what the software does by repeatedly saving and comparing VM states as the software is run step-by-step.

The reasoning of the Board is surprising. It does not consider whether the analysis that is theoretically possibly is in fact practical, in particular in the time available.

Various counterpoints to this case are set out below.

In *T461/88-Microchip*, Technical Board of Appeal 3.2.03 found that the public did not have enough time (one year not long enough) or motivation to reverse engineer a microchip, such that the program stored on the microchip was not publicly available. However, in *Fluid flow simulation/SIMCON*, the Board did not consider time to be a limiting factor for the step-by-step execution of the software on a VM.

In *G1/92-Availability* to the public, the Enlarged Board of Appeal found that the chemical composition of a product is state of the art when "*it is possible for the skilled person to discover the composition or the internal structure of the product and to reproduce it without undue burden*". It is unclear whether the "without burden" applies only to reproducing the product or additionally to discovering its internal structure. According to the facts of *Fluid flow simulation/SIMCON*, the method could be easily repeatedly performed (arguably the method claim analogue of reproducing a product) but it was extremely burdensome to discover the internal operations of a processor implementing the software. Hence, *Fluid flow simulation/SIMCON* is arguably consistent with Availability to the public if the "*without burden*" requirement applies only to reproducing the invention. Alternatively, it may be that in *Fluid flow simulation/SIMCON* the Board decided that *Availability to the public* is not directly applicable to method claims.

In *Navitaire Inc v Easyjet Airline Co.*, which is a UK copyright case, Navitaire Inc argued that EasyJet Airline Co. had performed "*non-textual copying*" when developing their own software to be indistinguishable from software licensed from Navitaire Inc. Although Navitaire Inc argued that this was in breach of the license, it was found that the license in question did not exclude reverse engineering. It remains untested whether a software license could restrict reverse engineering, which could then affect whether the sale of the software constitutes a novelty destroying disclosure.

As an aside, in *Fluid flow simulation/SIMCON* the Board identified a third line of argumentation, apart from the disassembly argument and the VM argument. The Board suggested that the availability of software is different from a situation where an inventor carries out a process in public which is later sought to be patented. In that situation, a viewer must be able to understand the process in order to be able to work it later. In contrast, a user that has bought software can repeatedly work the invention simply by using the software even if they do not cognitively understand what the software is doing. Hence, the Board considered that the sale of the software makes the invention it embodies publicly available. However, the decision was not based

on this line of argumentation because it was not put forward by the opponent.

This case shows that a commercially available software package makes the methods it embodies available to the public. A patent application needs to be on file before software embodying the invention is put on the market. This case also illustrates the readiness of Board 3.5.07 to follow somewhat theoretical lines of argumentation.

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