

Dr. Reinier B. Bakels  
Johan Willem Frisostraat 149  
2713 CC Zoetermeer  
The Netherlands  
e-mail: r<dot>bakels<at>planet<dot>nl

GBK · EBA · GCR

27 April 2009

Enlarged Board of Appeal  
European Patent Office  
Erhardtstraße 27  
80331 München  
Germany

Zoetermeer, April 2009

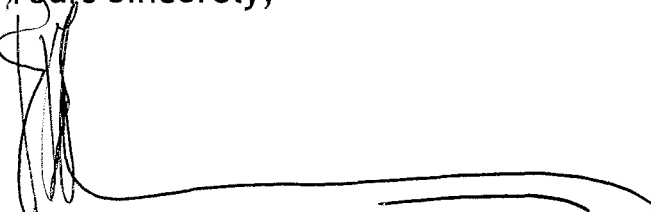
Subject: "Statement by third party" concerning case G 3/08

Dear Sirs,

We appreciate the opportunity to file a third party "written statement" with some observations on the referral of a number of questions on the limits of software patentability to your board by the EPO President in October 2008.

Please find attached a detailed account of our observations.

Yours Sincerely,

A handwritten signature in black ink, consisting of a stylized 'R' followed by a long horizontal line that ends in a small loop.

(Dr. Reinier B. Bakels)

# ***Amicus Curiae Brief* for case G 3/08 before the EPO Enlarged Board of Appeal**

Dr. Reinier B. Bakels\*  
April 2009

## **Table of Contents**

Table of Contents .....	1
I. Introductory observations .....	1
II. Methodology.....	2
III. The “software patent” concept.....	3
IV. The technology requirement .....	5
V. The inherent boundaries of patent law.....	7
VI. The questions .....	12
VII. Conclusion .....	15

## **I. Introductory observations**

The questions submitted to the Enlarged Board of Appeal by the EPO president give the impression that there is merely a need for clarification of a number of specific details of the rules that govern software patentability. But is it really only a matter of details? The debate on software patentability lasts for several decades already, and still there are persistent complaints about unclear rules, despite numerous decisions of the EPO Boards of Appeal. Should perhaps an essentially different approach be envisaged, rather than yet another clarification attempt?

Another reason for a thorough review of present case law is that it does not address the basic controversy about software patentability. On the one hand, it is often argued that software patenting is merely a logical consequence of the development of technology, on the other hand some people believe that by granting software patents an essential boundary is transgressed, in a legal and/or economic sense. Does software fit into the patent system? Do software patents contribute to social welfare?

While the debate on software patents has become more intense in recent years, culminating in massive protests against a proposed European Directive on the patentability of “computer-implemented inventions” a few years ago,<sup>1</sup> actually from the 1960s there were reservations against software patenting. Isn’t software too “abstract” to be patentable? Aren’t software patents a form of “mental steps”,<sup>2</sup> that fundamentally don’t belong in patent law? The Americans questioned software patenting for many years,<sup>3</sup> on the ground that software relates to algorithms, that were associated with mathematics.<sup>4</sup> Mathematical inventions in turn could be qualified as “abstract ideas”, and such ideas are not considered

---

\* PhD (Maastricht University), LL.M. (Leiden University), M.Sc. (Delft Technical University). Reinier Bakels is an independent researcher.

<sup>1</sup> Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions, COM(2002) 92. Brussels, 20 February 2002.

<sup>2</sup> About mental steps in the German legal tradition: Wilfried Elben, *Technische Lehre und Anweisung an den menschlichen Geist im Patent- und Gebrauchsmusterrecht* (Diss. Frankfurt am Main 1960).

<sup>3</sup> John Fellas, 'The Patentability of Software Related Inventions in the United States', *EIPR* 1999, p. 330-333.

<sup>4</sup> U.S. Supreme Court 20 November 1972, *GRUR Int* 1973, p. 75-78, 409 U.S. 63, 175 USPQ 673 (*Gottschalk v. Benson*). CAFC 7 November 1989, 888 F.2d 1370, 12 USPQ2d 1908 (*In re Iwahashi*).

patentable subject-matter in the US since the 19<sup>th</sup> century.<sup>5</sup> While a US court in 1998 qualified the “mathematical algorithm exception” as a misconception,<sup>6</sup> so that it was effectively abolished, recently the Americans felt the need again to exclude overly abstract subject-matter by prescribing a “machine or transformation test”.<sup>7</sup> In sum, always the need was felt to restrict the domain of patent law. But so far no generally accepted comprehensive conception of patentable subject-matter was developed.

Is there perhaps a connection between the persistent legal certainty problems, the various objections against software patents, and the fundamental limits of the patent law domain? In this *Amicus Curiae* Brief we will attempt a synthesis.

## II. Methodology

The response to the questions should be based on a solid methodological foundation, not only for a proper justification, but also because a thorough understanding of the arguments for the eventual rules is indispensable for a responsible application, especially in borderline cases.

Basically, the problem raised in the present referral is the interpretation of the exclusion of programs for computers<sup>8</sup> “as such”<sup>9</sup> in the EPC. What sources are available for interpretation? The text of the pertinent provisions itself is generally believed to be unclear. While the exclusion of computer programs was codified in the EPC to provide clarity once and for all,<sup>10</sup> the words “programs for computers as such”<sup>11</sup> have created interpretation problems almost from the moment the EPC went into force.<sup>12</sup> According to *Von Hellfeld* this clause can be interpreted in at least six different ways.<sup>13</sup>

Case law can not be a source for interpretation either, because its very inconsistency is the reason for the present referral to the EBA. Furthermore, the EPO Boards of Appeal are not formally bound by precedents.<sup>14</sup> There is even a common belief that patent law *must* account for ever more new technologies by adaptive case law.<sup>15</sup>

A further source for interpretation is the legislative history,<sup>16</sup> in the case of an international treaty represented by the “travaux préparatoires”. The reports from the negotiations for the initial version of the EPC show above all confusion about software patentability. Neither a full exclusion of software, nor unrestricted software patentability was seen as appropriate

---

<sup>5</sup> U.S. Supreme Court 10 January 1853, 55 U.S. 156, 175L. Ed. 367; 1852 U.S. LEXIS 433; 14 How 156 (*Le Roy v. Tatham*). For an overview of older pertinent case law see: U.S. Supreme Court 16 June 1980, 447 U.S. 303, 206 USPQ 193, 197, *GRUR Int.* 1980 p. 627-632 (*Diamond v. Chakrabarty*).

<sup>6</sup> CAFC 23 July 1998, 149 F.3d 1368, 47 USPQ2d 1596 (*State Street Bank & Trust Co. v. Signature Financial Group Inc.*), *GRUR Int.* 1999, p. 633-639 (*Finanzdienstleistungs-Anordnung*).

<sup>7</sup> CAFC 30 October 2008, case 07-1130, *GRUR Int.* 2008, p. 1075-1076 (*In re Bernard L. Bilski and Rand A. Warsaw*).

<sup>8</sup> Art. 52 subsection 2 sub c. EPC.

<sup>9</sup> Art. 52 subsection 3 EPC.

<sup>10</sup> Gert Kolle, 'The Patentable Invention in the European Patent Convention', *IIC* 1974, p. 140-156 (144, 151).

<sup>11</sup> Art. 52 subsections 2c and 3 EPC.

<sup>12</sup> On 1 June 1978 the first applicants filed for European patent protection at the EPO (<http://www.epo.org/about-us/office/history.html>). The first “software patent” application handled by a Board of Appeal was filed by *VICOM* Corporation on 22 May 1979. Seven years later the initial rejection was set aside: TBoA 15 July 1986, case T 208/84, *OJ* 1987, p. 14, *IIC* 1987 p. 101-107 (*VICOM*).

<sup>13</sup> Axel Von Hellfeld, 'Sind Algorithmen schutzfähig?', *GRUR* 1989, p. 471-485 (476).

<sup>14</sup> TBoA 15 November 2006, case T 154/04, *OJ* 2008, p. 46-79(58): Reasons for the decision nr. 2. (*DUNS/Method of estimating product distribution*).

<sup>15</sup> See the explanation of the “dynamic technology concept” theory on p. 7.

<sup>16</sup> Art. 32 Vienna Convention on the Law of Treaties (hereafter VCLT).

by the diplomatic conference that prepared the EPC. Eventually in the final stage of the negotiations the compromise was reached only to exclude computer programs “as such” – merely in the sense that the exclusion should be interpreted restrictively,<sup>17</sup> and definitely not in the sense that only technical computer programs would be patentable.<sup>18</sup>

Given that all these sources provide so little help for the interpretation of the EPC, we must resort to an analysis of the internal structure of patent law. This analysis actually reveals some essential clues about the inherent boundaries of the patent law domain.<sup>19</sup> But first we will review the “software patent” concept itself<sup>20</sup> and the technology requirement.<sup>21</sup>

### III. The “software patent” concept

While commonly the term “software patent” is used, the EPO usually talks about patents for “computer-implemented inventions”,<sup>22</sup> a term also used in a – meanwhile rejected – European Directive proposal.<sup>23</sup>

While the term “software patents” may be avoided for the sake of consistency, because the EPC prohibits the patenting of software (“as such”), a more fundamental problem is the question how to fit “software” into patent law.<sup>24</sup> In order to solve that problem, first of all we note that while patent law refers to “products” and “processes”,<sup>25</sup> the actual object of a patent is always *knowledge*: an invention is in essence a “trick”, a “teaching”.<sup>26</sup> The industrial application<sup>27</sup> of such a “trick” leads to a product. An *invention* should be distinguished from its *realisation*. That applies just as well to software: a software patent represents knowledge that may be used to develop a product that involves software. So there are only software *realisations* and no software *inventions*.<sup>28</sup>

Consequently, all of the above designations for “software patents” are actually incorrect. It is not a distinct category. Patents can be obtained for inventions described in applications that do not specify any details about a software implementation, and even refrain from making the choice to implement the invention in software rather than hardware, as long as the description is sufficient for a “person skilled in the art” to accomplish a realisation.<sup>29</sup> Furthermore, advanced technology may blur the distinction between hardware and

---

<sup>17</sup> Justine Pila, 'Article 52(2) of the Convention on the Grant of European Patents: What Did the Framers Intend? A Study of the Travaux Préparatoires', *IIC* 2005, p. 755-787(766-770).

<sup>18</sup> Gert Kolle, 'The Patentable Invention in the European Patent Convention', *IIC* 1974, p. 140-156 (145-146).

<sup>19</sup> Chapter V: “The inherent boundaries of patent law”, p. 7.

<sup>20</sup> Chapter III: “The “software patent” concept”, p. 3.

<sup>21</sup> Chapter IV: “The technology requirement”, p. 5.

<sup>22</sup> *Guidelines for Examination in the European Patent Office*. European Patent Office, June 2005, paragraph C.IV.2.3.6. <[http://www.european-patent-office.org/legal/gui\\_lines/pdf\\_2005/guidelines\\_2005\\_e.pdf](http://www.european-patent-office.org/legal/gui_lines/pdf_2005/guidelines_2005_e.pdf)>.

<sup>23</sup> Directive of the European Parliament and of the Council on the Patentability of Computer-Implemented Inventions, COM(2002) 92. Brussels, 20 February 2002.

<sup>24</sup> Kolle mentions no less than thirteen ways to qualify computer programs in law, of which seven speak for patentability and six against. Gert Kolle, 'Der Rechtsschutz von Computerprogramme aus nationaler und internationaler Sicht, 2. Teil', *GRUR* 1974, p. 7-20 (10).

<sup>25</sup> This is in particular apparent from national statutory provisions about the contents of the rights of the patent owner, such as art. 53 Dutch Patent Act 1995, § 9 PatG and Section 60 UK Patents Act.

<sup>26</sup> Germans commonly refer to a “Lehre zum technischen Handeln”. See in particular the following famous German decision: German Federal Court of Justice (BGH hereafter) 27 March 1969, case X ZB 15/67, *IIC* 1970, p. 136-142 (138)(*Red Dove*).

<sup>27</sup> Art. 57 EPC.

<sup>28</sup> Reinier B. Bakels, 'Software: werkwijze of voortbrengsel?' (Software, process or product), *BIE* 2003, p. 428-434.

<sup>29</sup> This follows from art. 83 EPC.

software altogether.<sup>30</sup> But even if a software-implementation is the only realistic option, still the invention must conceptually be distinguished from its implementation.<sup>31</sup> While it is apparently obvious that the invention is the “teaching” rather than the “product”, the distinction is often blurred by the specific format of patent “claims”.<sup>32</sup>

Software patent applications are often hard to recognise. If software patenting is subject to restrictions, applicants may want to avoid their application from being classified as software-related by using covert language. But as we just noted, conceivably it may not even be decided at all by the applicant whether a software implementation is envisaged – because software is a means of realisation, rather than a property of the invention.

When *Weyand* and *Haase* proposed a specific regulation for software patents, they were also faced by the problem how to identify software patent applications. They tried to solve the problem by proposing a reversal of the burden of proof: if an application is identified by the patent office as *potentially* software-related, the applicant would be required to comply with the proposed special requirements for the disclosure of software patent applications,<sup>33</sup> *unless* he is able and willing to prove that an implementation *without* software is realistic, both in a technical and an economical sense. In our perception, this proposal confirms that the distinction has no ground from the start.

Acknowledging that software nowadays is also used extensively in various fields of conventional technology, e.g. in software-controlled processors used in the traditional manufacturing industry,<sup>34</sup> attempts have been made to develop rules that allow “computer-implemented inventions” in these fields to be patented, but exclude “pure” software-inventions. However, such a distinction is fundamentally unfeasible, because the very same invention often can be realised both in an independent software product and in a tangible product of manufacture, potentially even with the same software code.<sup>35</sup> If there *is* no difference, it can not be made.

In sum, notions like “software patent” or “computer-implemented invention”<sup>36</sup> are based on an incorrect understanding of patent law, just as much as the notion “software invention”. Because this category effectively does not exist, *specific* rules for “software” patenting are fundamentally misplaced.

---

<sup>30</sup> E.g. there are “Field Programmable Gate Array’s”, a kind of chips that can be programmed to perform the same functions as “Application Specific Integrated Circuits”, chips with a function which is determined at manufacture time. ASICs are hardware. Couldn’t a FPGA be characterised as pure hardware by its programmability, even if it eventually performs exactly the same function? (The choice in a concrete case is determined primarily by economic considerations: ASIC’s are more expensive to develop, FPGA’s are more expensive to manufacture).

<sup>31</sup> This is well illustrated in: Roman Sedlmaier & Jan Gigerich, ‘Rechtliche Bedingungen und Risiken der Landeshauptstadt München für den Einsatz von Open-Source Software’, *JurPC* 10/2005 2005, Abs. 1-192. <<http://www.jurpc.de/aufsatz/20050010.htm>>.

<sup>32</sup> Rule 43 EPC.

<sup>33</sup> Joachim Weyand & Heiko Haase, ‘Patenting Computer Programs: New Challenges’, *IIC* 2005, p. 647-663 (661). German version: ‘Anforderungen an einen Patentschutz für Computerprogramme’, *GRUR* 2004, p. 198-204 (203).

<sup>34</sup> In particular in control engineering and in signal processing technology, software is often used in conjunction with conventional technology.

<sup>35</sup> Think of image enhancement software that can be used both in an “embedded processor” in a television set and in “media player” software on a PC. “Embedded” software is not fundamentally different from other software, but only in the sense that it is not seen as a separate product by end-users.

<sup>36</sup> A further objection specifically to the term “computer-implemented invention” is that the designation “invention” in European patent law terminology implies patentable subject-matter, so that effectively the test prescribed by art. 52 EPC whether the patent *application* represents an *invention* is bypassed.

That does not imply however that there is no ground for the objections against "software patents",<sup>37</sup> that were raised for instance during the debate in the European Parliament about the above mentioned Directive proposal.<sup>38</sup> Rather we must conclude that these objections can not possibly apply only to the (nonexistent) category of "software patents".

#### IV. The technology requirement

Until recently, the EPO concluded the requirement of a technical character merely from *indications* in the EPC,<sup>39</sup> added to tradition.<sup>40</sup> These indications were not always found convincing,<sup>41</sup> and the tradition was actually German.<sup>42</sup> For instance, the British,<sup>43</sup> French<sup>44</sup> and Dutch<sup>45</sup> used to reject a (separate) technology requirement.

In the new "EPC 2000", that went into force on 13 December 2007, the words "in all fields of technology" were inserted into art. 52(1) EPC. These words were copied literally from a provision of the TRIPS Agreement,<sup>46</sup> an annex to the World Trade Agreement, which binds nearly all EPO member states.<sup>47</sup> While the TRIPS provision actually purports to a prohibition to discriminate any field of technology,<sup>48</sup> the Diplomatic Conference that prepared "EPC 2000" added the above phrase also with the intent to codify the technology requirement.<sup>49</sup>

Most of the questions asked in the referral letter deal with the problem how to assess whether a "software" patent application is sufficiently technical to be honoured. What is supposed to be "technology" in the context of patent law? The framers of the EPC consciously refrained from giving such a definition, in order not to loose flexibility in

---

<sup>37</sup> Reinier B. Bakels & P. Bernt Hugenholtz, *The patentability of computer programs. Discussion of European-level legislation in the field of patents for software*. Study commissioned by the European Parliament, 2002. <<http://www.ivir.nl/publications/other/softwarepatent.pdf>>.

<sup>38</sup> See note 23.

<sup>39</sup> For instance: TBA 14 March 1989, case T 163/85 (*BBC/colour television signal*); TBA 16 April 1993, case T 833/91 (*IBM/Simulation of computer program external interfaces*); TBA 16 April 1993, case T 236/91 (*Texas Instruments*); TBA 29 October 1993, case T 204/93 (*AT&T/System for generating software source code components*); TBA 29 October 1993, case T 790/92 (*IBM/Editing business charts*); TBA 31 May 1994, case T 769/92, OJ 1995, p. 525 (*SOHEI*), IIC 1996, p. 373-374 (*General-Purpose Management System*); TBA 6 July 1994, case T 1002/92, OJ 1995, p. 605 (*Pettersson*); TBA 8 September 2000, case T 931/95, OJ 2001, p. 441-457 (*Pension Benefit Systems*).

<sup>40</sup> Albert Ballester Rodès et al. (eds.), *Case Law of the Boards of Appeal of the European Patent Office*. Munich etc.: European Patent Office 2006, Chapter I.A.1. Hereafter cited as *EPO Case Law*. Available under <<http://www.epo.org/patents/appeals/case-law.html>>.

<sup>41</sup> "[I]t is something of a counsel of desperation to use what is little more than a procedural rule in place of major substantive provisions of the Convention". Patents Court 21 July 2005, case 2005 EWHC 1589 Pat, RPC 2006, 5, nr. 78 (*CFPH*).

<sup>42</sup> See in particular: BGH 22 June 1976, case X ZB 23/74, GRUR 1977, p. 96-99 (99) (*Dispositionsprogramm*), IIC 1977 p. 558-565 (564) (*Disposition program*).

<sup>43</sup> M.A.L. Banks, *The British patent system: report of the Committee to Examine the Patent System and Patent Law*. London: H.M.S.O. 1970, Chapter 17, p. 140-144.

<sup>44</sup> Gert Kolle, 'The Patentable Invention in the European Patent Convention', IIC 1974, p. 140-156 (145).

<sup>45</sup> Board of Appeal of the Dutch Patent Office ("Octrooiraad") 11 May 1987, BIE 1987, p. 174-176 (*Streepjescode*), CR 1987, p. 195-197, GRUR Int 1988, p. 71-72 (*Streifencode*).

<sup>46</sup> Art. 27(1) TRIPS.

<sup>47</sup> The only exception is Monaco, as it is not a member of the World Trade Organisation.

<sup>48</sup> Joseph Straus, 'Bedeutung des TRIPS für das Patentrecht', nr. 27, GRUR Int 1996, p. 179-205. Translation: Joseph Straus, 'Implications of the TRIPS Agreement in the field of patent law', nr. 27. In: Friedrich-Karl Beier and Gerhard Schrickler (ed.), *From GATT to TRIPS: the agreement on trade-related aspects of intellectual property rights*, Weinheim [etc.]: VCH 1996, p. 160-215.

<sup>49</sup> Administrative Council of the EPO, *Basic proposal for the revision of the European Patent Convention*, Munich, 13 October 2000, p. 43. <[http://www.european-patent-office.org/epo/dipl\\_conf/pdf/em00002.pdf](http://www.european-patent-office.org/epo/dipl_conf/pdf/em00002.pdf)>.

respect to future developments.<sup>50</sup> Even now that the technology requirement is codified in the EPC,<sup>51</sup> it still gives no legal definition of “technology”.

By default of an explicit statutory definition, the interpretation rules of the law of treaties require “the ordinary meaning to be given to the terms of a treaty in their context [...]”.<sup>52</sup> At first sight, there is no need to define the “technology” concept explicitly, because anyone intuitively knows what the word means: “I know it when I see it”,<sup>53</sup> even though it is hard to give an explicit definition.

Whether this is really true is debatable.<sup>54</sup> The Boards of Appeal of the EPO did not accept the intuitive technology concept anyway, when they concluded from the EPC text that the intuitively obvious technical character of software is not sufficient for patentability. Starting from the usual EPO perception that “as such” is the opposite of “technical”,<sup>55</sup> a Board concluded that a “plain” technical character does not suffice for software patentability, because otherwise the exclusion of “programs for computers as such” would be meaningless. So it decided that a “further technical effect” is required for software patentability.<sup>56</sup> This decision shows that “technology” in the sense of European patent law is a *legal* concept, with a specific meaning beyond common parlance.

Still, not all software lacking such a “further technical effect” is considered unpatentable. While a “further technical effect” requirement was introduced because a simple technology requirement would not be strong enough, on the other hand it is occasionally believed to be too strong: if the regular technology requirement is not met, the application of technical *considerations* may be sufficient to allow patenting.<sup>57</sup>

Perhaps the purpose of the acceptance of “technical considerations” as a reason for patentability was to get closer again to the intuitive meaning of technology. As a similar German decision explains,<sup>58</sup> the technical *considerations* criterion no longer requires a direct relationship between the subject-matter of the patent application and technology. Critics have noted that accepting only an indirect relationship with technology may erode the technology criterion too far.<sup>59</sup> How remote is the indirect relation allowed to be?

---

<sup>50</sup> Gert Kolle, 'The Patentable Invention in the European Patent Convention', *IIC* 1974, p. 140-156 (145).

<sup>51</sup> On 13 December 2007 a new version of the European Patent Convention went into force, usually called “EPC 2000”, because it was drafted during a diplomatic conference in 2000. Art. 52 subsection 1 EPC now states that patents are granted “in all fields of technology”. According to the explanatory text, this clause codifies the technology requirement: Administrative Council of the EPO, *Basic proposal for the revision of the European Patent Convention*, Munich, 13 October 2000, p. 43. See also: Justine Pila, 'Dispute over the Meaning of "Invention" in Art. 52(2) EPC - The Patentability of Computer-Implemented Inventions in Europe', *IIC* 2005, p. 173-191 (185).

<sup>52</sup> Art. 31 subsection 1 VCLT: “A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.”

<sup>53</sup> U.S. Supreme Court 22 June 1964, 378 U.S. 184 (*Jacobellis v. Ohio*). In this case the judge decided that the “obscenity” concept needed no definition, “because I know it when I see it”.

<sup>54</sup> Greg Aharonian, 'More 'technical' nonsense from EPO heard at a London meeting', *CIPA Journal* 2004, p. 23-27; Simon Davies, 'A reply to Mr Aharonian', *CIPA Journal* 2004, p. 77-79.

<sup>55</sup> EPO *Examination Guidelines*, Chapter I.A.1.

<sup>56</sup> TBoA 1 July 1998, case T 1173/97, at 6.4, *OJ* 1999, p. 609-632 (620), *IIC* 2000 (*IBM/Computer Program Product I*).

<sup>57</sup> TBoA 31 May 1994, case T 769/92, *OJ* 1995, p. 525-544, *IIC* 1996, p. 373-374 (*SOHEI/General-Purpose Management System*), *GRUR Int* 1995, p. 909-913 (*SOHEI/Universelles Verwaltungssystem*).

<sup>58</sup> BGH 13 December 1999, case X ZB 11/98, *IIC* 2002, p. 231-238 (*Logic Verification*), *GRUR* 2000, p. 498-502, <<http://www.jurpc.de/rechtspr/20000072.htm>>, *C&R* 2000, p. 360-362 (Comment by Schöninger), *C&R* 2000, p. 281-285 (*Logikverifikation*).

<sup>59</sup> Rudolf Kraßer, 'Erweiterung des patentrechtlichen Erfindungsbegriffes?', *GRUR* 2001, p. 959-965 (963); Günther Schölch, 'Patentschutz für computergestützte Entwurfsmethoden -- ein Kulturbruch?', *GRUR* 2006, p. 969-976.

A further complication is the common belief, that the technology concept in patent law ought to be *dynamic*.<sup>60</sup> patent law should be flexible to adopt new technologies.<sup>61</sup> Because the legal technology concept is not necessarily compliant with common parlance (as we just noted), one may wonder how the technology requirement is substantiated at a given point in time. In order to warrant legal certainty, there ought to be a fixed "meta-rule" that determines the content of the variable technology criterion at a particular point in time. But there is no such rule. That is one of the causes of persistent complaints about poor legal certainty.

In sum, the present technology criterion – in whatever form – is primarily a means to the end of keeping certain undesired subject-matter out of patent law. Which subject-matter is "undesired"? As a British judge said: the reference to technology is "merely a restatement of the problem in different and more imprecise language",<sup>62</sup> perhaps inspired by a publication that appeared shortly before, which is very critical on the technology criterion.<sup>63</sup>

It seems that we should look for the inherent boundaries of patent law, rather than for the essence of "technology".

## V. The inherent boundaries of patent law

Patents are granted for (1) inventions that are (2) new, (3) inventive and (4) susceptible of industrial application.<sup>64</sup> In current practice, most applications are only examined for compliance with the three last mentioned criteria.<sup>65</sup> The first requirement – that an application should relate to *invention* – under current law is only tested for software and other subject-matter specifically listed in art. 52 subsection 2 EPC. Is it really sufficient to test other patent applications only for the three other requirements, or is there a *fourth dimension* in patent law, an additional requirement that must be tested for all applications, perhaps before anything else?<sup>66</sup>

As yet, there is no coherent answer to that question. European patent has its catalogue of exceptions "as such".<sup>67</sup> In German law, patents always were only granted for technology.<sup>68</sup> It was always considered a rule of customary law, to be applied before any other patentability criterion, even after the exclusion of "Programme für

<sup>60</sup> The EPO implicitly adopts a dynamic technology concept, by not giving a definition. German patent law fosters an explicit technology concept, but it emphasised that it can not be static in the following famous decision: BGH 27 March 1969, case X ZB 15/67, GRUR 1969, p. 672-676 (672) (*Rote Taube*), IIC 1970, p. 136-142 (173) (*Red Dove*).

<sup>61</sup> Gert Kolle, 'The Patentable Invention in the European Patent Convention', IIC 1974, p. 140-156 (145).

<sup>62</sup> Patents Court 21 July 2005, case 2005 EWHC 1589 Pat, RPC 2006, p. 5, nr. 14 (CFPH). This decision quotes a German decision that made similar observations: BGH 11 May 2000, case X ZB 15/98, sub II)1)c)bb)(1), IIC 2002, p. 343-348 (344-345) (*Speech Analysis Apparatus*; with comment by Jürgen Betten).

<sup>63</sup> Justine Pila, 'Dispute over the Meaning of "Invention" in Art. 52(2) EPC - The Patentability of Computer-Implemented Inventions in Europe', IIC 2005, p. 173-191.

<sup>64</sup> After art. 52(1) EPC.

<sup>65</sup> Last mentioned condition is hardly relevant anymore nowadays. Before EPC 2000 went into force late 2007, the industrial applicability requirement prevented medical methods from being patented, as they were considered explicitly "not susceptible of industrial application" by art. 52 subsection 4 (old), by way of fiction. That exclusion is now codified directly in art. 52(c) EPC without using a legal fiction.

<sup>66</sup> Reinier B. Bakels, *Technology, the fourth dimension of the patent law. A discussion of reasons to limit or not to limit patent law to technology, de lege lata and de lege ferenda* (PhD thesis Maastricht 2008). Publication of updated version expected in 2009.

<sup>67</sup> Art. 52 subsections 2 and 3 EPC.

<sup>68</sup> Supreme Court of the German Reich 21 January 1933, case 271/1932, GRUR 1933, p. 289-292 (*Multiplikationstabelle*); BGH 21 March 1958, case ZR 160/57, GRUR 1958, p. 602-603 (*Wettschein*); BGH 27 March 1969, case X ZB 15/67, GRUR 1969, p. 672-676 (*Rote Taube*), IIC 1970, p. 136-142 (*Red Dove*).



Datenverarbeitungsanlagen als solche”<sup>69</sup> was inserted into the German Patent Act after the ratification of the EPC.<sup>70</sup> The British recognised exceptions similar to the EPC already before the adoption of the EPC,<sup>71</sup> but explicitly rejected technology<sup>72</sup> or any other single criterion<sup>73</sup> as a common denominator. All jurisdictions have somehow similar restrictions.<sup>74</sup> Even the Americans, with their reputation to allow patents for “anything under the sun that is made by man”,<sup>75</sup> acknowledge that “laws of nature, physical phenomena and abstract ideas” can not be patented.<sup>76</sup>

Would it be possible to discern a systematic distinction between on the one hand subject-matter that is basically susceptible for patent, the “invention” in EPC terminology, and on the other land subject-matter *inherently* unfit to be patented? As we noted, the object of a patent is (a form of) *knowledge*.<sup>77</sup> The *contents* of a patent right can be summarised as a right to apply the knowledge concerned.<sup>78</sup> Within reason, patent law can only protect what actually has been invented.<sup>79</sup> Hence, the claimed applications must have been elaborated: a patent is not a “hunting licence”, as an American court once aptly noted.<sup>80</sup> This is in compliance with the EPC requirement to disclose the invention “in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art”.<sup>81</sup> Commonly this provision is only seen as a prescription for the *form* of the patent application, but logically this requirement implies that the invention should be elaborated to the extent that it can be applied by such an (ordinary) person skilled in the art, because otherwise it *can* not be described in the way required by this provision. American courts already acknowledge that the statutory requirement<sup>82</sup> of a proper description logically has substantial implications as well, in particular to prevent overbroad claims.<sup>83</sup>

Consequently, knowledge that has not (yet) reached the stage of concrete applications is not patent-eligible. Mere ideas, as well as pure scientific knowledge can be useful too, but a patent, being an exclusive right for *any* application of such knowledge would extend to applications that are not elaborated and perhaps even unknown at the time of application.

<sup>69</sup> Translation: “programs for computers as such”.

<sup>70</sup> Currently: § 1(3)3 and § 1(4) PatG.

<sup>71</sup> M.A.L. Banks, *The British patent system: report of the Committee to Examine the Patent System and Patent Law*. London: H.M.S.O. 1970, p. 62.

<sup>72</sup> Court of Appeal 27 October 2006, case 2006 EWCA Civ 1371, nr. 9 (*Aerotel/Macrossan*); Patents Court 21 July 2005, case 2005 EWHC 1589 Pat, RPC 2006, p. 5, nr. 28 (*CFPH*); Patents Court 7 November 2005, case 2005 EWHC 2416 (pat), RPC 2006, p. 7, nr. 8 (*Shopalotto*); Patents Court 21 July 2005, case 2005 EWHC 1623 (Pat), RPC 2006, p. 2, nr. 212 (*Halliburton*).

<sup>73</sup> High Court of Australia RPC 1961, p. 134-147 (*N.R.D.C.*).

<sup>74</sup> World Intellectual Property Organisation, Standing Committee on the Law of Patents, ‘Exclusions from Patentable Subject Matter’, in: *Certain Aspects of National/Regional Patent Laws*, 2008, p. 64-96.

<[http://www.wipo.int/edocs/mdocs/scp/en/scp\\_12/scp\\_12\\_3\\_rev\\_2-annex2.pdf](http://www.wipo.int/edocs/mdocs/scp/en/scp_12/scp_12_3_rev_2-annex2.pdf)>.

<sup>75</sup> S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)

<sup>76</sup> U.S. Supreme Court 16 June 1980, 447 U.S. 303, 206 USPQ 193 (*Diamond v. Chakrabarty*), containing references to older case law.

<sup>77</sup> See p. 3.

<sup>78</sup> In patent legislation, the rights of patent owners are specified with detailed lists of reserved acts, see e.g. art. 53 ROW 1995 for The Netherlands, § 9 PatG for Germany and Section 60 UK Patents Act for the UK. For completeness, it is noted that a patent owner only has the right to disallow others to perform certain acts.

<sup>79</sup> Notably the theory of “absolute compound protection” is an exception which violates this principle, and indeed it is controversial. See e.g. Rudolf Kraßer, *Patentrecht*. Munich, Beck 2004, p. 134-137. It may be seen as an “exception that proves the rule”.

<sup>80</sup> CCPA 21 March 1966, 86 S.Ct. 1033, 383 U.S. 519, 16 L.Ed.2d 69, 148 U.S.P.Q. 689 (*Brenner v. Manson*).

<sup>81</sup> Art. 83 EPC.

<sup>82</sup> 35 U.S.C. § 112 in the American patent act – which is the peer of art. 83 EPC.

<sup>83</sup> CAFC 23 July 1998, 149 F.3d 1368, 47 USPQ2d 1596, 1604 (*State Street Bank & Trust Co. v. Signature Financial Group Inc.*).

Not all brainwork can be rewarded by a patent, after all.<sup>84</sup> Attempts have been made to design patent-like rights for purely scientific knowledge, but that leads to difficulties which eventually demonstrate that this is hardly feasible.<sup>85</sup>

Contrary to conventional wisdom among economists,<sup>86</sup> the amount of research investment is immaterial for patentability. On the one hand, no patents are granted for pure science,<sup>87</sup> however costly the research was, on the other hand bright ideas and coincidental inventions are patentable, however low the cost was, as long as they are ready for application by a "person skilled in the art". This general patent law principle has even been codified by the Americans: "[p]atentability shall not be negated by the manner in which the invention was made",<sup>88</sup> but it is a recognised principle in European patent law as well. Patents apparently do not (directly) serve the purpose of allowing research to be financed by enabling "internalisation of externalities".<sup>89</sup>

But what is the purpose of patent law then?<sup>90</sup> Patents are often associated with monopolies. While patents do not necessarily lead to an economic monopoly, because there are often substitutes,<sup>91</sup> still the purpose of patent law is undeniably to control competition: if a patented product has a "perfect substitute" which is patent-free, the market is not affected by the patent, and it is worthless. While it is often assumed that there should be as much competition as possible, because that motivates suppliers to deliver the best performance for the lowest price, economic science reveals that so-called perfect competition in its purest form is not desirable, because eventually it leads to a situation where no more profit is made.<sup>92</sup> Firms will attempt to escape from relentless price competition by providing something exclusive, by *differentiating* themselves. That leads to "monopolistic competition", a situation between monopoly and "perfect" competition, where the interests of suppliers and buyers are better balanced. Firms have various options for differentiation: by geographical location, by a slightly different product, by service, by brand image, etcetera.<sup>93</sup>

Firms can also distinguish themselves by exclusive skills, in the case that knowledge is applied that requires a special skill. Knowledge fit for application by any "person skilled in

---

<sup>84</sup> Sven J.R. Bostyn, 'Ik denk, dus ik krijg een octrooi. Octrooieerbaarheid van bedrijfsvoeringsmethodes en ideeën in Europa en de VS' ('I think, therefore I get a patent. Patentability of business methods and ideas in Europe and the US'), *BIE* 2001, p. 77-88.

<sup>85</sup> Friedrich-Karl Beier & Joseph Straus, *Der Schutz wissenschaftlicher Forschungsergebnisse: zugleich eine Würdigung des Genfer Vertrages über die internationale Eintragung wissenschaftlicher Entdeckungen*. Weinheim [etc.]: Verlag Chemie 1982. The WIPO proposed in 1978 the "Geneva Treaty on the International Recording of Scientific Discoveries", but it was never adopted.

<sup>86</sup> There is an extensive economic literature how patent "length" (term), "breadth" (extent of protection) and "height" (inventive step requirement) can be optimised in order to match patent value to costs. See e.g.: Patrick F. E. Beschoner, 'Optimal patent length and height', *Empirica* 2008, p. 233-240 and Richard Gilbert & Carl Shapiro, 'Optimal Patent Length and Breadth', *RAND Journal of Economics* 1990, p. 106-112. Note that for legal reasons not all these parameters are available for economic optimisation. For instance the degree of freedom of the extent of protection in a legal perception is fully consumed by legal considerations: Adrianus P. Pieroen, *Beschermingsomvang van octrooien in Nederland, Duitsland en Engeland: van nationaal naar Europees recht* (PhD thesis Leiden). Deventer: Kluwer 1988.

<sup>87</sup> Art. 52 subsections 2a and 3 EPC.

<sup>88</sup> 35 U.S.C. § 103 (a), at the end.

<sup>89</sup> Paul A. Samuelson & William D. Nordhaus, *Economics*. Boston: McGraw-Hill/Irwin, 2005, p. 36.

<sup>90</sup> A discussion of the traditional patent law justification theories is beyond the scope of this article. Literature explains that none of these are actually tenable: Fritz Machlup & Edith E.T. Penrose, 'The Patent Controversy in the Nineteenth Century', *Journal of Economic History* 1950, p. 1-29.

<sup>91</sup> Paul A. Samuelson & William D. Nordhaus, *Economics*. Boston: McGraw-Hill/Irwin, 2005, p. 92.

<sup>92</sup> The market price becomes equal to the marginal cost price. Paul A. Samuelson & William D. Nordhaus, *Economics*. Boston: McGraw-Hill/Irwin, 2005, p. 150.

<sup>93</sup> F.M. Scherer & David Ross, *Industrial market structure and economic performance*. Boston, Mass., [etc.]: Houghton Mifflin 1990, p. 571.

the art” can not contribute to exclusivity in a natural way, however, because it does not require special skills. In that case, by default of *natural* exclusivity, patent law may be helpful to create *artificial* exclusivity, thus preventing excessive competition.

So a distinction must be made between “upstream” knowledge, for instance scientific knowledge, which has a natural exclusivity because it is only useful in the hands of people with exceptional skills, such as inventors, and “downstream” knowledge, that can be applied by any person skilled in the art. The distinctive criterion is not the usefulness, or whether the knowledge is susceptible for industrial application, but the question who is able to apply that knowledge: is the knowledge useful for any producer, or is it only raw material for an inventor?

Thus we reach a remarkably similar conclusion here as we found from our earlier analysis of the relation between object and content of patent law.<sup>94</sup> Patents are only appropriate for knowledge elaborated to the stage of concrete applications, that can be applied by any person skilled in the art.<sup>95</sup>

Because in law, the “invention” concept is *defined* as subject-matter which is potentially patent-eligible, such knowledge is apparently an invention. Knowledge ready for immediate application is called *technical* knowledge in common parlance, in contrast to theoretical knowledge. We concluded that only the former type of knowledge fits into patent law. Thus we not only find that patent law naturally is only fit for technology, but also what should be understood by “technical” in the context of patent law. This line of reasoning is methodologically justified, because we looked for *any* criterion to decide whether a patent application represents an invention, and only afterwards we connected our findings to common parlance.

While this new “vertical”<sup>96</sup> technology concept complies with common parlance as much as the traditional patent law technology concept, it has a very different nature: it relates to a *quality* of the associated knowledge instead of a *type* of discipline.

Based on the finding that naturally only a specific quality of knowledge is patent-eligible, we now can construe how the exclusion of “software as such” should be interpreted. First, we note that the EPC prohibits the patenting of certain subject-matter in two different ways: the subject-matter listed in art. 52(2) EPC is excluded indirectly, because that matter (“as such”) is not considered an invention, while the subject-matter listed in art. 53 EPC is excluded even though it is considered an invention (medical methods for instance). Thus the former type of exclusions specifically relate to non-inventions. Now we combine that finding with our earlier observation, that knowledge lacking a technical character (in the new “vertical” sense), can not be patentable, and therefore can not be considered an invention. If we combine these two observations, then we find that “software as such” should be conceived as knowledge to be used for software development, which is not technical in a “vertical” sense, i.e. that can not be applied by an average programmer, but needs special inventor-like skills.

---

<sup>94</sup> See p. 8.

<sup>95</sup> This concept is known in German literature as “fertige Erfindung” (“fertig” means both “completed” and “ready”). Rudolf Kraßer, *Patentrecht*. Munich, Beck 2004, p. 191 and following pages; Uwe Dreiss, ‘Der Durchschnittsfachmann als Maßstab für ausreichende Offenbarung, Patentfähigkeit und Patentauslegung’, *GRUR* 1994, p. 781-791.

<sup>96</sup> This new technology concept is distinguished as “vertical”, because it relates to the hierarchy from theoretical to applied knowledge, as opposed to the traditional “horizontal” technology concept, that relates to a parataxis of engineering disciplines. Reinier B. Bakels, ‘A New Paradigm in Patent Law: The Vertical Concept of Technology’. In: *Molengrafica Series 2004, Intellectual Property Law, Articles on Crossing Border between traditional and actual*, eds. F. Willem Grosheide & Jan J. Brinkhof, Intersentia: Antwerpen/Oxford 2005, p. 349-365. <[http://www.atrip.org/upload/files/activities/utrecht2004/int\\_property\\_law.pdf](http://www.atrip.org/upload/files/activities/utrecht2004/int_property_law.pdf)>.

This is indeed a relevant criterion for inventions – eventually – to be realised in software, as becomes apparent from the many complaints that “software patents” only claim mere ideas, with the effect that primarily competition is limited, while little useful information is disclosed and most development work still has to be done.<sup>97</sup>

The proposed “vertical” technology concept does not suffer from a curious paradox associated with the application of the traditional “horizontal” technology concept. With the traditional discipline-oriented technology concept, it appears intuitively logical to dissect patent applications into technical and non-technical components, and to require specifically the technical elements to be novel. Otherwise, conceivably non-novel elements might attribute a technical character to an application which is not otherwise technical. While perhaps counter-intuitive at first sight, still the basic rule of patent law applies that patent applications must always be assessed *as a whole*. This rule has a reason. All claimed elements do have a function in the application,<sup>98</sup> including allegedly non-technical elements. Are non-technical elements that contribute to technical effects really non-technical?<sup>99</sup>

Even though formally the classical contribution theory was abandoned,<sup>100</sup> courts never really accepted the rule that patent applications should be assessed as a whole.<sup>101</sup> This dilemma between intuition and a basic rule of patent law does not occur if “technical” is seen as a *quality* of knowledge rather than a type of *discipline*. Patent applications eventually always relate to a single inventive concept,<sup>102</sup> so a dissection is inappropriate from the start.

In our perception, only patent applications that are technical in the above “vertical” sense are patent-eligible, *in all fields of technology*. Thus in the proposed approach, there is no need to assess first whether the application perhaps relates to software.<sup>103</sup> As we noted before, it may be fundamentally impossible to decide whether an invention is software-related.<sup>104</sup> Furthermore, a specific treatment of “software technology” would also violate the discrimination prohibition of the TRIPS Agreement,<sup>105</sup> so the proposed approach is better compliant with international treaty obligations as well.<sup>106</sup>

---

<sup>97</sup> Sven Kiesewetter-Köbinger, ‘Über die Patentprüfung von Datenverarbeitungsanlagen’, *GRUR* 2001, p. 185-193.

<sup>98</sup> It is not permitted to include claims to elements that do not contribute to the solution of the problem what is the subject of the patent application. This obvious rule was even confirmed by a German court: German Federal Patents Court (“BPatG”) 12 August 1987, case 19 W (pat) 56/85, *GRUR* 1987, p. 799-800 (800) (*Elektronisches Stellwerk*, English: *railway control centre*).

<sup>99</sup> Wilfried Anders, ‘Erfindungsgegenstand mit technischen und nichttechnischen Merkmalen’, *GRUR* 2004, p. 461-468. Wilfried Anders, ‘Wie viel technischen Charakter braucht eine computerimplementierte Geschäftsmethode, um auf erfinderischer Tätigkeit zu beruhen?’, *GRUR* 2001, p. 555-560.

<sup>100</sup> Wilfried Anders, ‘The patentability of computer programs and business methods: recent decisions of the Federal Court of Justice and the Federal Patent Court’, *EPO OJ Special Edition* 2001, p. 130-149 (140). The OJ also contains a French and a German version.

<sup>101</sup> See in particular the graph in: Knut Blind, Jakob Edler, Ralph Nack & Josef Straus, *Software-Patente. Eine empirische Analyse aus ökonomischer und juristischer Perspektive*. Heidelberg: Physica-Verlag 2003, p. 125.

<sup>102</sup> Article 82 EPC: “Unity of invention: The European patent application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept.” While this is primarily a procedural provision, it does not allow multiple inventive concepts in one patent application.

<sup>103</sup> Reinier B. Bakels, *Technology, the fourth dimension of the patent law. A discussion of reasons to limit or not to limit patent law to technology, de lege lata and de lege ferenda* (PhD thesis Maastricht 2008). (Publication expected in 2009). This book explains that all exclusions listed in art. 52 subsection 2 EPC can convincingly be interpreted in the way described above.

<sup>104</sup> See Chapter III, “The “software patent” concept”, at p. 4.

<sup>105</sup> Art. 27(1) TRIPS.

<sup>106</sup> While the EPO itself is no signatory to the TRIPS Agreement, all its member states are, except Monaco.

Needless to say that patent applications that have been found to relate to true inventions in the above sense, still have to be tested along the other three *dimensions*: novelty,<sup>107</sup> inventive step<sup>108</sup> and susceptibility of industrial application,<sup>109</sup> as we discussed in the beginning of this chapter.<sup>110</sup>

## VI. The questions

Before we discuss each of the questions individually, we would like to note that they all start from the perception that the wordings of the claims in the patent application are decisive. While it is an central principle of European patent law that *the extent of protection* is determined by the claims,<sup>111</sup> somewhat paradoxically both case law<sup>112</sup> and literature<sup>113</sup> persistently emphasise, that substance rather than form is decisive for patentability. In particular, a dissection of patent applications into technical and non-technical elements involves a substantial risk of misconceptions<sup>114</sup> and manipulation.<sup>115</sup> Patentability should not merely depend on the drafting skills of the patent agent.<sup>116</sup>

### Question 1

Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?

The question relates to the form of the claims – and as we just stated, content rather than form is decisive for patentability. If only an explicit computer program claim is considered prohibitive for patenting, that only means that the patent agent should choose his words more carefully.

---

<sup>107</sup> Art 54 EPC.

<sup>108</sup> Art 56 EPC.

<sup>109</sup> Art 57 EPC.

<sup>110</sup> See p. 7.

<sup>111</sup> Art. 69 EPC and associated Protocol.

<sup>112</sup> In particular, the following two decisions from the EPO member states are often cited: BGH 22 June 1976, case X ZB 23/74, IIC 1977 p. 558-565 (560) (*Disposition Program*): “it is not the linguistic form which is decisive as to whether or not a teaching is of a technical nature, but its substantive content.” (The original German text is: “Nicht die sprachliche Einkleidung entscheidet darüber, ob eine Lehre technischer Natur ist oder nicht, sondern ihr sachlicher Gehalt.”) Also: Court of Appeal 21 April 1989, RPC 1989, p. 561 (569) (*Merrill Lynch*): “[I]t cannot be permissible to patent an item excluded by section 1(2) [the equivalent of art. 52(2) EPC in the UK Patents Act] under the guise of an article which contains that item -- that is to say, in the case of a computer program, the patenting of a conventional computer containing that program.” Even the United States Supreme Court warns not to “exalt form over substance” in a similar context: U.S. Supreme Court 22 June 1978, 437 U.S. 584, 590, 198 USPQ 193 (*Parker v. Flook*).

<sup>113</sup> Gert Kollé, ‘Technik, Datenverarbeitung und Patentrecht - Bemerkungen zur Dispositionsprogramm-Entscheidung des Bundesgerichtshofs’, GRUR 1977, p. 58-74 (64): the drafting skills (*Formulierungskünste* in German) of the patent agent should not be decisive. Similarly: President’s Commission on the patent system, *To promote the progress of ... useful arts, in an age of exploding technology. Report of the President’s Commission on the patent system*. 1966, p. 14.

<sup>114</sup> A (technical) security system for a banking application was initially mistaken for a business method: BGH 24 May 2004, case X ZB 20/03, GRUR 2004, p. 667-669, GRUR Int 2004, p. 874-875, Mitt. 2002, p. 275-278 (*Elektronischer Zahlungsverkehr*), IIC 2005 p. 242-249 (*Electronic Payment System*).

<sup>115</sup> Strikingly, there is even a book that directs patent agents how to draft an EPO patent application in the most technical way: Keith Beresford, *Patenting Software under the European Patent Convention*. London: Sweet & Maxwell 2000.

<sup>116</sup> Gert Kollé, ‘Technik, Datenverarbeitung und Patentrecht - Bemerkungen zur Dispositionsprogramm-Entscheidung des Bundesgerichtshofs’, GRUR 1977, p. 58-74 (64). “Patent agent” is used as a generic designation for professionals who help inventors to apply for patents (e.g., *Patentanwalt* in German, *octrooigemachtigde* in Dutch).

As we found, the object of a patent is never – literally – a “computer program as such”, but only potentially an invention that can be implemented using software.<sup>117</sup> A literal interpretation of the exclusion of “programs for computers as such” – as it has been applied in the case quoted<sup>118</sup> in the referral letter – therefore *can* not be correct, because it would never apply: all software-related patent applications would pass this test.

Another, related question is whether it is allowed to claim computer programs by themselves as products.<sup>119</sup> If this is not permitted, there are basically two possibilities: either the applicant could claim a “programmed computer” as a (conventional) product, or he could claim the program by itself as a process. In the former case, the question is whether a “normal” use of a standard commercially available computer can make the patent application sufficiently technical to be honoured. Supposing it is not just a word-play without substantive meaning, then apparently this question can only be answered in the negative. This reasoning is a fallacy though, because this approach starts from a breakdown departing with the basic patent law rule that patent applications should always be assessed as a whole.<sup>120</sup>

In the other case, if it would only be allowed to claim a program as a process, then that would not limit patentability by itself, but only affect the conditions for infringement: in that case supplying<sup>121</sup> the program constitutes no direct infringement but only potentially an indirect infringement, which may be harder to prove. Therefore, limiting program product patentability is hardly an effective means to limit software patentability.

In sum, the answer to the question is negative. The form of the claims is never decisive, and the provision saying that “programs for computers as such” are no inventions should be interpreted very differently, as we explained earlier.

#### Question 2(a)

Can a claim in the area of computer programs avoid exclusion under art. 52(2)(c) and (3) merely by explicitly mentioning the use of a computer or a computer-readable data storage medium?

Obviously the mere mention of technical “things” can not make an application patentable. The substance of the claims is decisive for patentability, not the wording. Patentability does not depend on the technical nature of the associated *discipline*, but on the technical quality of the associated *knowledge*.

#### Question 2(b)

If question 2 (a) is answered in the negative, is a further technical effect necessary to avoid exclusion, said effect going beyond those effects inherent in the use of a computer or data storage medium to respectively execute or store a computer program?

The “further technical effect” requirement is concluded from the observation that the EPC only allows technical software to be patented, while all software is technical to some extent.<sup>122</sup> In our perception, the technical quality of the *knowledge* disclosed in the patent application is decisive, rather than the technical nature of software. Even if software is

<sup>117</sup> See Chapter III, “The “software patent” concept”, p. 3.

<sup>118</sup> TBoA 23 February 2006, case T 424/03, *GRUR Int.* 2006, p. 851-854 (*Microsoft/ Clipboard formats I*).

<sup>119</sup> TBoA 1 July 1998, case T 1173/97, *OJ* 1999, p. 609-632, *GRUR Int* 1999, p. 1053-1059 (Comment by Schiuma), *IIC* 2000, p. 189-198, *C&R* 2000, p. 91-94 (*IBM/ Computer Program Product I*). The Americans accepted computer program product claims a few years earlier: CAFC 12 May 1995, 53 F.3d 1583 (*In re Beauregard*).

<sup>120</sup> See p. 11.

<sup>121</sup> Infringement is regulated in national patent acts. For indirect infringement, see e.g. UK Patents Act Section 60(2) for the UK, § 10 PatG for Germany, and art. 73 ROW 1995 for The Netherlands.

<sup>122</sup> TBoA 1 July 1998, case T 1173/97, at 6.4, *OJ* 1999, p. 609-632 (620), *IIC* 2000 (*IBM/ Computer Program Product I*).

undoubtedly technical, the knowledge disclosed in a patent application may lack technical quality, for instance if it only claims an abstract theory. This analysis gives a better explanation why a patent application can be insufficiently technical to be honoured, despite the technical character of software.

Question 3(a)

Must a claimed feature cause a technical effect on a physical entity in the real world in order to contribute to the technical character of the claim?

Patent law helps businesses to create value.<sup>123</sup> Whether that leads to “physical entities” is immaterial, and if money is made, a relation with the “real world” can hardly be denied.

Still, in course of history courts often found that only physical subject-matter would be patent-eligible.<sup>124</sup> And always such a rule was eventually relaxed by allowing a creative interpretation. In particular, information is often attributed a physical character in case law, in order to prevent results apparently deemed undesirable by courts.<sup>125</sup>

There is no need to require a link with a physical entity in the real world in order to prevent “abstract” patents. As we have seen, there are other ways to prevent really overly abstract patents.<sup>126</sup>

Question 3(b)

If question 3(a) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?

Because the previous question was answered in the negative, this question does not have to be answered. For completeness, we note that the fact that just mentioning an unspecified computer could be relevant shows that the underlying perception is incorrect.

Question 3(c)

If question 3 (a) is answered in the negative, can features contribute to the technical character of the claim if the only effects to which they contribute are independent of any particular hardware that may be used?

This question is again based on the idea, that only applications using (physical) hardware could be honoured, and that perhaps even specific hardware could be required. As we noted,<sup>127</sup> the object of patent law in essence is knowledge susceptible of industrial application. And as we discussed above, in a patent law context, eventually the only thing that matters is whether value is created, not whether that leads to a tangible product (“hardware”).

Question 4(a)

Does the activity of programming a computer necessarily involve technical considerations?

The acceptance of the application of “technical considerations” allows software to be patented that does not cause a “further technical effect”. It is based on an intuitive technology concept.<sup>128</sup>

---

<sup>123</sup> Patentable inventions should be susceptible of industrial application, art. 52(1) and 57 EPC.

<sup>124</sup> For instance the Supreme Court of The Netherlands (“HR”) decided that process patents must make a “change in nature”. HR 20 January 1950, *NJ* 1950, p. 274, *BIE* 1950, p. 36-39 (*Rooilijnen*).

<sup>125</sup> For instance, the Dutch patent office developed the concept of “materialised information”, in order to meet the above requirement of a “change in nature”. Board of Appeal of the Dutch Patent Office (“Octrooiraad”) 11 May 1987, *BIE* 1987, p. 174-176 (*Streepjescode*), *CR* 1987, p. 195-197, *GRUR Int* 1988, p. 71-72 (*Streifencode*).

<sup>126</sup> See p. 8.

<sup>127</sup> See page 3.

<sup>128</sup> See discussion on p. 6.

The explanation of this question in the referral letter says that programmers who use modern software development tools hardly need specific “technical” knowledge of computer systems. As we have explained however,<sup>129</sup> the actual programming effort is part of the *realisation* of the invention, so it *can* not be relevant for the assessment of patentability.

In our perspective, it is the technical *quality* of the knowledge disclosed in the patent application that matters.<sup>130</sup> The need for technical considerations – in whatever form – does not warrant the technical content of the patent application in a “vertical” sense, as explained before.

#### Question 4(b)

If question 4 (a) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?

If question 4 (a) is answered in the negative, can features resulting from programming contribute to the technical character of a claim only when they contribute to a further technical effect when the program is executed?

Both alternatives presume a breakdown of the patent application. As we noted, such a breakdown is incorrect:<sup>131</sup> the claims must be considered as a whole. That is a basic rule of patent law. While it may seem counter-intuitive at first sight, we explained that rather ignoring this rule actually leads to counter-intuitive results.

## VII. Conclusion

The questions submitted to the Enlarged Board of Appeal all start from the presumption that the technical content is decisive for software patentability, and implicitly assume that technology is a designation for a specific type of *discipline*.

In our analysis, we found that the traditional patent law technology criterion effectively is not a purpose in itself, but a means to an end, in particular to prevent patents for software and business methods, at least for some of them. But for which ones?

In all patent systems, there has always been subject-matter that was deemed *inherently* unfit for patents. In the EPO perception, that subject-matter lacks a technical character, but this view is primarily based on a German tradition, and it is not shared by other countries. For instance, the British believe that there is no single criterion to distinguish patentable subject-matter,<sup>132</sup> and they noted that the technology criterion is not a solution, because it only moves the problem to the question what is “technical” in a legal sense.<sup>133</sup> And EPO case law shows that the legal technology concept differs from common parlance.<sup>134</sup> But as yet, there is no unifying theory.

Therefore, in our analysis we started from an investigation whether there are any *inherent* limitations to the patent law domain. This analysis reveals that indeed only technical subject-matter should be patent-eligible – but that the word “technical” must be understood in a sense very different from today’s practice in patent law, but nonetheless

---

<sup>129</sup> See page 3.

<sup>130</sup> See p. 10.

<sup>131</sup> See p. 11.

<sup>132</sup> Court of Appeal 27 October 2006, case 2006 EWCA Civ 1371, nr. 9 (*Aerotel/Macroscan*); Patents Court 21 July 2005, case 2005 EWHC 1589 Pat, RPC 2006, p. 5, nr. 28 (*CFPH*); Patents Court 7 November 2005, case 2005 EWHC 2416 (pat), RPC 2006, p. 7, nr. 8 (*Shopalotto*); Patents Court 21 July 2005, case 2005 EWHC 1623 (Pat), RPC 2006, p. 2, nr. 212 (*Halliburton*).

<sup>133</sup> Patents Court 21 July 2005, case 2005 EWHC 1589 Pat, RPC 2006, p. 5, nr. 14 (*CFPH*).

<sup>134</sup> See page 10.



also compliant with common parlance: “technical” basically is the opposite of theoretical. “Technical” denotes a *quality* of knowledge, rather than a specific group of (engineering) disciplines. Only technical knowledge – in this sense – is ready for application by an average “person skilled in the art”, as required by the EPC.<sup>135</sup> This technology criterion has a reason: otherwise a patent would not be economically justified,<sup>136</sup> and it would become a “hunting licence”,<sup>137</sup> even though the EPC prohibits claims exceeding the disclosure.<sup>138</sup>

Because the proposed technology criterion is rooted in systematic and economic reasons, it is much easier to apply in boundary cases than the present rules. Furthermore, it obviates an questionable prior test whether a patent application relates to software, which was needed under the assumption that specific rules have to be applied for software. Such tests have proven to be particularly problematic for inventions that relate to multiple disciplines. And they may be seen as discriminatory for certain fields of technology, which is a violation of the TRIPS Agreement.<sup>139</sup>

Could the EPO afford a switch to an essentially different approach for the assessment of the patentability of computer programs? I would be inclined to reverse the question: hasn't it become apparent, after all these years, that the development of law on the patentability of software is on dead-end road? Isn't it inevitable to take a very different road? It may sound contradictory, but a break with the past will eventually improve legal certainty, because the present rules lack a solid foundation.

We have shown in our analysis that there is indeed an alternative that can be explained from the system and purposes of patent law, yet fully complies with the present statutory text, even better than the present rules developed in case law.

END OF DOCUMENT

---

<sup>135</sup> Art. 83 EPC.

<sup>136</sup> See p. 9.

<sup>137</sup> See p. 8.

<sup>138</sup> Art. 84 EPC.

<sup>139</sup> Art. 27(1) TRIPS prohibits discrimination by field of technology.