

Gent, 30 March 2009

To: European Patent Office
Enlarged Board of Appeal

GBK · EBA · GCR

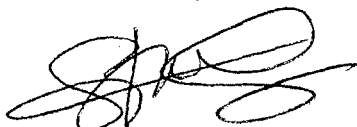
- 3. April 2009

Dear Sirs,

I would like to submit an *amicus curiae* brief in relation to Case no. G-03/08 (computer-related inventions).

My arguments can be found in the attached piece, which is also being submitted for publication.

Yours sincerely,



Prof. dr Sigrid Sterckx

Professor of Ethics, Bioethics and Environmental Ethics

Universiteit Gent, Faculty of Arts & Philosophy

Vrije Universiteit Brussel, Faculty of Medicine & Pharmaceutical Sciences and Faculty of
Arts & Philosophy

Hoogpoort 28 A101

9000 Gent

Belgium

Tel +32 9 330 75 07

Fax +32 9 264 41 87

sigrid.sterckx@ugent.be

The Patentability of Computer Programs in Europe

Europe's patent officers downed tools in September, claiming they were being forced to hand out patents willy-nilly to useless inventions, simply to be able to charge the patent fees. Now these bad patents have greater force in the UK, thanks to an appeal court ruling on the patent for a piece of mobile phone software.

The half-day strike by European Patent Office (EPO) staff in Berlin, Vienna, Munich and the Hague followed claims by the staff union that the EPO administrative council, which is made up of the representatives from the national patent organisations, is pressurising officers to sign off on as many patents as possible, regardless of standards. While the UK's Intellectual Property Office (IPO) is a government agency, some other countries' patent organisations are private firms.

Officers warn that a "sea of junk patents" will hamper new ideas and leave companies bogged down in court cases. The EU [sic] receives 450,000 patent applications a year.

The court of appeal ruled on 8 October that the UK's IPO was wrong to refuse software company Symbian's patent application for a programme that had already been granted a patent by the EPO. The IPO has long resisted patents for software, while the EPO is happy to dish them out. The judge said that the discrepancies between the IPO and the EPO were absurd and the two offices should be "marching together as far as possible." (Private Eye 2008: 8)

What a fine mess you've got us in now. (Laurel and Hardy)

1. Introduction

Computer programs are big business - ask Bill Gates. Nonetheless, for whatever reason, European patent law is clear that they are not patentable. This isn't to say that computers operating under the control of computer programs or processes that involve the use of such computers aren't patentable, just computer programs "as such".

The European Patent Convention (EPC), which is administered by the European Patent Office (EPO) and is a patent law applicable across most of Europe, specifies that certain things are not patentable. Some of the exclusions are of great moral concern, others are less so. However, the manner in which the Appeal Boards of the EPO interpret the latter exclusions is of general concern as this may affect the way the exclusions which *are* of moral concern are interpreted.

The "as such" limitation applies to subject matter besides computer programs, for example discoveries and methods of doing business. If the highest instance of the EPO, the EPO Enlarged Board of Appeal, would approve the approach to construing "as such" developed by EPO Technical Board of Appeal 3.5.1 with regard to computer programs (see below), then, unless and until the Enlarged Board would change its mind in a later decision, that approach would have to be followed for the *other categories of subject-matter* that are "as such" excluded from patentability by the EPC. Moreover, that approach would then have to be followed *not only by the EPO but in practice also by national patent offices and courts throughout Europe*. This broader effect follows since the national patent laws in the countries which belong to the EPC are intended, as far as possible, to apply the same criteria for patentability as the EPC and the examiners of the national patent offices and the judges of the national courts strive towards a common interpretation of these criteria across Europe. Thus while not bound by decisions of the EPO, national courts try not to diverge at least from EPO Enlarged Board of Appeal decisions. The Enlarged Board of Appeal is the ultimate arbiter for the EPO of the interpretation of the EPC. For the national courts to interpret the law differently would encourage "forum shopping", with applicants for patents filing their applications with national patent offices when the local interpretation of the criteria is more applicant friendly, and with the EPO when the local interpretation is less friendly. With a single invention covered by a patchwork of patents issued by national patent offices and the EPO, it is more difficult for competitors to determine just what they can do and where. This is not to say such forum shopping does not exist - it does, but it can be exacerbated by differences in the interpretation of the criteria for patentability at the national and EPO levels.

In October 2008, the President of the EPO requested the Enlarged Board of Appeal to clarify the interpretation of the exclusion from patentability of computer programs. This referral (EPO 2008a) has been given the case number G-03/08 and the Enlarged Board of Appeal's opinion can reasonably be expected to issue in 2009 or 2010.

The relevant part of the EPC is Article 52, paragraphs (1), (2) and (3) which state:

- (1) European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application.
- (2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - (a) discoveries, scientific theories and mathematical methods;
 - (b) aesthetic creations;
 - (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
 - (d) presentations of information.
- (3) Paragraph 2 shall exclude the patentability of the subject-matter or activities referred to therein only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such. (EPO 2007: 80)

Thus, to paraphrase, programs for computers may be inventions and may be in a field of technology, but cannot be patented “as such”.¹

There is little doubt that computer programs may be written that can cause a computer programmed with them to achieve a novel and inventive outcome with technical effect. One need only think of the image enhancement programs used to enhance the clarity of photographic images or the image generation programs used to transform detected radiofrequency signals into three-dimensional images of the body in magnetic resonance imaging. There is also no serious argument that the invention associated with such a program may not be patented as a method of operation involving such a computer or as a computer under operative control of a program so as to perform that method. *Inventors of novel and inventive computer programs are thus not prevented from obtaining patent protection for some aspects of their inventions.* This is important as Article 27 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) (WTO 1994)² requires inventions in all fields of technology to be patentable *without discrimination*:

1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Subject to

¹ Here it is to be noted that US patent law contains no similar exclusion. The practice of the EPO and of the English and German courts in the field of software-related inventions is admirably summarised by Schohe et al. 2008.

² The history of the implementation of TRIPS is itself a fascinating story – see e.g. Drahos and Braithwaite (2002), Matthews (2002) and Raghavan (1990).

paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.

2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect *ordre public* or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.

3. Members may also exclude from patentability:

- (a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
- (b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective *sui generis* system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement. (Article 27)

Nonetheless, even though the contracting states to the EPC may be bound by TRIPS, this does not automatically mean that the EPC is compliant with Article 27 TRIPS. Should the Enlarged Board's opinion in G-03/08 show that the EPC is not TRIPS-compliant, then it would be up to the contracting states to amend the EPC – it is not up to the Enlarged Board to misconstrue Article 52 EPC so as incorrectly to find the EPC to be TRIPS-compliant. In particular, *it is not the domain of the Enlarged Board to ignore an exclusion agreed by the legislators or to "interpret away" such an exclusion.*

In this paper, we will first look into the nature of computer programs and consider how they may be claimed in a patent application (*section 2*). Next, we will give an extensive overview of relevant case law of the EPO Technical Boards of Appeal as well as two recent decisions of the Court of Appeal of England and Wales (*section 3*). In *section 4*, we analyse the questions referred to the EPO Enlarged Board of Appeal by the President of the EPO in October 2008. In *section 5*, we make our own proposal as to how the law ought to be interpreted and we discuss how this interpretation compares with some of the case law discussed earlier. Next, we investigate the ramifications of our proposal for the exclusions from patentability laid down in Article 53(a), (b) and (c) EPC (*section 6*). Before concluding the paper in *section 9*,

we consider (and reject) two alternatives to our proposed interpretation of the law (sections 7 and 8).

2. What is a computer program?

Patent applications under the EPC began to be filed in 1978. In the thirty years since then, the Boards of Appeal of the EPO have handed down many decisions on computer program related inventions.³ Some seem to conflict with each other and the President's request in G-03/08 appears to have been made in order to clear up the confusion. However, before turning to the President's questions it is worth stating that the position of the EPO seems to be that it is not computer programs that are unpatentable, but only computer programs "as such", which in their interpretation means computer programs which have no technical character.

Hence the question arises "What is a computer program?" This is not a silly question – it is central to the correct interpretation of Article 52(2) and (3) EPC. A computer program is a series of instructions which, when installed on a computer changes an otherwise functionless piece of equipment into one capable of producing a desired result. As a series of instructions, it can be written on paper, encoded onto a radiowave, encoded onto punched paper tape or cards, encoded onto disc, magnetic tape or other recording media, or stored within the memory of a computer or even a human. It can be readable by humans or by computers. However, when traded, i.e. bought and sold, it will generally be encoded onto a data carrier, e.g. a disc, or a radiowave. When you go to your computer store and buy the latest version of Microsoft's Word ® program suite, you buy a disc carrying the program. Without the program, the disc is of little use to you; without the disc you have no program. It is much like a novel – you buy a book with the novel printed onto it. For most people, the concept of purchasing a film, a book or a computer program implicitly means buying a carrier carrying the film, book or program.

³ The decisions of the Boards of Appeal of the EPO may be accessed at <http://www.epo.org/patents/appeals/search-decisions.html>. The papers on file at the EPO in relation to European patent applications and patents may be accessed at <http://www.epoline.org/portal/public/registerplus/>

Thus for an exclusion from patentability of computer programs to have any meaning, it must mean that a program encoded onto a standard carrier must likewise be unpatentable. This same logic applies to the exclusion from patentability of "presentations of information", also present in Article 52(2) EPC. Would a presentation of information escape the exclusion simply by virtue of being on a substrate, e.g. a book, poster, etc?

Inventions are claimed in patent applications as things (products) or ways of doing things (methods or processes).⁴ Here we are concerned with computer programs. Thus a computer program might be claimed as a *product* as "a computer program capable of causing a computer to do X" or as "a data storage device carrying a computer program capable of causing a computer to do X". It is difficult to conceive of a computer program as a *method* or *process* - however it can be claimed as "a method of operating a computer under the control of a program to cause it to do X".

To investigate the patentability of computer programs, we must now turn to case law, specifically that of the EPO Technical Boards of Appeal and two recent decisions from the Court of Appeal of England and Wales.

3. Case Law

In October 2006, in the *Aerotel* case, the Court of Appeal of England and Wales criticised the decisions of the EPO Technical Boards of Appeal in relation to Article 52(2) and (3) EPC, referring to the line of argument in two of the decisions as "simply not intellectually honest" (EWCA 2006: paragraph 27), and suggested that the time was ripe for the interpretation of these provisions to be referred to the EPO Enlarged Board of Appeal:

The decisions of the EPO Boards of Appeal are mutually contradictory. To say that is not to criticise anyone. On the contrary the Boards of Appeal have each done what they think is right

⁴ Patents and applications for patents define the scope of the monopoly granted or sought in a series of numbered sentences known as the "claims". These claims will normally define the subject matter of the monopoly in as general language as is possible while still defining subject matter that is new and arguably inventive. The same patent or patent application may define the invention in the claims in a number of different ways, for example as a computer program, a data carrier carrying a computer program, a computer programmed with a computer program and a method of performing a procedure by the use of a computer programmed with a computer program.

in law - as befits tribunals exercising a judicial function. But the time has come for matters to be clarified by an Enlarged Board of Appeal. (EWCA 2006: paragraph 25)

EPO Technical Board of Appeal 3.5.1 (now 3.5.01) struck back the following month in the T-154/04 *Duns Licensing Associates* case stating that:

The "technical effect" approach endorsed by Lord Justice Jacob in the *Aerotel/Macrossan* judgement ... seems to be rooted in ... [a particular] meaning of the term invention, a practice which might be understandable "given the shape of the old law" ..., but which is not consistent with a good-faith interpretation of the European Patent Convention in accordance with Article 31 of the Vienna Convention on the Law of Treaties of 1969. (EPO 2006a: Reasons §12)

The examiners in the EPO rely on the EPO Appeal Boards to interpret just what the EPC means.⁵ Given the importance of computing, the Appeal Boards have, unsurprisingly but not necessarily correctly, been under pressure to interpret the exclusion of computer programs as narrowly as possible. In this regard, there have been three "great leaps forward": the "contribution" approach; the "strictly literal" approach; and the "technical character" approach.

3.1. The "contribution" approach

In the contribution approach, the question which was to be answered was "what was the contribution to the art of what was claimed?" If that contribution lay solely in the excluded field, the claim would be rejected. Thus a claim to "any standard data carrier carrying the novel program" would be rejected. However, a claim to "a fancy, apparently new, carrier carrying a new program and from which the new program is easily downloaded" poses the problem that the state of the art relating to the carrier must be determined, i.e. novelty must be examined, before one can determine whether the Article 52(2) EPC hurdle has been overcome.

⁵ Interestingly, EPO Technical Appeal Board decisions are not binding on subsequent EPO Technical Boards of Appeal. This gives rise occasionally to conflicting decisions, at which stage the point at issue should be referred to the Enlarged Board of Appeal to work out the correct interpretation of the EPC, which should then be binding. In T-154/04 *Duns Licensing Associates* (EPO 2006a: Reasons §2), Technical Board 3.5.01 (Steinbrenner, Zimmermann and Weiss) stated that "the legal system of the European Patent Convention gives room for evolution of the jurisprudence (which is thus not "case law" in the strict Anglo-Saxon meaning of the term) and leaves it to the discretion of the boards whether to give reasons in any decision deviating from other decisions or to refer a point of law to the Enlarged Board."

The contribution approach has long been abandoned by the EPO. Nonetheless, as discussed below, Jacob LJ in the *Aerotel* case (EWCA 2006), while forced by the English Court of Appeal's earlier rejection of the contribution approach in the *Merrill Lynch* case (EWCA 1989), indicated that he felt that the objections to it had their weaknesses.

Indeed, the contribution approach, as strictly applied, does have its weaknesses. One is that it implies that things which, under any sensible interpretation, quite clearly are *not* "computer programs as such" are unpatentable, in particular processes performed by computers under the control of computer programs, and computers themselves under the operative control of computer programs. Moreover, since the contribution approach does not appear to be tied to the "as such" proviso of Article 52(3) EPC, if acceptable it should be applicable to subject matter excluded by Article 53 EPC.⁶ That this is not in fact the case is demonstrated by early case law from the EPO Enlarged Board of Appeal relating to new uses of known medicines. Thus in case G-05/83 *Eisai* (EPO 1984), in 1984 the Enlarged Board of Appeal approved a claim to "the known use of a pharmaceutical for the manufacture in a known fashion of a known pharmaceutical composition for use in a novel method of medical treatment". The contribution here is solely in the novel method of medical treatment, subject matter excluded from patentability by Article 53(c) EPC. The contribution approach would deny patentability to claims of the format approved by the Enlarged Board in the *Eisai* case. To be improved therefore, the contribution approach must require the "as such" proviso to be determinative and so requires a clearer understanding of what the "as such" proviso must mean.

3.2. The "strictly literal" approach

The second approach, which seems to be applied sometimes but not always by the EPO Boards of Appeal, is to give a strict, literal interpretation to "as such". A data

⁶ Article 52(4) EPC –now replaced by Article 53(c) EPC– excluded from patentability "Methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body" (EPO 2006d: 70) while Article 53(a) and (b) EPC excluded "inventions the publication or exploitation of which would be contrary to "ordre public" or morality... [and] plant or animal varieties or essentially biological processes for the production of plants or animals" (EPO 2006d: 70-72).

carrier carrying a program is a data carrier and not a program. A man with a hat on is not a man "as such". However, since a computer program, if it is to be transferred to a computer, must be transferred on some carrier, an "add anything then not excluded" approach to claim drafting evades the exclusion and renders it toothless. If the "strictly literal" approach is correct, then all the *other* exclusions in Article 52(2) EPC (e.g. the exclusions of discoveries, mathematical methods, presentations of information, methods for playing games, etc) can likewise be sidestepped leaving them with no real effect. Surely this cannot have been the legislator's intention?

3.3. The "technical character" approach: the dominant approach at the EPO

The third approach, the "technical character" approach, in relation to which the Court of Appeal of England and Wales has tied itself in knots trying to agree in the *Symbian* (EWCA 2008) and *Aerotel* (EWCA 2006) cases, however, is also based on a piece of intellectual dishonesty and has led to the EPO granting patents for computer programs, that is patents where the subject matter of the claim is nothing other than a computer program rather than something not excluded *plus* a computer program.

Since this approach –which allows claims that, at first sight, clearly violate Article 52(2) and (3) EPC– has become the dominant approach at the EPO, it requires further analysis.

Briefly put, the "technical character" approach says that Article 52(2) EPC *only excludes things which have no technical character*. Thus anything, that on the face of it is excluded, is not in fact excluded if it has a technical character. The development of this approach took about twelve years, starting with the *Vicom* decision and finally crystallising in the T-1173/97 *IBM* case (EPO 1998).

3.4. *Vicom* - the story begins

The development of the EPO's case law relating to computer programs began with the T-208/84 *Vicom* case (EPO 1986), which had been rejected by the EPO Examining

Division. The claims at issue before the Appeal Board⁷ related to a method of digitally processing images and apparatus for carrying out that method. The reasons the Examining Division had given for refusing the application were, *inter alia*, that the *method claims* related to a mathematical method which was not patentable in accordance with Article 52(2)(a) and (3) EPC and that the *apparatus claims* lacked novelty in the absence of any supporting disclosure of novel apparatus.

The Board of Appeal, however, found that the method claims were directed to a "technical process" since a "technical result" was produced:

A basic difference between a mathematical method and a technical process can be seen, however, in the fact that a mathematical method or a mathematical algorithm is carried out on numbers (whatever those numbers may represent) and provides a result also in numerical form, the mathematical method or algorithm being only an abstract concept prescribing how to operate on the numbers. No direct technical result is produced by the method as such. In contrast thereto, if a mathematical method is used in a technical process, that process is carried out on a physical entity (which may be a material object but equally an image stored as an electric signal) by some technical means implementing the method and provides as its result a certain change in that entity. The technical means might include a computer comprising suitable hardware or an appropriately programmed general purpose computer. (EPO 1986: Reasons §5)

The Board, therefore, is of the opinion that even if the idea underlying an invention may be considered to reside in a mathematical method a claim directed to a technical process in which the method is used does not seek protection for the mathematical method as such. (EPO 1986: Reasons §6)

Having decided that the exclusion of mathematical methods did not exclude technical processes employing such methods, the Board of Appeal in the *Vicom* case decided that, analogously, the exclusion of computer programs did not exclude technical processes employing such programs:

The Board is of the Opinion that a claim directed to a technical process which process is carried out under the control of a program (be this implemented in hardware or software), cannot be regarded as relating to a computer program as such within the meaning of Article 52(3) EPC, as it is the application of the program for determining the sequence of steps in the process for which in effect protection is sought. (EPO 1986: Reasons §12)

⁷ Technical Board of Appeal 3.5.1 with members Korsakoff, van Voorthuizen and Ford, respectively the Chairman, the Rapporteur and the Legal Member.

Thus far, no peculiar reading of the term "as such" in Article 52(3) EPC was required. The Board then turned to the *apparatus claims*, finding that a computer *set up to operate in accordance with a computer program* is not a computer program as such:

Generally claims which can be considered as being directed to a computer set up to operate in accordance with a specified program (whether by means of hardware or software) for controlling or carrying out a technical process cannot be regarded as relating to a computer program as such and thus are not objectionable under Article 52(2)(c) and (3) EPC. (EPO 1986: Reasons §15)

In arriving at this conclusion the Board has additionally considered that making a distinction between embodiments of the same invention carried out in hardware or in software is inappropriate as it can fairly be said that the choice between these two possibilities is not of an essential nature but is based on technical and economical considerations which bear no relationship to the inventive concept as such. Generally speaking, an invention which would be patentable in accordance with conventional patentability criteria should not be excluded from protection by the mere fact that for its implementation modern technical means in the form of a computer program are used. *Decisive is what technical contribution the invention as defined in the claim when considered as a whole makes to the known art.* Finally, it would seem illogical to grant protection for a technical process controlled by a suitably programmed computer but not for the computer itself when set up to execute the control. (EPO 1986: Reasons §16, emphasis added)

At this stage, the Board caught a glimpse of the criticality of the claim language used to link the computer and the computer program, for a claim to a programmed computer to escape the exclusion of computer programs as such. Sadly, the Board saw a cause for concern which, being so repugnant to the world of patents,⁸ was dismissed as of theoretical concern only:

At least theoretically it could be questioned whether claims directed to apparatus for carrying out a certain function should be limited to the apparatus when indeed carrying out this function, which means in the present case that under the control of the program the computer steps through a succession of different configurations to effect operations on the electric signal representing the image. The Board, however, rejects this view as it would result in an undue limitation of the possibilities of the patent owner to assert his rights. (EPO 1986: Reasons §17)

⁸ It is arguable, indeed likely, that inventions only reside in methods rather than products. When "Ugg" invented the roller, her invention was not a log but the use of logs to move a load over the ground. Other than in operation, products are functionless. How many times has the reader seen an outdated piece of equipment the use of which is forgotten or no longer feasible – an 8" floppy disc for example? However, if patents were to be granted only for processes, they would be more difficult for the patentees to enforce.

The point to consider, however, should have been whether a claim to a programmed computer was excluded by Article 52(2) and (3) EPC, and *not* whether the ability of the applicant to assert his rights was restricted.

The Board, having agreed to the wording "a computer *set up to operate in accordance with a computer program*" did not distinguish fully between the *three possible formats of the computer, and of the claim*, namely: (1) a computer operating under the control of a program; (2) a computer, not necessarily in operation, but under operative control by a program; and (3) a computer carrying, but not under operative control by, a program. To illustrate what we mean by the second format: the computer on which this is typed is under operative control by Windows Vista ® - that program runs the computer once the computer is switched on. This computer is also *programmed with Word ®*, but until Word® is activated the computer is not under operative control by Word ®. The reasoning applied by the *Vicom* Board would allow claims in the first two of these formats, but gives no basis for allowing a claim in the third format.

3.5. The emergence of the "contribution" approach

The *Vicom* Board pointed the way forward with its words "*Decisive is what technical contribution the invention as defined in the claim when considered as a whole makes to the known art*" as quoted above. Thus, in February 1989, EPO Technical Board of Appeal 3.5.1 (by now with a different Chairman) in its decision T-38/86 *IBM* began to discuss its new approach as follows:

The Board recognises that the use of technical means for carrying out a method, partly or entirely without human intervention, which method, if performed by a human being, would require him to perform mental acts, may, having regard to Article 52(3) EPC, render such a method a technical process or method and therefore an invention within the meaning of Article 52(1) EPC, i.e. one which is not excluded from patentability under Article 52(2)(c) EPC. This is because paragraph 3 of Article 52 EPC makes it clear that patentability is excluded only to the extent to which the patent application relates to excluded subject matter as such. (EPO 1989a: Reasons §12)

Acknowledging that the EPC did not forbid "mixed media" claims (i.e. claims reciting a combination of features which are excluded from patentability and features which

are not), the *IBM* Board stated that it did not follow that *all* mixed media claims must be acceptable. The *IBM* Board then went on to state the "contribution" test:

Since patentability is excluded only to the extent to which the patent application relates to excluded subject-matter or activities as such, it appears to be the intention of the EPC to permit patenting only in those cases in which the invention involves *a contribution to the art in a field not excluded from patentability*. (EPO 1989a: Reasons §12, emphasis added)

On the exclusion of computer programs, the *IBM* Board interestingly stated that:

Since the only conceivable use for a computer program is the running of a computer, *the exclusion from patentability of programs for computers would be effectively undermined if it could be circumvented by including in the claim a reference to conventional hardware features*, such as a processor, memory, keyboard and display, which, in practice, are indispensable if the program is to be used at all. (EPO 1989a: Reasons §25, emphasis added).

As an aside, one manifestation of the "contribution" approach, one which was referred to as "simply not intellectually honest" by the Court of Appeal of England and Wales in the *Aerotel* case (EWCA 2006: paragraph 27), was developed by EPO Technical Board of Appeal 3.5.1 in cases T-931/95 *PBS* (EPO 2000), T-641/00 *Comvik* (EPO 2002) and T-258/03 *Hitachi* (EPO 2004). Put simply, the Technical Board of Appeal asserted that the *novelty and inventive character* of a claim to non-excluded subject matter, e.g. a computer, cannot derive from a feature which is in the field of excluded subject matter. The *PBS* Board, which explicitly condemned the contribution approach, nonetheless applied it as follows:

the improvement envisaged by the invention according to the application is essentially an economic one, ie lies in the field of economy, which, therefore, cannot contribute to inventive step. (EPO 2000: Reasons §8)

The *Comvik* Board stated that "where a feature cannot be considered as contributing to the solution of any technical problem by providing a technical effect it has no significance for the purpose of assessing inventive step" (EPO 2002: Reasons §6). The *Hitachi* Board, also condemning the contribution approach, likewise stated that "the invention will be assessed with respect to the requirement of inventive step by taking account of only those features which contribute to a technical step" (EPO 2004: Reasons §5.3).

3.6. The emergence of the "technical character" approach

In April 1993, EPO Technical Board of Appeal 3.5.1 (Chairman Van den Berg) revisited the "contribution" approach in decision T-833/91 *IBM*, pointing out that, while it was not always straightforward to determine whether or not an invention was excluded under Article 52(2) and (3) EPC, the "Board's case law has developed some criteria for allowing such an issue to be decided with the necessary certainty." (EPO 1993a: Reasons §3.1). Here the root of the later "technical character" doctrine was set out as follows:

The consideration on the basis of these criteria is, first, that *all the different matters or activities listed in Article 52(2) would seem to have in common that they imply something non-technical* and, secondly, that from Article 52(3) it would appear to be the intention of the Convention to permit patenting (only) in those cases in which the invention involves some contribution to the art in a field not excluded from patentability (EPO 1993a: Reasons §3.1, emphasis added)

Later that year, in October, EPO Technical Board of Appeal 3.5.1 (Chairman Van den Berg) in decision T-204/93 *AT&T* (a decision which came back to haunt the Board in case T-1173/97 *IBM*) consolidated its position that Article 52(2) EPC only excluded non-technical subject matter stating that the "exclusions of Article 52(2)(3) are generally understood as having in common that the excluded matters lack technicality" (EPO 1993b: Reasons §3.12). The "technical character" approach had not yet arrived, however, and the *AT&T* Board went on to state that:

computer programs as such, independent of such an application [i.e. application to a practical end] , are not patentable irrespective of their content, i.e. even if that content happened to be such as to make it useful, when run, for controlling a technical process. (EPO 1993b: Reasons §3.13)

This brings us to the *magnum opus* of Van den Berg's Board 3.5.1, decision T-1173/97 *IBM* from July 1998, where the "technical character" doctrine made its appearance and *the circumvention of the exclusions of Article 52(2) EPC*, described by the same Board twelve years before in T-38/86 *IBM*, finally occurred.

What had happened in the meantime? The answer seems to be the entry into force of the TRIPS Agreement. This event brought about the possibility that, since, unlike the

exclusions of Article 53 EPC, the exclusions of Article 52(2) EPC were not written into TRIPS, the EPC might prove not to be compliant with Article 27 TRIPS and the very lengthy task of amending the EPC would therefore have to be undertaken.

While admitting that TRIPS did not apply to the EPC, the *IBM* Board thought it appropriate to take TRIPS into consideration. Since these comments were made in the context of the *IBM* Board seeking to interpret a law from 1973 (the EPC) using later developments in patent law and practice *outside* the EPC and the EPO, the *IBM* Board's comments deserve to be quoted at length before we turn to the manner in which the *IBM* Board chose to redefine the law. Section 2 of the *IBM* Board's Reasons reads as follows:

2.1 To a large extent the Board shares the appellant's opinion about the significance of TRIPS with regard to the case under consideration.

However, for the time being it is not convinced that TRIPS may be applied directly to the EPC. Apart from any other considerations TRIPS is binding only on its member states. The European Patent Organisation itself is not a member of the WTO and did not sign the TRIPS Agreement.

2.2 Nor has the Board been able to find any justification under the Vienna Convention on the Law of Treaties for the direct application of TRIPS to the EPC.

Although, according to Article 4, the Vienna Convention, which was signed on 23 May 1969, but did not enter into force until 27 January 1980, is not applicable to the EPC, it has considerable authority and has frequently been cited by the boards of appeal when applying principles laid down in it. However, in the Board's opinion Article 30, which deals with the "application of successive treaties relating to the same subject matter", does not provide any justification for applying TRIPS to the EPC. For instance, there is not even full correspondence between the contracting states to the EPC and the member states of TRIPS, ie not all the contracting states to the EPC are simultaneously members of TRIPS.

2.3 But although TRIPS may not be applied directly to the EPC, the Board thinks it appropriate to take it into consideration, since it is aimed at setting common standards and principles concerning the availability, scope and use of trade-related intellectual property rights, and therefore of patent rights. Thus TRIPS gives a clear indication of current trends.

Article 27(1) TRIPS states that "patents shall be available for any inventions, whether products or processes, in all fields of technology, provided they are new, involve an inventive step and are capable of industrial application". This general principle, when considered together with the provisions pursuant to paragraphs 2 and 3 of Article 27 concerning exclusion

from patentability (which, however, do not comprise any of the subject-matter mentioned in Article 52(2) EPC), can be correctly interpreted, in the Board's opinion, as meaning that it is the clear intention of TRIPS not to exclude from patentability any inventions, whatever field of technology they belong to, and therefore, in particular, not to exclude programs for computers as mentioned in and excluded under Article 52(2)(c) EPC.

2.4 The Board is fully aware that, according to Article 10(1) TRIPS, "computer programs, whether in source or object code, shall be protected as literary works under the Berne Convention (1971)". This provision does not, however, weaken the above conclusion that computer programs are patentable under TRIPS, as based on its Article 27. As correctly assumed by the appellant, the fact that Article 10 is the only provision in TRIPS which expressly mentions programs for computers and that copyright is the means of protection provided for by said provision does not give rise to any conflict between Articles 10 and 27 TRIPS. Copyright and protection by patents constitute two different means of legal protection which may, however, also cover the same subject-matter (eg programs for computers), since each of them serves its own purpose.

2.5 The appellant also referred to current practice in the US and Japanese patent offices and pointed out that, according to recently revised guidelines for examination in both offices, claims for computer program products are now allowed. He did not go into further detail concerning the exact formulation of such claims.

The Board has taken notice of these developments, but wishes to emphasise that the situation under these two legal systems (US, JP) differs greatly from that under the EPC in that it is only the EPC which contains an exclusion such as the one in Article 52(2) and (3).

2.6 Nevertheless, as pointed out by the appellant, these developments represent a useful indication of modern trends. In the Board's opinion they may contribute to the further highly desirable (world-wide) harmonisation of patent law. (EPO 1998: Reasons §2)

Roughly interpreted - the IBM Board believed there to be good grounds to try to find a way of finding computer programs to be patentable despite their exclusion from patentability in Article 52(2) EPC. The reasoning began by assuming the conclusion:

Article 52(2)(c) EPC states that programs for computers shall not be regarded as inventions within the meaning of Article 52(1) EPC and are therefore excluded from patentability.

Article 52(3) EPC establishes an important limitation to the scope of this exclusion. According to this provision, the exclusion applies only to the extent to which a European patent application or a European patent relates to programs for computers "as such".

The combination of the two provisions (Article 52(2) and (3) EPC) demonstrates that the legislators did not want to exclude from patentability all programs for computers. In other words the fact that only patent applications relating to programs for computers as such are

excluded from patentability means that patentability may be allowed for patent applications relating to programs for computers where the latter are not considered to be programs for computers as such. (EPO 1998: Reasons §4.1, emphasis added)

The *IBM* Board then indicated that finding the meaning of "as such" might "result in the identification of those programs for computers which, as a result of not being considered programs for computers as such, are open to patentability." (EPO 1998: Reasons §4.2)

The *IBM* Board began by referring to "technical character", a term which is not used in the Articles of the EPC, i.e. the parts of the EPC specifically agreed by the legislator:

Within the context of the application of the EPC the technical character of an invention is generally accepted as an essential requirement for its patentability. This is illustrated, for instance, by Rules 27 and 29 EPC. (EPO 1998: Reasons §5.1)

Here it must be stressed that, in accordance with Article 164(2) EPC, the Rules of the EPC cannot override, i.e. be used to interpret incorrectly, the provisions of its Articles. Moreover, as noted by Pila, the *travaux préparatoires* of the EPC show that the technical character theory of inventions has been rejected by the framers of the EPC from the outset (Pila 2005a). In this regard, Pila draws attention to the *Proceedings of the 1st meeting of the Patents Working Party held at Brussels from 17 to 28 April 1961* (COE 1961, section 5.5).⁹

The *IBM* Board then returned to its unsupported assumption from earlier cases that Article 52(2) EPC excludes only non-technical inventions:

The exclusion from patentability of programs for computers as such (Article 52(2) and (3) EPC) may be construed to mean that such programs are considered to be mere abstract creations, lacking in technical character. The use of the expression "shall not be regarded as inventions" seems to confirm this interpretation.

This means that programs for computers must be considered as patentable inventions when they have a technical character. (EPO 1998: Reasons §§5.2-5.3)

⁹ In a subsequent article, Pila (2005b) has described at length the origin of the Article 52(2) EPC exclusion of computer programs and of the "as such" restriction of Article 52(3) EPC.

Quite apart from the fact that Article 52(1) EPC states that patents may be granted for inventions and Article 52(2) EPC excludes subject matter by the simple legal fiction of stating that it isn't an invention, and so isn't patentable, the subject matter excluded by Article 52(2) EPC includes things (besides computer programs) that even in 1973 would not have been thought to be simply "abstract creations" and which, again even in 1973, would have been considered to have the possibility of being applied to technical effect. If a previously undocumented plant is found that contains a compound effective against a disease and so could be used to treat the disease by consumption of the plant, then the plant, a "discovery", could be used to technical effect. If a novel algorithm can be used to achieve image enhancement, then the algorithm, a "mathematical method", could be used to technical effect.

The *IBM* Board then turned to the technical character of computer programs. It first accepted that the physical modification of the hardware of the computer, e.g. by causing electrical currents, that implicitly occurs when a computer runs under the control of any program could not be a technical character of the program sufficient to avoid the Article 52(2) EPC exclusion. As a result, the *IBM* Board continued:

It is thus necessary to look elsewhere for technical character in the above sense: It could be found in the further effects deriving from the execution (by the hardware) of the instructions given by the computer program. Where said further effects have a technical character or where they cause the software to solve a technical problem, an invention which brings about such an effect may be considered an invention, which can, in principle, be the subject-matter of a patent.

Consequently a patent may be granted not only in the case of an invention where a piece of software manages, by means of a computer, an industrial process or the working of a piece of machinery, but in every case where a program for a computer is the only means, or one of the necessary means, of obtaining a technical effect within the meaning specified above, where, for instance, a technical effect of that kind is achieved by the internal functioning of a computer itself under the influence of said program.

In other words, on condition that they are able to produce a technical effect in the above sense, all computer programs must be considered as inventions within the meaning of Article 52(1) EPC, and may be the subject-matter of a patent if the other requirements provided for by the EPC are satisfied. (EPO 1998: Reasons §§6.4-6.5)

From this reasoning, the newly discovered plant and the new algorithm referred to above would class as inventions for the purposes of Article 52(1) EPC.

Following this reasoning, the *IBM* Board concluded that "it does not make any difference whether a computer program is claimed by itself or as a record on a carrier" (EPO 1998: Reasons §13), i.e. that claims to computer programs as such (but not of course "as such") *are* allowed.

The emphasis on discoveries in the preceding paragraphs is made due to a further line of argument (similar to that of decisions *PBS*, *Comvik* and *Hitachi* discussed above) that was developed by EPO Technical Board of Appeal 3.5.1 (now chaired by Steinbrenner) in another case, T-172/03 *Ricoh*. The T-172/03 decision related to a *business method*, also subject matter excluded under Article 52(2) EPC. The *Ricoh* Board held that the state of the art, i.e. the prior disclosures to be taken into account when determining whether an invention is new, and so patentable, does not include things which are non-technical, *whether published or not* (see EPO 2003: Reasons §§8-10). Since, by the logic of Board 3.5.1, everything that is excluded by Article 52(2) EPC is non-technical, this would allow a patent to a known discovery, mathematical method, etc *per se*, to be granted to any person who *subsequently* finds a technical character, i.e. effect, of the discovery, etc. Since a claim to a product as such covers *all* uses of the product, such patents would clearly circumvent the intention of the legislator in enacting Article 52(2) EPC.

EPO Technical Board of Appeal 3.5.01 (under its new chairman Steinbrenner) developed the interpretation of the "as such" provision still further in February 2006 with decision T-424/03 *Microsoft* (EPO 2006b) to arise at what we have above called the "strictly literal" approach. At issue was a claim, claim 5, to a computer-readable medium (i.e. a carrier) having a computer program on it. The *Microsoft* Board concluded that the "subject-matter of claim 5 has technical character *since it relates to a computer-readable medium*, i.e. a technical product involving a carrier" (EPO 2006b: Reasons §5.3, emphasis added). The logic of this decision is that *no* mixed media claims are excluded from patentability by Article 52(2) and (3) EPC, i.e. that "as such" is to be interpreted in the strictest literal sense.

4. The Questions referred to the Enlarged Board of Appeal

We must turn now to the questions referred to the Enlarged Board of Appeal by the President of the EPO in October 2008. The questions are as follows:

1. Can a computer program only be excluded as a computer program as such if it is explicitly claimed as a computer program?
- 2a. 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?
- 2b. 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?
- 3a. 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?
- 3b. If question 3(a) is answered in the positive, is it sufficient that the physical entity be an unspecified computer?
- 3c. 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?
- 4a. Does the activity of programming a computer necessarily involve technical considerations?
- 4b. If question 4(a) is answered in the positive, do all features resulting from programming thus contribute to the technical character of a claim?
- 4c. 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? (EPO 2008a)

4.1. Question 1 - Is the "strictly literal" approach correct?

The approach taken in decision T-424/03 *Microsoft* discussed above, the "strictly literal" approach, would result in the answer "yes" to question 1. This however would have the result that *most of the other exclusions from patentability in Article 52(2) EPC could similarly be avoided by inclusion of non-excluded subject matter in the claim.*

Since the "strictly literal" approach is an *alternative* to the "technical character" approach, an instruction manual, a set of instructions or rules for a game, and so on, would escape Article 52(2) and (3) EPC if, as would generally be the case, they are present on a carrier, e.g. a book. With the EPO case law as it stands, giving force to the legislator's intent in drafting Article 52(2) EPC then relies upon the legal fiction of the *PBS*, *Comvik* and *Hitachi* decisions, denounced by Jacob LJ in the *Aerotel* case as not intellectually honest, that non-technical features cannot contribute to novelty or inventiveness. Since such non-technical features apparently include discoveries, this would have the undesirable effect that a novel and inventive application of a discovery would be unpatentable, e.g. a therapeutic drug containing a compound isolated from a plant newly discovered to have healing properties.

The EPO President recognised that the "strictly literal" approach of the T-424/03 *Microsoft* decision diverged from the "technical character" approach of earlier decision T-1173/97 *IBM*, the logic of which would lead to the answer "no" to question 1 since a carrier carrying a non-technical program *would* be excluded under Article 52(2) EPC using the "technical character" approach.

Since the logic of the T-424/03 *Microsoft* decision leads to the emasculation of Article 52(2) EPC and requires an absurd test for novelty and inventiveness to recover any exclusionary effect, the answer to question 1 must be "no" (unless a better way is found to give real meaning to the exclusions of Article 52(2) EPC – see below).

4.2. *Question 2(a) - Are all mixed media claims allowed by Article 52(2) and (3) EPC?*

The logic of the T-424/03 *Microsoft* decision would lead to the answer "yes" to question 2(a). However, a better way would have to be found to give real meaning to the exclusions of Article 52(2) EPC.

It is unfortunate that the EPO President chose to phrase question 2(a) by referring both to a computer and to a data storage device. There is a strong conceptual difference between, on the one hand, a computer under operative control by a

program, by virtue of which it is able to do something it previously could not, and, on the other hand, a program on a disc (or a computer) which is no more than the program on a carrier, like a novel printed onto the pages of a book. Accordingly, we shall first consider question 2(a) as if the words "a computer or" were absent.

The answer to such a question, as with question 1, should be "no" unless a way is found to avoid the exclusion being rendered meaningless, a *necessity* in view of the retention of the exclusion during the recent revision of the EPC, a retention required by France as mentioned by the President of the EPO.¹⁰

Considering question 2(a) by contrast with the words "or a computer-readable data storage medium" deleted, the answer would again seem to be "no" (as the computer can simply act as the carrier of the program) unless the computer is under the operative control of the program, in which case the answer should be "yes". Here let us remind the reader that a "yes" answer does not mean that a claim to "a computer under the operative control of a computer program enabling it to do X" would automatically be patentable – the other hurdles of patentability would also have to be cleared.

The logic of decision T-1173/97 *IBM* however would also lead to the answer "no" for all aspects of question 2(a), since a technical character would be a requirement for a "yes" answer.

4.3. Question 2(b) - Is the "technical effect" approach correct?

Turning to question 2(b), and again addressing the case of the data storage medium alone, the answer (to the question that is, not to the paraphrase in the heading of this section) clearly has to be "yes" – however the feature in question cannot be a feature of the program but must instead be a feature of the data storage device. As the EPO President rightly notes, if the further technical effect resides in the program, this is equivalent to equating programs to methods rather than products. More particularly,

¹⁰ The *travaux préparatoires* relating to the recent revision to the EPC are available at <http://www.epo.org/patents/law/legal-texts/epc2000.html> [last accessed 29 March 2009].

in her letter of referral, the President of the EPO commented, in relation to question 2 and decision T-1173/97 *IBM* that:

[T]he Board indicated that the substance of a computer program claim lies in the method which it is intended to carry out when being run on a computer (Reasons, 9.6, 2nd paragraph, lines 1-3). *As such it must be assumed that the Board considered 'programs for computers' to be a type of method claim.* This would be in line with G 2/88 (Reasons, 2.2) which defines the two basic types of claims as being physical entities and physical activities.

Unlike an apparatus, which could be infringing whether it is actually operating or not, a method is only (directly) infringed when the method is carried out, whether by a computer or another entity. As such, it seems illogical to distinguish between computer implemented methods and computer programs which will cause a method to be implemented. (EPO 2008a: Reasons §8, emphasis added)

Here we enter into the realms of unnecessary fantasy. A data carrier, e.g. a disc carrying a computer program, is self-evidently not a *method* but a *thing*, a physical object. If the EPO's belief, diverging from the rest of humanity, is that computer programs are really methods and as methods should be patentable, then there is nothing stopping them being claimed as methods, and from decision T-208/04 *Vicom* onwards it has been abundantly and unarguably clear that methods involving the use of a computer program are not excluded by Article 52(2) EPC. National courts however would then have to accept that a computer program on a disc, or a non-operating computer, does not directly infringe claims to computer programs. Moreover, any claim to a disc carrying a method would obviously be invalid for insufficiency since loading a method on a disc is beyond the bounds of possibility.

The Enlarged Board of Appeal decision referred to by the President is the infamous G-02/88 *Mobil* case (EPO 1989b) where a claim was allowed to "the known use of a known material to achieve a hitherto unrecognised effect", in that case the addition to a lubricating oil of an additive previously used in lubricating oils as a rust-inhibitor, the new effect being that it had been discovered that the additive also had a friction-reducing effect.

The passage in the reasons of G-02/88 *Mobil* referred to by the President does little more than state the already well known - inventions may be claimed as physical

entities (products) or physical activities (methods) and that method claims may refer to product features and *vice versa*.

After Jacob LJ's scathing comments regarding the case law developed by EPO Technical Board of Appeal 3.5.1 in relation to Article 52(2) and (3) EPC, as mentioned above the Board counterattacked in the T-154/04 *Duns Licensing Associates* decision. The T-154/04 decision set out in detail the Board's basis for the "technical character" test and it is helpful to quote this at length:

The constant [sic] jurisprudence of the boards of appeal as far as it is relevant to the present case may be summarised succinctly in the following principles:

- (A) Article 52(1) EPC sets out four requirements to be fulfilled by a patentable invention: there must be an invention, and if there is an invention, it must satisfy the requirements of novelty, inventive step, and industrial applicability.
- (B) *Having technical character is an implicit requisite of an "invention" within the meaning of Article 52(1) EPC (requirement of "technicality").*
- (C) *Article 52(2) EPC does not exclude from patentability any subject matter or activity having technical character, even if it is related to the items listed in this provision since these items are only excluded "as such" (Article 52(3) EPC).*
- (D) The four requirements invention, novelty, inventive step, and susceptibility of industrial application are essentially separate and independent criteria of patentability, which may give rise to concurrent objections. Novelty, in particular, is not a requisite of an invention within the meaning of Article 52(1) EPC, but a separate requirement of patentability.
- (E) For examining patentability of an invention in respect of a claim, the claim must be construed to determine the technical features of the invention, i.e. the features which contribute to the technical character of the invention.
- (F) *It is legitimate to have a mix of technical and "non-technical" features appearing in a claim, in which the non-technical features may even form a dominating part of the claimed subject matter. Novelty and inventive step, however, can be based only on technical features, which thus have to be clearly defined in the claim. Non-technical features, to the extent that they do not interact with the technical subject matter of the claim for solving a technical problem, i.e. non-technical features "as such", do not provide a technical contribution to the prior art and are thus ignored in assessing novelty and inventive step.*
- (G) For the purpose of the problem-and-solution approach, the problem must be a technical problem which the skilled person in the particular technical field might be asked to solve at the relevant priority date. The technical problem may be formulated using an aim to be achieved in a non-technical field, and which is thus not part of the technical contribution provided by the invention to the prior art. This may be done in particular to define a

constraint that has to be met (even if the aim stems from an *a posteriori* knowledge of the invention). (EPO 2006a: Reasons §5, emphasis added)

Reading this "succinct summary" of jurisprudence leaves one somewhat speechless. Not only has the Board of Appeal's case law *not* been constant or consistent, but repeatedly stating something to be a fact does not make it one. This formulation contains three blatant errors: that technical character is a requisite of an invention (see Pila 2005a); that Article 52(2) and (3) EPC only exclude non-technical subject matter (see below); and that non-technical features cannot contribute to novelty or inventive step (see Jacob LJ's comments in the *Aerotel* case quoted above).

That Article 52(2) and (3) EPC only exclude non-technical subject matter has no basis in the *travaux préparatoires* of the EPC (see Pila 2005a) and is evidently incorrect since Article 52(2) and (3) EPC were retained in EPC 2000 (the current version of the EPC which was agreed after TRIPS and after decision T-1173/97 *IBM*), despite Article 52(1) EPC being amended to refer to patents being granted "in all fields of technology" (to comply with TRIPS) and despite the suggestion being made that they could therefore be deleted as redundant. By not being deleted, at the insistence of the French delegation, it is implicit that Article 52(2) and (3) EPC *must* serve to exclude some technical subject matter. If by virtue of Article 52(2) and (3) EPC not being deleted, the EPC is not TRIPS compliant, then it is up to the EPC contracting states to amend Article 52 EPC again to attain compliance and not up to the Boards of Appeal to misconstrue the law for the sake of political or administrative convenience.

4.4. Questions 3 and 4

Questions 3 and 4 posed by the President of the EPO add nothing further to the position relating to claims to computer *programs* rather than claims to *computers*, and will not be discussed in detail here.

5. The correct approach?

As far as the correct meaning to be given to the "as such" limitation of Article 52(3) EPC is concerned, we have argued that the now defunct "contribution" approach is

unduly draconian and that the "strictly literal" interpretation of the T-424/03 *Microsoft* decision on its own is ineffectual as it is so easily sidestepped.

We would argue that the correct interpretation of the law is that *a mixed media claim is not excluded by Article 52(2) and (3) EPC* if the non-excluded feature causes the claimed subject matter to be other than the excluded feature as such, but that if the two features independently are not inventions (e.g. if one feature lacks novelty and the other feature is not an invention for the purposes of Article 52(1) EPC by virtue of Article 52(2) and (3) EPC), then *the combination must lack inventive step if in the combination each feature functions independently, i.e. achieves no more than it would in any other combination.*

In British patent parlance, such a non-interacting combination of features which independently are not inventions is referred to as a "collocation" and is unpatentable for lack of inventive step (see CIPA 2001: 94).

Thus where a novel computer program is dormant upon a carrier, the claim to a known carrier (e.g. disc or computer) carrying the program must fail. Where a claim is directed to an apparently inventive carrier carrying a novel program, on first sight the Examiner may believe it to pass the Article 56 EPC test for inventive step; however, if he finds from the prior art that that carrier is known, then the claim must fail under Article 56 EPC. Two non-interacting non-inventions do not together form an invention.

This proposed interpretation of Article 52(2) and (3) EPC is in agreement with EPO Technical Board of Appeal 3.5.01's interpretation in the T-424/03 *Microsoft* decision, but differs in the manner in which inventive step is assessed since the T-424/03 *Microsoft* approach would allow claims to collocations, i.e. known data carriers carrying new programs.

In its treatment of the contribution of the excluded feature to inventive step, our proposal differs from Board 3.5.1's approach in the T-931/95 *PBS*, T-641/00 *Comvik* and T-258/03 *Hitachi* decisions since the excluded feature is not ignored where it interacts with the non-excluded feature.

In its refusal to label excluded features as non-technical, our interpretation differs from Board 3.5.1's approach in the T-1173/97 *IBM* decision.

Our approach may be also be compared with the earlier "contribution" approach of the T-38/86 *IBM* decision. In the *Aerotel* case, Jacob LJ set out the two objections to the contribution approach:

The first objection is that it involves an inquiry as to what is old, whereas you ought to be able to determine whether an exclusion applies just by considering what is claimed - is this sort of thing excluded? (EWCA 2006: paragraph 33)

To this the answer is that with the interpretation we propose it will be clear immediately whether Article 52(2) and (3) EPC apply.

Jacob LJ continued:

The second objection to the contribution approach is that accepted by this court in *Merrill Lynch* - a *reductio ad absurdum* argument. An example of it runs thus: suppose the "discovery" of the genetic (nucleotide) sequence which encodes for a particular valuable protein and a claim to a novel cloning vector incorporating it. If you "strip out" the discovery all you have is a known sort of cloning vector. So that all that has been added is the discovery - since that is unpatentable the claim is unpatentable too. That cannot be right - it would exclude many valuable inventions. (EWCA 2006: paragraph 34)

To this the answer with our proposed interpretation is that if all the vector is doing is serving as a carrier for the sequence, then the new vector construct would be unpatentable. *The framers of the EPC did not guarantee that no valuable inventions would be excluded*, and in any event the use of the vector construct to introduce the sequence into an environment in which the protein is then expressed would not be excluded, in just the same way as a method of operating a computer using a program need not be excluded.

We suggest that our proposed interpretation would in fact lead to the same outcome as the "technical character" test set out by Jacob LJ in the *Aerotel* case:

- (1) properly construe the claim
- (2) identify the actual contribution;
- (3) ask whether it falls solely within the excluded subject matter;

- (4) check whether the actual or alleged contribution is actually technical in nature (EWCA 2006: paragraph 40)

Applied to a disc carrying a computer program capable of achieving a technical effect when run on a computer and to a computer under the operative control of such a program, the proposed interpretation would deny claims to the former while allowing them to the latter; in comparison, it is submitted that the disc carrying the program *should* fail the *Aerotel* test at stage (3), while the computer should pass at all stages. Here, however, it should be noted that the England and Wales Court of Appeal in the *Symbian* case seemed to suggest that a computer program should pass the *Aerotel* test at stage (3) - however, this was only achieved by identifying the contribution as that achieved by the *running* of the program by the computer rather than by the computer program itself (EWCA 2008: paragraph 59).

6. Ramifications of the proposed approach

The EPC contains exclusions to patentability (other than for lack of novelty, inventive step or susceptibility to industrial application) in Article 52(2) and Article 53(a), (b) and (c). Simply put, Article 53(a), (b) and (c) EPC relate respectively to immoral inventions, plant and animal varieties and essentially biological processes, and methods of medical treatment. The "as such" proviso only applies to subject matter excluded by Article 52(2) EPC. If, as we propose, the Article 52(3) EPC "as such" proviso allows mixed media claims including the subject matter excluded by Article 52(2) EPC, then the *absence* of a similar proviso in relation to Article 53 EPC would imply that mixed media claims including the subject matter excluded by Article 53 EPC are not *automatically* exempt from the exclusion, but that if they *are* exempt they are of course subject to a collocation approach to inventive step, i.e. to the requirement for an interaction between features that on their own are not patentable inventions. To recap, if there is no "as such" limitation, then there is no automatic exemption from exclusion by inclusion of non-exempt subject-matter. If the subject-matter is exempted from exclusion, then it must still pass the inventive step test. If it is not exempt from exclusion, then quite simply it is unpatentable.

As to the EPO case law relating to methods of medical treatment, this is consistent with our proposed approach, since mixed media claims in this context (e.g. claims to a multi-step method in which one step qualifies as a method of medical treatment but in which other steps do not) are deemed unpatentable (see G-01/04 Diagnostic methods, EPO 2005).

As to the exclusion of "immoral" inventions, common sense would dictate that doing something immoral is not made moral by *also* doing something good, so it would appear that our proposed approach to mixed media claims is also consistent with Article 53(a) EPC.

This leaves the exclusions of "essentially biological processes" and of plant and animal varieties by Article 53(b) EPC.

The subject of essentially biological processes is currently before the Enlarged Board of Appeal in the G-02/06 Broccoli/*Plant Bioscience* (EPO 2006c) and G-01/08 Tomatoes/*State of Israel* (EPO 2008b) cases. We have argued elsewhere (Sterckx 2008) that a multi-step process is excluded from patentability as an essentially biological process if the *final* process step is itself an essentially biological process, and thus that mixed media claims in this subject area are *not* automatically clear of the exclusion from patentability as would be the case were the "as such" proviso to have been applied to Article 53(b) EPC. To be more specific, in a multi-step process, an essentially biological process step *inherently* does not interact with non-excluded (i.e. not essentially biological) steps. Thus, using the requirement we propose –that inventive step can only be recognised for a combination of individually non-patentable features if there is interaction between those features– in a multi-step process involving an essentially biological process step, the set of steps that are not essentially biological must be novel and inventive for the mixed media claim to be patentable. Moreover, where the essentially biological process step is the *first* or *last* step, then the (remaining) novel and inventive process may adequately be defined and claimed without requiring its inclusion. (Sterckx 2008)

Where the mixed media claim is to a product, e.g. a plant produced by a set of process steps, *one* of which is an essentially biological process, then we have argued (Sterckx

2008) that such claims *must* be rejected unless the *final* process step is *not* an essentially biological process. This is because such a mixed media product claim would cover the product of an essentially biological process (i.e. the product of the final step) and acceptance of such a claim would negate the legislator's intention to exclude essentially biological processes from patentability. For such a claim would be infringed by someone whose *only* action was to perform an essentially biological process and then trade in the resultant product.

We must finally turn to the implications of our proposal for the exclusion from patentability of plant and animal varieties.

Let us consider the case where an invention resides in the realisation that by coating the seeds of plant variety XX with a nutrient composition ZZ (which is already known for coating the seeds of plant variety YY solely to achieve faster growth) an unexpected technical effect is achieved, e.g. germination at a lower temperature. Can "seeds of plant variety XX coated with composition ZZ" be patented? We think the answer should be "yes". However, until the seeds are planted, the effect is not realised and thus the combination is perhaps a collocation, i.e. perhaps there is no interaction between the individually unpatentable features of this mixed media claim. Not so, if, when the non-excluded feature (here composition ZZ) performs its own known function, the new technical effect *automatically* arises from the interaction of the independently unpatentable features (here lower temperature germination of the seed of plant variety XX due to the presence of composition ZZ), then the interaction required for acknowledgement of an inventive step may be seen to be implicit in the combination. Thus such a mixed media claim, while not automatically exempt from the Article 53(b) EPC exclusion by the absence of an "as such" provision, will pass the inventive step hurdle of Article 56 EPC. In contrast, when a data carrier carrying a computer program is inserted into a computer's data carrier receptor, the program does not *automatically* take control of the computer. There is no synergy between the data carrier in operation and the program it carries.

7. Alternative proposal 1: No mixed media claims should be allowed

Our proposed interpretation gives effect to the exclusions of Article 52(2) EPC by first permitting mixed media claims but then requiring a relatively conventional approach to the assessment of inventive step. This could perhaps be seen as equivalent to stating that the "as such" requirement of Article 52(3) EPC serves to exclude non-interacting combinations of excluded and non-excluded subject matter - to take the earlier analogy, a man (excluded) with a hat (not excluded) on his head might still be considered to be a man "as such".

However, this is *not* so since *that* interpretation of "as such" would cause claims to novel and inventive *non-excluded* subject matter to be rejected when claimed in combination with excluded subject matter with which it does not interact. As discussed above, the exclusions of Article 53 EPC of methods of medical treatment and immoral inventions require mixed media claims to be rejected while the exclusions of Article 52(2) EPC do not. There is no pressing reason why a claim to a novel and inventive data carrier carrying (any) computer program should be rejected. This alternative proposal would reject such a claim; our proposed interpretation would not.

8. Alternative proposal 2: The "copyright level" exclusion

Before concluding, and to avoid any charge of bias, we must point out a further possible interpretation of the "as such" proviso of Article 52(3) EPC, one which has not been proposed by the EPO Technical Board of Appeal 3.5.1 but which has resonance with decisions in other fields by other EPO Technical Boards of Appeal.

In this interpretation, the exclusion would be of *specific* embodiments of the subject matter listed in Article 52(2) EPC. Thus, just as the EPO has found the exclusion from patentability of plant and animal varieties in Article 53(b) EPC to forbid a claim to a plant or animal which defines the plant or animal at the lowest taxonomic level, but *not* to forbid a claim in which the plant or animal is defined at a higher taxonomic level, the Enlarged Board of Appeal could find that the exclusion of computer programs "as such" is of *specific* programs written at a level at which they would

enjoy copyright protection, but not of programs defined in generic or functional language.

To adopt this approach however would, we feel, be undesirable for two reasons. First, such an approach would do a disservice to the public who, reading that computer programs are not patentable, should have the reassurance that any dealings they may have with specific, actual computer programs cannot constitute direct patent infringement. Secondly, the current EPO approach to the patentability of plants and animals ignores the fact that any and all infringing items are by definition at the specific, i.e. lowest taxonomic, level. Accordingly, no unit covered by such claims could, even by the EPO's logic, be considered to be patentable. As the Enlarged Board of Appeal has recently said in its WARF decision (EPO 2008c: 24), exclusions from patentability should not be interpreted in such a fashion that allows them to be evaded by clever claim drafting.

9. Conclusion

As Van den Berg, chairman of EPO Technical Board of Appeal 3.5.1., pointed out in 1996:

[B]oards of appeal cannot assume the role of legislator. They have to apply the law as it stands and cannot strive to meet wishes which are incompatible with the provisions of the European Patent Convention. (Van den Berg 1996: 45, quoted in Leith 2007: 29)

We propose that the term "as such" that appears in Article 52(3) EPC and qualifies the exclusions from patentability of Article 52(2) EPC, should be given a very straightforward and simple meaning, the one which would be the first and the most obvious to be given to it by any reader – if what is claimed is entirely within the exclusion it may not be patented; if what is claimed extends beyond the exclusion then Article 52(2) EPC *alone* does not deny patentability. However, to avoid sidestepping the legislator's intent in including Article 52(2) by clever claim drafting to combine a component which is excluded with a component which, though not excluded, is un inventive, the subsequent analysis for inventive step must require an interaction between the excluded and non-excluded components such that together they achieve more than singly they would be expected to.

In this way it is unnecessary to interpret away the exclusions of Article 52(2) EPC by using the unsupported construct of "technical character", it is unnecessary to give a strained and unnatural interpretation to the words "as such", and the end result is to find patentable the subject-matter found patentable in the past by the Enlarged Board of Appeal and the Technical Boards of Appeal of the EPO besides Board 3.5.1.

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European Patent Office
Enlarged Board of Appeal
Erhardtstraße 27
D-80331 München

GBK · EBA · GCR

- 8. Mai 2009

30 April 2009

Dear Sirs

Amicus curiae brief on case G-3/08

This is a minor addendum to the amicus brief I submitted on 30 March 2009.

In that brief, for the sake of completeness, it was suggested that one possible interpretation of the "as such" provision of Art 52(3) EPC in relation to computer programs was to permit Art 52(2) EPC to exclude only *specific manifestations* of computer programs, i.e. forms which would already be copyright protected. However, this "copyright interpretation" was said to be inappropriate and was not gone into at length.

I now note that this interpretation appears to have gained some favour in another of the amicus briefs that have been submitted, that by Dr Torsten Duhme on 23 April 2009.

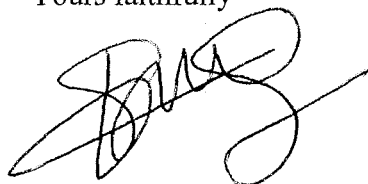
I should therefore point out that, before being taken seriously, the effect of this interpretation on the other exclusions in Art 52(2) EPC should be considered. If this is done, it will be seen that this cannot have been the intention of the framers of the EPC. Thus for example it would not exclude such things as "an image created by dots" (e.g. pointillist paintings, i.e. aesthetic creations), "instructions for the repair of an engine of novel type X" (i.e. presentations of information), "representation of information in binary code" (i.e. presentations of information), "representations of particle physics using more than four dimensions" (e.g. string theory, i.e. scientific theories), etc.

It may also be noted that, as long as a patent application contained sufficient teaching to enable performance of the "invention", such claims would likewise seem not to be excluded by the "vertical technology" approach suggested in another of the amicus briefs, namely that of Dr Reinier Bakels.

Finally, I note that two of the amicus briefs, those of Prof. Joseph Straus and "Tufty Sylvestris", suggest that the Enlarged Board of Appeal should reject the referral which is the subject of G-3/08. As is made clear in the amicus brief I submitted, the Technical Boards of Appeal have been inconsistent in their statements on the patentability of computer programs, and as Prof. Straus himself demonstrates the responsible Boards were not identically composed (even if as a whole they had the same numerical designation, 3.5.1), and thus were in fact different Boards (here remember that Art 112(1)(b) EPC refers to Boards, not to different Boards and

certainly not two *completely* different Boards). Since the Technical Boards of Appeal operate in different subject matter areas but nonetheless may decide on interpretations of the EPC having effect in subject matter areas beyond their own, it is clearly in the public interest that divergent interpretations should be reviewable by the Enlarged Board of Appeal (on referral by the President) whenever there is *any* difference in the compositions of the relevant Boards.

Yours faithfully

A handwritten signature in black ink, appearing to be 'Sigrid Sterckx', written in a cursive, flowing style.

Prof. Dr Sigrid Sterckx
Ghent University
Dept Philosophy & Moral Science
Blandijnberg 2
9000 Ghent
Belgium