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SUBJECT: Revision of EPC: Article 52(1)-(3)

DRAWN UP BY: President of the European Patent Office

ADDRESSEES: Committee on Patent Law (for opinion)

SUMMARY

This document outlines the legislative history of Article 52(1)-(3) EPC and describes the Office's granting practice and the case law of the boards of appeal, in particular with regard to the patentability of computer programs and software-related inventions. Reflections on the need for reform lead to a proposal for the revision of these provisions.

PATENTABLE INVENTIONS UNDER THE EPC

1. According to Article 52(1) EPC, European patents are granted for any inventions which are new, involve an inventive step and are susceptible of industrial application. Article 52(2) contains a non-exhaustive list of subject-matter and activities which are not regarded as "inventions" within the meaning of paragraph 1. Article 52(3), however, makes it clear that the subject-matter and activities referred to are excluded from patentability only to the extent to which a European patent application or European patent relates to such subject-matter or activities *as such*.

   Most of the EPC contracting states have brought their national patent law into line with these provisions.

2. Article 52(1) is based on Article 1 of the Strasbourg Patent Convention of 1963 and contains the fundamental provision that a patent should be granted in respect of any invention as long as it meets the other requirements for patentability and is not expressly excluded from patent protection. While the EPC sets out the patentability requirements of novelty, inventive step and industrial application in some detail (Articles 54-57 EPC), like the Strasbourg Convention it does not contain a legal definition of the term "invention".

3. All attempts to establish a suitable definition of the term "invention" which would meet with approval at European or even international level have so far failed. It has, however, been part of the European legal tradition since the early days of the patent system that patent protection should be reserved for creations in the technical field. The subject-matter of a patentable invention must therefore have a "technical character" or - to be more precise - involve a "technical teaching", ie an instruction addressed to a person skilled in the art as to how to solve a particular technical problem using particular technical means.

   It is on this understanding of the term "invention" that the patent granting practice of the EPO and its boards of appeal is based. The non-inventions listed by way of example in Article 52(2) EPC confirm that only a technical invention understood in this way can and should be patentable. The subject-matter and activities in Article 52(2) either contain no technical teaching at all, such as discoveries and scientific theories, or cannot be deemed part of the realm of technology, such as rules and methods for performing mental acts or doing business, even though all these things may well be susceptible of industrial application. Rules 27 and 29 EPC also give a clear indication that patentable inventions must have a technical character.

4. The list of non-patentable subject-matter in Article 52(2) EPC was the subject of lively discussion both in the lead-up to and at the Munich Diplomatic Conference in 1973. There is no such list in the Strasbourg Convention of 1963. It was enshrined in European patent law in close adherence to the PCT (Rules 39.1 and 67.1 PCT), which had been drawn up shortly before, and partly based on national provisions. It was proposed at the time of the Munich Conference that part or all of this list be transferred to the Implementing Regulations in order to be able to take better account of scientific and technical developments. But there was no support for these proposals because the list was considered to cover fundamental rules of substantive patent law, and it was felt that their amendment could not be left to the Administrative Council. At the suggestion of the German delegation, the clarifying provision of Article 52(3) was however incorporated into the EPC (see Minutes of the Munich Diplomatic Conference, p. 28 ff).

THE GRANTING PRACTICE OF THE EPO AND THE CASE LAW OF THE BOARDS OF APPEAL

5. In the light of the provisions of Article 52(1)-(3) EPC and the concept of "invention" on which they are based, over the years, the Office has developed a granting practice which is both differentiated and accommodating as far as the requirement for "technical character" is concerned. Following intensive consultation with the national offices and representatives of the private sector, the Guidelines for Examination in the EPO were revised in 1985 with regard in particular to the patentability of computer-related inventions. This version of the Guidelines is still valid today.

6. To summarise, under the Guidelines a patentable invention must be of both a concrete and a technical character. In order to establish whether these requirements are met, it is important, regardless of the form or category of the patent claims, to identify the real contribution which the subject-matter claimed, considered as a whole, adds to the known art. If this contribution is not of a technical character, there is no invention within the meaning of Article 52(1) EPC (Guidelines C-IV, 2.1 and 2.2). The Guidelines go on to set out in more detail how these criteria should be applied to the subject-matter and activities specified in Article 52(2) EPC (C-IV, 2.3). The principles laid down therein are tried and trusted, and permit a workable delimitation between technical inventions, which are patentable, and non-technical creations, which are not patentable.

7. The basic rules applied by the Office's examining and opposition divisions when assessing technical character have been very largely confirmed by the boards of appeal in what has become an extensive body of case law. According to this case law, the claimed subject-matter must be considered as a whole, and patentability is dependent upon whether the contribution it adds to the art lies in a field which is not open to patent protection (= Article 52(2) EPC) or whether it has a technical character, in other words solves a technical problem by technical means. Reference is made to the annexed summary of the most important decisions of the boards of appeal relating to patentability contained in "Case Law of the Boards of Appeal of the European Patent Office, 3rd edition 1998".

8. As regards the exception provided for in Article 52(2)(c) and (3) EPC, which excludes "programs for computers" as such from being regarded as inventions, the Office and the boards of appeal have always interpreted and applied the EPC in such a way that this exception in no way excludes appropriate protection for software-related inventions, that is inventions whose subject-matter consists of or includes a computer program. This practice can be summarised as follows: an invention which when viewed as a whole makes a technical contribution to the prior art, eg by means of a particular technical effect, is patentable even if a computer program is involved in its implementation.

9. Accordingly, the following in particular are patentable:

   * methods for operating a computer with a particular program if a technical effect is achieved thereby

   * a known computer operated by means of a particular program if a technical effect is achieved thereby

   * program-controlled manufacturing or working processes

   * methods for processing data representing technical structures or processes.

   The path taken since the Guidelines for Examination were amended in 1985 has provided ample scope for the protection of software-related inventions. Moreover the boards of appeal have confirmed the Office's granting practice in this important field in a large number of decisions. Since its establishment the EPO has granted more than 20 000 patents for software-related inventions, and applications of this type are constantly on the increase. Only a very few applications have had to be refused because the claimed subject-matter was not deemed to have a technical character.

10. The Office is convinced that its accommodating approach to patenting already provides appropriate and reliable protection under existing law for software-related inventions in all technical fields, which does not lag behind the protection offered for new software technology by the US and Japanese offices. Reactions from applicants and attorneys as well as the increasing number of applications for computer-related inventions confirm that the Office's granting practice is widely perceived as proper.

    The important question of the admissibility under the EPC of a patent claim for a (known) data carrier on which a computer program implementing the invention is stored has now in principle been answered in the affirmative by Technical Board of Appeal 3.5.1 in its decision T 1173/97 - Computer program product/IBM[*]. The Guidelines for Examination will be amended as soon as possible to reflect this decision.

SUGGESTIONS FOR REFORM

11. Nevertheless, for some time now there has been a growing body of opinion in favour of deleting "programs for computers" from Article 52(2) upon a revision of the Convention. Those who support this view cite in particular Article 27(1) of the TRIPs Agreement, according to which the member states of the World Trade Organization must ensure that patents are "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". This provision, it is argued, means that patent protection must be unrestrictedly available for computer programs, as the latter should be viewed as belonging to the realm of technology and thus as patentable. In conjunction with computer programs, doubts have also been raised as to whether the exclusion of mathematical methods and doing business under Article 52(2) EPC is justifiable.

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[*] **Headnote:**
"A computer program product is not excluded from patentability under Article 52(2) and (3) EPC if, when it is run on a computer, it produces a further technical effect which goes beyond the "normal" physical interactions between program (software) and computer (hardware)".

12. These arguments invite the following comments. Firstly, Article 27(1) of the TRIPs Agreement intentionally provides no definition of the term "invention". This allows WTO member states to understand and interpret the term "invention" in accordance with their own legal traditions, and thus to exclude some of the results of creative activity from patent protection. At the same time, the phrase "inventions ... in all fields of technology" makes the link between inventions and technology particularly plain and clearly delimits the scope of patent protection. The TRIPs Agreement thus does not require a departure from the tried and tested principle whereby, for an invention to be patentable, it has to involve a technical teaching or be of a technical character.

13. Nor is the argument convincing that computer programs are always of a technical character. This is not the case merely because they are intended for use in the operation of computers. A computer program may or may not involve a technical teaching. On the other hand, the current wording of Article 52 EPC does not completely exclude the possibility of a computer program being deemed not to be patentable even if it is of a technical character.

14. Finally, it is claimed that the exclusion of computer programs (as such) under Article 52 EPC gives the wrong impression that patent protection is not available at all for software-related inventions. This could prevent inventors and enterprises unfamiliar with patent law and the practice of the EPO from seeking patent protection for software innovations which indeed qualify for such protection. The deletion of computer programs from Article 52(2) EPC would therefore act as a signal to software developers and promote patent awareness.

15. There now appears to be a broad consensus that Article 52 should be amended, at least as far as this point is concerned. In its Green Paper on the Community Patent and the patent system in Europe of June 1997, the European Commission brought up the revision of Article 52 EPC for discussion. At the hearing on the Green Paper in November 1997 the interested parties were in favour of deleting Article 52(2)(c), or at the very least of deleting the mention of computer programs. In its resolution on the Green Paper of November 1998 the European Parliament held that "computer programs should be patentable, provided the product concerned meets the conditions concerning the novelty and operability of a technical invention, as is the case at international level with our economic partners, the United States and Japan".

16. In its Communication of 5 February 1999 concerning the follow-up to the Green Paper (see CA/16/99), the Commission strongly urges the amendment of Article 52(2)(c) EPC and reaffirms its intention, with regard to the unclear legal situation and the varying practice in the member states, to submit a proposal for a Directive on patent protection for computer programs in the near future. It is also expected that the Intergovernmental Conference to be hosted by France at the end of June this year will also call for computer programs to be deleted from Article 52(2) EPC.

PROPOSED REVISION OF ARTICLE 52 EPC

17. As a result of the above considerations, it is proposed that the wording of Article 52(1) EPC be brought into line with Article 27(1), first sentence, of the TRIPs Agreement as follows:

"European patents shall be granted for any inventions **in all fields of technology** which are susceptible of industrial application, which are new and which involve an inventive step."

In this way "technology" will be enshrined in the basic provision of substantive European patent law, the scope of the EPC will be clearly defined, and it will be made plain that patent protection is available to technical inventions of all kinds.

18. It is further proposed that paragraphs 2 and 3 of Article 52 EPC be deleted, as they are no longer necessary or desirable. If Article 52(1) EPC were to be amended as proposed, thus making it clear that only technical inventions are patentable, there would no longer be any need for the exceptions in paragraph 2. The requirement on which patentability depends, namely that an invention must represent a technical teaching or have a technical character, is sufficient to delimit patentable inventions from creations which are not eligible for patent protection.

The patent laws in existence prior to the PCT and the EPC did not contain any provisions comparable to Article 52(2) EPC. It was therefore the task of the patent offices and courts to elaborate workable criteria for determining patentability. This they did successfully, taking into account not only new technical developments, but also changes in legal thinking. This was why, for example, the Swiss legislator did not incorporate the list of exceptions in Article 52(2) EPC into Swiss national patent law when the latter was brought into line with the EPC.

19. The deletion of Article 52(2) and (3) EPC would get round the problems associated with the application and interpretation of any exception to patentability (what is a computer program as such?), but would not mean that the subject-matter and activities currently listed in Article 52(2) would then suddenly become patentable. Discoveries, scientific theories, mathematical methods, aesthetic creations, and purely mental or business acts, in particular, will continue not to be eligible for patent protection as long as they do not involve a technical teaching. Thus any fundamental change in current granting practice and case law is unlikely to occur.

    Patentability would continue to depend solely on whether the claimed subject-matter, considered as a whole, had a technical character or not. The task of determining this can be left to the departments of the EPO, its boards of appeal and the national courts, who are best equipped to do it. They are better able than the legislator to take the right decision in each individual case, as well as to take account of technical advances and thus to promote the pragmatic development and harmonisation of European patent practice. If necessary, special interpretative provisions could be incorporated into the EPC's Implementing Regulations.

    Finally, it should be pointed out that the proposal would contribute to the goal of deregulation.

PROPOSAL

Current version	**Proposed version**
Article 52 Patentable inventions	*Article 52* Patentable inventions
(1)* European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.	(1) European patents shall be granted for any inventions **in all fields of technology** which are susceptible of industrial application, which are new and which involve an inventive step.
(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.	(2) **[deleted]**
(3) The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such.	(3) **[deleted]**
(4) Methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body shall not be regarded as inventions which are susceptible of industrial application within the meaning of paragraph 1. This provision shall not apply to products, in particular substances or compositions, for use in any of these methods.	(4) unchanged, but see CA/PL 7/99

ANNEX

Case Law of the Boards of Appeal of the European Patent Office

Third Edition

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I. PATENTABILITY

European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.

A. Patentable inventions

Art. 52(2) contains a non-exhaustive list of things which shall not be regarded as inventions. It will be noted that the exclusions on this lists are all either abstract (eg discoveries, scientific theories etc.) or non-technical (eg aesthetic creations or presentations of information). Art. 52(4) provides that methods for treatment of the human or animal body by surgery or therapy and diagnostic methods practised on the human or animal body shall not be regarded as inventions which are susceptible of industrial application.

1. Technical nature of invention

An invention must have a technical character or, in other words, must provide a technical contribution to the art. In particular, this requirement is not met if the patent application or the patent relates to mathematical methods, rules and methods for performing mental acts or doing business, presentation of information or computer programs **as such** (see Art. 52(2), (3)).

1.1 Computer-related inventions

The non-patentability of computer programs **as such** does not preclude the patenting of computer-related inventions. However, the real **technical contribution** to the state of the art which the subject-matter claimed, considered as a whole, adds to the known art, should be ascertained (the subject-matter may also be defined by a mix of technical and non-technical features).

Decision **T 208/84** (OJ 1987, 14) set out the principles governing the patentability of computer-related inventions. 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**. A claim directed to a technical process carried out under the control of a program (whether by means of hardware or software) cannot be regarded as relating to a computer program **as such**. A claim 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**.

The next leading case, decision **T 26/86** (OJ 1988, 19), examined whether an X-ray apparatus incorporating a data processing unit operating in accordance with a routine was patentable. The board considered that the claim related neither to a computer program on its own and divorced from any technical application, nor to a computer program in the form of a recording on a data carrier, nor to a known, general purpose computer in combination with a computer program. It found instead that the routine in accordance with which the X-ray

apparatus operated produced a technical effect, ie it controlled the X-ray tubes so that by establishing a certain parameter priority, optimum exposure was combined with adequate protection against overloading of the X-ray tubes.

The invention was therefore patentable irrespective of whether or not the X-ray apparatus without this computer program formed part of the state of the art. The board held that an invention must be assessed as a whole. If it made use of both technical and non-technical means, the use of non-technical means did not detract from the technical character of the overall teaching. The EPC does not prohibit the patenting of inventions consisting of a mix of technical and non-technical elements.

The board therefore regarded it as unnecessary to weigh up the technical and non-technical features in a claim in order to decide whether it related to a computer program as such. If the invention defined in the claim used technical means, its patentability was not ruled out by Art. 52(2)(c) and (3) and it could be protected if it met the requirements of Art. 52 to 57.

In decision **T 209/91** the board upheld the principle formulated in **T 26/86** (OJ 1988, 19) that the patentability of an invention making use of both technical and non-technical features could not be ruled out a priori. A claim must be assessed as a whole; the fact that it included non-technical features did not detract from the technical character of the overall teaching, provided these features also helped to bring about the technical effect.

In decision **T 6/83** (OJ 1990, 5) the board found that an invention relating to the co-ordination and control of the internal communication between programs and data files held at different processors in a data processing system having a plurality of interconnected data processors in a telecommunications network, the features of which were not concerned with the nature of the data and the way in which a particular application program operated on them, was to be regarded as solving a problem which was essentially technical. The control program was therefore comparable to the conventional operating programs required for any computer to coordinate its internal basic functions and thereby permit the running of a number of programs for specific applications. Such an invention was to be regarded as solving a problem which was essentially technical and thus an invention within the meaning of Art. 52(1).

In decision **T 158/88** (OJ 1991, 566) the board stated that a method for the display of characters (eg Arabic characters) in a particular preset shape chosen from several possible character shapes did not in essence describe a technical method of operating a data processing system and its visual display unit, but an idea for a program. A computer program did not become part of a technical operating method if the teaching claimed was confined to changing data and did not trigger any effect over and above mere data processing. When examining whether the method in question served to solve a technical problem which could make the program defined in the claim patentable as part of a teaching on technical operations, the board came to the conclusion that where the data to be processed according to a claimed method represented neither operating parameters nor a device, nor had a physical or technical effect on the way the device worked, and no technical problem was solved by the claimed method, the invention defined in the claim did not make use of any technical means and in accordance with Art. 52(2)(c) and (3) could not be regarded as a

patentable invention within the meaning of Art. 52(1).

In **T 769/92** (OJ 1995, 525) the board held that an invention comprising functional features implemented by software (computer programs) was not excluded from patentability under Art. 52(2)(c) and (3) if technical considerations concerning particulars of the solution of the problem the invention solved were required in order to carry out that same invention. Such technical considerations lent a technical nature to the invention in that they implied a technical problem to be solved by (implicit) technical features. An invention of this kind was considered not to pertain to a computer program as such under Art. 52(3). The decision set out that non-exclusion from patentability could not be destroyed by an additional feature which as such would itself be excluded, as in the present case features referring to management systems and methods which might fall under the "methods for doing business" excluded from patentability under Art. 52(2)(c) and (3).

In **T 59/93** a method for entering a rotation angle value into an interactive draw graphic system was claimed. This method, implemented on a programm-controlled computer, its operator being the user, allowed the rotation of displayed graphic objects with increased accuracy. The board held that the method claim defined, by the steps the method comprised, the functional features of said system. These features were neither regarded as relating to mathematical methods as such (the calculating steps were considered to be only means used within the overall method), nor as claims to computer programs as such (the operation of the system, in its use under the control of such programs, brought about technical effects which solved a problem which was to be regarded as involving technical considerations), nor as relating to the presentation of information as such (the excluded subject-matter was not claimed as such, but was only a tool for implementing certain steps of the method claimed as a whole). The board held that methods comprising excluded features, but nevertheless solving a technical problem and bringing about technical effects, were to be considered as making a technical contribution to the art.

In **T 953/94**, claim 1 of the main request related to a method of generating with a digital computer a data analysis of the cyclical behaviour of a curve represented by a plurality of plots relating two parameters to one another. The board held that such a method could not be regarded as a patentable invention, because an analysis of the cyclical behaviour of a curve was clearly a mathematical method excluded as such from patentability. The reference to a digital computer only had the effect of indicating that the claimed method was carried out with the aid of a computer, ie a programmable general-purpose computer, functioning under the control of a program excluded as such from patentability. The fact that the description disclosed examples in both non-technical and technical fields confirmed that the problem solved by the claimed mathematical method was independent of any field of application and could thus lie, in the case at issue, only in the mathematical and not in a technical field.

The fifth auxiliary request read as follows: "A method of controlling a physical process based on analysing a functional relationship between two parameters of the physical process comprising the steps of: measuring the values of the two parameters, and generating with a digital computer a data analysis of the cyclical behaviour of a curve represented by a plurality of plots relating the two parameters to one another, ..." The last feature was worded as follows: "(h) extending the range of said one parameter in accordance with the data

generated for displaying on a visual display unit the prolongation of said curve for use in the control of said physical process."

The board emphasised that claim 1 of the fifth auxiliary request was not excluded from patentability only because of the insertion of the expression "for use in the control of said physical process". Contrary to the decision of the opposition division the board decided that this wording limited the claim in a technical sense. Claim 1 no longer referred to the mere possibility of using the mathematical method in a technical or physical process. It was agreed that if the expression "for use" were understood as merely indicating that the claimed extension of the range of a parameter for displaying the prolongation of the curve would be "suitable" for use in the process control, such an interpretation might cast doubt on the effectiveness of the limitation of the claim. However, in conjunction with the expressly intended restriction of the claimed method to a "method of controlling a physical process" the word "for", in the board's view, could no longer be interpreted as merely meaning "suitable" but as "used to control a physical process". The board concluded that the subject-matter of the fifth auxiliary request in its proper interpretation was not excluded from patentability.

1.2 Word-processing

Decision **T 115/85** (OJ 1990, 30) related to a method for displaying one of a set of predetermined messages comprising a phrase made up of a number of words, each message indicating a specific event which might occur in the input-output device of a word processing system which also included a keyboard, a display and a memory.

The board observed that giving visual indications automatically about conditions prevailing in an apparatus or a system was basically a technical problem. The application proposed a solution to such a technical problem involving the use of a computer program and certain tables stored in a memory. It adopted the principle laid down in decision **T 208/84** (see also p. 27): 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. However, it did not follow from this that conversely a computer program could under all circumstances be considered as constituting technical means. In the case in question the subject-matter of the claim, phrased in functional terms, was not barred from protection by Art. 52(2) and (3).

In decision **T 22/85** (OJ 1990, 12) the same board had to decide on the patentability of a method for automatically abstracting and storing an input document in an information storage and retrieval system and a corresponding method for retrieving a document from the system. The board observed that the described method fell within the category of activities defined in Art. 52(2)(c). It considered that the mere setting out of the sequence of steps necessary to perform the activity in terms of functions or functional means to be realised with the aid of conventional computer hardware elements did not import any technical considerations and could therefore neither lend a technical character to the activity nor to the claimed subject-matter considered as a whole, any more than solving a mathematical equation could be regarded as a technical activity when a conventional calculation machine is used.

In decision **T 38/86** (OJ 1990, 384) the board first of all had to assess the patentability of a

method for automatically detecting and replacing linguistic expressions which exceeded a predetermined understandability level in a list of linguistic expressions. The board was of the opinion that a person who wished to carry out such a task using his skills and judgment would perform purely mental acts within the meaning of Art. 52(2)(c); the schemes, rules and methods used in performing such mental acts are not inventions within the meaning of Art. 52(1). The board stated that the use of technical means for carrying out a method, partly or entirely without human intervention, which, if performed by a human being, would require him to perform mental acts, may, having regard to Art. 52(3), render such a method a technical process or method and therefore an invention within the meaning of Art. 52(1). Since patentability is excluded only to the extent to which the patent application relates to excluded subject-matter or activities as such, it appeared to be the intention of the EPC to permit patenting in those cases in which the invention involves a contribution to the art in a field not excluded from patentability. In the case in point this condition was not satisfied: once the steps of the method for performing the mental acts in question had been defined, the implementation of the technical means to be used in those steps involved no more than the straightforward application of conventional techniques and had therefore to be considered obvious to a person skilled in the art. In the case of a claim for an apparatus (here, a word processing system) for carrying out a method which did not specify any technical features beyond those already comprised in a claim pertaining to said method and furthermore did not define the apparatus in terms of its physical structure, but only in functional terms corresponding to the steps of that method, the board stated that the claimed apparatus did not contribute anything more to the art than the method. Thus, in spite of the fact that the claim was formulated in a different category, in such cases, if the method was excluded from patentability, so was the apparatus.

Decision **T 38/86** was confirmed by decision **T 121/85**. The claims related to word processing carried out by a word processing system including a processor controlled by a computer program. The board concluded that nothing in the disclosure pointed to a contribution, such as a program, going beyond the fields of linguistics and computer functioning directly derived from the linguistic rules to be applied (the applicant had claimed software solutions to the linguistic problem of checking the spelling of a word). Thus the claim was excluded from patentability under Art. 52(2)(c) and (3).

The patentability of computer-related inventions was again considered in decision **T 95/86**. The applicant had claimed a method of text editing. The board found the activity of editing a text to be principally concerned with its linguistic and layout features. The editing of a text as such - even performed with the aid of a machine - therefore fell within the category of schemes, rules and methods for performing mental acts which under Art. 52(2)(c) and (3) are not patentable. The board took the view that the mere setting out of the sequence of steps necessary to perform an activity - excluded as such from patentability - did not import any technical considerations, even if those steps were described as functions or functional means to be implemented with the aid of conventional computer hardware elements.

In **T 110/90** (OJ 1994, 557) the invention was for a method of transforming a first editable document form prepared using a batch word processing system into a second editable document form for use on an interactive or batch word processing system. Following **T 163/85** (OJ 1990, 379) the board found that control items (eg printer control items) included

in a text represented in the form of digital data were characteristic of the word-processing system in which they occurred in that they were characteristic of the technical internal working of that system. Such control items therefore represented technical features of the word-processing system in which they occurred. Consequently, transforming control items which represented technical features belonging to one word-processing system into those belonging to another word-processing system constituted a method of a technical nature.

In **T 71/91** the board considered the patentability of an electronic document system consisting of a plurality of processors or workstations which received and transmitted documents in the form of a data stream. The data represented both the contents of a document and information on the kind of processing to be performed relative to it. If a processor detected processing information which it was not capable of performing, that information was not merely ignored but was stored in a memory and retrieved when the data stream was transmitted to another processor. The data stream was thus reconstituted and the transmitted data was substantially the same as the received data, no information having been lost. The board held, following **T 38/86** (OJ 1990, 384), that it was clear that the claimed subject-matter made a contribution to the art in a field not excluded from patentability. The board also pointed out that in an analogous case, **T 110/90** (OJ 1994, 557), the "control of hardware such as a printer" was held not to be excluded under Art. 52(2)(c) since it was not concerned with "the linguistic meaning of words of the text". Similarly, in the case before the board, the data to be processed was also distinct from the content of the document itself.

The interrelationship of excluded and non-excluded features was considered in **T 236/91**. Following **T 208/84** (OJ 1987, 14), **T 38/86** (OJ 1990, 384) and **T 26/86** (OJ 1988, 19), the board reiterated that while the EPC does not prohibit the patenting of inventions consisting of a mix of excluded and non-excluded features, and since patentability is excluded only to the extent to which the patent application relates to excluded subject-matter or activities as such, it appeared to be the intention of the EPC to permit patenting (only) in those cases in which the invention involved a contribution to the art in a field not excluded from patentability.

Applying this to the present case, the board found that even after the claimed computer had been found not to be obvious, it had still to be decided whether or not a technical contribution to the art had been made by the non-obvious feature or features of that computer. The gist of the claimed invention, in the board's view, could be seen in the fact that a sentence in natural language was parsed not only after it had been entered completely into the computer, but, on the contrary, step by step after each word or phrase had been entered, and that depending on the result of this parsing, a new menu presenting only a selection, to wit, a selection which could not be predefined by the designer of the computer, of possible continuations of the sentence was created. In this sense, the internal working of the computer as claimed was not conventional and should, in the opinion of the board, be regarded as a technical effect.

1.3 Presentation of information

In decision **T 163/85** (OJ 1990, 379), regarding a colour television signal characterised by technical features of the system in which it occurred, the board considered it appropriate to distinguish between two kinds of information when discussing its presentation; according to

this distinction, a TV system solely characterised by the information *per se*, eg moving pictures modulated on a standard TV signal, might fall under the exclusion of Art. 52(2)(d) and (3), but not a TV signal defined in terms which inherently comprised the technical features of the TV system in which it occurred; as the list of exclusions from patentability summed up in Art. 52(2) in conjunction with Art. 52(3) was not exhaustive in view of the phrase "in particular" in the first line of paragraph 2, the exclusion might arguably be generalised to subject-matter which was essentially abstract in character, non-physical and therefore not characterised by technical features within the meaning of R. 29(1).

In decision **T 603/89** (OJ 1992, 230) the invention consisted of an apparatus for and a method of learning how to play a keyboard instrument, with numbers corresponding to notes on a sheet of music appearing on the keys too. The technical feature claimed was the marking of the keys. Patentability was ruled out by Art. 52(2)(c) and (d). Since the key markings were merely known technical features, the contribution made by the claimed invention to realising the teaching apparatus lay solely in the content of the information displayed, not in the apparatus itself. The invention was not based on a technical problem, but on an improvement to a teaching method, which was equivalent to an improvement to a method for performing mental acts.

In **T 77/92**, the invention concerned a method of selecting, in emergency situations, the correct patient treatment values, namely drug dosage, defibrillation technique energy and/or apparatus size. The method comprised measuring the body length of the emergency patient using a particular tape and rapidly selecting the said correct patient treatment values without the exercise of clinical expertise, calculation or reference to other data sources. The particular tape used had increments of heel-to-crown length, each increment bearing indications of the correct treatment value appropriate to that increment and predetermined by a co-relation between the measured heel-to-crown height of a patient and a correct treatment value. According to the established case law, for an invention not to be excluded from patentability, the board in **T 77/92** had to consider whether the subject-matter claimed, which had to be assessed as a whole, was technical in character or provided a technical contribution to the prior art, i.e. a contribution in a field not excluded from patentability. After having defined the prior art, the board concluded that the decision under appeal did not adequately evaluate the co-relation between the heel-to-crown length of a patient and each of the treatment values provided on the measuring tape. This co-relation between the measured length and the information on the tape measure resulted in the tape used in the claimed methods becoming a new gauge for directly measuring the patient treatment values, just as an altimeter is obtained merely by replacing the scale of a pressure gauge with a scale indicating altitude. Such a new gauge for directly measuring the patient treatment values was clearly technical in character.

Further to **T 115/85** (see p. 30) the board ruled in **T 362/90** that automatic visual display of the conditions prevailing or desirable in an apparatus or system was basically a technical problem. A claim directed to a device displaying (especially in heavy goods vehicles) both the gear in use and (by evaluating signals about engine performance) the best gear to be in was not unpatentable under Art. 52(2)(d) even if it did involve non-technical features relating to the presentation of information.

In **T 790/92** the board considered **T 115/85** (OJ 1990, 30) where it was held that displaying messages indicating a specific event which might occur in the device in a processing system was basically a technical problem because it involved the internal functioning of a device. In the present case, however, the board stated that it was not such a technical "event" or "condition" concerning the functioning of a device and therefore posing a technical problem which would give rise to a message, but a discrepancy between the information presented by the chart and the information the chart was normally intended to present. The board held that such a discrepancy between normal and modified presentations of information could not be considered as being of a technical nature.

In **T 887/92** one of the objects of the invention was to render the usual HELP facility provided with many computer programs more user-friendly. The claimed method involved the steps of (1) determining what commands were valid as the next command by an analysis of the current state of the process task being performed by the system at the time the help request was issued, (2) displaying a help panel containing only these commands, (3) positioning a "selection" cursor to the line of a displayed command, and (4) executing the command selected by pressing the "enter" key. The board held that giving visual indications automatically about conditions prevailing in an apparatus or system was basically a technical problem. Thus, the displaying of only valid commands in the help panel had technical character because it clearly reflected the status or condition of the system. The computer program on which step (1) relied was considered to constitute a technical means for carrying out the invention.

In **T 599/93** a configuration for simultaneously displaying several images on one (computer) screen was claimed. The screen was divided into four sections, for example by means of one horizontal and one vertical demarcation line. The size of the sections could be altered by moving a setting mark located at the intersection of the demarcation lines. The surfaces of the setting mark located inside the windows could each be selected separately to indicate particular contents of the window concerned, eg by a change of colour, even if the window in question was not, or not fully, visible at the time.

The board was of the view that imparting information on events in a screen window by changing the colour of the relevant surface of the setting mark was not of a technical nature (no information was given for example on the operating status of the claimed configuration), but merely drew the user's attention to particular contents of the relevant images and thus served to present information within the meaning of Art. 52(2)(d). This feature could not therefore contribute to inventive step.

1.4 Methods for doing business

A computer manufacturer applied to patent a method for operating an electronic self-service machine (eg cash dispenser which could be accessed using any machine-readable card. A prospective user first had to insert such a card to enable its identification data to be stored; he then keyed in credit information about himself on to an "electronic application form", thereby permitting a decision to be taken on whether to authorise him as a user. Once authorised, he could access the system using that same card.

In **T 854/90** (OJ 1993, 669) the board ruled that this was not patentable - parts of the method claimed were merely instructions for using the machine, and although technical components were used this did not alter the fact that what was being claimed was a method for doing business as such.

In **T 636/88** claim 1 was for a method of distributing material transported in bulk by ship: on the quayside was mounted a weighing and bagging apparatus which could be shipped in standard containers and was used to unload and bag the material before moving on to the next port. The other claims were directed to the bagging apparatus itself.

The opponent argued that the patent proprietor's commercial success derived merely from a method for doing business within the meaning of Art. 52(2)(c), namely contract bagging of bulk material in a manner permitting offloading at ports (eg in developing countries) which did not have any bagging plant on site. The board however took the view that the method claimed clearly did have technical character, involving as it did the use of technical equipment (bagging apparatus) to achieve a technical end (the production of sealed, weighted bags of the material in question). It also necessitated the use of bagging apparatus which had no counterpart in the prior art.

In **T 769/92** (OJ 1995, 525) the applicant claimed a computer system for plural types of independent management including at least financial and inventory management and a method for operating said system. Data for the various types of management which could be performed independently from each other with this system could be inputted using a single "transfer slip", in the form of an image displayed on the screen of the display unit of the computer system, for example.

Although financial and inventory management would generally fall under "doing business", the board held that the invention was not excluded from patentability under Art. 52(2)(c) and (3). In its view the particular kinds of management mentioned were not decisive; the fact that they were of different "specific" types to be performed "independently" of each other was found to be important. The application contained the teaching to provide, in the memory unit of the computer system, certain files and processing means for storing and further processing the data entered and causing the processing unit to perform these functions. The implementation of this teaching required the application of technical considerations. In the board's view the non-exclusion from patentability also applied to inventions where technical considerations were applied concerning particulars of their implementation. The very need for such technical considerations implied the occurrence of an at least implicit technical problem to be solved and at least implicit technical features solving this problem.

Furthermore, the provision of the single transfer slip required the application of technical considerations. This "user interface" implied that, in effect, independent financial and inventory management systems were combined by a common input device allowing data entered for use in one of the said systems also to be used, if required, in the other system. The implementation of such an interface in the claimed computer system was not merely an act of programming, but rather concerned a stage of activities involving technical considerations to be carried out before programming could start.

In the view of the board, restricting the application to financial and inventory management did not give rise to an objection under Art. 52(2)(c). By this restriction, the claimed subject-matter only gained, in addition to the combination of features which were not excluded from patentability, a further feature which, as such, would be excluded. However, it was established board of appeal practice to allow patentability for a mix of technical and non-technical features.

In **T 1002/92** (OJ 1995, 605) a system was claimed for determining the queue sequence for serving customers at a plurality of service points. The system gave the customer the possibility of selecting one particular service point; it comprised, in particular, a turn-number allocating unit, terminals for each service point, an information unit which indicated the particular turn-number and the particular free service point to the customer.

The board held that the wording of the claim left no doubt that protection was sought for a three-dimensional object with certain capacities: The claim defined a technical item clearly belonging to the category of an apparatus with constructional components which were characterised in terms of their functions. Summarising, the board took the view that the claim was directed to an apparatus which comprised, inter alia, computer hardware operating according to a particular computer program. The program-determined output signal of the hardware was used for an automatic control of the operation of another system component (the information unit) and thus solved a problem which was completely of a technical nature. Moreover, the fact that one of the practical applications of the system concerned the service of customers of "a business equipment" did not mean that the claimed subject matter must be equated with a method for doing business as such.

1.5 Aesthetic creations

In **T 686/90** the board was called upon to decide whether the feature "work of art in the style of stained glass" meant that it was excluded from patentability under Art. 52(2)(b). The board held that functional information referring to general aesthetic creations did not define an aesthetic creation as such, at least provided that and insofar as such information adequately identified technical features of the subject-matter of the claim. Since an aesthetic creation (not formally specified) as the stated purpose, together with the other features, adequately defined a technical subject-matter in the claim, there was no aesthetic creation as such. For this reason there could be no objection to the claim under Art. 52(2)(b) on the basis of Art. 52(3).

In **T 962/91**, on the other hand, the board held that the practical problem underlying the invention - as disclosed - involved concealing inhomogeneities occurring in the outer region and detracting from the appearance of the information carrier by means of matting in such a way that these so-called errors were not apparent to the observer. The board agreed with the examining division that errors of this kind in no way impair the technical operation of the information carrier. This meant that the use of the matting as claimed for the purpose of concealing errors was not designed to solve a technical problem but was confined to the attainment of an aesthetic effect.

In decision **T 119/88** (OJ 1990, 395) the subject-matter of the application in question related to a flexible disk jacket made of a plastic sheet presenting to the outside world a surface

colour of a certain minimum light intensity. The board first of all stated that the feature of having a specific colour as such did not constitute a technical feature indicating that an object or device was entirely or partly covered by that colour; however, the board did not rule out the possibility that this did not hold in all circumstances. The feature taken by itself might not seem to reveal any technical aspect, but its technical or non-technical character could be decided by the effect it brought about after being added to an object which did not comprise the feature before. In the case in point, the board concluded that the alleged resistance to fingerprints was a purely aesthetic effect which contributed nothing technical to the invention concerned (Art. 52(2)(b)) and the advantage of easy classification by colour represented a non-technical effect in the form of a presentation of information. As such it was excluded from patentability under Art. 52(2)(d) and (3).

1.6 Lack of technical character in general

As already stressed in previous decisions, an invention must be technical in character, ie it must solve a technical problem to be patentable under Art. 52.

T 51/84 (OJ 1986,226) concerned a process for protecting sound-recording carriers against counterfeiting by applying a coded distinctive mark. The board held that this process came under the heading of matter excluded from patentability by Art. 52(2)(c) and (3) because the claim focused solely on procedural steps which could be carried out by a person in whatever way he chose, and did not indicate or presuppose technical means for carrying them out.

In **T 222/89** the board found that where the sole characterising feature lacked causal significance for achieving the invention claimed, it did not constitute patentable technical teaching. The board thus followed **T 192/82** (OJ 1984, 415) which had ruled that the amending feature must not only characterise the invention, ie distinguish it from the prior art, but also - if the invention consists of altering known subject-matter to enhance its known effect - make a causal contribution to improving that effect. In the claim for optimising the design of a piston drive, the board considered the sole characterising feature not to be a technical feature which caused the improvement, but rather a description of the desired configuration in geometric terms since the optimisation would require design ideas other than the teaching as per the claim.

In some decisions, the boards came to the conclusion on the facts that no technical contribution had been made to the state of the art:

In **T 833/91** the board stated that all the different matters or activities listed in Art. 52(2) seemed to have in common the fact that they implied something non-technical and, secondly, that from Art. 52(3) it would appear to be the EPC's intention to permit patenting (only) in those cases in which the invention involves some contribution to the art in a field not excluded from patentability. The board thus concluded that, in accordance with the consistent case law of the Boards of Appeal, it could be said that the technical contribution to the art rendering a claimed invention an invention within the meaning of Art. 52(1) and thus patentable, might lie either in the problem underlying, and solved by, the claimed invention, or in the means constituting the solution of the underlying problem, or in the effects achieved in the solution of the underlying problem. In the case in point the claimed invention concerned the designing

or developing of application (or user) programs for computers, ie it addressed a program designer or programmer. The board pointed out that programs for computers as such were expressly excluded from patentability and a programmer's activity would involve performing mental acts and therefore also fell within the exclusions under Art. 52(2)(c). Furthermore, displaying data was presentation of information and thus excluded by Art. 52(2)(d). The board held that the contribution to the state of the art made by the invention was not technical, that the subject-matter did not make any contribution to the art in a field not excluded from patentability and was not therefore to be regarded as an "invention" within the meaning of Art. 52(1).

In **T 204/93**, the claimed invention related to the art of generating "concrete" software programs (ie those written in a particular programming language). These "concrete" software programs were generated from supplied "generic" specifications, which were program components or modules written in a more generally usable language, so they had to be "translated" before insertion into the "concrete" program. The principle of using named program modules, stored elsewhere, in a computer program to be generated, resembled, except for the level of language used, the well-known calling-up of stored sub-routines in main programs. As far as the claimed subject-matter was concerned, the board did not dispute that it would improve the efficiency of the programmer. However, this did not mean that the computer would work in an essentially new way from a technical point of view.

Computer programs were not patentable irrespective of their content, ie even if that content happened to be such as to make it useful, when run, for controlling a technical process. Similarly, a programmer's activity of programming, would, as a mental act, not be patentable, irrespective of whether the resulting program could be used to control a technical process. Finally, automating that activity, in a way which did not involve any unconventional means, would not render that programming method patentable either, irrespective of the content of the resulting program.

In **T 453/91** the product claim directed to a VLSI-chip was held novel and inventive. The method also claimed for physical VLSI-chip design, however, was rejected because these claims only referred to the individual steps of designing such a chip and therefore could be interpreted as merely delivering a "design" in the form of an image of something which did not exist in the real world and which might or might not become a real object. The result of the method would not necessarily be a "physical entity" in the sense of decision **T 208/84** (OJ 1987, 14). The board, however, allowed method claims which contained not only the steps of chip designing but also the feature "materially producing the chip so designed". This claim was considered to be clearly restricted to a process of manufacturing a real (physical) object having technical features and thus to a technical process.