

CH 1995 F. No. 4733

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IN THE HIGH COURT OF JUSTICE

CHANCERY DIVISION

5 **PATENTS COURT**

Date: 24 May, 1996

Before: THE HON. MR. JUSTICE LADDIE

10 **IN THE MATTER OF PATENT APPLICATION NO. 9204959.2 BY
FUJITSU LIMITED**

15 **D. Young QC instructed by Haseltine Lake & Co. for the Applicant/Appellant
M. Silverleaf QC instructed by the Treasury Solicitor for the Comptroller General of Patents**

Hearing date: 17 April, 1996

JUDGMENT

Justice Laddie:**Introduction**

1. This is an appeal from a decision of Mr D M Haselden, Principal Examiner, dated 29 June 1995 whereby he rejected Patent Application No. 9204959.2 in the name of Fujitsu Ltd. His grounds
5 for rejection were that the subject matter of the application was not an invention for the purposes of the 1977 Act in that it was excluded as a result of the provisions of s. 1(1)(d) and 1(2)(d) as being a program for a computer or a method for performing a mental act. Mr. Haselden made no secret of his sympathy for the applicant but he felt that he had no option but to come to the decision he did on the basis of the provisions of the Act and the case law relating to them.

10 The position of the Comptroller on this appeal

2. Mr. Silverleaf, who appeared for the Comptroller, said that in recent years the Comptroller has found himself in some difficulty in applying these statutory exclusions for two reasons. The first is that, whilst the authorities appear to distinguish clearly between inventions which provide a
15 “technical advance” and are thus patentable and those which do not and, accordingly, are not, in practice it is often very difficult to determine whether a particular invention does as a matter of fact involve the sort of technical contribution or result alluded to in the cases. That difficulty, he suggested, has been compounded by the fact that there are recent decisions of the EPO Technical Board of Appeal in which the question of what constitutes a technical advance or contribution
20 seems to have been rather more flexibly interpreted than has hitherto been the case. The second reason is that strict application of the guidance laid down in the authorities leads to the exclusion from patentability of a considerable number of inventions which do in reality appear to provide a substantial contribution to the sum of technical knowledge. He said that the present case raises
25 starkly and clearly the effect of these two exclusions. Since they have become of considerable importance and controversy when applied to software-related inventions and there is a relatively large number of applications in which their scope has to be considered, the Comptroller is anxious, if at all possible, to have the guidance of the Court to assist him in the future on the scope and application of the exclusions.

The Fujitsu Application

3. The application in suit seeks to protect such a software-related invention. Stripped to its
30 essentials, the applicant has developed software which can help a chemist to design new chemical compounds. The software enables the operator to depict on a computer screen pictures of the crystal structure of known chemicals. The images on the screen can then be rotated under the control of the operator and their scale altered relative to each other enabling the face of one crystal structure to be aligned with a complimentary face of another thereby creating on the
35 screen the structure of a hybrid “designer” chemical. The operator can then choose whether or not to use the depicted structure as a blueprint for a new chemical. It is not suggested that the applicant has designed any new form of computer hardware. His invention consists of software which enables the computer to be used as a tool in the manner I have indicated to help design such new chemicals. In the application, claims 1 to 8 are directed to allegedly novel methods of
40 visualising the hybrid chemical structure. Claim 9 is directed to a method of manufacturing a structure in accordance with the method in the preceding claims. Claims 10 to 19 are directed to computers or apparatus for carrying out those methods.

An overview of the statutory provisions

4. S. 1(2) is declared by s. 130(7) to have been framed to have, as nearly as practicable, the same effect as the corresponding provision, namely in Article 52, of the EPC. The section, which in all but presumably inconsequential respects is identical to Article 52(2) of the Convention, provides:

5 “ It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of-

- (a) discovery, scientific theory or mathematical method;
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;
- (d) the presentation of information”

15 Both this section and its EPC equivalent are subject to a proviso in the following terms:

20 “but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.”

25 5. The concept of excluding from patent protection certain categories of subject matter, even if novel and of a technical nature, is not new to our law. For example, under the pre-1977 law it was not possible to patent what were referred to as mere discoveries. But most inventions are based on what would be viewed by many people as discoveries. Large numbers of highly successful and important patents in the pharmaceutical field have been and continue to be based upon the discovery of new strains of micro-organisms which exist naturally in the wild. The fact that the technical advance derived from a discovery did not prevent it being given the benefit of patent protection. Therefore under the pre-1977 law a distinction had to be drawn between the discovery itself and a practical application of it. The former was not patentable, the latter might well be. The same approach is to be found in the new code. The proviso to s. 1(2) which stipulates, for example, that the exclusion from patentability of a discovery or scientific theory only bites to the extent that the patent relates to the discovery or theory “as such”, is intended to preserve the patentability of all those numerous cases in which novel discoveries form the essential core of new practical devices or processes. However the application of this exclusion and the proviso to it have proved difficult.

35 6. As Mr. Silverleaf put it, the simple and perhaps mechanical approach to the section is to hold that what should be excluded from patentability is anything which consists solely of excluded matter. A computer program would be excluded under s. 1(2)(c), but a computer in which or a floppy disc on which the program is recorded would not. The computer or disk is not a program “as such”. Similarly a method of, or computer for use in, visualising the shape of new hybrid chemicals would not be a computer program as such. On this purely linguistic approach, none of the claims in the Fujitsu application are for computer programs as such. If this approach was the correct one, none of the claim would be deprived of patentability on this basis. However both Mr. Silverleaf and Mr. Young, who appeared on behalf of Fujitsu, accepted that on the authorities this was not the right approach.

40 7. Mr Young argued, basing himself on the EPO Guidelines C-IV paras. 1.2(ii) and 2.1, E.P. Rules 27(1)(a) and (c) and Rule 29(1) and, in particular, on the Technical Board of Appeal's decision 45 *VICOM/Computer-related inventions (Decision T 208/84) [1987]* EPOR 74, that what

distinguished patentable inventions from unprotectable subject matter was that they must be of a technical character and relate to a technical field. He said a patent must be concerned with a technical problem. He therefore said that if the subject matter claimed makes a technical contribution to the known art, patentability should not be denied. This was so whether one was considering the exclusion of computer programs or methods of performing mental acts. Thus he argued that a mental act was something cerebral and abstract and, as such, outside patentability but once it is tied to a technical application it is no longer merely a mental act and can be patented. Furthermore he said, basing himself on the facts in the *VICOM* decision, that the necessary technical contribution can be assumed if the subject matter claimed concerns the treatment or manipulation of coded and stored representations of real physical entities, for example image processing.

8. Absent authority, I would have difficulty in accepting Mr. Young's suggested approach. It appears to me to be too wide. Nearly all computer programs can be argued to make a technical contribution to the known art and if this is so, then any programmer would be able to obtain protection for his programs by formulating claims to a computer running the program or using such a computer to carry out a process. In particular any program which enables you to analyse information and presents it in a visual form on a computer VDU could be said to be manipulating visual images. Therefore, if structured into a suitably worded claim, it would be fit subject matter for patent protection. But this would cover the vast majority of computer programs. Finally the suggestion that the mere presence of a technical contribution is the defining ingredient of a patentable invention is difficult to reconcile with s. 1(2)(a) and (d). Virtually all discoveries, scientific theories and mathematical methods and many methods of presenting information make a technical contribution yet they are clearly excluded from protection. There is nothing in the section or Art. 52 which suggests a logical reason why 'technical' discoveries, scientific theories or mathematical methods should be excluded from patent protection but 'technical' computer programs, if suitably disguised for example in a claim to a method or a computer, should not. However Mr. Young's argument adopts the terminology to be found in some of the decided cases. It is therefore necessary to look at the decided case law in this area.

30 The case law

9. The most important decisions in this area which were brought to my attention consisted of two decisions of the Technical Board of Appeal: *VICOM* (supra) and *IBM/Text processing* [1990] EPOR 181 and two decisions of the English Court of Appeal *Merrill Lynch's Application* [1989] RPC 561 and *Gale's Application* [1991] RPC 305.

The *VICOM* decision

10. This decision of the Technical Board of Appeal is particularly significant. As one of the leading European Patent Office decisions it indicates what types of inventions and claims will be accepted as patentable in this area for all countries adopting the EPC route. It obviously makes sense, and would be consistent with one of the aims of the EPC, if the same principles are applied in this country. As Nicholls LJ said in *Gale's Application*, it would be absurd if, on an issue of patentability, a patent should suffer a different fate according to whether it was applied for in the United Kingdom under the Act or in Munich for a European Patent (UK) under the Convention. Furthermore *VICOM* is a decision which has been cited and apparently followed in the Court of Appeal on a number of occasions.

11. *VICOM* dealt with a number of closely related topics. The patent application in issue was concerned with a method and apparatus for filtering digital data which represented visual images.

Claim 1 related to a method of digitally processing the images. Claim 8 effectively was for a computer to which the data representing the images could be supplied and which was programmed to carry out the processing of Claim 1. The Examining Division rejected the application on a number of grounds.

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12. The first major issue the Technical Board of Appeal addressed was whether Claim 1 and similar dependent claims were excluded from patentability on the grounds that they were for a mathematical method as such (Art. 52(2) and (3)). The Board pointed out that any processing operation on an electric signal can be described in mathematical terms. However they drew a distinction between a mathematical method, which was not patentable subject matter, and a technical process, which might be. The former was an abstract concept in which numbers were worked on to produce new numbers only. As a result no direct technical result is produced by the method. On the other hand a technical process was one in which a physical entity was worked on and a new physical entity was produced. The physical entity could be anything, including an image stored in electronic form. Therefore, once the abstract mathematical concepts were given a technical application, that technical application might well be protectable. Protecting the application would not give rise to any protection for the mathematical method itself, save to the extent that it was an essential ingredient in the technical application so that someone using the application would necessarily use the mathematical method. Save in this very restricted sense, the mathematical method could be used freely by others in other technical applications. The Board said:

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“[It], 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.**”

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13. The Board went on to explain that it was not permissible to get protection for the mathematical method indirectly by seeking to protect a “method for digitally filtering data”. That was no less abstract than the mathematical method itself. What was necessary was that the claims should be directed to some specific process susceptible of industrial application. Therefore, in essence the Board was saying that the claims have to be looked at as a matter of substance not form. If all that is being sought to be protected is the mathematical method alone, then the exclusion under Art. 52(2) bites. If, on the other hand, the mathematical method is applied to a particular and properly defined process susceptible of industrial application, then there is no basis on this ground for denying the existence of patentable subject-matter. In the *VICOM* case, the same mathematical method of filtering could be applied freely by others in any way they wanted for any other application, only the image processing method was protected. There was no protection of the mathematical method *as such*.

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14. The Board then went on to consider the Examining Division's refusal to accept the apparatus claims. First the Board looked at what the position would be of a claim to a technical process carried out under the control of a program. On this issue, the Board's decision is short and somewhat thin on explanation. It said:

“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 in 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. Consequently, such a claim is allowable under Article 52(2)(c) and (3) EPC.”

5 This paragraph must be read in the light of and consistently with what the Board had said about mathematical methods. It seems to me that the important words in the last quoted passage are:

“it is ... the process for which in effect protection is sought.”

10 15. This appears to me to go back to the fundamental concept underlying Article 52 of the EPC and s. 1(2) of our Act namely that if a product, process or method qualifies as patentable subject matter it should be allowed to proceed. That is so even if the product, process or method employs, even as a major ingredient, one of the excluded categories such as a scheme, a mathematical method or a computer program. Patent protection will only be denied where, as a matter of substance not form, the patent monopoly would have the effect of protecting merely the excluded matter. In *VICOM* the Board held, on the facts, that what was really being protected was the image manipulation process. Whether that process was protectable was then to be decided on its own merits, not on the basis that it was really no more than a program or was based on a program.

20 16. Then, having dealt with an issue relating to novelty¹, the Board considered the apparatus claims themselves. It adopted the same approach as it had in relation to the process claims:

25 “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.”

30 17. The Board’s approach to these three issues seems to be both logical and reasonable. A general purpose computer may be looked upon as a piece of electronic putty. It is moulded into a useful working apparatus by the programs run on it. It may be thought of as the electronic equivalent of a large box of cogs, wheels, cams, nuts and bolts - a Meccano set - ready to be assembled into a variety of different articles. Imagine that an engineer designed a mechanical typewriter which included a series of cams, cam-followers and cogs arranged in such a way that when the full stop key was depressed, followed by the spacebar, the next letter typed would be in upper case unless deliberately overridden by the operator. Subject to considerations of novelty, such an apparatus would be patentable. Of course in the postulated case lack of novelty would be likely to be determinative. However, as it was put in *VICOM*:

40 “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.”

45 18. In a similar vein, it may be useful to consider what the position would be in a case where someone had invented a new way of mowing grass which involved designing a new type of mower with micro sensors and blade-adjustment motors on it, the sensors being used to

¹ Paragraphs 12 and 13.

5 determine both the softness of the grass to be cut and the height of it above the ground and then
producing an output which operated the motors so as to adjust the height of the cut, the angle of
the blades and the speed at which they rotated. Once again, considerations of novelty aside, such
a device would be patentable and, it seems to me, so would the mowing method itself, even if
that method was controlled by a suitably programmed computer. If this is so, as it was put in
VICOM:

10 “[I]t 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.”

The IBM/Text processing decision

15 19. In this case the application concerned an electronic method for correcting homophone errors in a
document - i.e. errors caused by confusing, for example, ‘affect’ with ‘effect’. The claim was to a
method of carrying out the correction which involved the use of a ‘text processing unit’, a
keyboard and other pieces of electronic equipment. It clearly covered the use of a programmed
computer to correct the errors. Claim 1 specified a large number of steps to be carried out by the
20 processing unit, each of which was conventional from a technical point of view - i.e. they were
the standard type of procedures which could be carried out by a computer.

20. The Board referred to its earlier *VICOM* decision which it explained as follows:

25 “[In *VICOM*] the claimed method is patentable, even though it could be carried out
by known hardware suitably programmed, because it makes a contribution in a field
not excluded from patentability, namely a more efficient restoration or enhancement
of the technical quality of an image”.

It also pointed out that the

30 “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
35 Article 52(1) EPC, that is, one which is not excluded from patentability under Article
52(2)(c) EPC.”

Some such mixtures of excluded and non-excluded matter would be patentable but not all such
mixtures. In particular patenting would only be permitted in cases in which

40 “the invention involves some contribution to the art in a field not excluded from
patentability.”

Following from this the Board decided:

45 “While it cannot be denied that there is an interaction between the programs and the
hardware, since the programs without the hardware or the hardware without the
programs could do nothing, but together they make it possible to perform the method
claimed in Claim 1, this fact alone cannot confer patentability on either the method or

the apparatus. Since the only conceivable use for a computer program is the running of it on 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 processor, memory, keyboard and display, which, in practice, are indispensable if the program is to be used at all. In the opinion of the Board, in such cases patentability must depend on whether the operations performed involve an inventive step in a field not excluded from patentability by Article 52(2) EPC.”

21. Once again, it appears to me that the Board was trying to distinguish between form and substance. In that case it was clear, or was common ground, that nothing was being contributed to the technical art except a computer program to carry out a conventional mental process. In the result the Board held that to allow the method claims to proceed would have the effect of granting patent protection to a conventional way of performing an excluded mental process. This brings me to the English cases.

The Merrill Lynch decision

22. In this case the application was directed to a computerised method of making a trading market in securities. The applicant had designed a computer program which would help to automate that form of business activity. Claim 1 was directed to a computer operating under the program to make the market. The application had been rejected by the Patent Office and that rejection was upheld by Falconer J. The Court of Appeal upheld Falconer J, but on different grounds. In particular Fox LJ said:

“The position seems to me to be this. *Genentech*² decided that the reasoning of Falconer J. is wrong. On the other hand, it seems to me to be clear, for the reasons indicated by Dillon LJ that it cannot be permissible to patent an item excluded by section 1(2) under the guise of an article which contains that item - that is to say, in the case of a computer program, the patenting of a conventional computer containing that program. Something further is necessary. The nature of that addition is, I think, to be found in the *VICOM* case where it is stated: “Decisive is what technical contribution the invention makes to the known art”. There must, I think, be some technical advance over the prior art in the form of a new result (e.g., a substantial increase in processing speed as in *VICOM*).

Now let it be supposed that claim 1 can be regarded as producing a new result in the form of a technical contribution to the prior art. That result, whatever the technical advance may be, is simply the production of a trading system. It is a data-processing system for doing a specific business, that is to say, making a trading market in securities. The end result, therefore, is simply “a method ... of doing business”, and is excluded by section 1(2)(c). The fact that the method of doing business may be an improvement on previous methods of doing business does not seem to me to be material. The prohibition in section 1(2)(c) is generic; qualitative considerations do not enter into the matter. The section draws no distinction between the method by which the mode of doing business is achieved. If what is produced in the end is itself an item excluded from patentability by section 1(2), the matter can go no further. Claim 1, after all, is directed to “a data processing system for making a trading market”. That is simply a method of doing business. A data processing system

² *Genentech Inc's Patent* [1989] RPC 147

operating to produce a novel technical result would normally be patentable. But it cannot, it seems to me, be patentable if the result itself is a prohibited item under section 1(2). In the present case it is such a prohibited item.”

5 23. This decision, it appears to me, is important for a number of reasons. First, of course, it cites with approval and applies the *VICOM* decision. Secondly, it is *not* decided on the basis that a claim to a computer running the program was to be treated as no more than a claim to the program itself. On the contrary, the court noted that normally a data processing system operating to produce a novel technical result would be patentable. Thirdly it decided that even if the effect
10 of the program was to make the computer perform in a novel way, it was still necessary to look at precisely what the computer was doing. If all it was doing, as a matter of substance, was performing one of the activities defined under s. 1(2) as unprotectable, then it was still unprotectable. In this respect, the Court of Appeal was approaching patentability in the same way as the Technical Board of Appeal did in *VICOM*.

15 **The decision in *Gale's Application***

24. It is easy to come to the conclusion that this case was hard on the applicant, Mr. Gale, who represented himself both before the High Court and the Court of Appeal. Mr. Gale had apparently discovered a new algorithm for calculating square roots. As Nicholls LJ said in the leading judgment of the Court,:

20 “... [Mr. Gale] has found an improved means of carrying out an everyday function of computers. To that extent, and in that respect, his program makes a more efficient use of a computer's resources. A computer, including a pocket calculator with a square root function, will be a better computer when programmed with Mr. Gale's instructions.”
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25. Nevertheless the court, with obvious reluctance, came to the conclusion that Mr. Gale's application fell foul of s. 1(2) of the Act. Mr. Silverleaf seemed to agree that this was a harsh result. However, it appears to me that the Court of Appeal had no alternative but to come to the conclusion that it did. The vital fact to bear in mind when considering this decision is that Mr. Gale only put forward a single claim in his application and that was for a ROM on which a program incorporating his new algorithm was recorded. He did not claim a new and improved computer using that ROM and the Court of Appeal therefore never had to consider whether a claim to the computer would have survived a s. 1(2) attack. Nor, presumably, were arguments
30 addressed to that issue put before it. All three members of the court were presented with an application not for a program simpliciter but to a program when recorded on a standard device used for carrying programs. It was, as they pointed out, no different in principle to a claim for the program when recorded on a floppy disc. As Nicholls LJ explained:

40 “To be used in a computer, a series of instructions has to be recorded in a physical form which a computer can understand. Typically, but by no means always, the instructions will be recorded either on a disc inserted in the computer when required or, in the case of sequences of instructions routinely or frequently required, in a ROM which normally is inserted in a computer and not removed. Plainly, however, if the instructions *qua* instructions are not patentable, a claimant's position is not improved
45 by claiming a disc on which those instructions have been recorded or a ROM in which they have been embodied. The disc or ROM, is no more than an established artefact in which the instructions are physically embedded. ... To decide otherwise would be to exalt form over substance.”

26. As such it was inevitable, so it seems to me, that the court came to the decision it did. Just as it would not be possible to obtain patent protection for a literary work by recording it on paper and then putting in a claim for the article consisting of the piece of paper bearing the work, so it is not possible to secure patent protection for a program by claiming a standard recording medium on which the program is recorded. In coming to its decision, the court cited without criticism both *VICOM* and *IBM/ Text Processing*. As such the case does not seem to me to take the jurisprudence on this issue any further. It is merely a case in which the *VICOM* and *IBM* principles are applied.

The cumulative effect of the cases in relation to computer programs

27. It seems to me that the relevant provisions of the Act and the EPC and the cases to which I have referred above produce the following principles:

1. The types of subject-matter referred to in s. 1(2) are excluded from patentability as a matter of policy. This is so whether the matter is technical or not.

2. The exclusion from patentability is a matter of form not substance. Therefore the exclusion under s. 1(2) extends to any form of passive carrier or recording of excluded subject matter. Thus, merely because a piece of paper is in principle patentable (save to the extent that it lacks novelty), it is not permissible, for example, to record a literary work (s. 1(2)(b)) or a computer program (s. 1(2)(c)) on a piece of paper and then seek patent monopoly for the paper bearing the recorded work. Similarly it is not permissible, without more, to seek protection for a computer program when it is stored on a magnetic medium or when merely loaded into a computer.

3. Prima facie a computer running under the control of one program is a different piece of apparatus from the same computer when running under the control of another program. It follows that a claim to a computer when controlled by a program or to a method of controlling a computer by a program or to a method of carrying out a process by use of a computer so controlled can be the subject of patent protection. However, because the court is concerned with substance not form, it is not enough for the designer of a new program to seek protection for his creation merely by framing it in one of these terms. The court or patent office must direct its attention not to the fact that the program is controlling the computer but to what the computer, so controlled, is doing.

4. Therefore a data processing system operating to produce a novel result would not be deprived of protection on the ground that it was a program as such. On the other hand, even if the effect of the program is to make the computer perform in a novel way, it is still necessary to look at precisely what the computer is doing, i.e. at the nature of the process being carried out. If all that is being done, as a matter of substance, is the performance of one of the activities defined under s. 1(2) as unprotectable, then it is still unprotectable.

28. In accordance with these principles, just as it would be possible to obtain a patent, considerations of novelty aside, for a faster chip or a more effective storage medium or a computer containing such a chip or storage medium, there is no reason in principle or logic why modification of the computer to achieve the same speed or storage increase by means of software should be excluded from protection. The fact that the advance is achieved in software rather than hardware should not affect patentability. To use in a slightly different context Nicholls LJ's words from *Gale's Application*, that would be to exalt form over substance. Similarly if a new process achieved by mechanical means would be patentable, there is no reason why the same process achieved by computer means should be any less patentable. If that is so, it does not matter whether the patent

claims are drafted in terms of a process controlled by a computer, a computer when programmed in a particular way or a method of controlling a computer. In each case the substance of the invention is the same.

- 5 29. This leads me back to Mr. Young's argument on this part of the case. Is it enough for him to demonstrate that his client's advance is of a technical character and relates to a technical field? the answer depends on what is meant by the word "technical". Mr. Young appeared to me to use it as if it covered all areas of practical development which were not associated with the liberal arts. That is not what I understand to have been the way in which it was used in the decided cases. In particular in *VICOM* and *IBM* it is only processes or methods which do not fall foul of the express exclusions from patentability under s. 1(2) which are treated as suitably "technical". Therefore use of the word "technical", the meaning of which takes colour from its context, is apt to confuse. What counts in this area is whether the method or process controlled by the program or the computer running it is one which itself is excluded from patentability.

15 **The application of these principles to the Fujitsu application**

30. I have already referred to the essence of Fujitsu's development. It is clear that, in form at least, the claims are not to programs as such. It follows that, *prima facie*, they avoid the "program" exclusion under s. 1(2). However, as Fox LJ said in *Merrill Lynch*, something further is needed. The real issue, it seems to me, is whether the application also avoids the other exclusions under s. 1(2). If it does not, the application will fail. Whether, in those circumstances, the grounds of failure are stated to be that the invention is only for a program or that it is, for example, a method for performing a mental act is a matter of semantics.

Methods for performing a mental act

- 25 31. As noted above, in *VICOM* the Technical Board of Appeal pointed out that in some cases it is possible to patent an invention even if the idea underlying it may be considered to reside in a mathematical method, even though a mathematical method as such is excluded from patentability. So also it must be possible in some cases to patent an invention even if it can be said to be based upon the performance of a mental act. The difficulty resides in determining where performance of a mental act ends and applied technology begins.
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32. It seems to me that mathematical methods and schemes, rules or methods for performing mental acts are likely to have a lot in common. Indeed the former seems to be but an example of the latter. If mathematical methods had not been excluded expressly under s. 1(2)(a), I think they would have been excluded under s. 1(2)(c). I do not think that this requires the court to try to reach a mutually exclusive scope to mathematical methods on the one hand and performance of mental acts on the other. They are, at the least, overlapping areas where for policy reasons patentability has been excluded.
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- 40 33. In *VICOM*, the Board explained that a mathematical method could be distinguished from a patentable process based on it in that the former involved an abstract concept in which numbers were worked on to produce new numbers whereas in a patentable process a physical entity was worked on and a new physical entity was produced. Very similar concepts apply to the distinction between methods for performing mental acts and processes, methods or apparatus based upon such acts. Excluded mental acts must include those mental activities which involve a significant level of abstraction and intellectual generality. Rules as to the planting of potatoes in which the operator is instructed to measure and evaluate matters such as the type of soil, location,
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weather and availability of irrigation is a method for performing a mental act. Directions to plant one seed potato every metre is not. It is a precise process.

- 5 34. In this case, Fujitsu's application leaves it to the operator to select what data to work on, how to work on it, how to assess the results and which, if any, results to use. The process is abstract and the result of use of it is undefined. What is produced is not an inevitable result of taking a number of defined steps but is determined by the personal skill and assessment of the operator. As such it consists in substance of a scheme or method for performing a mental act and is unpatentable.
- 10 35. In coming to that conclusion I have borne in mind that, prima facie, a novel technical development should be patentable and that s. 1(2) contains a list of exceptions to such patentability. Therefore the onus lies on the person contesting patentability to prove that the alleged invention falls foul of the statutory exclusions. Furthermore, at the patent office stage, the benefit of the doubt should be given to the applicant. Refusal of the grant on the basis of a faulty appreciation of what is involved cannot thereafter be remedied. Nevertheless I have come to the
- 15 conclusion that Mr. Haselden's decision was correct.
- 20 36. I should mention that both before me and before Mr. Haselden, particular emphasis was placed on the fact that the steps to be carried out with the assistance of the programmed computer matched steps which, prior to Fujitsu's development, were done manually by workers in this field. For example physical models of crystals were built and manipulated to help visualise new hybrid structures. However the fact that a new process is the electronic equivalent of what has been done manually before goes primarily to the issue of novelty (a matter not before me) not the question of whether the application falls within s. 1(2). I would have come to the same
- 25 conclusion that this invention was not patentable even if all the steps set out in the claims had been novel.

For these reasons, I shall dismiss this appeal.