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Case No: CH/2007/APP/0466

IN THE HIGH COURT OF JUSTICE
CHANCERY DIVISION
PATENTS COURT

Royal Courts of Justice
Strand, London, WC2A 2LL

Date: 25 January 2008

Before :

THE HONOURABLE MR JUSTICE KITCHIN

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IN THE MATTER OF the Patents Act 1977

AND IN THE MATTER OF Application No. GB 0519497.2 and others in the name of Astron Clinica Limited and others (the Appellants)
And
The Comptroller General of Patents, Designs and Trade Marks (the Respondent)

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Nicholas Fox (instructed by **Beresford & Co**) for the **Appellants**
Colin Birss (instructed by the **Treasury Solicitor**) for the **Respondent**

Hearing dates: 19 – 20 November 2007

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Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

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THE HONOURABLE MR JUSTICE KITCHIN

MR. JUSTICE KITCHIN :

Introduction

1. This appeal raises an important issue, namely whether patent claims can ever be granted for computer programs. It is an issue upon which the United Kingdom Intellectual Property Office ("UKIPO") and the European Patent Office ("EPO") disagree. UKIPO considers such claims are prohibited by Article 52 of the European Patent Convention ("EPC"). The EPO considers such claims are allowable if the program has the potential to bring about, when running on a computer, a further technical effect which goes beyond the normal physical interactions between the program and the computer.

2. The appeal concerns six patent applications in the name of five different applicants, but with common representation. In each case the examiner found method and apparatus claims to be allowable. They are claims to, respectively, "a method of doing X" and "a device for doing X". The method claimed is, in effect, a method performed by running a suitably programmed computer and the apparatus claimed is, in effect, a computer programmed to carry out the method. However, the examiner reported that corresponding claims to computer programs (or, more precisely, claims to programs on suitable storage media) were not allowable. The applicants requested a hearing which took place on 21 May 2007 before Mr Peter Marchant, Deputy Director of UKIPO, acting as Hearing Officer on behalf of the Comptroller. On 4 July 2007, he gave a single decision in writing in respect of all of the applications. He too found the program claims were not allowable and that the patent applications could not be accepted in their current form and stood to be refused. It is against that decision that the appellants now appeal.

The inventions

3. The inventions in issue cover a diverse range of technologies but they have a common feature. In each case it is the computer program which confers the technical advance and over which the applicant is anxious to secure a monopoly, as the following brief summary illustrates.

4. Software 2000 has developed a method of generating bit masks for use with laser printers which results in higher quality images. It is implemented by programming a conventional computer, printer or copier to process images in a particular way. Software 2000 exploits its invention by selling the program to its commercial partners who then incorporate it in their printers and printer drivers, and distribute it to end users in the form of printers, computer discs and web downloads. The end users are located worldwide.

5. Astron Clinica was founded to commercialise skin imaging techniques developed at the University of Birmingham which enable images of the skin to be processed to identify the distribution and concentration of underlying skin chromophores. The invention described in its application provides a system and process for generating realistic images representing the results of planned cosmetic or surgical interventions which change the actual or apparent distribution of these chromophores. The invention is implemented by programming a computer to process images in a

particular way. It is commercialised here and abroad by selling a disc which causes a computer to be configured so as to undertake the required processing.

6. Inrotis is a spin-off company established by the University of Newcastle upon Tyne to commercialise drug discovery and network analysis techniques. Broadly speaking, the inventions the subject of its two applications in issue concern methods of identifying groups of target proteins for drug therapy by processing proteome data defining proteins and protein interactions. The commercial product which Inrotis sells is a computer disc which causes a computer to be configured so as to carry out the necessary processing.

7. SurfKitchen is a mobile services company and has made an invention which improves the ability of mobile telephones to access services on the Internet. It is implemented by pre-storing a program on a mobile telephone memory or by downloading the program from the Internet. In either case the program is usually made available by one of SurfKitchen's commercial partners to whom it makes the program available on a computer disc.

8. Cyan Technology is a semi-conductor company which designs and builds micro-controllers. It has invented a method of generating data for configuring micro-controllers which greatly simplifies chip design and programming. The commercial products that implement the invention are computer discs and Internet downloads which cause a computer to be configured so as to undertake the required processing. Cyan Technology distributes these computer discs and Internet downloads worldwide.

9. As can be seen, the applicants all exploit their inventions by selling computer programs stored on a computer readable medium or by Internet download and competitors can, of course, do the same. This presents the applicants with the problem that, without computer program claims, they can only protect their inventions by invoking the contributory infringement provisions of section 60(2) of the Patents Act 1977 ("the Act"). What is worse, those provisions give no protection against the production and sale of programs in the United Kingdom if they are intended for use abroad.

The law

10. This appeal turns on the scope of the prohibition contained in section 1(2) of the Act. This implements Article 52 of the EPC, which reads:

> "(1) European patents shall be granted for any inventions which are susceptible of industrial applications, 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.
>
> (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."

11. The approach originally adopted by the EPO in relation to computer implemented inventions was developed in a number of decisions of the Boards of Appeal in the 1980s, most notably *Vicom/Computer-related invention* (1986) T 208/84, [1987] OJ EPO 14; *Koch and Sterzel* (1987) T 26/86; *IBM/Text Processing* (1988) T 115/85 and *IBM/Data processor network* (1988) T 6/83. They decided that, while programs for computers were included in the items listed in Article 52(2), if the claimed subject matter had a technical character it was not excluded from patentability. The reasoning was explained by the Board in *Vicom* at paragraph [16]:

> "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."

12. As a result, the EPO allowed claims to a computer system when programmed and to an equivalent method provided they had the necessary technical character. However none of these decisions dealt expressly with the allowability of claims directed to computer programs themselves. In the absence of guidance from the Boards of Appeal the EPO examiners declined to grant such claims. They recognised that if a computer program caused a computer to operate in a different way from a technical point of view then the combination might be patentable but they took the view that programs themselves were excluded and that even if a program was claimed in the form of a physical record, such as a disc, its contribution to the art was still no more than a program.

13. It seems it was not until 1998 that an EPO Board of Appeal first addressed the allowability of a claim to a computer program *per se* in *IBM/Computer Program Product* T1173/97, [1999] OJ EPO 609. The Board considered that the combination of Article 52(2) and (3) revealed the legislators did not wish to exclude *all* computer programs from patentability but only those which were programs for computers *as such*. In accordance with its established approach, it noted that the technical character of an invention was generally accepted as an essential requirement of patentability and accordingly considered the essential problem was to define the meaning of this expression in the context of computer programs. It observed that all programs cause some modification in the behaviour of the hardware so this could provide no basis for identifying those which were patentable. However, it considered that the necessary

further technical character might nevertheless be derived from the execution by the hardware of the instructions given by the software. It therefore concluded that a program is not excluded from patentability if, when run on a computer, it produces a further technical effect which goes beyond the normal physical interactions between a program and a computer.

14. The Board recognised that such an effect is only shown when the program is being run but considered the potential to produce such an effect is sufficient. In reaching its decision the Board was clearly influenced by the apparent illogicality of allowing claims to a suitably programmed computer and to the method performed by the computer so programmed but not to the program itself, as is apparent from paragraph [9.8] of the decision:

> "The present decision is further supported by the reasons given in the "VICOM" decision under reasons, 16, third and last paragraph, where the Board found that: "Finally, it would seem illogical to grant protection for a technical process controlled by a suitably programmed computer but not for the computer itself when set up to execute the control". In other words, it would seem illogical to grant a patent for a method but not for the apparatus adapted for carrying out the same method. By analogy, the present Board finds it illogical to grant a patent for both a method and the apparatus adapted for carrying out the same method, but not for the computer program product, which comprises all the features enabling the implementation of the method and which, when loaded in a computer, is indeed able to carry out that method."

15. There is one further aspect of the decision to which I should draw attention. At paragraph [8], the Board took the opportunity to point out that, for the purposes of determining the extent of the exclusion under Article 52, the necessary further technical effect might be known in the prior art. Determination of the technical contribution was therefore more appropriately addressed when examining novelty and inventive step – a theme developed in later cases, as I will explain.

16. Shortly after this decision, the Board applied the same approach in *IBM/Computer Program Product II* (1999) T 0935/97, deciding once again that a computer program is not excluded from patentability under all circumstances. Since 1998 the EPO has therefore allowed claims to a computer program if, when running on a computer, the program is capable of bringing about a technical effect which goes beyond the normal physical effects which result from the running of any program; and such claims are allowed whether the program is claimed by itself or as a record on a carrier.

17. Meanwhile a number of decisions of the Court of Appeal in this jurisdiction also considered the patentability of computer related inventions, in particular *Genentech's Patent* [1989] RPC 147, *Merrill Lynch's Application* [1989] RPC 561, *Gale's Application* [1991] RPC 305 and *Fujitsu's Application* [1997] RPC 608. All were recently considered in detail by the Court of Appeal in a decision to which I must return, *Aerotel v Telco, Macrossan's Application* [2006] EWCA Civ 1371 ("*Aerotel/Macrossan*"). However, there are certain aspects of them which have a

particular bearing on the issue I have to decide and which therefore merit some elaboration.

18. It is convenient to begin with *Merrill Lynch*. The invention in this case was an improved data processing system for implementing an automated trading market for securities. At first instance Falconer J. upheld the refusal of the application by the United Kingdom Patent Office (as it then was) on the basis that matter in an excluded category (such as a computer program or method of doing business) was not to be considered to contribute to novelty or inventive step. The applicant appealed but, before the appeal could be heard, the Court of Appeal in *Genentech* decided the reasoning of Falconer J. was wrong. In the course of his judgment in that appeal, Dillon L.J. said (at page 240) that while he disagreed with the reasoning of Falconer J:

> "….it does not in the least follow that I disagree with the result of that case. It would be nonsense for the Act to forbid the patenting of a computer program, and yet permit the patenting of a floppy disc containing a computer program, or an ordinary computer when programmed with the program; it can well be said, as it seems to me, that a patent for a computer when programmed or for the disc containing the program is no more than a patent for the computer program as such."

19. On the *Merrill Lynch* appeal, the court adopted the *Vicom* approach. As Fox L.J. explained at 569:

> "The position seems to me to be this. *Genentech* decides 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 L.J., that it cannot be permissible to patent an item excluded by section 1(2) under the guise of an item 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 on the prior art in the form of a new result (*e.g*., a substantial increase in processing speed as in *Vicom*). "

20. The court therefore recognised that a computer system programmed in such a way that it produced a new technical effect would normally be patentable. However, it proceeded to dismiss the appeal, holding that the claimed data processing system did not produce a novel technical result but was simply a method of doing business, which was itself a prohibited item.

21. In *Gale* the claimed invention related to an improved way of calculating the square root of a number with the aid of a computer. Mr Gale sought to claim it as a ROM in which his program was stored. At first instance Aldous J. considered that Mr Gale had avoided the exclusion because a ROM was more than just a carrier, it was a manufactured article having circuit connections which enabled the program to be operated. The Court of Appeal disagreed. Nicholls L.J. (with whom the other

members of the court agreed) considered that if the instructions *qua* instructions were not patentable, Mr Gale's position was not improved by claiming a disc on which the instructions had been recorded or a ROM in which they had been embodied. Just as *Genentech* had decided it would be a nonsense for the Act to forbid the patenting of a computer program and yet permit the patenting of a floppy disc containing a computer program or an ordinary computer when programmed with the computer program, it would equally be a nonsense for the Act to forbid the patenting of a floppy disc containing a computer program and yet permit the patenting of a ROM characterised only by the instructions in that program. However, as in *Merrill Lynch*, although a computer program was not patentable as such, that was not the end of the matter because computer instructions might represent a technical process. In such a case the process was not barred from patentability by reason of the use of a computer as the medium by which it was carried out.

22. Nicholls L.J. then considered the application of these principles to Mr Gale's case. He concluded that Mr Gale's discovery was a mere computer program which did not produce a new technical effect. As he explained at pages 327-8:

> "That still leaves the difficulty that those instructions when written, and without more, are not patentable, because they constitute a computer program. Is there something more? In the end I have come to the conclusion that there is not. The attraction of Mr. Gale's case lies in the simple approach that, as claimed, he 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. So it may. But the instructions do not embody a technical process which exists outside the computer. Nor, as I understand the case as presented to us, do the instructions solve a "technical" problem lying within the computer, as happened with patent applications such as *IBM Corp./Computer-related invention (Decision T 115/85)* [1990] E.P.O.R. 107 and *IBM Corp./Data processor network (Decision T 06/83)*, [1990] E.P.O.R. 91. I confess to having difficulty in identifying clearly the boundary line between what is and what is not a technical problem for this purpose. That, at least to some extent, may well be no more than a reflection of my lack of expertise in this technical field. But, as I understand it, in the present case Mr. Gale has devised an improvement in programming. What his instructions do, but it is all they do, is to prescribe for the cpu in a conventional computer a different set of calculations from those normally prescribed when the user wants a square root. I do not think that makes a claim to those instructions other than a claim to the instructions as such. The instructions do not define a new way of operating the computer in a technical sense, to adopt the expression used in *IBM Corp./Document abstracting and receiving (Decision T22/85),* [1990] E.P.O.R. 98, 105.

> In short, therefore, the claim is in substance a claim to a computer program, being the particular instructions embodied in a conventional type of ROM circuitry, and those instructions do not represent a technical process outside the computer or a solution to a technical problem within the computer."

23. Sir Nicholas Browne-Wilkinson V-C also recognised the position might not be the same if the program produced a new technical result (at page 333):

> "Mr Gale's discovery is a computer program (an excluded matter) incorporated in a ROM which is a device of no inherent novelty. The mere incorporation of the programs in the ROM does not alter its nature: it remains a computer program. A computer program remains a computer program whether contained in software or hardware: proposition (3) above. Moreover the result of the incorporation of Mr Gale's "method of calculation" or "computer program" (both excluded matters) only produces another excluded matter, *viz.* a computer program: proposition (2) above. That is enough to decide this case.
>
> As Nicholls L.J. points out, other difficult cases can arise where the computer program, whether in hardware or software, produces a novel technical effect either on a process which is not itself a computing process (see *VICOM/Computer-related invention (Decision T208/84)*, [1987] 2 E.P.O.R. 74) or on the operation of the computer itself (see *IBM Corp./Computer-related invention (Decision T115/85*), [1990] E.P.O.R. 107). But, in my judgment, those difficulties do not arise in the present case. Mr Gale's discovery is from start to finish a "mathematical method" or "computer program": its incorporation in a device having no novelty does not alter the position."

24. So I believe the court left open the question of whether the ROM would have been patentable if it *had* produced a new technical effect.

25. The case of *Fujitsu* concerned a computer programmed to model synthetic crystal structures. In dismissing the appeal and finding that the invention related to a computer program as such, the Court of Appeal reaffirmed the principle that a technical contribution must be found and that the issue was one of substance not form – it was not sufficient to look at the words of the claimed monopoly. Aldous L.J. gave the leading judgment and said at page 614:

> "…..it is and always has been a principle of patent law that mere discoveries or ideas are not patentable, but those ideas and discoveries which have a technical aspect or make a technical contribution are. Thus the concept that what is needed to make an excluded thing patentable is a technical contribution is not surprising. That was the basis of the decision in *Vicom*. It

> has been accepted by this court and by the E.P.O. and has been applied since 1987. It is a concept at the heart of patent law."

26. But he expressly acknowledged, as had the court in *Gale*, that identifying what was and what was not a technical contribution might present difficulties (at page 616):

> "I, like Nicholls L.J., have difficulty in identifying clearly the boundary line between what is and what is not a technical contribution. In *Vicom* it seems that the Board concluded that the enhancement of the images produced amounted to a technical contribution. No such contribution existed in *Gale's Application* which related to a ROM programmed to enable a computer to carry out a mathematical calculation or in *Merrill Lynch* which had claims to a data processing system for making a trading market in securities. Each case has to be decided upon its own facts."

27. The question that arose in *Fujitsu* was therefore whether the operation, revolving as it did around a computer program, involved a technical contribution. The court concluded it did not. The only advance was the computer program which enabled images of two superposed crystal structures to be portrayed more quickly.

28. As explained in *Aerotel/Macrossan*, these authorities gave rise to the adoption in this country of the technical contribution approach with the rider that inventive excluded matter could not count. However, for the purposes of the present appeal it is also important to note a number of further matters. First, they established that claims to computer related inventions must be considered as a matter of substance not form. A computer program as such is excluded from patentability irrespective of whether the claim is directed to the program on a carrier, a computer containing the program or a method performed using the programmed computer. Second, in each of these cases the court decided that the claimed invention did not make a relevant technical contribution. Consequently, as Mr Birss, who appeared on behalf of the Comptroller accepted, none of these cases decided the particular point which arises on this appeal, namely whether or not it is permissible to claim a computer program (as opposed to the programmed computer or a process performed using the computer) where the program, when run on a computer, produces a new technical effect.

29. In the light of these authorities, and in parallel with the EPO, the United Kingdom Patent Office adopted the practice in relation to computer related inventions of looking for a substantive technical contribution. If it was found, it would allow claims directed to a conventional computer programmed to give rise to that contribution and to equivalent methods and processes. However, it was the practice of the Patent Office not to allow claims to the computer programs because it considered that such claims did not of themselves deliver the contribution underpinning the invention.

30. There matters rested until the late 1990s and the decisions of the EPO Board of Appeal in *IBM/Computer Program Product* T 1173/97 and *IBM/Computer Program Product II* T 0935/97. Following those decisions, the United Kingdom Patent Office revised its practice to bring it into line with that adopted in the EPO. It began to allow claims to computer programs, either themselves or on a carrier, provided that the program, when run on a computer, produced a technical effect which was more than

would result from the running of any program on a computer and was such that a claim to the computer when programmed would not be rejected under the existing practice, that is to say, it made a substantive technical contribution.

31. In my judgment the United Kingdom Patent Office was right to revise its practice as it did. It seems to me to be the logical consequence of the dual approach that claims to computer related inventions must be considered as a matter of substance not form, as *Genentech*, *Merrill Lynch*, *Gale* and *Fujitsu* so clearly establish, and that what is needed to make an excluded thing patentable is a relevant technical contribution. If a program makes a conventional computer operate in a new way so as to deliver a relevant technical contribution then it seems to me to be wholly artificial to say that the effect is delivered by the computer but not the program. If, as these cases decide, a conventional computer programmed with such a new program is patentable because it is no longer a computer program as such then, in my judgment, the same reasoning must apply to the program itself. It is in the program that the technical advance truly lies.

32. The revised approach of the United Kingdom Patent Office also had the considerable merit of introducing a much greater measure of consistency with that of the EPO following the decisions of the Board of Appeal in *IBM/Computer Program Product* T 1173/97 and *IBM/Computer Program Product II* T 0935/97. The importance of this consistency is self evident and has been explained in many cases, including *Merrell Dow Pharmaceuticals Inc. v H. N. Norton &Co. Ltd.* [1996] RPC 76 and *Kirin-Amgen Inc. v Hoechst Marion Roussel Ltd.* [2005] RPC 9.

33. Thereafter, both in the United Kingdom and in the EPO, claims of the kind in issue in this case were granted upon application of the technical effect test – in the United Kingdom with the rider that novel or inventive excluded matter does not count as a technical contribution.

34. However, the approach in the EPO then began to change- in the manner foreshadowed in paragraph [8] of the decision of the Board in *IBM/Computer Program Product* T 1173/97, to which I have referred in paragraph [13] of this judgment. This change (or, more accurately, changes) became apparent in a number of decisions, most notably *Pension Benefit System Partnership* (2000) T 931/95, *Hitachi/Auction method* (2004) T 258/03 and *Microsoft/Data transfer* (2006) T 424/03. These decisions are discussed in detail in the judgment of the Court of Appeal in *Aerotel/Macrossan* and I need do no more than set out aspects of their essential reasoning.

35. The *Pension Benefit* case concerned a new method of controlling pension benefits using a computer system. The application contained a method claim and a product claim – to a suitably programmed computer. The Board refused the method claim as being to a method of doing business as such. It held that all the features of the claim were steps of processing and producing information having a business character and so did not go beyond a method of doing business; nor was the claim saved by the fact the method was performed using a computer. The Board then turned to the product claim which it treated very differently. It held that the computer system was not excluded from patentability by Article 52 because it had the character of a concrete apparatus. But it also held that the claim must be refused on the grounds of obviousness because the improvement was essentially an economic one which could not contribute to inventive step. Thus the application was refused.

36. This new approach was the subject of further refinement in the *Hitachi* case. This concerned a computerised method of carrying out a Dutch auction, in other words an auction in which the seller starts at a high price which is lowered until a bid is received. Once again the application included a product and a method claim. But here the Board drew no distinction between them. It held the product claim was not excluded by Article 52 because it comprised technical features such as a server, client computers and a network. It then approached the method claim in the same way and, in this respect, expressly disagreed with the decision in *Pension Benefit*. It concluded it was not appropriate to apply the technical contribution approach in considering the scope of the Article 52 exclusion, whatever the category of claim. In general a claim involving any technical means was an invention within the meaning of Article 52. Instead, the correct way to handle potentially non-patentable subject matter was to do so at the stage of considering inventive step. At this point account should only be taken of the features which contribute to a technical character and so it is here that the features which make a technical contribution need to be determined. Applying this approach the Board concluded the application must be refused. There was no invention in automating the described way of carrying out a Dutch auction.

37. The *Microsoft Data transfer* case revealed yet another development. The application described a way of facilitating data exchange across different formats and it included method claims and a claim to a program on a computer readable medium. The Board held that the method was implemented in a computer and this amounted to technical means sufficient to escape the prohibition in Article 52, following *Hitachi*.

38. As to the product claim, the Board said this (at paragraph [5.3]):

> "Claim 5 is directed to a computer-readable medium having computer-executable instructions (i.e. a computer program) on it to cause the computer system to perform the claimed method. The subject-matter of claim 5 has technical character since it relates to a computer- readable medium, i.e. a technical product involving a carrier (see decision T 258/03 - *Auction method/HITACHI* cited above). Moreover, the computer executable instructions have the potential of achieving the above-mentioned further technical effect of enhancing the internal operation of the computer, which goes beyond the elementary interaction of any hardware and software of data processing (see T 1173/97 - *Computer program product/IBM*; OJ EPO 1999, 609). The computer program recorded on the medium is therefore not considered to be a computer program as such, and thus also contributes to the technical character of the claimed subject-matter."

39. In short, the Board appears to have found that any program on a carrier has a technical character and so escapes the prohibition in Article 52 following *Hitachi*. In addition, this particular program had the potential of creating a further technical effect which was more than would result from the running of any program on a computer, and so also escaped the prohibition following *IBM/Computer Program Product.* The Board then proceeded to consider inventive step. However, in doing so, and in contrast to *Pension Benefit* and *Hitachi*, there is no express indication it put to one side non-patentable subject matter.

40. It was against this background that the conjoined appeals in *Aerotel/Macrossan* came before the Court of Appeal in August 2006. In giving the judgment of the Court, Jacob L.J. summarised the various approaches at paragraph [26]:

> "Our summary of the various approaches which have been adopted is as follows:
>
> (1) *The contribution approach*
>
> Ask whether the inventive step resides only in the contribution of excluded matter - if yes, Art.52(2) applies.
>
> This approach was supported by Falconer J. in *Merrill Lynch* but expressly rejected by this Court.
>
> (2) *The technical effect approach*
>
> Ask whether the invention as defined in the claim makes a technical contribution to the known art - if no, Art.52(2) applies. A possible clarification (at least by way of exclusion) of this approach is to add the rider that novel or inventive purely excluded matter does not count as a "technical contribution".
>
> This is the approach (with the rider) adopted by this Court in *Merrill Lynch*. It has been followed in the subsequent decisions of this Court, *Gale* and *Fujitsu*. The approach (without the rider as an express caution) was that first adopted by the EPO Boards of Appeal, see *Vicom*, *IBM/Text processing* and *IBM/Data processor network.*
>
> (3) *The "any hardware" approach*
>
> Ask whether the claim involves the use of or is to a piece of physical hardware, however mundane (whether a computer or a pencil and paper). If yes, Art.52(2) does not apply. This approach was adopted in three cases, *Pension Benefits*, *Hitachi* and *Microsoft/Data transfer* (the "trio"). It was specifically rejected by this Court in *Gale*.
>
> However there are variants of the "any hardware" approach:
>
> (3)(i) *Where a claim is to a method which consists of an excluded category, it is excluded by Art.52(2) even if hardware is used to carry out the method. But a claim to the apparatus itself, being "concrete" is not so excluded. The apparatus claim is nonetheless bad for obviousness because the notional skilled man must be taken to know about the improved, excluded, method.*
>
> This is the Pension Benefits approach.

> (3)(ii) *A claim to hardware necessarily is not caught by Art.52(2). A claim to a method of using that hardware is likewise not excluded even if that method as such is excluded matter. Either type of claim is nonetheless bad for obviousness for the same reason as above*.
>
> This is *Hitachi*, expressly disagreeing with *Pensions Benefits* about method claims.
>
> (3)(iii) *Simply ask whether there is a claim to something "concrete", e.g. an apparatus. If yes, Art.52(2) does not apply. Then examine for patentability on conventional grounds - do not treat the notional skilled man as knowing about any improved excluded method* .
>
> This is *Microsoft/Data Transfer*."

41. As is apparent from this summary, the court considered the decisions of the Board in *Pension Benefits, Hitachi* and *Microsoft/Data transfer* (the "trio") to be inconsistent with *Gale* and proceeded to subject them to considerable criticism. In doing so, the court reiterated that the computer program exception in Article 52 was not limited to abstract instructions but included programs on storage media (at paragraph [31]):

> "One thing does need to be said. Before you get to the "as such" qualification, you must make up your mind as to the meaning of the category which is excluded. Computer programs call for particular consideration here. There are, in principle, two views about what is meant by "computer program" in Art.52. A narrow view is that it means just the set of instructions as an abstract thing albeit they could be written down on a piece of paper. A wider view is that the term covers also the instructions on some form of media (floppy disk, CD or hard drive for instance) which causes a computer to execute the program - a program which works. This court and the earlier Board of Appeal decisions clearly take the latter view, as for instance in *Gale* and *Vicom*. The trio take the narrow view, working on the premise that all the exclusions are limited to the abstract. We are bound to say that we consider that wrong: so to limit the meaning of "computer program" would be to render the exclusion without real content. We think the framers of the EPC really meant to exclude computer programs in a practical and operable form. They meant to exclude real computer programs, not just an abstract series of instructions."

42. I do not understand the court to be here saying that computer programs are necessarily excluded; indeed the consideration is expressly limited to the meaning of the term "computer program" in Article 52 before the "as such" qualification is taken into account. The court simply concluded, as had the earlier decisions in *Merrill Lynch* and *Gale*, that a computer program remained just that, whether in abstract form or embodied in a storage medium or in a computer.

43. Further specific criticism was reserved for the reasoning of the Board in *Microsoft/Data transfer* (at paragraphs [113] to [115]):

> "113. So a CD or floppy disk containing a computer program is not a "computer program" as such because in addition to containing the program it will cause a computer to execute the program. The reasoning was bolstered by a finding of "technical character" of enhancing the internal operation of the computer, but is essentially independent of that finding.
>
> 114. The Board went on to examine patentability over the nearest prior art (Windows 3.1) and held the invention new and non-obvious. It did not do what was done in Pension Benefits, namely to treat the unpatentable computer program as such as part of the prior art. No trace of that reasoning appears.
>
> 115. This is inconsistent with Gale in this Court and earlier Board decisions such as Vicom. It would seem to open the way in practice to the patentability in principle of any computer program. The reasoning takes a narrow view of what is meant by "computer program" - it is just the abstract set of instructions, not a physical artefact which not only embodies the instructions but also actually causes the instructions to be implemented - such as the memory in a computer on which the program is stored."

44. Having rejected the reasoning of the "trio", the court observed it was bound by its earlier decisions in *Merrill Lynch*, *Gale*, and *Fujitsu* and then described the following approach as the one to be taken:

i) properly construe the claim;

ii) identify the actual contribution;

iii) ask whether it falls solely within the excluded subject matter;

iv) check whether the contribution is actually technical in nature.

45. This, the court considered, was a re-formulation in a different order of the *Merrill Lynch* test. As it explained, the second step requires looking at the substance rather than the form of the claim and assessing what the inventor has added to human knowledge. The third step is important. This is the application of the "as such" qualification. Taken together, the first three steps should provide the answer with the important benefit that they avoid the vexed question of what is a relevant "technical" contribution. The fourth step is a check, albeit a necessary one in the light of *Merrill Lynch*.

46. So this is the new approach which must be adopted by UKIPO and this court. It is clearly not the same as the approach adopted by the EPO in the "trio". The question I must now consider is whether the decision prohibits the patenting of all computer programs and, in particular, those which under the old approach would have been

considered to make a conventional computer operate in a new way so as to deliver a relevant technical contribution. UKIPO has apparently concluded that it does and so has reverted to its previous practice of rejecting all computer program claims – and hence its rejection of the program claims in each of the applications the subject of this appeal.

47. In considering this question I believe the following points are material. First, the point did not arise in *Aerotel/Macrossan.* The Court of Appeal allowed the *Aerotel* appeal because the contribution of the invention was a new combination of apparatus for making telephone calls. The *Macrossan* appeal was a little more complicated. It concerned an automated method for acquiring the documents necessary to incorporate a company. The application had been rejected as being a method of performing a mental act and a computer program as such, but not as a method of doing business. The Court of Appeal did not address the first finding, upheld the second and reversed the third. It considered the contribution of Mr Macrossan's method was for the business of advising upon and creating company formation documents and there was nothing technical about it. Similarly the program provided no more than an interactive website and so was also excluded as a computer program as such. In both appeals the contribution fell wholly within the exclusions. The court was not required to consider what claims were permissible in the case of a computer related invention which made a contribution extending beyond excluded subject matter.

48. Second, I do not detect anything in the reasoning of the Court of Appeal which suggests that all computer programs are necessarily excluded. I have identified the key aspects of the decision which relate to computer related inventions and they undoubtedly criticise the reasoning of the EPO Board of Appeal in each of the "trio" of cases. But the criticism is directed at the "any hardware will do" approach and the return to form over substance with the drawing of a distinction between a program as a set of instructions and a program on a carrier. I do not understand the court to have doubted the earlier decisions of the Board in *IBM/Computer Program Product* T 1173/97 and *IBM/Computer Program Product II* T 0935/97.

49. Third, I believe that in any particular case the application of the new approach should produce the same result as did the old. Indeed the Court of Appeal considered it was doing no more than applying a re-ordering of the *Merrill Lynch* test and that it was bound by *Merrill Lynch*, *Gale* and *Fujitsu*. Thus, in the case of a computer related invention which produces a substantive technical contribution, the application of step ii) will identify that contribution and the application of step iii) will lead to the answer that it does not fall wholly within excluded matter. Any computer related invention which passes step iii) but does not involve a substantive technical contribution will fail step iv). The answer to these questions will be the same irrespective of whether the invention is claimed in the form of a programmed computer, a method involving the use of that programmed computer or the program itself. *Aerotel/Macrossan* requires the analysis to be carried out as a matter of substance not form, just as did *Genentech*, *Merrill Lynch*, *Gale* and *Fujitsu*. True it is that the first step requires the scope of the monopoly to be determined and, in the case of a program, that will necessarily be limited. However the contribution of that monopoly must still be assessed by reference to the process it will cause a computer to perform.

50. Fourth, and as I have recognised earlier in this judgment, it is highly undesirable that provisions of the EPC are construed differently in the EPO from the way they are

construed in the national courts of a Contracting state. Moreover, decisions of the Board of Appeal are of great persuasive authority. In the light of *Aetotel/Macrossan* it is not open to this court to follow the decisions in the "trio". However the new approach can be interpreted to produce a result consistent with that obtained by applying the reasoning of the Boards of Appeal in *IBM/Computer Program Product* T 1173/97 and *IBM/Computer Program Product II* T 0935/97 – decisions which, I would add, are still followed in the EPO as shown, for example, by the decision of the Board of Appeal in *Tao Group Limited* (2007) T 121/06. Significantly, much the same approach has been adopted in Germany following the decision of the Bundesgerichtshof – the German Federal Supreme Court – in *Suche fehlerhafter Zeichenketten* Case No. X ZB 16/00; [2002] IIC 753.

51. In all these circumstances I have reached the conclusion that claims to computer programs are not necessarily excluded by Article 52. In a case where claims to a method performed by running a suitably programmed computer or to a computer programmed to carry out the method are allowable, then, in principle, a claim to the program itself should also be allowable. I say "in principle" because the claim must be drawn to reflect the features of the invention which would ensure the patentability of the method which the program is intended to carry out when it is run.

52. Finally, I must address a submission by Mr Birss that there is one decision of this court following *Aerotel/Macrossan* which directly addresses the issue before me, namely that of Mr Christopher Floyd Q.C. (as he then was) sitting as a deputy judge in *Oneida Indian Nation's Application* [2007] EWHC Civ 0954 (Pat). The case concerned a method of facilitating gaming from an off-site location which could be implemented by programming a general purpose computer. It included claims to the apparatus when programmed and to the program on a carrier. Applying the new approach, the deputy judge held that the advantages of the alleged invention (and hence the contribution) lay solely in a method of doing business and so fell wholly within that exclusion. That was enough to dispose of the appeal. However, although the deputy judge preferred to rest his decision on the business method exclusion, he was also satisfied that the technical advantages relied upon were solely those which would result from placing the new method on a computer and so did not amount to a relevant technical effect.

53. As to the program claim, the deputy judge observed that this was therefore prohibited by the business method exclusion. However, he also considered the position on the assumption he was wrong at paragraph [33]:

> "A more controversial question arises on the assumption that I am wrong about the business method exclusion: is a claim in the form of claim 16 allowable even where claim 1 is patentable? In my judgment it is not. The claim is to a computer program as such. Just as in *Gale's Application* [1991] RPC 191 mere inclusion of the computer program on a disk is not enough to circumvent the exclusion and see *Aerotel* at [92]. No technical problem is solved by doing so and no technical effect is produced."

54. Mr Birss submitted that the deputy judge decided in this one paragraph that program on a carrier claims are not allowable in principle. It is not clear to me that is so. His

reasoning must be considered in the light of his earlier conclusion that, in addition to the business method exclusion, the technical advantages relied upon were solely those which would result from placing the new method on a computer. The deputy judge observed that the mere inclusion of a program on a carrier is not enough to circumvent the exclusion. I entirely agree. This was decided in *Gale* and the same point is made in *Aerotel/Macrossan* at paragraph [92]: more is needed before one is outside the exclusion – such as a change in the speed with which the processor works. If, however, I am wrong and the deputy judge did decide the point now before me then, for all the reasons I have given, I must respectfully disagree with him.

Conclusion

55. It follows that these appeals must be allowed. Each concerns a computer related invention where the examiner has allowed claims to, in effect, a method performed by running a suitably programmed computer and to a computer programmed to carry out the method. The Hearing Officer has rejected corresponding program claims on the basis they are necessarily prohibited by Article 52. For the reason I have elaborated, he erred in law in so doing. These cases must be remitted to UKIPO for further consideration in the light of this judgment.