

0175/91

THE PATENTS ACT 1977

IN THE MATTER of Patent
Applications numbered
8715019 and 8715261 by
Sharp Kabushiki Kaisha

DECISION

Applications 8715019 and 8715261 were filed on 26 June 1987 and 29 June 1987 respectively, both claiming priority from Japanese patent applications dated 30 June 1986. The applications were examined in the ordinary way, being published under the numbers 2193018 and 2193358 respectively, and during their substantive examinations both were objected to by their respective examiners as being excluded from patentability by section 1(2) of the Act. Despite extensive discussions the examiners were not persuaded by the applicants that they should withdraw their objections and accordingly, at the request of the applicants, the matter came before me on 26 April 1991 when Mr K R Brown, a partner in the firm R G C Jenkins & Co, appeared on behalf of the applicants.

After the hearing, on 16 May 1991, Mr Brown filed a letter asking me to consider Sherman: Patentability of Computer-related Inventions in the United Kingdom and the European Patent Office [1991] EPIR 85, an article written by Brad Sherman of the London School of Economics and Political Science and published in the European Intellectual Property Review.

Both applications are concerned with the translation of a document from a source language to a target language, typically, and in the embodiments described, from English to Japanese. In particular, both applications add additional features to existing automatic language translation systems in order to enhance their ease of use whereby better translations may be produced in less time.

In the first application, 8715019, having entered a sentence in English and caused the sentence and its translation into Japanese to be displayed, the user can highlight a chosen word in the translated text and cause a list of synonyms of that word to be displayed. The user can then cause the Japanese word originally produced by the system to be replaced by a selected one of its synonyms. Further, if the user is aware of a synonym of the Japanese word that is not displayed when the list of synonyms is called for, then the user may cause that additional synonym to be added to the dictionary of synonyms maintained by the system.

When the hearing was appointed, the specification included the following two independent claims:-

1. An interactive translation machine system comprising:

inputting means for inputting a word group to be translated;

translation means for translating the input word group into a translated word group;

display means for displaying the input word group and the corresponding translated word group;

user-operable designating means for designating a desired word contained within the translated word group displayed by said display means;

dictionary means for providing synonyms of the translated words;

said display means being operable to display the synonyms provided by said dictionary means of the translated word designated by said designating means;

user-operable selection means for selecting one of the synonyms of the designated translated word;

replacement means responsive to said selection means to replace the designated translated word with the selected synonym thereof; and

means permitting correction of the synonyms contained in the dictionary as displayed by said display means.

11. An interactive translation machine system in which an input sentence and its translation are displayed, and a designated word in the translation can be selectively replaced by any one or more synonyms thereof automatically derived from a dictionary means, means being provided to permit correction of the synonyms of the designated word as contained in said dictionary means.

but before the hearing the applicants filed another independent claim intended to emphasize the technical character of certain features of the system, namely -

12. An interactive translation machine system comprising:

inputting means for inputting a word group to be automatically translated by the system;

translation means for automatically translating the input word group into a translated word group;

display means for simultaneously displaying on a common display screen both the input word group and the corresponding translated word group;

user-operable word-designating and mode-selecting means for designating a desired word contained within the translated word group displayed by said display means by setting the position of a cursor displayed on said display screen, and for selecting by user-operation of a predetermined function key on a keyboard, a word display mode of the system;

dictionary means operable in said word display mode for providing synonyms of the translated words designated by said designating means;

said display means being controlled in said word display mode so as to display, in addition to said input and translated word groups, the synonyms provided by said dictionary means of the translated word designated by said designating means;

user-operable selection means for selecting one of the synonyms of the designated translated word;

replacement means responsive to said selection means to replace the designated translated word with the selected synonym thereof; and

means permitting correction of the synonyms contained in the dictionary as displayed by said display means.

In the second application, 8715261, having entered a sentence in English and caused it to be displayed, before calling for its translation to be made the user may partition the sentence into two and then cause the two parts to be translated separately. This feature is of particular use

when the original sentence has a structure that is too complicated for the system to process properly. This application also provides the converse of the above feature, namely the feature that two or more sentences, or two or more parts of sentences, may be appropriately marked by the user so that they are translated as a whole.

When the hearing was appointed the specification included the following single independent claim:-

1. A translation machine, comprising:

storage means for storing a sentence input in a first language;

translation means for translating from the first language into a second language;

display means for displaying the input sentence in said first language and its translation in said second language;

means operable by the user for designating a selected splitting position in the input sentence; and

splitting means for deriving the split sentence parts which lie on opposite sides of said splitting position in the input sentence;

said translation means being operable to translate said split sentence parts separately.

but before the hearing the applicants filed two further claims as follows:-

13. A translation machine, comprising:

first storage means for storing a sentence input in a first language;

translation means for performing automatic translation from the first language into a second language;

display means for displaying the input sentence in the first language and its translation in said second language;

keyboard means operable by the user for positioning a division mark on the part of the display means displaying the input sentence, so as to designate a selected splitting position in the input sentence;

splitting means for deriving the split sentence parts which lie on opposite sides of said division mark in the displayed input sentence; and

second storage means for storing the split sentence parts derived by said splitting means and transferred to said second storage means in response to a command to initiate translation;

said translation means being operable following said transfer to said second storage means to translate said split sentence parts as stored in said second storage means, separately.

14. A translation machine, comprising:

first storage means for storing a plurality of sentences input in a first language;

translation means for performing automatic translation from the first language into a second language;

display means for displaying an input sentence in the first language and its translation in said second language;

keyboard means operable by the user when the sentence splitting is required for positioning a division mark on the

part of the display means displaying a said input sentence so as to designate a selected splitting position in that input sentence, and operable by the user when sentence combination is required for positioning a combining mark on the part of the display means displaying a plurality of said input sentences so as to designate selected sentences to be combined;

command means operable in response to the actuation by the user of a function key to issue a sentence processing command;

means operable in response to said processing command to detect whether a said splitting position has been designated by said division mark or whether sentences have been designated by said combining mark and to automatically select between execution of a splitting process and a connection process in accordance with the result of said detection;

sentence processing means including splitting means operable in response to selection of the splitting process for deriving the split parts which lie on opposite sides of said division mark in the displayed input sentence and connection means operable in response to selection of the connection process for combining the sentences designated by said combining mark; and

second storage means for storing the processed sentence produce by said sentence processing means and transferred to said second storage means in response to a command to initiate translation, said processed sentence comprising either the split sentence parts derived by said splitting means or the combined sentence produced by the connection means;

said translation means being operable following said transfer to said second storage means to translate the processed sentence as stored in said second storage means by translating the split sentence parts separately if the splitting process has been executed or by translating said combined sentence if said connection process has been executed.

In support of the objections, each examiner raised two independent lines of argument which may be summarised as follows. Firstly, from the Merrill Lynch decision it follows that for a claim to a conventional computer containing a novel program to be patentable a technical advance on the prior art in the form of a new result must be present, but in the present applications, so the examiners assert, no such technical advance is present. Secondly, from the Wang and the Merrill Lynch decisions it follows, argue the examiners, that a claim to a conventional computer running a novel program which performs a mental act - as the examiners assert is the case in the present applications - is not allowable irrespective of any technical advance on the prior art.

Mr Brown sought to rebut these arguments, the first by showing that a technical advance was present, and the second by showing that the argument was not supported in law by the decisions cited. Mr Brown also raised an independent argument, in support of the patentability of the applications, based upon a review of the practice in the European Patent Office. I will deal with these matters in order.

Firstly I will deal with the question of whether any technical advance on the prior art is present. The law on this point derives from the decision of Fox LJ in the case of Merrill Lynch's Application [1989] RPC 561 and in particular from the following passage on page 569 of his decision -

"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 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 on the prior art in the form of a new result (e.g. a substantial increase in the processing speed as in Vicom)."

and the Vicom case referred to by Fox LJ is the case Vicom Systems Inc T208/84 [1987] EPOR 74 dated 15 July 1986, in which a European Patent Office Technical Board of Appeal decided 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, the passage to which Fox LJ was referring being -

"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."

Thus, for a claim to a conventional computer containing a novel program to be patentable a technical advance on the prior art in the form of a new result must be present. Mr Brown accepted this proposition and I need say no more about it. Mr Brown also accepted that the claims in the two applications embrace conventional computers when suitably programmed - which forms another element in the examiners' arguments - and therefore, as I have already indicated, the only question in dispute is whether any technical advance is to be found in the present applications.

The problem with deciding whether a technical advance is present is, as Aldous J has observed in the Patents Court, that the word 'technical' is not used in the Act or in the European Patent Convention. As far as I am aware the word was first introduced into considerations of patentability by a European Patent Office Technical Board of Appeal in the case of Vicom following its use - but without any definition - in Rule 29 of the Implementing Regulations to the Convention, and although Fox LJ adopted the word in Merrill Lynch, he was able to decide that case without indicating what he meant by his use of the word. Since Merrill Lynch two more cases have come before the UK courts, namely Gale's Application (to be reported) and Wang Laboratories Inc's Application (to be reported), but these cases also were decided without discussing the use of the word 'technical'. It therefore seems to me that I must review the relevant EPO decisions in order to form some appreciation of what the EPO Boards of Appeal had in mind by their use of the word.

I shall start my review by considering two decisions where it is possible to contrast claims that have been allowed by EPO Boards of Appeal with those that they have refused.

Consider first the Vicom case. In that case, the nub of the invention was the discovery of a mathematical algorithm which allowed an approximation, to any desired degree of accuracy, to a convolution integral to be evaluated, the time taken to evaluate the approximation to an adequate degree of accuracy being significantly less than that to evaluate the convolution integral itself. The original claims were for a computer program embodying the algorithm and were refused. The amended claims were for the application of the algorithm to the digital processing of images and were allowed because the algorithm was now incorporated into a technical process, the particular technical advance being, as stated by Fox LJ, an increase in processing speed.

Now consider the case IBM/Indicating conditions T115/85 [1990] EPOR 98. This case was concerned with a word processing system. When such a system is in use, it is necessary for the system to convey various

messages to the user in order that the system may operate properly in the intended manner, the examples of such messages quoted being the messages 'Close diskette door', 'Do not remove diskette - data may be lost', and 'Insert diskette A'. According to the specification, a flexible word processing system requires a great number of messages to be available for presentation to the user thereby contributing to the storage requirements and cost of the system. The invention reduces this cost by the use of a programming technique which reduces the amount of storage required. In essence rather than storing whole messages which may require the same word to be stored many times, the technique stores each word only once even though it may be used in several messages. Thus the nub of the invention was the discovery, or the devising, of a programming technique. The original claims (cf paragraph 11 of the decision) were directed to a method of decoding stored phrases and obtaining a read-out of events in a text processing system. These claims were rejected by the examining division for the reason that the sole contribution to the art resided in a program for a computer as such. Before the hearing the applicants were informed by the Rapporteur that in the provisional opinion of the Board the claim essentially sought protection for a method of performing a mental act expressed in the form of a computer program. However, the Rapporteur observed that the application in effect concerned a method for indicating a specific event which may occur in the input/output device of a text processing system and that such a method was basically concerned with a technical problem. The applicant then submitted amended claims directed to a method for displaying one of a set of predetermined messages comprising a number of words each such message indicating a specific event which may occur in the input/output device of a text processing system, and these claims were allowed. In its decision the Board stated

"7. Generally the Board takes the view that giving visual indications automatically about conditions prevailing in an apparatus or system is basically a technical problem.

8. The application proposes a solution to a specific problem of this kind, namely providing a visual indication about events occurring in the input/output device of a text processor. The solution includes the use of a computer program and certain tables stored in memory to build up the phrases to be displayed.

9. Even if the basic idea underlying the present invention might be considered to reside in that computer program and the way the tables are structured, a claim directed to its use in the solution of a technical problem cannot be regarded in the Board's opinion as seeking protection for the program as such within the meaning of Article 52(2)(c) and (3) EPC."

Thus, in summary, in the IBM/Indicating conditions case, (a) the inventor devised a programming technique that reduced the amount of store required for a plurality of messages; (b) a text processing system incorporating the technique was held not to be patentable if the messages are of an unspecified nature, but (c) if the messages relate to events that may occur in an input/device of the system then a technical problem has been solved and the system is patentable.

This decision, of course, accords fully with the Board's earlier decision in Vicom where while the numbers being operated upon by the algorithm were simply numbers the invention was not patentable, but once the numbers were said to represent an image, or, in other words, once the algorithm was incorporated in a technical process, the resulting invention was patentable. It also accords, it seems to me, with the decision of the Court of Appeal in the case of Genentech Inc's Patent [1989] RPC 147. That case was concerned with the discovery of the amino acid sequence of a protein t-PA, which though known, could only be produced in very small quantities from human tissue. However, having made the discovery Genentech were able to make the protein commercially using conventional biochemical techniques. One of the questions before the Court was whether a claim to a process for making t-PA was excluded from patentability by section 1(2). Dillon LJ stated -

"In so far as a patent claims as an invention the practical application of a discovery, the patent does not, in my judgment relate only to the discovery as such, even if the practical application may be obvious once the discovery has been made. . . . In my judgment, therefore, this patent does not fall foul of subsection (2) of section 1 of the 1977 Act."

Reverting to EPO decisions, I am not aware of any others where one can contrast unallowable claims with allowable claims, but there are five other decisions which were referred to at the hearing and which I must therefore consider. These are, in chronological order, IBM/Abstracting documents T22/85 [1990] EPOR 98, IBM/Reading age T38/85 [1990] OJEPO 384, IBM/Spelling checker T121/85 (unreported), IBM/Semantically related expressions T52/85 [1989] EPOR 454, and IBM/Homophone checker T65/86 [1990] EPOR 181.

The first of these decisions, namely IBM/Abstracting documents, is concerned with the automatic abstracting of documents to facilitate their subsequent use as a data base that may easily be searched. The second and subsequent decisions are all concerned with various features of text processing systems. In IBM/Reading age having entered some text the user can cause the text to be scanned automatically to cause successive words having a reading age higher than a preset reading age to be highlighted. For each highlighted word, the user can then cause a list of synonyms, each synonym having a reading age less than or equal to the preset age, to be displayed, and can cause a selected synonym to be inserted into the text in the place of the original word. IBM/Spelling checker is similar except that incorrectly spelt words are highlighted. IBM/Homophone checker also is similar, words such as 'there' and 'their' (homophones) being highlighted when the rules of grammar suggest that they have been used incorrectly. In IBM/Semantically related expressions a user can highlight a word himself and cause a list of synonyms or antonyms (semantically related words) to be displayed.

In all of these decisions the applications were refused. In the IBM/Abstracting documents case the Board of Appeal stated -

"5. The Board takes the view that the subject-matter of the present application is to be likened to the activities referred to in Article 52(2)(c) EPC and more particularly must be regarded as falling within the category of schemes, rules and methods for performing mental acts. It does not present, therefore, the technical character required for an invention and does not provide a result which could be qualified as being of a technical nature.

6. Any new concept disclosed in the present application could only be in the rules according to which the abstracting, storing and retrieving of documents are performed in order to establish an information retrieval procedure which, judged on the basis of essentially administrative criteria, can be regarded as giving satisfactory results. These rules cannot be regarded as having a technical character but are of a purely intellectual nature.

7. The claims effectively seek protection for systems and methods in which conventional computer means are controlled by a program so as to carry out abstracting, storing or retrieving of documents in accordance with the said set of rules. The new contribution to the art made in the present case, however, lies clearly essentially in the provision of this set of rules. Insofar the claims have to be regarded as being related to subject-matter which is excluded under Article 52(2) and (3) EPC as such.

8. For carrying out in practice an activity excluded as such under Article 52(2)(c) EPC some means may be used which themselves could be qualified as technical e.g. a computer controlled by appropriate software. A claim directed to an excluded activity but at the same time containing such technical

features would not appear to be unallowable under all circumstances. However, the mere setting out, as in the present case, 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 does not import any technical considerations and can, therefore, neither lend a technical character to that activity nor to the claimed subject-matter considered as a whole, no more than solving a mathematical equation could be regarded as a technical activity when a conventional calculating machine is used and thereby overcome the exclusion from patentability.

9. The contribution to the art and the effects obtained are only in the area of the excluded activity and the true nature of the invention remains the same whether or not a technical terminology is used in expressing it.

10. In the opinion of the Board it cannot have been intended by the Contracting States to the EPC that express exclusions from patentability could be circumvented simply by the manner in which the invention is expressed in a claim.

11. The Appellant has argued that the combination of hardware elements figuring in the claims implies an unusual use of these elements in that their functional interrelationship is different from those previously known. Although the Board agrees that this interrelationship is different, the Appellant's argument is not convincing as the claimed functional interrelationship does not define a new way of operating the computer in a technical sense. In fact this relationship is the logical consequence of the rules chosen for abstracting/storing and retrieving documents, and only expresses the algorithm underlying the program which is required to run the conventional computer so as to operate in accordance with the said rules."

In the three decisions, IBM/Reading age, IBM/Spelling checker, and IBM/Homophone checker the Board held in essence that the claims consisted of elements having functions defined by reference to linguistic considerations and that no technical contribution to the art was made. For example, in the IBM/Spelling checker case the Board stated -

"5. . . . Such spelling [the spelling of written human language] is basically not of a technical but of a linguistic nature. A correctly spelled word represents an abstract linguistic information and a correct spelling relates therefore to the correctness of an information and not to any physical entity. A wrong spelling can be detected by performing mental acts with no technical means involved.

This does not necessarily mean that a system automatically performing, instead of a human being, the same spelling checking act is excluded from patentability. Rather, this will depend upon whether the manner in which it is automated, involves features which make a contribution in a field outside the range of matters excluded from patentability under Art 52(2) in connection with Art 52(3) EPC.

. . .

5.3 . . . Apparently, all these functions [the functions in the characterising part of the main claim] relate merely to the linguistic meaning of the data stored, scanned, compared, transferred etc. in coded form, namely to their property of either being or not being 'real' word characters, and if they are, to their property of either being 'correct' or 'wrong' characters of the word.

It follows that the data processing defined by the functional features of the individual system elements relates to the linguistic evaluation, on the basis of linguistic rules, of data representing

linguistic information, for the purpose of achieving a linguistic result, and that the actual processing involves only conventional techniques of storing etc. coded data.

Therefore neither in a field outside linguistics nor outside conventional computer functioning any contribution is made by the present invention as claimed."

The IBM/Semantically related expressions case is a little different. There the nub of the invention, as in the case IBM/Indicating conditions, was a programming technique for storing a large number of words - groups of synonyms and groups of antonyms - in a small store. However, because the data being stored was not related to any technical function, but just to linguistics, the application was refused. The Board stated -

"5.3 . . . These functions [the characterising functions of the claim] as such are all conventional: storing data; comparing input data with an index for finding an address location; storing the address; accessing with it a memory; decoding the addressed data; utilising the decoded data as an address for accessing another memory; displaying the addressed data. All that goes beyond these functions relates merely to the linguistic meaning of the words stored, compared, etc. in coded form, namely to their property of either being, or not being, semantically related to other stored words, the second memory having been 'pre-programmed' with the semantical relationship to be applied."

Finally, there is one other EPO decision that I wish to consider which also is based upon a computer program, namely the case of IBM/Coordinating cpu's T6/83 [1990] EPOR 91. In that case the invention consisted of a plurality of data processors interconnected as nodes in a telecommunications network in such a way that a local user of a local program is able to use resources located at remote data processors

without the need to know, or to write into the local program, the actual location of the resources. Having considered the application, the Board of Appeal concluded that the invention was concerned with the internal workings of the processors and the transmission equipment irrespective of the nature of the data, and held that in its opinion the application solved a problem 'which is essentially technical'. The Board therefore allowed the application to proceed.

Decisions of the EPO are not binding upon me, and nor are they necessarily drafted in strict accordance with the principles of the English legal system. It would be wrong therefore, in my opinion, to subject EPO decisions to the fine textual analysis that one might apply to decisions of the courts of the United Kingdom, rather I think one must extract from them general conclusions based upon the approach and attitude of the boards of appeal to the problems that arise in applying the European Patent Convention.

To my mind, four conclusions can be drawn from the above decisions. Firstly paragraph 10 of the decision in the case of IBM/Abstracting documents shows that, like the Court of Appeal eleven months later, the Board does not think it can have been intended that express exclusions from patentability could be circumvented by the manner in which the invention is claimed. In short, substance is to prevail over form.

Secondly, paragraph 8 of the same decision seems to me to mean that in the Board's opinion the technical content of a claim for an invention based upon a novel program cannot be enhanced merely by expressing the steps of an underlying method or algorithm in terms of functionally defined means of the type that would be found in a conventional general purpose computer. In other words, if an invention is argued to be patentable because it achieves a technical effect, then that effect must be over and above any technical effect present as a consequence of the use of functionally defined means of the type that are to be found in a conventional computer.

Thirdly, in deciding whether a claim possess the necessary technical attribute, the Boards of Appeal appear to analyse the claim feature-by-feature, and they do not seem to be deterred from allowing a case to proceed even when - as in the IBM/Indicating conditions case - a significant number of features are non-technical. Indeed, in their decision in the case of Koch & Sterzel [1988] EPOR 72 - and this case was not referred to expressly at the hearing - the Board stated that it 'regards it as unnecessary to weigh up the technical and non-technical features in a claim'.

Finally, it seems that in order to confine an invention to a technical field it may be sufficient to define, in the claim, the way in which any data being manipulated acquires its significance - as in Vicom and IBM/Indicating conditions - but from the IBM/Coordinating cpu's decision it is clear that this kind of limitation, whilst possibly a sufficient condition, is not a necessary condition for patentability.

I can now turn to Mr Brown's arguments.

Mr Brown began by arguing that the proposition that an invention that lies in the field of linguistics - and in particular in the field of language translation - lies in a non-technical field and is therefore necessarily barred from patentability, is false. Mr Brown supported his argument by passages from all of the above five EPO decisions on text processing cases, including, in particular, the last paragraph of section 5 that I quoted from the IBM/Spelling checker case.

I accept, of course, that novel apparatus that may be used in the field of linguistics, such as a novel printer, is clearly patentable, but I think Mr Brown really had in mind an invention in the field of linguistics which is based upon a novel computer program. In this restricted field it is certainly the case that the above EPO decisions leave open the possibility that there may be some circumstances in which such an invention could be patentable. However, there is a powerful argument against Mr Brown on this point, and this argument forms the substance of the examiners'

second main argument. I will therefore assume, for the purpose of considering the examiners' first argument, that, as Mr Brown submitted, applications based upon novel computer programs in the field of language translation are not necessarily barred from patentability.

Given that the fact that the claims in the present applications relate to language translation does not of itself bar them from patentability, it follows therefore, argued Mr Brown, that each must be analysed carefully to identify the real contribution made by the invention and to decide whether or not that contribution is of a technical nature. Subject to a caveat about the qualification 'real', I agree with this also to the extent that it relates to the practice of the EPO.

Mr Brown also argued that if the features of the claim which together provide the contribution to the art are not dependent purely on abstract linguistic considerations and are not defined in terms of the linguistic significance of the words, then the five above mentioned EPO text processing decisions do not have the effect of depriving the invention of patentability. I have reservations about this proposition since it seems to me that in the IBM/Semantically related expressions case the contribution to the art was the programming technique devised by the inventor for reducing the amount of store required to store a plurality of overlapping sets of data. It could therefore be argued that the programming technique is independent of linguistic considerations (and therefore is not caught by Mr Brown's proposition), but nonetheless the application was refused. I prefer therefore to leave this proposition open.

Finally, on the general principles that I should apply, Mr Brown submitted that some useful comments on the meaning of the term 'technical' were made in the proceedings between the respective examiners and applicants on two EPO applications for language translation systems, copies of which proceedings he provided. Under section 91(3) such copies, in order to be admitted in evidence, should apparently be certified as true copies by an official of the EPO. The

copies handed up by Mr Brown were not so certified, but nonetheless I have considered them because I feel sure that if called upon so to do Mr Brown would readily rectify this omission.

In the first of the two EPO applications, No. 87400004, in response to an objection by the examiner that the invention was not patentable, the applicants apparently argued that transforming a text from a source language to a target language is essentially a technical problem since the transformation is independent of the meaning of the text and is dependent only upon the arrangement of letters and words and is comparable to the problem of encrypting text. However, in a letter dated 5 September 1990, the examiner apparently left this argument unanswered and instead withdrew his objection for the reasons that the invention 'makes a technical contribution to the art in that both search times in the source language dictionaries and memory capacity requirements for the source language dictionaries are reduced.'

In the second EPO application, No. 82111260, in a letter dated 24 September 1987, the examiner apparently withdrew a non-patentability objection for the reason that the description 'discloses a technical problem, namely the problem of displaying simultaneously on the same display unit parts of a source and a target text supplied by a machine translation system and of highlighting corresponding phrasal elements indicated by a cursor in one of said texts, and since it discloses a solution.'

I am, of course, not bound by actions of examiners in the EPO, and nor do I have to give any weight to their opinions. Nonetheless, I have considered the EPO examiners' comments but with respect to Mr Brown they do not seem to me to provide any help in the present matter. In the first EPO application I cannot reconcile the examiner's apparent opinion that reduced memory requirements provide a technical advance with the decisions in the IBM/Indicating conditions and the IBM/Semantically related expressions cases, where a reduction in memory size, unless forming part of the solution to a technical problem, was not

regarded as an adequate reason for patentability, and nor can I reconcile his opinion that an increase in processing speed confers patentability with the decision in the Vicom case, where for patentability the increase in processing speed had to be in a technical field. Unfortunately this matter cannot be taken further because the examiner gave no argument to support his opinion. In the second EPO application, although the examiner made his decision to accept the application after the decision in the case of Vicom, it was made before any of the IBM decisions. In these circumstances the proceedings in the EPO case can have little if any bearing upon how the term 'technical' should now be interpreted, particularly in respect of applications, such as the present applications, concerned with linguistics.

Reverting to the present applications, Mr Brown began with the invention of application 8715019. As I have already briefly indicated above, this invention allows a user to highlight a word in the translated text and to cause a list of synonyms of it to be displayed. The user may then adopt one of three courses of action: either he may just ignore the synonyms and keep the existing word; or he may cause one of the synonyms to be put in the place of the highlighted word, or he may add an additional synonym to the dictionary of synonyms, so that in future whenever the same word is highlighted the previous synonyms and also the additional synonym will be displayed. Mr Brown submitted generally that the claimed invention is of a technical nature both in terms of the structure of the claimed translation machine, and also in terms of the problem which is addressed by the invention and the solution which is proposed.

Mr Brown did not identify the problem addressed by the invention in terms, but it seems to me that one can reasonably take the problem to be that of minimising the time taken to correct translated text by replacing particular words in the text produced by the translation module by more appropriate synonyms thereof. The facility of being able to add words to the dictionary of the system, is of importance in minimising that time

because, as a consequence, the same correction does not have to be entered at the keyboard more than once. If this problem is a technical problem, then the decision in the IBM/Indicating conditions case would point to the patentability of the invention. However, in my opinion, it is not a technical problem. Clearly technical means are utilised in solving the problem, but these means are elements of conventional computers, distinguished only by the fact that the data being operated upon derives its significance from linguistic considerations.

Mr Brown also submitted that the following features in the claimed invention are technical, namely (a) user designation of a word in the translated text, (b) display of the predetermined set of synonyms, and (c) correction of the stored set of synonyms, and he summarised his argument by asserting that the invention may be seen as providing the technical arrangement whereby a practical translating system can be provided despite the limitations in existing translation modules and yet reducing the necessary extra time required for correction of the target text. Moreover, asserted Mr Brown, the facility of being able to add to the system dictionary will also save on memory space since the alternative of having a larger dictionary of synonyms need not be adopted.

With respect to Mr Brown I believe his argument to be wrong. In my opinion, none of the first three features identified by him, namely designating a word in the text, displaying a set of synonyms, and correcting a dictionary, provides any technical feature not present as a consequence of using elements forming parts of conventional computers. The reduction of the time for correction of the target text, is, in my opinion, an organisational feature lacking any technical content, and the saving of memory space comes about in a field which is not technical. In the present claims, every item of data being manipulated represents text deriving its significance from linguistic considerations. Such data is not regarded as technical data. Moreover, the invention, in my opinion does not solve a technical problem. Therefore, in my opinion, the claimed invention does not provide a technical advance on the prior art. This

conclusion applies both to the claims on file when the hearing was appointed and also to the further claim filed just before the hearing, and to the appendent claims.

I now turn to the second application No. 8715261. In this application a user can split a sentence, entered into the system for translation, into two parts and then cause each part to be translated separately. This facility, argued Mr Brown, constitutes a technical advance over the prior art and overcomes several practical disadvantages, namely -

(a) for long sentences requiring a relatively long time for translation, the machine produces nothing until the whole sentence has been translated,

(b) if the system jams for some reason, for example over a difficult phrase in the input sentence, then the translation process fails for the entire sentence, and

(c) if the user wants a translation of only part of an input sentence, he does not have to re-enter that part as with conventional systems.

Again, and with respect to Mr Brown, I think he is wrong. In my opinion, as I have already indicated, if an invention consists of a conventional computer running a new program, if the data being manipulated is simply abstract data rather than technical data - and for the purposes of the Act data that derives its significance from linguistic considerations is not technical data - and if no technical problem is solved by the invention, then the invention is not patentable. Hence, as with the first application, in my opinion none of the claims in this application discloses any technical advance on the prior art.

I now turn to the examiners' second line of argument. In outline the argument is as follows:-

(a) a conventional computer running a novel program is not patentable if the result produced is itself an excluded item;

(b) a conventional computer programmed to translate from English to Japanese is performing a mental act;

(c) a scheme, rule or method for performing a mental act is an excluded item, and

(d) therefore the translation systems of the present applications are not patentable.

The basis in law for the argument is, argued the examiners, as follows. In the decision in the case of Merrill Lynch, Fox LJ stated, as I have already indicated above, that for a conventional computer containing a program to be patentable there must be some technical advance on the prior art. Fox LJ then went on to consider the particular claim under appeal and stated -

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

This, it is argued, supports limb (a) of the argument.

Limb (b) is supported by the case of Wang heard in the Patents Court by Aldous J. In that case a conventional computer was used to run an expert system program, that is a program which permits a computer to apply information in a given field of expertise as would a human expert, and Aldous J held that a claim to a conventional computer running such a program is no more than a claim for a computer program which will carry out a method for performing a mental act. Aldous J's remarks on this point are as follows:-

"Before turning to the claims, I must deal with a submission of Mr Burkill, who appeared for the applicants. He submitted that the words 'a scheme, rule or method for performing a mental act' in section 1(2)(c) only excluded schemes, rules or methods which were intended to be performed and were capable of being performed in the human mind. He submitted that the word 'for' introduced a subjective element. Thus, as claim 1 had as its basis steps which were not intended to be carried out by a human, in that the human mind would not go through those steps, the basis of the claim was not excluded matter.

The word 'for' does not, in my view, introduce a subjective element. It means 'for the purposes of'. The fact that the scheme, rule or method is part of a computer program and is therefore converted into steps which are suitable for use by a person operating the computer does not matter. What is excluded from being patented is a scheme, rule or method for

performing a mental act, whatever mental steps or process is involved. As I pointed out in Gale's Application, it is a question of fact to be decided in each case whether the claimed invention is more than a claim to an invention for a disqualified matter. Just as a claim to a disk containing a program can be in fact a claim to an invention for a computer program, so can a claim to steps leading to an answer be a claim to an invention for a method for performing a mental act. The method remains a method for performing a mental act, whether a computer is used or not. Thus a method of solving a problem, such as advising a person whether he has acted tortiously, can be set out on paper, or incorporated into a computer program. The purpose is the same, to enable advice to be given, which appears to me to be a mental act. Further, the result will be the advice which comes from performance of a mental act. The method may well be different when a computer is used, but to my mind it still remains a method for performing a mental act, whether or not the computer program adopts steps that would not ordinarily be used by the human mind."

Thus although a computer program may operate in a different way than the human brain, a computer program can, for the purposes of the Act, control the performance of a mental act.

In the present applications the claims embrace conventional computers running particular language translation programs. The programs translate from English to Japanese, a task normally performed by an expert linguist. It follows therefore, the examiners argued, that when a computer runs one of these programs, then for the purposes of the Act, the computer controls the performance of a mental act.

Limb (c) follows from section 1(2)(c) of the Act, and limb (d) is the logical consequence of the preceding limbs.

Mr Brown accepted limbs (b), (c), and (d) of the argument but he disputed limb (a) arguing that the passage quoted above from Fox LJ's decision should be taken to mean no more than that a method of doing business - as well as the other excluded items listed in section 1(2)(c) - is not of itself a technical result. I must admit that until I heard Mr Brown's submission I had always taken the passage as meaning that irrespective of any merit possessed by the invention or technical advance achieved by the invention over the prior art, if the result of the invention was an excluded item then the invention was excluded. That this was the meaning that Fox LJ intended seemed to me to be clear from the sentences in the middle of the paragraph, namely -

"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."

I shall not go into Mr Brown's argument because I regard myself as bound by authority to find against him in view of the decisions of Aldous J in the cases of Gale and Wang.

In Gale, having considered the decision of Fox LJ in the Court of Appeal, Aldous J concluded -

". . . that the first task of the court is to construe the claim as that is where the invention is defined. If the claim properly construed is drafted so as to relate to any of the matters disqualified by section 1(2) then the invention is not patentable."

The decision of Aldous J in the case of Gale was reversed on appeal, but apparently only on the narrow point of whether a floppy disc carrying a program could be distinguished from a ROM storing a program. In the judgement of Aldous J such a distinction could be made but the Court of Appeal disagreed, Nicholls LJ put the matter in the following terms:-

"The judge drew a distinction between a claim relating to a disc containing a program and a ROM with particular circuitry. I feel compelled to part company with him."

Nothing in the Court of Appeal's decision suggests to me - and I believe that this was Mr Brown's view also - that the Court distanced itself in any way from the above quotation from the judgement of Aldous J.

In the case of Wang Aldous J followed the same approach as in Gale, but this decision has the added interest that, unlike the Gale case, in it Aldous J considered the case of IBM/Indicating conditions and other EPO decisions.

For these reasons, as I have already indicated, I regard myself bound to find against Mr Brown, but even if I were not so bound, no argument that Mr Brown advanced persuaded me that I should go against the finding of Aldous J, and nor, indeed, did any argument utilised by Mr Sherman in his article in the European Intellectual Property Review.

My conclusion on the basis of these decisions is that a conventional computer running a novel program is not patentable if the result is any one of the matters excluded by section 1(2) irrespective of any merit possessed by the invention or technical advance achieved by the invention over the prior art.

Applying this proposition to the present applications, and following the examiners' second line of argument, readily leads me to the conclusion that each invention is not patentable.

I am aware, and this was alluded to at the hearing, that my above conclusion does not sit very happily with some of the decisions of the EPO Boards of Appeal. For example, as Mr Brown argued earlier, there are some very strong indications that the EPO might allow a claim to an invention consisting of a conventional computer running a novel language translation program if the claim included appropriate technical features.

Two examples of decisions with these indications are the IBM/Abstracting documents case -

"8. For carrying out in practice an activity excluded as such under Article 52(2)(c) EPC some means may be used which themselves could be qualified as technical e.g. a computer controlled by appropriate software. A claim directed to an excluded activity but at the same time containing such technical features would not appear to be unallowable under all circumstances."

and the IBM/Spelling checker case -

"This does not necessarily mean that a system automatically performing, instead of a human being, the same spelling checking act is excluded from patentability. Rather, this will depend upon whether the manner in which it is automated, involves features which make a contribution in a field outside the range of matters excluded from patentability under Art 52(2) in connection with Art 52(3) EPC."

However, the examiners' second line of argument is based solely upon decisions of the UK courts, and I am in no doubt that these are the decisions that I have to follow even if they do lead to a conflict with decisions of the EPO.

Finally I turn to Mr Brown's third main submission in which he argued that if the present two applications were refused there would be a wide

divergence of practice between the United Kingdom Patent Office and the European Patent Office.

To substantiate his argument Mr Brown presented the results of a survey made by him of applications relating to language translation published by the EPO during the years 1986, 1987, and 1989. Nineteen such applications were found of which nine have now been granted (several within the last nine months and three within the last two months), nine applications are still pending, and one application was abandoned. Of the 19 applications, patentability objections under Article 52(2) EPC corresponding to section 1(2)(c) of the Act, were raised on only three, and of these one was abandoned and the other two were the two which I discussed above.

Mr Brown accepted, of course, that each examiner has to make his own judgement about patentability and that others with the same facts may reach different conclusions, but he asserted that in view of the number of applications involved it was unlikely that a policy decision had not been taken in the EPO.

There is, of course, no dispute that I must pay the greatest respect to the decisions of the European Patent Office, authority for this proposition coming from the case of Gale where the Vice-Chancellor, Sir Nicolas Browne-Wilkinson, stated -

"First, I fully endorse the view of Nicholls LJ, in the areas where the Patents Act 1977 and the European Patent Convention are dealing with the same subject matter, the courts of this country should pay the greatest respect to the decisions of the boards of appeal established under the Convention. Not only does s.130(7) of the Act so provide but the resultant chaos which would develop if the law in this country diverges from that applicable by the European Patent Office and the other convention countries demands that, if possible, no such divergence occurs."

but I am not obliged to take into account differences in practice, and I do not see how I can unless the decisions that I am bound to follow give me a sufficient degree of freedom. In the present applications, in my opinion, each of the two lines of argument put by the examiners is conclusive, and I do not feel able to take any account of any divergence of practice - if indeed there be such a divergence.

In conclusion I support the examiners' objections that the inventions claimed in applications 8715019 and 8715261 are excluded from patentability by section 1(2)(c), and having read both specifications I do not believe that it is possible to draft claims that would not be excluded. Since each application has now gone beyond its respective period for being put in order, it follows from section 20(1) that each application shall now be treated as having been refused by the comptroller at the end of that period, namely on 30 April 1991 for both applications.

Any appeal from this decision should be lodged within a period of six weeks from the date of the decision as stated below.

Dated the 4th day of June 1991

B J Phillips
Principal Examiner acting for the Comptroller

THE PATENT OFFICE

