



## The law and its interpretation

4 Section 1(2) reads (emphasis added):

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

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

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

5 It is not disputed that the assessment of patentability is now governed by the judgment of the Court of Appeal in *Aerotel Ltd v Telco Holdings Ltd* and *Macrossan’s Application* [2006] EWCA Civ 1371, [2007] RPC 7 (hereinafter “*Aerotel/Macrossan*”), delivered on 27 October 2006. In this case the court reviewed the case law on the interpretation of section 1(2) and approved a new four-step test for the assessment of patentability, namely:

- 1) Properly construe the claim
- 2) Identify the actual contribution (although at the application stage this might have to be the alleged contribution)
- 3) Ask whether it falls solely within the excluded matter
- 4) Check whether the actual or alleged contribution is actually technical in nature.

6 The operation of this test is explained at paragraphs 40-48. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.

### Argument and analysis

7 The examiner had maintained objection that the invention was excluded as a computer program and a method for doing business, but Mr Beresford argued that it made a contribution having a functionality which did not lay solely within excluded areas and which was technical in nature. I shall deal with these arguments in accordance with the above four-step test.

### *Construction of the claims*

8 The construction of the claims is not disputed. However, Mr Beresford believed

that they had two distinct aspects: first, a new technical system comprising a communications network for the generation and transmission of commands for controlling functions or processes, and, second, the application of this underlying technical system to trading. He illustrated this by recasting claim 1 in terms of its alleged underlying technical features, as shown in the Annex to this decision.

*Identification of the contribution of the invention*

- 9 Setting the invention in the context of the closest prior art cited by the examiner, Mr Beresford explained that the trading system of specification US 6 134 535 (Belzberg) transmitted a multiplicity of commands simultaneously without queuing them, whilst the proposal at paragraph [0025] of the present application (which Mr Beresford thought might not actually have been published) buffered the commands at the ETS without any updating. Although the examiner had cited specifications EP 0 886 206 A2 (Hewlett-Packard Co; a network printer in which items queued at the printer could be modified at a remote terminal) and EP 0 067 957 A1 (IBM Corp; a word processing system with provision for amending or deleting documents in a printing queue) to show that the substitution of a command in a queue before transmission was conventional, Mr Beresford noted that neither of these updated control commands in relation to changes in the underlying data values.
- 10 Accordingly, and with reference to the above-mentioned analysis of the underlying allegedly technical features of the system, Mr Beresford identified the contribution of the invention as being the generation of commands from data which varied with time, buffering them in a transmission queue, transmitting commands from the queue to the network at predetermined time intervals, and, upon the receipt of further data having values different from those upon the basis of which the command was generated, updating each command in the queue before it was transmitted.
- 11 Whilst I accept Mr Beresford's distinction of the invention from the prior art, I think there is still a question as to whether he has correctly identified the contribution it makes in the light of paragraph 43 of *Aerotel/Macrossan*. Using Mr Beresford's analysis of the claims, can I ignore the second aspect – the limitation to trading?
- 12 Mr Beresford suggested that a useful test to decide whether there was a contribution outside of excluded matters was to see if there was still a patentable claim which made sense once the excluded matter had been stripped out. He thought that the present case was amenable to this treatment, and that, on the basis of his analysis above, a separable contribution could be identified which lay in the field of command handling and was not solely a matter of trading. As he explained in paragraph 21 of his skeleton argument, the underlying technical system could be applied to applications unrelated to trading and finance, such as the control of a chemical processing plant by means of commands gathered from sensors: the fact that the applicants had chosen to limit the monopoly to trading systems did not mean that the contribution was solely within excluded matter.
- 13 This is on the face of it a beguiling argument, but I do not think it really accords with the *Aerotel/Macrossan* approach. It seems to me that it bypasses the

second step of deciding what the contribution of the invention actually is, and simply equates the contribution with whatever there is in the claims not lying solely within excluded matter and which might have formed a claim in its own right. In deciding what the contribution is, I do not think I can ignore the trading aspect. I do not think this limitation is merely a matter of form, or an arbitrary choice on the part of the applicant. The problem of rapidly changing data values is particularly acute in the trading of financial securities, and the specification is drafted wholly in terms of providing an electronic system which is sufficiently dynamic to keep up with price changes in a highly fluid market so as to avoid traders incurring substantial losses through price distortions and inaccuracies. It may be the case that the invention provides something which could be adapted to other applications, such as the control of chemical processing operations, but I do not think that is decisive of what the contribution is.

- 14 In my view therefore the contribution of the invention as now defined in the claims is an apparatus for the provision to an electronic trading system of commands generated from trading data, comprising means to store the commands in a queue for transmission, means to transmit the commands from the queue to the network at predetermined time intervals, and means to update each command in the queue on the receipt of further trading data before the command is transmitted.

*Whether the contribution relates solely to excluded matters*

- 15 For this step of the test, Mr Beresford drew support from the observations in *Raytheon Co's Application* [2007] EWHC 1230 (Pat), *Research in Motion UK Ltd v Inpro Licensing SARL*, [2006] EWHC 70 (Pat), [2006] RPC 20, *Cappellini's Application and Bloomberg LP's Application* [2007] EWHC 476 (Pat), and *IGT's Applications* [2007] EWHC 1341 (Ch).
- 16 In *Raytheon* at paragraph 34, Kitchin J stated:

“... a convenient way of approaching the step is to ask whether there is any aspect of the contribution which does not fall within any of the exclusions. If there is then the invention does not relate to any excluded matter as such and is potentially patentable.”,

whilst in paragraph 11 of *Cappellini/Bloomberg*, Pumfrey J, referring to his earlier judgment in *RIM v Inpro*, stated (emphasis added):

“... in context, the problems with which the RIM invention was concerned were *essentially physical ones*, resulting from the various bandwidth restrictions that the patented invention was supposed (had it not been obvious) to overcome.”

- 17 Mr Beresford accordingly argued that the generation, buffering, processing and transmission of commands derived from data which varied with time was not within any of the section 1(2) exclusions. In his view the invention made it possible to transmit commands over a network to a computer which because of its physical constraints might be incapable of processing more than one command at a time, yet avoiding the commands being out of date by the time they were acted on.

- 18 Mr Beresford thought that in many cases it would not be possible to separate out aspects of the claimed invention which made a contribution outside the excluded area in the way that he had suggested. However, he thought that *RIM v Inpro* was such a case and provided something of an analogy with the present invention. In *RIM v Inpro* increased efficiency in transmitting information was achieved by the use of a proxy server which enabled a field computer to browse the web with better results than its normal processing and display capacities would suggest; Pumfrey J considered that the invention was not simply a collection of programs for computers and that it produced a technical effect which made a contribution outside of excluded matter. Mr Beresford thought that the present invention was similarly concerned with overcoming the physical limitations of a receiving computer at the ETS.
- 19 On the computer program exclusion, Mr Beresford drew a distinction between the functionality of the contribution and the manner of its implementation. As he saw it, the functionality in this case made a contribution outside the excluded area and the mere fact that a computer program was used to implement the contribution did not bring it within the excluded area. In support of this he took me to the Aerotel appeal, which was allowed in *Aerotel/Macrossan* on the grounds that there was a new physical system because of the presence of a “special exchange”. The Court of Appeal accepted at paragraph 53 that the new system could be implemented using conventional computers, but Mr Beresford argued that if the computers were indeed conventional the only way of implementing the different functionality provided by the new system would be by programming. Even if that argument is correct I do not think it gets me very far. The court’s decision was based on there being a new physical combination of hardware and, as Warren J observed in paragraph 18 of *IGT*, it did not need to address the question of whether the implementation of the Aerotel idea in terms of new software on an existing component was patentable.
- 20 On the basis of the following comment in *IGT* at paragraph 36 (on whether there was anything akin to the special exchange of Aerotel in a case concerned with the exclusion for playing games; emphasis added)

“Mr Birss says that the absence of a “special exchange” is the short answer to this case. It is an answer, of course, to the case insofar as it is based on the existence of a “special exchange”. But it seems to me that it is necessary to go further because, even in the absence of a “special exchange” *there may be a contribution, albeit a computer program, which makes a technical contribution to the known art and which is not exclusively in the excluded territory of rule, scheme or method for playing games.*”

Mr Beresford submitted that an invention which made a technical contribution to the known art and which was not exclusively in excluded matter could be patentable even if implemented by computer program. Aerotel was not therefore to be interpreted as meaning that the only basis for patentability was where there was new equipment.

- 21 Without trying to draw any wider principle from the success of the Aerotel appeal or from *IGT* as to the extent to which a computer program can make a technical

contribution, I accept that inventions which rely on computer programs for their implementation are not necessarily excluded under section 1(2): that much is clearly stated in paragraph 22 of *Aerotel/Macrossan*. However, I do not think that the assertion of a new functionality necessarily avoids the exclusion. As the examiner rightly pointed out at the hearing, even if there is new functionality the question still remains as to whether the contribution is a computer program as such. After all, any new computer program is going to do something different and to that extent could be said to have a new functionality. In my view the question which has to be answered follows from paragraph 73 of *Aerotel/Macrossan* in relation to the *Macrossan* appeal – is the contribution anything more than a devised program “up and running”?

- 22 It seems to me that the updating of the data on which the invention relies is something to be implemented by programming at the application program interface associated with the spreadsheet application. Taking the view that this was where the advance of the invention lay and that the transmission of the information was otherwise conventional, the examiner thought that the contribution related solely to a computer program. On the other hand, Mr Beresford thought that overall the contribution was better regarded as a modification of the process of transmission and that the combination of components was what produced a new result even if some of those components were known.
- 23 Having considered all the above arguments very carefully, I am persuaded (following the reasoning of Kitchin J in *Raytheon*) that there is an aspect of the contribution which does not fall within any of the exclusions. Although in my view the contribution includes a trading aspect, it seems to me that the underlying system features identified by Mr Beresford do indeed solve a physical problem caused by the limitation of the computer at the receiving or ETS end of the transmission. I do not therefore think that the contribution relates solely to a business (ie trading) system or method. Thus, although I have started from a different definition of the contribution from Mr Beresford, I have reached the same conclusion on this point.
- 24 Nor do I think that the contribution lies solely in a computer program. Whilst I accept that the invention does depend on programming in order to update the commands before transmission to the ETS, I think that overall the contribution is rather more than just a computer program “up and running”, given that the prior art does not appear to disclose data transmission systems which buffer commands at the transmitting end with provision for updating the commands in response to changes in the data upon which they were based.

*Whether the contribution is technical in nature*

- 25 The contribution of the invention therefore passes the third step of *Aerotel/Macrossan*, and so I must apply the fourth step as a cross-check. Whilst I accept that I should be cautious in drawing analogies between cases decided on different facts in relation to different inventions (see the observations of Pumfrey J in *RIM v Inpro* at paragraph 186 and *Cappellini/Bloomberg* at paragraph 11), I believe that there is a persuasive analogy with *RIM v Inpro* in

that the contribution of the present invention provides a means to overcome a physical limitation – in this case the inability of a computer at the receiving end of the ETS to process rapidly-changing data quickly enough. I consider the contribution to be technical in nature.

### **Conclusion and next steps**

- 26 I therefore find that the invention is not excluded from patentability under section 1(2).
- 27 The application will therefore be remitted to the examiner to continue the prosecution of the application. However, if the application is not in order, I note that the period prescribed by rule 34 of the Patents Rules 1995 for putting it in order expired on 13 February 2007 after extension under rule 110(3) and no request for a further extension under 110(4) has been received.

### **Appeal**

- 28 The question of an appeal is probably academic in the light of the above conclusion. However, I would remind the applicant that, under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal would have to be lodged within 28 days.

**R C KENNEL**

Deputy Director acting for the Comptroller

## **ANNEX TO DECISION O/226/07**

### **Claim 1**

Trading apparatus comprising an electronic trading system operable for executing trades in response to trading commands; a plurality of workstations operable for producing trading commands for execution by the electronic trading system; and a communications network operable for communicating trading commands produced by said workstations to said electronic trading system; wherein each said workstation comprises:

- (a) a customisable spreadsheet application which is operable for receiving electronic trading data and for performing calculations on the electronic trading data to create trading commands;
- (b) an application program interface which is associated with said customisable spreadsheet application, said application program interface being arranged for receiving said trading commands and for storing said received trading commands in a queue;
- (c) means for transmitting said respective stored trading commands in said queue at respective predetermined times to the communications network for communicating the trading commands to the electronic trading system; and
- (d) means for updating trading commands in said queue in response to receipt by the spreadsheet application of further electronic trading data subsequent to creation of the respective trading command and prior to transmission thereof at the respective predetermined time.

### **Claim 2**

Apparatus for providing a plurality of trading commands to an electronic system comprising:

- (a) a customisable spreadsheet application which is operable for receiving electronic trading data and for performing calculations on the electronic trading data to create trading commands;
- (b) an application program interface which is associated with said customisable spreadsheet application, said application program interface being arranged for receiving said trading commands and for storing said received trading commands in a queue;
- (c) means for transmitting said respective stored trading commands in said queue at respective predetermined times to the electronic trading system; and
- (d) means for updating trading commands in said queue in response to receipt by the spreadsheet application of further electronic trading data subsequent to creation of the respective trading command and prior to transmission thereof at the respective predetermined time.

### **Underlying system features of claim 1**

A computer system comprising first computer apparatus for executing commands; a plurality of second computer apparatus each operable for



.producing commands for execution by said first computer apparatus; a communications network operable for communicating the commands produced by said second computer apparatus to said first computer apparatus; wherein each said second computer apparatus comprises

- (a) a customizable means operable to receive from a remote source data having values which vary with time and to generate said commands on the basis of calculations performed on said data values;
- (b) an interface which is associated with said customisable means, said interface comprising a buffer arranged for receiving said commands and for storing said received commands in a queue;
- (c) transmission control means for transmitting said respective stored commands in said queue at respective predetermined times to the communications network for communicating said commands to said first computer apparatus; and
- (d) updating means for updating said commands in said queue in said buffer prior to transmission thereof at the respective predetermined time, said updating means being operable to update a command in dependence on upon receipt by the customizable means, subsequent to the generation of the command and prior to transmission thereof, of further electronic data having values different from the data values on the basis of which the respective command was generated.

**R C KENNEL**