



the corresponding score of each matched expression is aggregated. An alert is produced when the aggregated score reaches a predetermined threshold. The alert level is sent (e.g. by SMS text message or email) to a user (such as a parent) and one of a number of actions may be taken in response to the alert such as alerting the user of the electronic communication, terminating the communication session or shutting down the user equipment. The user may choose one of these actions, or a default action may be specified if the user does not send a response within a specified period (preferably five minutes).

- 4 Claims 1, 5, and 20 are independent and relate respectively to a computer-readable medium, a method and an apparatus. Mr. Beresford focused on claim 20 and also on claim 33, which includes in it the apparatus of claim 20, in his submissions. I will do the same. Claims 20 and 33 are set out below. Independent claims 1 and 5 are set out in the Annex to this decision.

*20. Apparatus for monitoring an electronic communication comprising:*

*electronic filtering means for sampling an electronic communication;*

*data storage means for storing an array of data representing at least part of a conversation from the sampled electronic communication;*

*search means for searching a dictionary for matches with expressions from the array of data wherein the dictionary comprises a Hash-table store of expressions, the Hash-table store for each expression comprising:*

*at least one section corresponding to a grammatical function of the expression;*

*at least one subject corresponding to a category of expressions; and*

*one of a plurality of levels assigned to the expression and corresponding to a monitoring alert score that is based on at least one of the section and subject of the expression,*

*data processing means for determining an aggregate alert level for the sampled communication wherein the aggregate alert level comprises the corresponding score of each dictionary expression that matches an expression in the electronic communication.*

*33. A system for monitoring electronic communications comprising:*

*a data communications analysis engine for packet sniffing and assembling packets for further analysis of their content;*

*apparatus as claimed in any one of claims 20 to 32 for providing an aggregate alert level;*

*a security warning algorithm adapted to provide at least one of a number of alert notifications to users based on predetermined user settings in response to the raising of the aggregate alert level;*

*a request and response engine for sending a notification request to an administrator/user advising the aggregate alert level, receiving a response from the administrator/user comprising one of a plurality of actions to be taken wherein the actions include one of alerting a user in an electronic communication, terminating the electronic communication and shutting down the user equipment;*

*a system log engine for recording and categorising communications data, actions taken and states within the system.*

## **The law**

- 5 Section 1(1)(d) of the Patents Act 1977 (“the Act”) states that a patent may be granted only for an invention in respect of which the grant of a patent for it is not excluded by subsections (2) and (3) or section 4A. Section 1(2)(c) states that things which consist of “a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer” are not inventions for the purposes of the Act, but only to the extent that a patent or application for a patent relates to that thing as such.
- 6 There is a large amount of case law in relation to these provisions. The most significant recent judgments of the Court of Appeal on the matter are *Aerotel Ltd v Telco Holdings Ltd Ors Rev 1* [2007] RPC 7 and *Symbian Ltd’s Application* [2009] RPC 1. In *Aerotel* the Court of Appeal reviewed all the previous case law and specified the following four-step test as a methodology of determining whether an invention was excluded from patentability under section 1(1)(d):
  - (1) Properly construe the claim;
  - (2) identify the actual contribution;
  - (3) ask whether it falls solely within the excluded subject matter;
  - (4) check whether the actual or alleged contribution is actually technical in nature.
- 7 In *Symbian* the Court of Appeal confirmed that the above test is intended to be equivalent to the prior case law test of “technical contribution”. In the present case I will therefore use the *Aerotel* test and ensure in my consideration of steps (3) and (4) that I determine whether the invention makes a technical contribution.
- 8 At the hearing Mr. Beresford took me to a number of other judgments of the UK courts and also the EPO Boards of Appeal. I will consider the relevance of these judgments to the present case in my assessment below.

## Assessment

### *(1) Properly construe the claim*

- 9 The claims use a number of terms whose meaning is not immediately evident. They need to be understood in the light of the description. These terms are:
- “Expression” – “words or phrases that are used when analysing the electronic communication” (page 14 lines 12,13)
  - “Dictionary” – “a store or list of expressions” (page 14 lines 10,11)
  - “Section corresponding to a grammatical function of the expression” – “a logical way of breaking up the words for management and input” (page 14 lines 17,18), e.g. acronyms, linking words, objects, roles, suggestive, swearing.
  - “Subject corresponding to a category of expressions” – “a group of words that may be associated with a chat alert for monitoring” (page 16 lines 13,14), e.g. categories such as affection, bullying, drugs, family, general, meeting, sex, stalking, swearing.
- 10 Each entry of the hash table in which is stored the dictionary therefore, according to claim 20, includes a word or phrase (“expression”) which is used to analyse the electronic communication, a grammatical function associated with that word or phrase, and a subject or category to which that word or phrase relates. It also includes a level corresponding to a monitoring alert score for each word or phrase, the alert scores for each matched word or phrase used to produce an aggregate alert level for the sampled communication
- 11 I note however that a hash table of this format is not supported by the description. According to page 21 lines 11-17 the subject itself is not included in the hash table but is used to determine which words or phrases should be loaded into the hash table from an XML file (which does include the subject/category). The example table on page 18 and the structure of the hash table set out on page 24 also imply that the subject field itself is not stored in the hash table. The claims as originally filed also do not disclose a hash table in which is stored the subject/category of each word or phrase. I therefore conclude that this matter constitutes added subject matter. For the purpose of claim construction I will ignore this feature. If I find that there is an allowable claim in terms of excluded subject matter the claims will need amendment to remove this added matter.
- 12 In relation to construing claim 33, the only point I would highlight is that this claim includes the feature of the user/administrator providing a response comprising one of a plurality of actions to be taken but does not include the feature of a default response being sent if no response is sent by the user within a period preferably of five minutes, a feature disclosed in the description and referred to by Mr. Beresford at the hearing.

13 Mr. Beresford submitted that claims 20 and 33 were related to each other in terms of a “plug and socket” or “transmitter and receiver”, namely that the features of one (the system for generating the alert of claim 20) were useless without the features of the other (the actions carried out with the alert of claim 33) but it was necessary to claim both elements separately to obtain the required protection. He argued that when identifying the contribution made by claim 20 I should take into account the wider system in which the features of claim 20 operate. I do not consider that the analogy between a plug and socket or a transmitter and receiver holds in the present case. A plug and a socket are both specifically designed so that one fits with the other, and a transmitter and receiver (e.g. for RDS) are also designed so that one works with the other. In the present case claim 20 relates to determining an alert level and claim 33 sets out what is subsequently done in response to that alert level. Claim 33 is limited to the apparatus of claim 20, but could in my view equally be applied to other alert-generating systems. Similarly any number of actions could be carried out in relation to the alert level determination of claim 20. It is not the case that the actions of claim 33 must necessarily occur for the invention to work in a useful manner. I therefore conclude that there is not such synergy between claims 20 and 33. I will therefore consider the features of claim 20 as they stand when determining the actual contribution made by the claim and will not infer any further features. Claim 33 is effectively dependent on claim 20 and I construe it accordingly.

*(2) Identify the actual contribution*

14 Mr. Beresford argued his case on the basis that the claims make a technical contribution. Before I can make this assessment I have to identify the actual contribution made by the claimed invention. Mr. Beresford took me to Jacob LJ’s comments on this matter in paragraph 43 of *Aerotel* which provides useful guidance on the question of assessing the contribution:

*“The second step – identify the contribution - is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable – it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended.”*

15 Mr. Beresford argued that the problem to be solved in this case was to increase the speed and reliability of the computer on which the invention operates, and that this was solved by the use of the hash table and the appropriate programming algorithms, which causes a more accurate and quicker output of an alert level. I agree that the hash table forms a part of the contribution. Prior art monitoring systems are known, as is set out in the background art section of the application in suit. Using stored dictionaries of words for such purposes is also known according to the present application. The actual contribution of claim 20, that is, what the inventor has added to human knowledge, appears to lie in the

way the dictionary is stored, formatted and accessed, and in the way an aggregate alert level is produced. I therefore consider that the actual contribution of the invention claimed in claim 20 is an apparatus for monitoring an electronic communication whereby a dictionary is searched for words or phrases, the dictionary comprising a hash-table store of such expressions each having associated with it a section and one of a plurality of levels, each level corresponding to a monitoring alert score, and whereby an aggregate alert level is determined from the corresponding score of each dictionary expression that matches the word or phrase in the electronic communication.

- 16 Claim 33 adds a further feature to the apparatus of claim 20. The system of claim 33 provides one of a number of alert notifications to users based on predetermined user settings in response to a raising of the aggregate alert level and the user/administrator sends a response comprising one of a plurality of actions to be taken which includes one of alerting the user in an electronic communication, terminating the electronic communication or shutting down the user equipment. Although not present in claim 33, it is apparent from the description that if no response is sent, a default response is sent by the system.
- 17 It is difficult to identify the actual contribution made by claim 33 as the further features present in this claim have not yet been searched. However a document referred to by Mr. Beresford in his skeleton and mentioned in the discussion of the background art in the application in suit, US 2004/0111479 (Borden), appears relevant to this matter. In the invention disclosed in this document an electronic communication ("chat") is monitored with a view to the system recognising certain types of chat behaviour. The system then decides how to act in response to these behaviours, for example by interrupting the chat, informing chat participants or informing third parties such as parents and guardians (see e.g. paragraphs [0030] and [0046]). Messages can be sent for example by email or text message. The means used to monitor the communication and recognise types of chat behaviour is different to the hash table used in the present invention, but the actions to be taken in response to that monitoring are similar. The difference is that they are initiated automatically by the system rather than by giving the user/administrator the opportunity to choose an action as in the present invention.
- 18 In considering the actual contribution made by claim 33, to the extent that I can determine it given that this claim has not been fully searched, it is appropriate to take account of this document, referred to in the discussion of the background art. The use of the hash table is not present in the prior art and is part of the actual contribution. I cannot fully determine if claim 33 adds anything further to the actual contribution given the need for further searching, but it is clear that if it adds anything it only adds the facility of giving a user/administrator an opportunity to choose an action before a default action takes place for a specific alert, rather than the system automatically specifying an action. This is what has allegedly been added to human knowledge, in addition to the use of the hash table to generate the aggregate alert level.

19 I therefore conclude that the actual contribution made by claim 33, to the extent that I am able to determine it and subject to further searching, is a system for monitoring electronic communications whereby a dictionary is searched for words or phrases, the dictionary comprising a hash-table store of such expressions each having associated with it a section and one of a plurality of levels, each level corresponding to a monitoring alert score, whereby an aggregate alert level is determined from the corresponding score of each dictionary expression that matches the word or phrase in the electronic communication, and whereby a user/administrator is provided with an opportunity to choose an action to be taken in response to that aggregate alert level.

*(3) Ask whether it falls solely within the excluded subject matter*

20 Mr. Beresford argued that the claimed invention makes a technical contribution and therefore does not fall solely within the excluded subject matter. He submitted that the invention makes a technical contribution in a number of respects which he summarised at the hearing as follows:

(i) The use of the hash table and the associated processing improves the performance of the computer, causing it to operate more quickly and more reliably, and is therefore a relevant technical effect.

(ii) The sending of an alert via SMS message to a user/administrator (such as a parent) and/or causing the computer to shut down or terminate the communications session, is a relevant technical effect external to the computer.

21 Following my construction and identification of the contribution of claim 20, the second of these features is present only in claim 33, not in claim 20. Moreover the second of these features is not part of the actual contribution I have identified above except to the extent that it provides the opportunity for the user/administrator to make a choice in which action to take. I will therefore only consider this feature to that extent. For completeness I would add that I do not consider there to be a relevant technical effect external to the computer in this case. In my view no technical contribution is made by the sending of messages or levels between the computer on which the electronic communication is being accessed and the user of that communication, and the user/administrator who may be a parent. The mere sending of messages over a network, whether that is the internet or the mobile phone network, does not in itself impart a technical contribution. Moreover the action initiated by the user itself takes place within the computer.

22 Mr. Beresford took me through case law from both the UK courts and the EPO to support these assertions, including *IGT/Acres Gaming Inc.* [2008] EWHC 568, *Raytheon Co's Application* [2008] RPC 3, *Inpro Licensing Sarl's Patent (Application for revocation by Research in Motion UK Ltd)* [2006] RPC 20, *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10, and *AT&T Knowledge Ventures LP and Cvon Innovations Ltd* [2009] EWHC 343 (Pat). He

argued that these cases provide me with guidance as to how I should decide the present case. I will draw what guidance I can from these cases, but in practice every case is different and I have to be careful not to draw inappropriate analogies between cases. He also referred to a couple of other cases, namely *Bloomberg LLP and Cappellini's Applications* [2007] EWHC 476 (Pat) and *Astron Clinica and Other's Applications* [2008] EWHC 85 (Pat) but these cases are of less relevance to the present case.

- 23 In *IGT/Acres*, which related to using an encrypted identifier from a pre-existing card to identify a casino's customers for the purposes of a loyalty scheme without decrypting the identifier, the judge stated the inventive concept without reference to any business method as such despite the stated problem looking like a business problem and therefore found that the claim would have been patentable if it wasn't for other deficiencies in the claim. Mr. Beresford argued that in the present case the inventive concept could also be expressed technically. I am not sure that this case helps me. The inventions are very different and the business method exclusion is not relevant to the present case. I have to decide whether the features above make a technical contribution and therefore take the invention beyond the computer program as such and mental act as such exclusions.
- 24 Mr. Beresford directed me to paragraph 34 of *Raytheon* where the judge pointed out that a convenient way of approaching step (4) of the *Aerotel* test is to ask whether there is any aspect of the contribution which does not fall within any of the exclusions. This is indeed what I will determine in deciding whether the contribution falls solely within the excluded subject matter. Mr. Beresford argued that the invention was not merely language analysis but had other aspects, namely those referred to above which, he argued, took it outside the exclusions.
- 25 In *Inpro v RIM* Mr. Beresford highlighted the importance to the present case of the nature of the contribution and what is meant by solving a technical problem. The invention in this case related to transmitting data between a field computer and a proxy server to enable a field computer, inadequate in processing and display power, to browse the web and produce a result substantially better than its modest abilities would indicate. The data was specifically adapted to the physical characteristics of the field device. The present case is however different. It does not carry out any processing which is dependent on the physical characteristics of the computer itself. Moreover the data is limited to a specific application, namely that of monitoring electronic communications. I do not therefore see how this case helps me, except to confirm that the physical computer itself does not need to be changed in order that an increase in its speed be considered a patentable invention. This is similar to the guidance found in *Symbian*.
- 26 In *Gemstar v Virgin* the "transfer patent" provided for the recording of TV programmes onto a digital medium together with recorded electronic programme guide (EPG) information. The user was then enabled to use that recorded EPG information to select the programme in question for re-recording onto a second storage medium. The initiation of movement of data from one disk to another was regarded as a physical effect and was deemed enough to render it patentable material. In the present case the contribution I have identified above is different to that of *Gemstar*, and I have to consider whether that contribution is a technical



contribution.

27 Finally Mr. Beresford took me to *AT&T Knowledge Ventures/Cvon* and went through the signposts that Lewison J set out in paragraph 40 of his judgment:

*i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;*

*ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;*

*iii) whether the claimed technical effect results in the computer being made to operate in a new way;*

*iv) whether there is an increase in the speed or reliability of the computer;*

*v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

28 Mr. Beresford argued that the invention in suit satisfied at least the first and fourth of these signposts. He also argued that I should treat the fifth signpost with caution. I will consider these signposts further later on in this decision.

29 Having reviewed all these cases and the submissions made by Mr. Beresford in relation to each of them, in summary their teaching relevant to the present case is as follows. Firstly, I have to decide whether the contribution lies *solely* in the excluded field. In reaching this conclusion I have to be careful to consider the substance of the contribution as a whole. Secondly, an invention which results in an increase in the speed and/or reliability of a computer is not necessarily excluded merely because the invention does not make any changes to the physical computer itself. It is possible for a program running on a computer which results in the computer operating more quickly or more reliably to make a technical contribution. I would add however that not all programs that, when run, cause the computer to run more quickly or reliably necessarily make a technical contribution. The program has to operate at the level of the architecture of the computer and the contribution must result in a general increase in the speed or reliability of the computer, independent of any application-level programs being run or data being processed. Finally, a technical effect external to the computer can take the computer program out of the exclusion. I would however emphasise that the effect must be a technical one. It is not merely enough for the invention to have any effect outside of the computer. Moreover many computer programs produce outputs to a user, some of which could be considered to be external to the computer. Again the mere generation of an external output is not enough. That output must be used in some way to make a technical contribution. The example often referred to is software used to control a process plant.

30 Mr. Beresford then took me to various EPO cases to argue that the following matter in settled case law of the EPO Boards of Appeal and should therefore be followed in the UK:

*“Generating an output indicative of conditions within a machine is a relevant technical effect, and those conditions do not have to be physical conditions of mechanical parts of the machines but they can be, and in most cases are, conditions which have arisen in software activity and in response to user activity.”*

31 My task is to apply the UK law in accordance with the guidance given by the UK courts. Mr. Beresford submitted that if the UK case law doesn't help me in a particular situation, but that settled EPO case law does, then I should follow that EPO case law. He referred me to paragraph 34 of *Symbian* which states:

*“However, in Actavis UK Ltd v Merck & Co Inc [2008] EWCA Civ 444, Jacob LJ, giving the judgment of the court, held that this court was also free to depart (but not bound to depart) from one of its previous decisions on a point in the field of patent law if satisfied that the Board have formed a settled view on that point, which differs from that arrived at in that previous decision. At [48], Jacob LJ made it clear that the right to depart from a previous decision only arose if the "jurisprudence of the EPO" on the point at issue was "settled", and that, even where that was the case, this court was "not bound to do so": for instance in "the unlikely event" that it thought the jurisprudence was plainly unsatisfactory.”*

32 This paragraph makes it clear that the Court of Appeal is free to depart but not bound to depart from one of its previous decisions. It does not allow me to depart from established UK precedent. I am not convinced that guidance from EPO case law is helpful to the present case. I have to be careful of drawing general principles from EPO cases that have not been explicitly approved of by the UK courts. Nor is it clear that all the decisions made in these EPO cases are consistent with UK precedents. Moreover each case is different and I have to decide whether the contribution in the present case lies solely in an excluded field, namely those of programs for computers as such or mental acts as such. I will therefore follow the principles established in UK cases such as *Aerotel*, *Symbian* and *AT&T Knowledge Ventures/Cvon* when reaching my decision and will not consider the EPO cases any further.

33 Starting with the first element of the contribution identified by Mr. Beresford, I am not convinced that the use of a hash table in the communications monitoring system makes a technical contribution to the system. There is no general increase in the speed or reliability of the computer which is independent of the program running or the data being processed on that computer, and the invention does not operate at the architecture level of the computer but at the application level. Rather the advantages are specific to the application in question and in my mind the contribution is really a faster and more reliable program, not a faster and more reliable computer. The hash table is a tool used by the programmer to cause the specific program claimed in claim 20 to process data more effectively, a tool often used by programmers to improve the performance of certain computer programs. It does not cause the computer to process data more effectively in general, unlike for example the invention concerning dynamic link libraries (DLLs) in *Symbian*. Moreover the program is merely automating the mental process of monitoring the electronic communication. I therefore conclude that this element of the contribution does not make a technical contribution and

lies solely in the excluded fields.

- 34 I have found that the actual contribution made by claim 20 does not include the second element of the contribution identified by Mr. Beresford. I therefore conclude that claim 20 does not make a technical contribution but its actual contribution relates to a program for a computer as such and a mental act as such and lies solely in this excluded fields. This claim is therefore excluded from patentability. Independent claims 1 and 5 are similarly excluded from patentability.
- 35 Claim 33 adds the facility for a user/administrator (e.g. a parent or guardian) to choose the action to be taken following a particular alert. This is a mental process and not a technical process. I therefore find that claim 33 is also excluded as a program for a computer as such and a mental act as such.
- 36 The *AT&T Knowledge Ventures/Cvon* signposts support my conclusion. In summary:
- (i) There is no technical effect on a process carried on outside the computer. Rather the effect outside the computer is the mental act corresponding to the user's choice of action to be taken in response to the alert.
  - (ii) The claimed technical effect does not act at the level of the architecture.
  - (iii) The claimed technical effect does not make the computer operate in a new way.
  - (iv) There is no general increase in the speed or reliability of the computer itself. Rather the increase in speed and reliability occurs at the application level in the computer program itself.
  - (v) The perceived problem appears to be to provide a system for monitoring electronic communications which is faster and more reliable, and which gives users a choice in actions to take. This problem has not however been solved by any technical means, but rather circumvented by using more efficient programming means specific to the monitoring system.
- (4) *check whether the actual of alleged contribution is actually technical in nature*
- 37 In my consideration of step (3) of the *Aerotel* test above, I have concluded that the actual contribution is not technical in nature.

### **Conclusion**

- 38 I therefore conclude that claims 1, 5, 20 and 33 are excluded from patentability as a program for a computer as such and a mental act as such. I have inspected the application including the other dependent claims and can find no amendment which would take the claimed invention outside of the exclusions. I therefore refuse the application.

## **Appeal**

- 39 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

**B MICKLEWRIGHT**

Deputy Director acting for the Comptroller

## **Annex – Claims 1 and 5 as amended**

*1. A computer-readable medium encoded with computer readable program code and a dictionary for analysis of an electronic communication said dictionary comprising a Hash-table store of expressions, the Hash-table store for each expression comprising:*

*at least one section corresponding to a grammatical function of the expression;*

*at least one subject corresponding to a category of expressions; and*

*one of a plurality of levels assigned to the expression and corresponding to a monitoring alert score that is based on at least one of the section and subject of the expression,*

*wherein the program code is adapted to operate data processing means for monitoring the electronic communication in real time such that the corresponding score of each dictionary expression is aggregated for each matching expression in the electronic communication.*

*5. A method of monitoring an electronic communication comprising the steps of:*

*sampling an electronic communication with the use of electronic filtering means;*

*forming an array of data representing at least part of a conversation from the sampled electronic communication;*

*searching a dictionary for matches with expressions from the array of data wherein the dictionary comprises a Hash-table store of expressions, the Hash-table store for each expression comprising:*

*at least one section corresponding to a grammatical function of the expression;*

*at least one subject corresponding to a category of expressions; and*

*one of a plurality of levels assigned to the expression and corresponding to a monitoring alert score that is based on at least one of the section and subject of the expression,*

*wherein the corresponding score of each dictionary expression that matches an expression in the electronic communication is aggregated by data processing means to determine an aggregate alert level for the sampled communication.*