



a computer program. The objection to exclusion as a mental act was not maintained and other matters were deferred. The issue for consideration, therefore, is whether the invention is excluded as a program for a computer.

- 5 In GB0522995.0 there were objections originally that the invention was to excluded matter, that it lacked inventive step and that there was a conflict of claim with the parent application. The excluded matter objection was on the basis of *CFPH*, the examiner being unable to find a new and non-obvious advance in a non-excluded field.
- 6 After further rounds of correspondence, the examiner issued fresh argument based on *Aerotel/Macrossan* that the invention was excluded as a mental act and as a computer program. Subsequently, the examiner appears not to have maintained his objection under the mental act exclusion, or continued his argument on inventive step, but pursued only that the invention is a program for a computer.
- 7 In view of the judgment of Patten J in *Symbian*<sup>4</sup>, I gave the applicants the opportunity to provide further submissions, which were received on 21 April 2008. Those submissions also attempt to place the inventions, and *Symbian*, in context with respect to *Astron Clinica*<sup>5</sup> (for GB0520969.7) and *Autonomy*<sup>6</sup> (for GB0522995.0) and are discussed below.

#### **Application GB0520969.7**

- 8 This application relates to a limiting or refining search results based on likely geographical location. The claims have been amended during prosecution; there are two independent claims, as of 30 July 2007, which read:

*“1. A method of operating a location module in a network comprising a user computer linked to the location module, to limit or refine search results based on a likely geographical location for which a user of the user computer desires further information using a submitted search term, the method comprising the steps of:  
receiving a search term submitted by a user as text in a search field, the search term including a locality name;  
dividing the search term into text which is the locality name and text which is not the locality name;  
returning, in dependence on the locality name, a probability that the locality name is associated with a geographical location by testing the text which is the locality name against a table of known geographical locations, using a decision graph linking a locality name to one or more geographical locations, using a neural network linking a locality name to one or more geographical locations the neural network having an output layer comprising the returned probability, or using a genetic programming algorithm to weight*

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<sup>4</sup> *Symbian Ltd.* [2008] EWHC 518 (Pat).

<sup>5</sup> *Astron Clinica Limited and others* [2008] EWHC 85 (Pat).

<sup>6</sup> *Autonomy Corporation* [2008] EWHC 146 (Pat).

*the returned probability; limiting or refining the search results based on the returned probability, and providing the limited or refined search results to the user.”*

and

*“11. A network comprising a user computer linked to a location module to limit or refine search results based on a likely geographical location for which a user of the user computer desires further information using a submitted search term, the location module comprising: an input to receive a search term submitted by the user as text, the search term including a locality name; and; a comparator to identify from the search term the locality name by dividing the search term into text which is the locality name and text which is not the locality name and returning, in dependence on the locality name, a probability that the locality name is associated with a geographical location by testing the text which the locality name against a table of known geographical locations, using a decision graph linking a locality name to one or more geographical locations, using a neural network linking a locality name to one or more geographical locations the neural network having an output layer comprising the returned probability, or using a genetic programming algorithm to weight the returned probability, and to limit or refine the search results based on the returned probabilities and provide the limited or refined search results to the user.”*

## **The law**

- 9 In his final report, the examiner maintained only his objection that the claimed invention relates to subject matter excluded from patentability under section 1 of the Act, in particular as a program for a computer under section 1(2)(c). The relevant parts of the section read:

1(1) A patent may be granted only for an invention in respect of which the following conditions are satisfied, that is to say -  
(a) the invention is new;  
(b) it involves an inventive step;  
(c) .....  
(d) the grant of a patent for it is not excluded by subsections (2) and (3) below;

and references in this Act to a patentable invention shall be construed accordingly.

1(2) 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) .....  
(b) .....  
(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or **a program for a computer**;  
(d) ....

but the foregoing provision shall prevent anything from being treated as an

invention for the purposes of the act only to the extent that that a patent or application for a patent relates to that thing as such.

- 10 As near as is practicable, these provisions have the same effect as Article 52 of the European Patent Convention (EPC) to which they correspond by virtue of being so designated in Section 130(7).

### Interpretation

- 11 It is not disputed that the current approach to assessing patentability under section 1(2) is set out in the Court of Appeal's judgment in *Aerotel/Macrossan*, and sets out a four-step test:

- 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.

### The arguments

- 12 In response to the invitation for submissions following the issuing of *Symbian*, the applicants have suggested that the examiner has erred in failing to apply the fourth part of the *Aerotel/Macrossan* test.
- 13 Paragraphs 46-47 of *Aerotel/Macrossan* explain that it may not be necessary to check for the technical nature of an invention as it should already have been considered in the third step, since a contribution which consists solely of excluded matter will not count as a technical contribution. Further, in *Oneida*<sup>7</sup>, (paragraphs 10-11), it was judged that the fourth step was intended to ensure that inventions passing the third step were actually technical in nature and that a technical advance did not bring back into contention anything excluded at the third step. Consequently, the examiner did not apply the fourth step of the test as he considered that the invention had already failed at the third. Subsequent judgments in *Astron Clinica* (paragraph 45) and *Autonomy* (paragraph 34 and explicitly paragraph 46) support this view.
- 14 The applicants suggest that I am obliged to follow *Symbian*. However, I am also obliged to follow *Oneida*, *Astron Clinica* and *Autonomy*. Reconciling these judgments is not a simple matter, so I will return to the higher authority in *Aerotel/Macrossan*.
- 15 The Court of Appeal in *Aerotel/Macrossan* fully discussed previous approaches to the assessment of excluded matter, which it summarized as the 'Contribution' approach, the 'Technical Effect' approach and the 'Any Hardware' approach. In

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<sup>7</sup> *Oneida Indian Nation* [2007] EWHC 954 (Pat).

doing so it fully considered, and wholly took account of, *Fujitsu*<sup>8</sup> and *Merrill Lynch*<sup>9</sup> in its deliberations. It considered the four part test in relation to the statutory test and decided it was a structured and more helpful way of re-formulating the statutory test. It is consistent with the principles enunciated in *Merrill Lynch* and a re-formulation in a different order of the *Merrill Lynch* test (paragraph 41). It is a re-formulation of the approach adopted in *Fujitsu* and asks the same questions, but in a different order (paragraph 47). Further, and importantly, they confirmed that a contribution which consists solely of excluded matter will not count as a technical contribution (paragraph 47).

- 16 The applicants have also presented specific comment based on *Astron Clinica*. They argue that paragraph 51 of that judgment, that “*Claims to a computer programs are not necessarily excluded by article 52,*” indicates that a computer program based invention is not inherently unpatentable. That may be so, but it is not pivotal to the current invention.

### **The four step test**

#### Step 1 – construe the claims

- 17 In applying the first step, I do not think the construction of the claims presents any great difficulty; indeed, there has never been an issue between the examiner and the applicant in this respect.
- 18 However, I note that the location module is, of course, more than represented by claim 11; it is not merely an input and a comparator but, implicitly, necessarily also includes a means for processing data and an information (data) store of geographical locations (preferably a look-up table). It may also be part of the search engine itself. The comparator tests text which may or may not be a locality name against the stored geographical information to determine the probability that the text is a specific locality name.

#### Step 2 – identify the actual contribution

- 19 For the second step it is helpful to consider what the Court of Appeal meant by the actual contribution; they said, at paragraphs 43 & 44, “*What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at the substance not form – which is surely what the legislator intended.*” and “*In the end the test must be what contribution has actually been made, not what the inventor says he has made.*”
- 20 The examiner’s view of the contribution is that it is “*a method of limiting or refining search results based on a search string input by a user, dividing the search string into locality and non-locality information and returning a probability that the locality information is associated with a geographical location. The probability is determined by comparing the search string with a (database) table of geographical location information and employing a neural network algorithm or a*

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<sup>8</sup> *Fujitsu Limited’s Application* [1997] RPC 608, [1997] EWCA Civ 1174.

<sup>9</sup> *Merrill Lynch’s Application* [1989] RPC 561.

*genetic algorithm to generate the probability, which in the latter case is weighted in accordance with the network (IP) address of a user computer.”*

- 21 The applicants have not formulated what they consider the actual contribution to be as a single statement. However, they allude to what it might include, in general terms, at several points in their letter of 30 July 2007 and, following my invitation for submission after *Symbian*, that of 21 April 2008. For the former, they consider that the contribution *“is the operation of a physical computer network which includes two nodes: a user computer and a location module. The two nodes interact in accordance with the method of claim 1 and as a result a quantity of information passed between the two nodes differs from that of the prior art. Indeed, the information is limited or refined according to a novel and inventive method.”* and that it *“includes the control of a physical process (the passing of information between two nodes in a network).”*
- 22 For the latter, they are *“in general agreement that the contribution made by the present invention includes (but is not necessarily limited to) an advance in the field of search engines.”* and that *“The correct interpretation of the contribution made by the present invention is that the invention constitutes an advance in the field of search engines and that it produces an undeniable and inevitable technical advance in relation to the operation of a computer network – as described above.”* That advance in operation was suggested to be *“a problem associated with prior methods and networks is that they are unable to provide a technically advanced method of limiting or refining search results. Under past methods and in prior networks, this can lead, for example, to vast quantities of unwanted information being needlessly passed through computer networks with limited bandwidth only to be discarded when received by a user.”*
- 23 So, in substance, what has the inventor added to human knowledge? There is nothing unusual in the hardware used, either the user computer or the location module, the connection between user computer and search engine is conventional, the input of search terms is conventional, there is nothing distinguishable in the physical process of passing information, control of the passing of that information between nodes is exactly what networks are designed to do, and the search engine itself is conventional. All of the above is what has happened with internet searching for many years; conventional technology operating in an entirely conventional way.
- 24 In terms of reducing the amount of network traffic, that would be a desirable end product no matter what is being searched. Indeed, that is why very many web sites rank their internally requested search results for relevance, including discarding less relevant results, and have done so for many years. In any case, the cited prior art shows that the concept of limiting and refining search results by a geographical restriction, including the use of IP address is known (albeit restriction operating in a way which is different to the invention).
- 25 The location module is not presented in the application as a separate layer of hardware but as an entity defined by its software and data. Within the location module, processing is conventional, indeed the whole module can be incorporated in the search engine, and there is nothing unusual in the information data structure. The use of look-up tables in data comparison is thoroughly

conventional and the use of a decision graph, neural network or genetic programming algorithm are well known analytical techniques. It is acknowledged on page 1 of the description that use of IP address is known to tie into geographical location.

- 26 Consequently, following *Aerotel/Macrossan* and having regard to the problem to be solved, how the invention works, what its advantages are, and the substance of the invention, and bearing in mind all the entirely conventional or known material of paragraphs 23-25 above, I assess that the actual contribution is that a search term is parsed, that is syntactically analysed, for it being a potential geographical location, compared with a store of geographical location information, and a probability returned to the search engine that the search term is indeed a geographical location so that search results can be refined or limited. All of that is done in and by software.
- 27 Unlike an adaptation which affects an operating system, the invention doesn't change how the network functions – the data itself passing through the network may change but the actual operation of the network itself does not. The operation of network itself is not made not quicker or more efficient; the effect to the user might be that it appears quicker but that is because there is less data served as the search result. The physical mechanism by which data is moved within the network and by which results are served to the user is unchanged as there is no effect on any of the hardware or data structures. All that is different is the amount and the nature of the information conveyed.

Step 3 – does the contribution relate solely to excluded matter?

- 28 The third step is to test whether the identified contribution lies solely within an excluded category.
- 29 Conventional search engines, when faced with text which includes a geographical term, will return geographical locations along with non-geographical results. That is, the data already exists and is already utilized, albeit in an unrefined way. It appears to me that the core of the invention is that the comparator is programmed to parse the input text in a particular way and compare it with a particular set of data. The processing within the location module uses programmed known analytical techniques to return a probability that the text is a geographical location. That is, input data is selectively interpreted and data comparison occurs on a pre-defined subset of existing data. The invention is a computer program specifically written to interpret data in a particular way using known analytical techniques, but there is nothing unusual in how the data is constructed – it is merely chosen to represent particular information.
- 30 The overall system is not the contribution and the network infrastructure does not run better or more efficiently. Only the searching function is improved by the use of a particular parsing program, software comparison with a set of data characterized by the nature of its information and use of known computerised analytical techniques to assess probability. Consequently, the whole of the contribution of the invention falls within excluded territory.

- 31 Further, in considering substance over form, the presence of conventional hardware elements, operating in a conventional manner, in a claim does not change the contribution. In this case, none of the hardware elements of the network of the apparatus claim are new nor, individually or as a whole, is the way in which they are linked. The independent apparatus claim must therefore also fail.

Step 4 – is the contribution technical in nature?

- 32 Even if, in the light of *Symbian*, I need to consider the fourth step, I am not of the opinion that there is enough technical effect in the contribution to pass the test. The invention doesn't solve a technical problem lying within the network, it merely provides a software function by which parsing, accessing and analysing data restricted to particular information, and serving results to a user is made more relevant in the sense that it is more closely tied to that particular information. The contribution is not a technical solution, but an exercise in information manipulation and selection.

**Application GB0522995.0**

- 33 This application relates to method of inferring a likely geographical location, particularly whether it is local to the user, from a search term submitted to a search engine. The claims have been amended during prosecution; there is a single independent claim, as of 14 August 2007, which reads:

*“1. A method of delivering local content information to a user of a network by using a geographical location extraction tool operating to infer a likely geographical location from one or more search terms entered as a query by the user of the network on a search engine or the like, the likely geographical address information being used to deliver local content information to the user, and the geographical location extraction tool operating to accord a method comprising utilising one or more processes selected from the group consisting of:*

- word analysis to determine which parts of a search query comprise location names and provide an indicator of the extent to which as given search term or part thereof should be treated as a geographical location;*
- ranking geographical location names in accordance with the probability that the location names are likely to be searched;*
- returning a list of probable locations in response to a search term comprising a non-geographical search term associated with a geographical location name;*
- categorising search terms in a query to a local into a local activity or a remote activity;*
- analyzing the order in which words appear in a search query string, in combination with a search in a locations database, to return a likelihood of a search term relating to a list of probable associated locations;*
- and inferring a geographical location from a search query including a point of interest.”*



## **The law and its interpretation**

34 The relevant law and interpretation has been outlined in paragraphs 9-11 above.

## **The arguments**

35 Most of the relevant arguments have already been considered in paragraphs 12-15 above. However, the applicant drew the examiner's attention to *Fisher-Rosemount*<sup>10</sup> submitting, without specific comment, that comparable reasoning could be used to support their application. The examiner disagreed, and so do I.

36 One form of claim in *Fisher-Rosemount* was found to be allowable as it included the control of a physical process; specifically, "process entities" (defined as physical pieces of equipment, such as pumps) were directly controlled by the workstation. A form of claim in which there was no such control was found not to be patentable. In the current application, the original claim contains no such physical process control. It may be, although no argument has been provided, that the applicant considers amended claim 1, directed as it is to "*A method of delivering local content information to a user of a network*", to be the equivalent of the control of a physical process in *Fisher-Rosemount*. Delivering information across a network does not equate to such physical process control.

37 In response to the invitation for submissions following the issuing of *Symbian*, the applicants have presented specific argument based on *Autonomy*. In essence, although *Autonomy* incorporates, as one aspect, a search engine, the applicant considers their invention to be distinguished as the invention in *Autonomy* was in the presentation of links. I agree that *Autonomy* offers little guidance in the present case, except for its explicit endorsement of *Oneida* that, having failed step 3 of the *Aerotel/Macrossan* test, there is no need to consider step 4.

## **The four step test**

### Step 1 – construe the claims

38 In applying the first step, again I do not think the construction of the claims presents any great difficulty and again there has never been an issue between the examiner and the applicant in this respect.

### Step 2 – identify the actual contribution

39 I will follow the principle outlined in paragraph 19.

40 The examiner considered, following *CFPH*, that the invention as originally claimed "*provides (potentially) new functionality to a search engine (a computer program) via means of embodying steps analogous to a mental act.*" Following

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<sup>10</sup> BL O/148/07

amendment and argument he suggested that the contribution was “*determining the geographical area to which a search query should be limited most likely by ranking a list of geographical locations based upon the likelihood that they will be searched.*” This latter suggestion had also been identified by the applicant.

- 41 Following *Aerotel/Macrossan*, the examiner took the position that the contribution “.. (as identified in my earlier report and also as identified by your agent in his previous letter) is that of determining the geographical area to which a search query should be limited.” The applicant has offered that the contribution is “*the operation of a physical computer network which includes a user and a geographical location extraction tool. The location extraction tool uses a choice of various methods in order to determine a likely location of the user and based on that location local content is delivered to the user.*”
- 42 First, bearing in mind paragraph 36 above, directing the claim to a method of delivering local content information rather than to the location tool it uses does not alter the substance of the invention nor the analysis of the actual contribution. Further, the physical computer network is entirely standard. In substance, the invention is a software tool for inferring a likely geographical location from a search term submitted to a search engine; it may include, singly, word analysis, probability ranking that a location name is likely to be searched, returning a list of likely geographic locations, categorizing whether the locations are local, analysing word order in a string and comparing with a database of locations for likely location associations, or a combination of more than one of those. Later claims allow for probability to be assessed statistically based on country or town location, word frequency, rule-based processing or database look-up.
- 43 As has already been noted above, prior art shows that the general concept of limiting and refining search results by a geographical restriction, including the use of IP address (albeit in a way which is different to the invention) is known. The use of rule-based processing and look-up tables in data comparison are entirely standard techniques. Analysing and ranking search string data are entirely conventional techniques, particularly for search engines.
- 44 As previously, following *Aerotel/Macrossan* and having regard to the problem to be solved, how the invention works, what its advantages are, and the substance of the invention, and bearing in mind all the entirely conventional or known material of paragraphs 42 & 43 above, I assess that the actual contribution is that a search term is analysed for it being a potential geographical location, compared with a store of known geographical location information, and a probability returned to the search engine that the search term is a geographical location local to the user. All of that is done in and by software.

Step 3 – does the contribution relate solely to excluded matter?

- 45 As previously, the third step is to test whether the identified contribution lies solely within an excluded category. All the hardware and network infrastructure is conventional and, in practice, the invention can only be achieved by suitably programming the software.
- 46 The overall system is not the contribution and the network infrastructure does not

run better or more efficiently. Only the searching function is improved by the use of a particular parsing program, software comparison with a set of data characterized by the nature of its information and the use of a computer program to assess the probability that the user is local. Interpreting whether the user is local based on the input search data is merely that, an interpretation based on how the software is programmed. Consequently, the whole of the contribution of the invention falls within excluded territory.

Step 4 – is the contribution technical in nature?

- 47 As previously, even if, in the light of *Symbian*, I need to consider the fourth step, I am not of the opinion that there is enough technical effect in the contribution to pass the test. Despite what the applicant suggests, I do not accept that ranking search results or using software to interpret whether a piece of information, compared with predefined data, relates to a local area provides a technical contribution. Such analysis, comparison and sorting is no more than information manipulation and selection which requires no technical contribution.

**Conclusion**

- 48 I have found that the inventions of GB0520969.7 & GB0522995.0 relate to programs for a computer and are excluded from patentability under Section 1(2). I have been unable to find anything which could form the basis of a patentable invention in either application. I therefore refuse both applications under section 18(3).

**Appeal**

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

**John Rowlatt**

Deputy Director acting for the Comptroller