

PATENTS ACT 1977

APPLICANT Daniele Grazioli and Elena Pasquali

ISSUE Whether patent application
GB0325417.4 complies with
section 1(2)(c)

HEARING OFFICER John Rowlatt

DECISION

Introduction

- 1 Patent application GB0325417.4, entitled “Computer network”, was filed on 31 October 2003; the compliance period was extended from 30 April 2008 to 30 June 2008.
- 2 There were objections originally to lack of inventive step and that the invention was not patentable. The latter was on the basis of *CFPH*¹ and *Halliburton*², the examiner identifying an advance which was not new or non-obvious under the description of an invention, being a method of doing business and also as a program for a computer. Reference was also made to *Shopalotto*³ and *RIM*⁴.
- 3 In their response, the applicants not only amended the claims but followed the newly issued Court of Appeal judgment in *Aerotel/Macrossan*⁵ to argue that the invention did not relate to excluded matter. The examiner disagreed and cited two additional patent documents to demonstrate that he considered the hardware and storage of the invention to be conventional; he remained of the opinion that the invention was a program for a computer. Although not explicitly mentioned, his previous objections that the invention was a business method and lacked inventive step appear not to have been maintained.

¹ *CFPH LLC's Application* [2005] EWHC 1589 (Pat).

² *Halliburton Energy Services Inv v Smith International (North Sea) Ltd and others* [2005] EWHC 1623 (Pat).

³ *Shopalotto.com's Application* [2005] EWHC 214 (Pat).

⁴ *Research in Motion UK Ltd v Inpro Licensing* [2006] EWHC 70 (Pat).

⁵ *Aerotel Ltd v Telco Holdings Ltd and others* and *Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7

- 4 A further round of correspondence followed, in which the examiner cited a further document and restated his objection that the invention also related to a business method but, expecting not to resolve the issue, the examiner offered a hearing on 17 January 2008; that offer was effectively accepted in the applicant's letter of 02 May 2008. However, it was replaced on 28 May 2008 by a request for decisions on the papers.

The Application

- 5 This application relates to processing event data on a network. The claims have been amended during prosecution; there are two independent claims, as of 31 January 2007, with a proposed amendment as of 02 May 2008 [highlighted] which read:

*“1. A computer network for processing received event data, the computer network comprising a plurality of separate data processors, each data processor being provided with a node management program, the computer network further comprising shared data storage means which is accessible and shared by the processors, the shared data storage means being provided with (a) declaration data which is representative of where data objects are stored, and whether data objects resulting from processing of event data are to be stored and where such data objects are to be stored, (b) event algorithms and (c) a look-up table which indicates which event algorithm is associated with (i) a category of agent originating the event data and/or (ii) a category of event, the shared data storage means further comprising a plurality of separate persistence providers, the data processor being such that, in use, the node management program determines (i) the category of agent which originated the event data and/or (ii) the category of the received event data, retrieves declaration data from the shared storage means, by use of the look-up table determines a respective event algorithm which is associated with (i) the category of the agent which originated the event data and/or (ii) the category of the event data, the node management program also being operative to call data objects required by the selected event algorithm, the node management program locating said data objects in said shared data storage means from location data included in the declaration data, and the node manager [sic] program being operative to store any data objects resulting from the execution of the algorithm which are to be stored as required by the declaration data, in one or more respective locations in the shared data storage means as determined by the declaration data, **and access to particular data stored in the shared data storage means is available for the processing of event data stemming from different agents.**”*

and

“17. A method of processing received event data comprising causing a data processor from a network of separate data processors to determine (i) a category of agent which originated the event data and/or (ii) a category of the event data, determining a respective event algorithm by means of a look-up table which indicates which event algorithm is associated with (i) and/or (ii), to retrieve from shared data storage means, which data storage

*means is shared by the data processors, declaration data which is representative of where data objects are stored in the shared data storage means, to retrieve the selected event algorithm from the shared data storage means, to call data objects required for the execution of the event algorithm from the shared data storage means from one or more locations determined by the declaration data, and, to store any data objects resulting from execution of the algorithms which are to be stored as required by the declaration data [sic] in one or more locations in the shared data storage means determined by the declaration data, wherein the shared data storage means further comprises a plurality of separate persistence providers and the data objects being partitioned over the persistence providers, **and access to particular data stored in the shared data storage means is available for the processing of event data stemming from different agents.***

- 6 Claim 17 is therefore a broad method of processing data with claim 1 being to the network on which the method is carried out.
- 7 By way of explanation, although I do not feel there is any difficulty in understanding the claims, in the context of the invention the expression “computer network” is at least two computers which communicate via standard internet or local area network communication protocols. The term “event data” is used to include a signal which is sent to a data processor in respect of one or more prospective data processing operations which, throughout the specification, are events raised in the course of business; the event itself may be an online transaction request sent by a client to a grid of servers. A data processor is a computer running a software node management program comprising workflow manager software for the transactional processing of any defined business process. Data objects (which may include subsidiary data objects) are objects of data which an event algorithm is required to process/act on, or results from execution of the algorithm, and are stored in a part of the shared data storage area remote from the data processors. Declaration data is preferably a dictionary of characteristics of all data objects within the network which is loaded into local memory of a data processor before a business event algorithm is determined and then called. The shared data storage means is a plurality of persistence providers. In conventional computer science, persistence is the characteristic of data that outlives the execution of the program that created it; the persistence providers are defined on original page 13 as “DBMS which store global (persistence) objects”. I take DBMS to be the standard acronym for “database management system”, that is a set of software programs that controls the organization, storage, management, and retrieval of data in a database, with the store itself conventionally being a hard disk. The look-up table and algorithms are stored in a preferably read-only part of the shared data storage area remote from the data processors, with external connection to the data processors. Node management programs on each processor control all data retrieval, manipulation and storage functions. A lock program is a program on one processor which disables access from other programs to a data object being processed.

The law

- 8 In his final report of 15 May 2008, 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.

- 9 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

- 10 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

The four step test

Step 1 – construe the claims

- 11 In applying the first step, as indicated above, 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.

Step 2 – identify the actual contribution

- 12 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.*”
- 13 During prosecution the examiner twice introduced new prior art to show that various technical aspects of the invention were known. Consequently, the examiner’s and the applicant’s view of the contribution changed several times. It would therefore be helpful to consider those changes and the reasoning behind them.
- 14 In response to the examination report, using the steps of Aerotel/Macrossan against amended claims, the applicant considered the contribution to be an improved computer network infrastructure as a result of the distribution and coordination of concurrent resources available in the network, with emphasis that there is a distinction in the architecture between the data processed or created by processing and the processing instructions which act on the data and information about where the data is stored. The shared data storage has several persistence providers so that different data types or different data groups of the same type can be stored separately.
- 15 In response, the examiner did not accept that there was any new physical combination of hardware and, in citing two new documents which he considered disclosed that the hardware and shared storage utilised in the invention was conventional, with multiple processors, separate persistence providers, a look-up table, and shared address space representative of where data objects are stored in the shared data, he was of the opinion that the contribution over what was known was a node management program for: determining an event algorithm based upon received data; to retrieve the event algorithm along with declaration data from a shared storage; to then call data objects required for execution of the event algorithm from the shared storage using the declaration data; and to store any data objects resulting from the execution of the algorithm.

- 16 Subsequently, in asserting that the prior art did not show the invention, the applicants considered that the contribution relates to how each of the components is specifically configured and connected, that is an improved computer network infrastructure. In particular, the infrastructure includes a combination of three features: (i) a shared data storage means which has a look-up table to enable the appropriate event algorithms to be located on the basis of received event data, and stores the data distinctly from the algorithms requiring that data, as dictated by the declaration data, (ii) a plurality of persistence providers over which the data is partitioned and (iii) each processor is provided with a node management program which allows the co-ordination of the retrieval, processing and storage steps.
- 17 They emphasized the separation of code and data being important should it be necessary to alter or modify the event algorithm or the declaration data. However, I would point out that in the method of the invention there is no alteration of algorithms or declaration data; it exists, pre-defined, in storage and is simply used. That there might be advantages beyond the invention as claimed has no relevance to the contribution. They also drew the distinction that the invention partitions its data over more than one persistence provider and that the prior art node management program was not provided on a plurality of processors which could simultaneously access shared data. However, as indicated in paragraph 7 above, the description refers to the persistence providers as standard DBMS.
- 18 In his next report the examiner felt that having a plurality of persistence providers over which data was partitioned was conventional in distributed database systems; this has not been disputed by the applicant although there has been some comment on how partitions are assigned and data modified, added or removed. He also disclosed a further citation to demonstrate a plurality of processors providing a node management system for retrieving and storing partitioned data, in addition to a shared storage means having a map or look-up table for locating appropriate data; specifically, he considered there was disclosure of shared data storage means comprising data partitioned across persistence providers. He was not persuaded that the contribution was an improved network infrastructure; in his opinion, the prior art shows that an infrastructure of plural processors accessing/storing partitioned data in plural persistence providers was conventional. His view of the contribution was that it resided in processing received event data to determine an event algorithm (business process) and to call the data required for the identified event algorithm followed by storing any data resulting from the event algorithm. The examiner again raised consideration that the invention was also a business method, presumably on the grounds that the event algorithm related to a business process as indicated by his use of the phrase in brackets. Although he did not argue further, I note that claim 11 demonstrates the relationship in that *“the declaration data which is representative of all the defined data objects included in sequences of business rules defining all the available event algorithms.”* Further, emphasis throughout the application is clearly and firmly explained in terms of business processes and rules.

- 19 The applicant amended and filed the current set of claims represented by paragraph 5 above. They acknowledge that the area of contention is in the assessment of the contribution. In their view, the examiner's summary does not reflect the specific features of claim 1 and that the contribution "*relates to the way in which the network is configured, since, by configuring the shared storage means in a particular way, one is configuring the network in a particular way (of which the shared storage means is a part). The particular configuration is not disclosed in the prior art.*" That may be so, but the novelty of claim 1 is not at issue, or whether the prior art exactly matches specific features as recited in the claim, but whether the substance of the invention defining the actual contribution resides in excluded matter.
- 20 The applicant presents arguments on the distinction between the prior art and the invention but little of that appears in the claims, for example that there is no affinity between a given client and a given partition and that there is no need for system downtime to perform synchronization. The amendment includes specific reference to how access to particular data in the shared storage area is available for processing of event data stemming from different agents, that is, how locking of data occurs.
- 21 The examiner's final view was that no affinity between a given client and a given partition and no need for system downtime to perform synchronization might offer improvements in the way that data is stored, handled and manipulated, but those features were not only not claimed but did not impact on the contribution.
- 22 I am satisfied that the prior art demonstrates that the hardware used, and how it is physically connected, is conventional. I am satisfied that the examiner's view is correct, that the prior art cited during the course of prosecution shows that using a plurality of processors with management programs and a plurality of shared, separate storage means, providing declaration data, event algorithms, a look-up table and data objects is known. I am satisfied that it is known in the art for data objects to be partitioned over the persistence providers and that the claims only require it to happen, not that it might happen in a particular way with particular advantages. I am also satisfied that it is entirely conventional for software applications which share common data to provide locks ensuring that concurrent access cannot simultaneously impact on the data. It is also clear from claim 11 and the application as a whole that the invention is oriented to the use of business rules in a business environment to achieve a business result.
- 23 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 summarized above, in substance, what has the inventor added to human knowledge? I assess that the actual contribution is that data from an event is received at a node management program; the program determines, on the basis of that data, which event algorithm it needs to run and retrieves it from the shared storage area along with associated data relating to the characteristics of objects the algorithm will use and thence the data objects themselves, executing the algorithm and storing the result in the shared storage area. All of that is done in and by software.

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

24 The third step is to test whether the identified contribution lies solely within an excluded category. All the hardware is physically conventional and the prior art as discussed above shows that the network infrastructure is known and not part of the contribution; in practice, the invention can only be achieved by suitably programming the node software. For the method of claim 17, the contribution is not in how the data is partitioned on the persistence providers of the shared storage, or the lock program, but how the pre-defined algorithm is called by the node software and data is retrieved and used.

25 I am also mindful of the comments by Floyd J in *Kapur*⁶, outlined by the examiner in his letter of 15 May 2008:

“Once one has decided on how the data is to be stored, handled and manipulated within the computer, a program can be written to give effect to it. It is likely that in the course of programming a computer in this way there may be improvements in the way data is handled compared with other ways of doing the same thing. But it is improbable that in doing so one would produce a relevant technical effect recognisable over and above the fact that the program is running on a computer.”

26 It appears to me that we have a very similar situation here. Bearing in mind all that is known in the prior art, the core of the invention is that, depending on particular input, a node management program retrieves a particular algorithm and associated data, the algorithm undertakes its computation and the result is stored. All of that is done in and by software. The contribution is not a technical solution, but an exercise in data handling and manipulation. Not only is that excluded matter, there is no relevant technical effect.

27 Further, in considering substance over form, the presence in a claim of various hardware elements, operating in a conventional or known manner as discussed previously, does not change the contribution. Claim 1, to a computer network running the method, must therefore also fail.

28 The objection to the invention being a business method has not been sufficiently argued either way and was part of the examiner’s final objection. Consequently, having come to the conclusion that the invention is excluded as a computer program, further consideration is not necessary.

Step 4 – is the contribution technical in nature?

29 I have already concluded that there is no relevant technical effect, so it is unnecessary to undertake step 4.

⁶ *Kapur v Comptroller General of Patents, Designs & Trademarks* [2008] EWHC 649 (Pat)

Conclusion

- 30 I have found that the invention relates to a program for a computer and is excluded from patentability under Section 1(2). I have considered the application in detail, including the latest argument to lack of affinity between a client and a given partition and the lack of need for system downtime to perform synchronization, but have been unable to find anything in the application which would change my view of the substance of the invention in a way which could form the basis of a patentable invention. I therefore refuse the application under section 18(3).

Appeal

- 31 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