

02 October 2008

PATENTS ACT 1977

APPLICANT Mathsoft Engineering & Education, Inc

ISSUE Whether patent application number GB
0616679.7 complies with section 1(2)

HEARING OFFICER R C Kennell

DECISION

- 1 This application derives from international application no. PCT/US2005/006515 which was filed on 2 March 2005 with a claim to a priority of 4 March 2004 from an earlier US application. The international application was published under serial no. WO2005/091904 on 6 October 2005 and reprinted under serial no. GB 2 426 846 A upon entry to the UK national phase.
- 2 Despite amendment of the claims during substantive examination, the applicant has been unable to persuade the examiner that the invention is patentable within the meaning of section 1(2) of the Act. A hearing has been offered but the applicant is content for me to decide the matter on the basis of the papers on file.

The invention

- 3 The invention is concerned with the management of information in collaborative environments, typically where large project teams of scientists and engineers need to share data even though they are often widely dispersed and almost exclusively dependent on telecommunications networks to access information. As the specification explains, users often need to trace back critical values or calculation results in order to check the underlying data and the assumptions on which they were based and to understand how the information was generated and modified as it progressed through the organization.
- 4 Conventional information management systems allow a user to generate annotations for selected subdivisions in a file or database and store the annotations in a searchable form. However, this requires manual effort to capture and store the annotations, which may be a source of error. In any case the relevant documents may not always be capable of being unambiguously identified by this method, particularly if there are multiple copies.

5 A need is therefore seen for a system which manages the traceability of critical information without manual effort on the part of the user and which automatically updates and propagates traceability data as the information is copied, modified or re-used in the organization. In the invention, this is achieved by automatically generating metadata describing the provenance of critical information which is being imported from a first document into a second document and propagating the metadata to the latter, typically by using the system's clipboard whilst the information is being copied and pasted into the second document. It is additionally possible for the user to generate further metadata, which may be text-based annotation, for propagation along with the system-generated provenance metadata. By accessing the metadata in respective documents, the user can check where critical information originated and which document it last came from.

6 Following amendment, the claims now comprise independent and co-terminous claims 1 and 27 to a method of managing information and an information management system respectively. Claim 1 reads:

“A method of managing information, for use in maintaining traceability of information as the information is provided to a plurality of documents and as each of the plurality of documents is transmitted from one device to at least one other device over at least one network, comprising the steps of:

storing, by a first device, first information in a first document, the first device being communicably coupled to at least one network;

storing, in a second document, at least one copy of the first information stored in the first document, the first information comprising information for which provenance is desired;

generating first meta-data indicating the provenance of the first information stored in the second document, the first meta-data having a data structure for defining the provenance of the first information, the data structure including one or more of a first portion including an indication of an original source document of the first information, and a second portion including an indication of an intermediary document from which the first information was last provided;

associating the first meta-data with the second document; and transmitting the second document including the first meta-data associated therewith over the network to at least one device communicably coupled to the network.”

The law and its interpretation

7 Section 1(2) reads:

“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.”

8 It is not disputed that the assessment of patentability under section 1(2) is now governed by the judgment of the Court of Appeal in *Aerotel*¹, where the court reviewed the case law on the interpretation of section 1(2) and approved a 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.

9 The operation of the test is explained at paragraphs 40-48 of the judgment. In particular:

- Paragraphs 41 and 47 explain that the test is consistent with the principles established in previous decisions of the Court of Appeal, and is a reformulation in a different order of the approach in *Fujitsu*², asking the same questions but in a different order.
- Paragraph 43 states that identification of the contribution is “an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are”; it 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 44 accepts that at the application stage the Office will generally have to accept what the inventor alleges to be his contribution, but that in the end the test must be what contribution has actually been made.
- Paragraph 45 explains that the third step – whether the contribution is “solely” of excluded matter - is merely an expression of the “as such” qualification of section 1(2).

¹ *Aerotel Ltd v Telco Holdings Ltd and Macrossan’s Application* [2006] EWCA Civ 1371, [2007] RPC 7

² *Fujitsu Ltd’s Application* [1997] RPC 608

- Paragraph 46 explains that, although the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point, it is a necessary check if *Merrill Lynch*³ is to be followed. A check for technical effect is not therefore completely bypassed but its importance is relegated – thus if any technical contribution is of purely excluded matter the invention will be excluded at the third step, and the fourth step will be unnecessary⁴.

Argument and analysis

- 10 In the first step of the *Aerotel* test, the construction of the claims is not in dispute and does not in my view prevent any difficulties.
- 11 The examiner believes the contribution of the invention to be essentially a computer program running on a conventional network and therefore to lie solely in a computer program. However, the applicant considers it wrong to strip out all reference to the network and devices coupled to it when assessing the contribution. The applicant argues that, irrespective of whether the network or the devices are conventional, the contribution lies in the incorporation of a data structure into the network and is therefore more than just a computer program. The applicant draws an analogy with my earlier decision in *Sony United Kingdom Limited* (BL O/010/07) in which I allowed claims to a data communications network including a new data structure for communicating metadata.
- 12 As the examiner has rightly pointed out, each case must be treated on its own merits. Turning to the second *Aerotel* step, I must therefore first determine what the contribution actually is in the present case.
- 13 The nearest prior art cited during prosecution (US 2002/0147739 A1, Clements et al) identifies the author or creator of a file or document but does not generate metadata with the provenance of specific information in a document. In my view, the automatic generation and propagation of the provenance metadata together with the information that it relates to is at the heart of the invention. However, having regard to the definition of the contribution in paragraph 43 of *Aerotel*, I cannot ignore the fact that this is intended to improve the traceability of information in documents which are transmitted across a communications network.
- 14 It therefore seems to me that as a matter of substance, irrespective of the formulation of the claims to include network and device features, the actual contribution which the invention makes is to improve the traceability of information in documents which are to be transmitted over a network by generating metadata indicating the provenance of information which is being copied from a first document to a second document and associating the metadata with the second document for transmission therewith across the network, the metadata having a data structure which includes a portion indicating an original source document for the information and/or a portion indicating an intermediary

³ *Merrill Lynch's Application* [1989] RPC 561

⁴ *Oneida Indian Nation's Application* [2007] EWHC 954 (Pat), paragraphs 10-11

document from which the information was last provided.

- 15 The third *Aerotel* step requires me to decide whether this contribution relates solely to a computer program. The embodiments described in the specification relate wholly to implementation of the invention by computer, and I do not think the skilled reader would regard it as feasible to do it any other way. However, that of itself is not enough to exclude the invention, as paragraph 22 of *Aerotel* makes clear.
- 16 The contribution rests on the generation of a data structure. In the view of the examiner this is part and parcel of a computer program notwithstanding the applicant's argument that the data structure is something separate from the instructions to the processor (the program) to manipulate the data.
- 17 The examiner bases his view on the decision of the hearing officer in *Oracle Corporation* (BL O/255/05) holding that a data structure was "essentially nothing more than a computer programming technique", and was in the case under consideration "an advance in the field of computer programming that nobody outside the field of computer programming would understand or appreciate". This decision is not binding on me, but nevertheless I accept that a data structure is at bottom a way of storing data in a computer so that it can be used efficiently, and would normally be implemented by a programming language.⁵
- 18 Whilst the data structure undoubtedly relates to data (as the applicant argues in its letter of 23 June 2008), I do not think, at least in this case, that the data structure is simply the totality of the data that it contains. In my view the generation of the data structure is essentially part of the programming of the network to generate and propagate the metadata. I therefore agree with the examiner that the contribution is not taken outside the program exclusion because it generates a data structure.
- 19 I must also consider whether, as the applicant argues, the contribution is not solely a computer program because it lies in the incorporation of a data structure into the network. The applicant argues in the letter of 23 June 2008 that this has the advantages of providing a convenient and efficient way to communicate the provenance information in the document to the various devices, and that it is technical in nature because it allows users in a collaborative environment to determine more easily the provenance of critical information contained in a document and how that information was generated, modified or used in the organisation.
- 20 I do not dispute that the automatic generation of provenance metadata makes it easier for users to keep track of critical information as it is generated and passed around the network, since it does not require manual effort on their part to generate annotations and it enables relevant documents to be unambiguously identified. Nevertheless it seems to me that this arises solely from the running of a computer program on the network. I do not think it embodies any process which exists outside a computer, or solves any technical problem in the operation

⁵ This is the definition of "data structure" given in Wikipedia® as at the date of this decision

of the communications network, or causes the network to operate in a technically different way.

21 As I have mentioned above, the applicant seeks to draw an analogy with my earlier *Sony* decision O/010/07. I am not bound by this and I must decide the present case on its own merits. Nevertheless, I observe that the data structure in *Sony* included a hierarchical arrangement of nodes which enabled metadata to be interrogated and retrieved more easily in a network. Notwithstanding the references in the claims to a data structure, I do not think that the generation of metadata in the present invention produces any comparable advantage or benefit.

22 I therefore conclude that as a matter of substance the contribution of the invention relates solely to a computer program. I do not therefore need to go on to the fourth *Aerotel* step and consider whether the contribution is technical in nature, but in accordance with paragraph 46 of *Aerotel* my findings at paragraphs 20-21 above in relation to the third step have covered the point. Therefore, even if I did need to go on to the fourth step I would not consider the contribution to be technical in nature.

Conclusion

23 The invention of claims 1 and 27 is therefore excluded from patentability under section 1(2) because it relates to a computer program as such. Having read the specification I do not consider that any saving amendment is possible. I therefore refuse the application under section 18(3).

Appeal

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

R C KENNEL

Deputy Director acting for the Comptroller