



BL O/030/07

24th January 2007

PATENTS ACT 1977

APPLICANT	Nextpage Inc
ISSUE	Whether patent application GB0418176.4 complies with section 1(2)
HEARING OFFICER	H Jones

DECISION

Introduction

- 1 International patent application number PCT/US2003/002750, entitled "Data replication method based upon a non-destructive data model", was filed in the name of Nextpage Inc on 31st January 2003. The international application claims priority from US patent application US10/059233 filed on 31st January 2002, and entered the UK national phase as GB0418176.4. It was published by WIPO as WO2003/065223.
- 2 At a relatively late stage in the examination process, i.e. after two earlier examination reports which raised only inventive step and clarity objections, the examiner raised an objection that the invention was excluded from patentability under section 1(2) on the basis that it consisted of nothing more than a computer program. This late objection was prompted by the then recent High Court judgment in *CFPH LLC's Application*¹. Further correspondence between the examiner and applicant's patent attorney was unable to resolve the matter, and so the issue came before me to decide at a hearing held on 23rd October 2006, at which the applicant was represented by Alison Clarke of Haseltine Lake & Co.
- 3 Shortly after the hearing was held, the Court of Appeal handed down its judgment in the matters of *Aerotel v Telco Holdings and Macrossan's Application*² (*Aerotel/Macrossan*) which approved a new test for assessing patentability under section 1(2). In the light of this new test, the examiner maintained his objection that the invention was excluded from patentability under section 1(2) and the applicant was given an opportunity to make further submissions. These further submissions were received on 17th November 2006.

The invention

- 4 The invention relates in general terms to the distribution and dissemination of information to multiple users connected via a computer network, and is aimed specifically at addressing the problem of maintaining a definitive version of a data object, e.g. a document or an email message, when the data object is being edited in

¹ [2005] EWHC 1589 (Pat); [2006] RPC 5

² [2006] EWCA Civ 1371

parallel by other users who may or may not be connected to the network. This is achieved by employing a non-destructive data model (referred to in the application as an “atom graph” - see fig.3 of the application reproduced below) that allows different versions of the data object to co-exist at the same time.

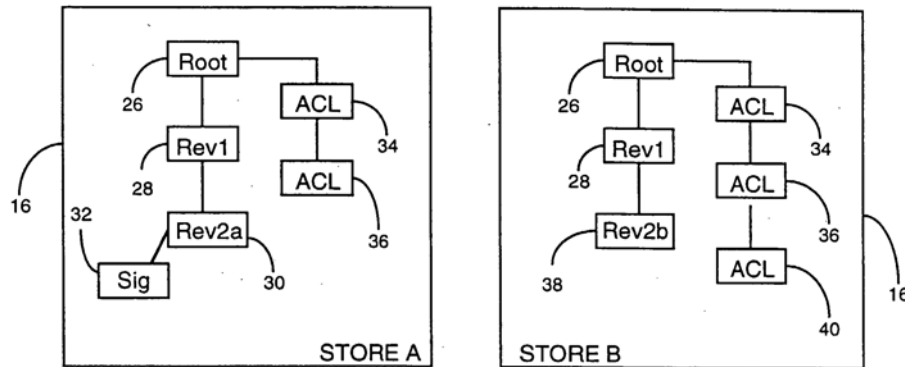
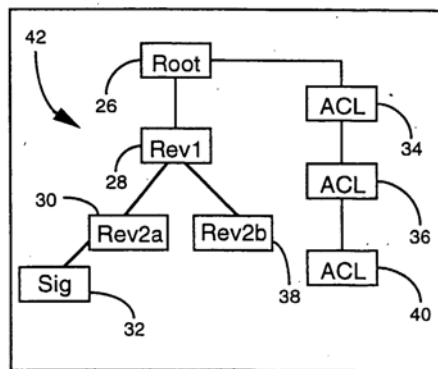


Fig. 3



- 5 The atom graph consists of one or more nodes (or atoms) that represent successive stages in the evolution of a data object. For example, if the object is a document, a root atom is formed when the document is first created, and subsequent revisions of the document are represented by “descendant atoms”. Such an atom graph, when synchronized with similar atom graphs from other users working on the same data object, is able to retain all changes made to the data object. Multiple versions of the data object are managed through different views, with a cursor identifying the elements in the atom graph that represents the current version of a data object at a node/atom. The resolution of conflicting revisions can be achieved in a systematic fashion by assigning suitable business rules or can be done by manual intervention by an authorized user.
- 6 The application has three independent claims, claims 1, 53 and 55, which broadly cover the same inventive concept, i.e. a method of replicating data at multiple devices. Claim 1 of the application reads as follows:

“A method for replicating data at multiple devices, comprising the steps of:

representing the history of a data object at each of said devices by means of a graph of atoms in a store, where said graph includes at least a first type of atom

that contains information pertaining to an operation performed on the data object;

adding an atom of said first type to said graph in the store at a given device when an operation is performed on the data object at said given device;

updating the history of the data object at another device by transmitting to said other device at least one atom that is present in the store at said given device and absent from the store at said other device and forming the mathematical union of said graphs at said given device and said other device, such that said graph contains at least one parent atom having at least two direct descendant atoms that represent different versions of said data object; and

at each of said devices, selectively designating either one of said different versions to be viewed as the representative version of said data object at that device.”

The law

- 7 The examiner argues that the claimed invention is excluded under section 1(2) of the Act in that it relates to a program for a computer. The relevant parts of section 1(2) read:

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 purpose of this Act only to the extent that a patent or application for a patent relates to that thing as such.

- 8 These provisions are designated in section 130(7) as being so framed as to have, as nearly as practicable, the same effect as the corresponding provisions of the European Patent Convention (EPC), i.e. Article 52.

Interpretation

- 9 As I have already mentioned above, the examiner had originally based his section 1(2) argument on the two-stage test proposed by Mr Prescott QC in *CFPH*, and it is not surprising therefore that much of the hearing was spent in identifying the technical contribution considered necessary to make an otherwise excluded invention patentable. However, this test has since been superseded by the new four-step test approved by the Court of Appeal in *Aerotel/Macrossan*, namely:

- 1) Properly construe the claim
- 2) Identify the actual contribution
- 3) Ask whether the actual contribution falls solely within the excluded subject matter
- 4) Check whether the contribution is actually technical in nature

- 10 Paragraphs 46 and 47 of the Court of Appeal's judgment provide further guidance regarding the fourth step of the test:
- “46. The fourth step - check whether the contribution is "technical" - may not be necessary because the third step should have covered that. It is a necessary check however if one is to follow Merrill Lynch as we must.
47. As we have said this test is a re-formulation of the approach adopted by this court in Fujitsu: it asks the same questions but in a different order. Fujitsu asks first whether there is a technical contribution (which involves two questions: what is the contribution? is it technical?) and then added the rider that a contribution which consists solely of excluded matter will not count as a technical contribution.”

Arguments and analysis

- 11 There is no dispute regarding the proper construction of claims 1, 53 and 55, so I can move immediately to step (2) of the test.
- 12 Step (2) is to identify the actual contribution. It is common ground that the closest prior art is to be found in US4853843 (D1), which discloses an object-oriented distributed database system which separates into a plurality of virtual partitions following communications failure between sites accessing the database. Each partition accesses a separate copy of an initial database and maintains a copy of all changes made in the form of a change list. Upon restoration of communications between the sites, each virtual partition merges the databases maintained separately to form a consistent merged database.
- 13 In the light of D1, I agree with Ms Clarke's submission that the actual contribution made by the invention set out in claims 1, 53 and 55, can be identified as follows:

“A data replication method where a data object is stored as an atom graph having information pertaining to an operation on the data object stored at each node, wherein different instances of the data object can have different nodes designated as the representative version of the data object by forming the mathematical union of atom graphs at different devices, such that said atom graph can contain at least one parent atom having at least two direct descendent atoms that represent different versions of the data object, and where different versions of the data object can be selectively viewed as the representative version at each different device.”

This description of the contribution is identical in substance to the advance identified by Ms Clarke prior to and during the hearing. As Ms Clarke rightly points out in her last letter, the contribution made by the invention lies not only in the data structure employed in recording multiple changes to a data object, i.e. the atom graph, but also in the mathematical union of atom graphs necessary in order to synchronize devices and then to allow each version of the data object to be available for viewing at each device. This presents the user with options that are unavailable in systems such as D1 where conflict resolution rules are used to identify a single authoritative version of the document.

- 14 Step (3) of the *Aerotel/Macrossan* test is to determine whether the contribution falls solely within excluded subject matter. Ms Clarke submits that by its very nature, a method of replicating data which maintains synchronization whilst avoiding conflict is not limited solely to a computer program, a mathematical method or a mental act.

Whilst she accepts that the invention is implemented by way of a computer program, she argues that the contribution made by the invention extends beyond the strict interpretation of the exclusions set out in section 1(2).

- 15 I am not convinced by this argument. If one considers the contribution set out above in fairly general terms to begin with, it can be seen that the contribution lies in duplicating and presenting data based upon a combination of historical changes made to the data at any number of locations or devices. The contribution clearly lies in a method of processing and storing data and in making that data available to all, and I can find nothing in the application that suggests that this processing, storage and presentation of data is done in any other way than by standard computer instructions adapted for the specific purpose of maintaining and merging atom graphs. This clearly points, in my view, to the contribution being made solely within the meaning of a computer program as set out in section 1(2).
- 16 Having decided that the contribution relates solely to excluded matter, it is not necessary for me to proceed to the fourth step of considering whether or not the contribution is technical in nature. This is unfortunate, since a great deal of Ms Clarke's time at the hearing was spent arguing that the invention made a technical advance that was at that time required to make an otherwise excluded invention patentable.

Conclusion

- 17 I have found that the claimed invention is a program for a computer as such and is excluded from patentability under section 1(2)(c). I can find nothing in the application that can form the basis of a patentable invention. I therefore refuse the application in accordance with section 18(3).

Appeal

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

H Jones

Deputy Director acting for the Comptroller