INTELLECTUAL PROPERTY OFFICE

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9 February 2011

PATENTS ACT 1977

APPLICANT Adaptive Business Systems Ltd.

ISSUE Whether patent application number GB 0425250.8 complies with section 1(2)

HEARING OFFICER Dr. S. Brown

DECISION

Introduction

1 This decision concerns the issue of whether the invention claimed in UK patent application GB 0425250.8 relates to non-excluded subject matter as required by section 1(2) of the Act. The application is entitled "Method and system for modelling data". It was filed on 16th November 2004 and was published as GB 2420196 A.

2 During the examination process, the examiner reported that the invention defined in the claims was excluded as a mental act and/or a program for a computer. Despite several of rounds of amendment the applicants and the examiner were unable to resolve this issue and a hearing was held on 10th December 2010. The applicants were represented by Mr. Nicholas Wallin and Mr. Andrew Mears of Withers & Rogers LLP. The examiner, Mr. Jonathon Golding, hearing assistant Dr. Hazel Thorpe, and an observer, Mrs. Helen Harrop, also attended.

Decision in Brief

3 Following the *Aerotel* test, the contributions in this case can be identified as (a) a better way of viewing data from two databases and (b) a better way of incrementally migrating data between databases, by modelling data using the method claimed. These processes respectively provide increased convenience for the user who (a) can view combined data in a unified view and (b) has the flexibility to continue to access a first database whilst data is slowly migrated to a second database.

4 I consider that, unlike in *Symbian,* this contribution does not result in the computer itself operating better. This conclusion is reinforced when the signposts in *Cvon* are considered. I am forced to conclude that the contribution consists only of excluded subject matter and does not have a relevant technical effect. It

fails the *Aerotel* test as no more than a program for a computer as such. I can see nothing that could be reasonably expected to form the basis of a valid claim and therefore refuse the application under section 18(3). The applicants may appeal within 28 days. I will now explain my decision in more detail:

The Application

5 The claims I was asked to consider at the hearing were filed on 7th October 2010. They encompass a main set and an auxiliary set. In the main request there are 27 claims in total comprising 2 independent claims (claims 1 and 15) which relate respectively to a method and a system. Both are for integrating live data relating to the same entity, which is stored within different databases. While there are minor differences between the independent claims, claim 1 is typical and reads:

> *A method of integrating live data relating to the same entity and stored within two or more databases, comprising the steps of:*
> *i) modelling the live data in each database, the modelling comprising:*
> *a. storing a plurality of data objects, each data object representing one of a group comprising: a type of entity to be modelled; an instance of an entity to be modelled; and a type of relationship between entities to be modelled; wherein each data object includes at least the same sub-set of at least one or more properties, the sub-set of properties including at least: an identity of the object, a type of the object; and*
> *b. storing link objects defining instances of types of relationships between entities to be modelled, said link objects including at least the same sub-set of at least one or more properties, the link object properties including at least: a link identity; a link type; and an indication of data objects representing the entities for which the relationship therebetween is modelled by the link object;*
> *wherein a respective data object for each set of data relating to an entity to be modelled in each of the databases is stored; and for each data object, a foreign key property containing an index value into the database to which the data object relates is stored;*
> *the method of integrating data further comprising:*
> *ii) storing a link object defining relationship between respective data objects instancing the live data in each databases relating to the same entity;*
> *iii) using the link object, retrieving live data relating to the same entity from each database; and*
> *iv) integrating the live data from each database and displaying the integrated data in a unified view within a graphical user interface.*

6 The auxiliary request comprises 5 claims in total of which claims 1 and 3 are independent relating respectively to a method and a system. Both are for incrementally transferring data from a database of a first type to a database of a second type. While there are minor differences between the independent claims, claim 1 is typical and reads:

A method of incrementally transferring data from a database of a first type to a database of a second type, the database of the second type being arranged to model data, the modelling comprising:

a. *storing a plurality of data objects, each data object representing one of a group comprising: a type of entity to be modelled; an instance of an entity to be modelled; and a type of relationship between entities to be modelled; wherein each data object includes at least the same sub-set of at least one or more properties including at least: an identity of the object, a type of the object; and*
b. *storing link objects defining instances of types of relationships between entities to be modelled, said link objects including at least the same sub-set of at least one or more properties, the link object properties including at least: a link identify; a link type; and an indication of data objects representing the entities for which the relationship therebetween is modelled by the link object;*

the method of incrementally transferring data further comprising the steps:

i) storing a data object within the database of the second type for each entity for which data is stored in the database of the first type;
ii) storing, within the database of the second type, a foreign key property for each data object to permit access to records within the database of the first type; and
iii) storing, within the database of the second type, further priorities for each data object, the further properties corresponding to data relating to each entity stored within the databases of the first type;
wherein said further properties are stored within said database of the second type as the data represented by the properties is changed; and wherein the further properties include an indicator flag which indicates whether, for a data object, properties have been stored, wherein, when accessing data, the indicator flag is checked to determine whether to access data from the database of the first type or the second type.

7 Since the issues and arguments are almost identical for both the main set of claims and the auxiliary request, the following discussion relates equally to both.

The law and its interpretation

8 Section 1(2) of the Patents Act 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: …*
>
> > *(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;*
> > *…*

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.

9 In addition to the above there is also the equivalent section of the EPC, article 52(2), to consider. Mr. Wallin reminded me of the EPO Enlarged Board of Appeal[1] referral regarding divergence between European and UK case law. He argued that as the Enlarged board of appeal dismissed the referral as inadmissible on the basis that there is no divergence, that EPO practice should be incorporated into UK Law. However, he also accepted the assertions of both Miss Witchard in *Dell Products*[2] and myself, that Hearing Officers at the IPO are bound to follow the precedent set by UK courts, treating EPO practice only as persuasive. In considering this application I will therefore follow the case law established in the UK in *Aerotel/Macrossan*[3], and further elaborated in *Symbian*[4] and *AT&T/CVON*[5].

10 In *Aerotel* the Court of Appeal 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 (or alleged) contribution

3) Ask whether it falls solely within the excluded matter

4) Check whether the contribution is actually technical in nature.

11 The operation of the test is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution 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 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

Application of the *Aerotel* test

Properly construe the main claim

12 I do not think that any significant problems arise over the construction of the main set of claims. They relate to a method of integrating information which is stored in two or more databases. Pieces of information in the databases are modelled by storing data objects relating to their identity, type or their relationship to other pieces of information and by storing link objects which define types of

[1] Opinion of the Enlarged Board of Appeal (12 May 2010) G0#003/08
[2] Dell Products LP [2010] BL O/321/10 paragraphs 9-11
[3] Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan's Application [2006] EWCA Civ 1371
[4] Symbian Limited's Application [2008] EWCA Civ 1066
[5] AT&T Knowledge Ventures LP and CVON Innovations Limited [2009] EWHC 343

relationships between different pieces of information. A value is also stored for each data object indexing into its database of origin. The model thus assimilates all the information in the separate databases into a common structure. This allows software, sitting on top of the databases, to retrieve and display information in a unified view irrespective of which databases each piece of the information originates from.

13 One example given at the hearing was data entered on a 'new' database relating to the issue of a council tax bill to an individual, and past bill payments by said individual stored on a legacy database. The invention of the current application would present both the 'old' and the 'new' data to a user in a single, unified, graphical view.

14 So in short, the claims relate to a clever way of modelling data that allows code sitting on top of two, or more, other databases to extract data therefrom and present it in a unified view.

Properly construe the auxiliary claim

15 Claim 1 of the auxiliary set of claims is equally straightforward to construe. It is a method of incrementally transferring data between two databases. Firstly it models the data by creating data objects and link objects in the same way as the main claim. For each data entity in the 'old' database it also stores a data object in the 'new' database and assigns it a value indexing its records in the old database. Each data object in the new database also has a 'flag' indicating which database to use to access required data.

16 So in short, the claims relate to a clever way of modelling data, which slowly migrates data from an old database to a new one. It allows access to the old database, whilst storing new records in the new database. It does not maintain two databases in parallel, nor does it transfer all the data in one go.

Identify the contribution

17 The Examiner had presented the argument that the contribution was the model per se. Mr. Wallin disagreed, arguing that the contribution is broader than this. That what has been added to human knowledge in the main claim is a method of integrating data stored within two or more databases, using the data model, and displaying the integrated data in a unified view. Similarly, the contribution in the auxiliary claim is a method of assimilating data from an 'old' database onto a 'new' database, using the data model, which allows the incremental transfer of data.

18 I am happy to accept Mr. Wallin's identification of the two contributions. So to summarise the contribution is a better way of integrating or migrating data between databases based on the model, wherein in the main claim the user can continue to use each database separately but gets a unified view, and in the auxiliary claim, the user continues to use the old database, but saves updates to the new database.

Ask whether it falls solely within the excluded matter and check whether the contribution is actually technical in nature

19 Mr. Wallin preferred to consider steps 3 and 4 of the *Aerotel* test at the same time, a technique approved in paragraph 13 of *Symbian*.

20 There is no doubt that the contribution is delivered by software running on conventional computing devices in a conventional network. The key question is thus: 'is it more than a program for a computer as such?'

21 In *Symbian* paragraph 59 states:

Next, it is appropriate to consider our conclusion in accordance with the guidance given at [40] in Aerotel. Stage 1 is not in issue. As to the stages 2 to 4:

Stage 2 Identify the contribution:

A program which makes a computer operate on other programs faster than prior art operating programs enabled it to do by virtue of the claimed features.

Stage 3 Is that solely excluded matter?

No, because it has the knock-on effect of the computer working better as a matter of practical reality.

Stage 4 Is it technical?

Yes, on any view as to the meaning of the word "technical".

Mr. Wallin argued that this case is of course technical, saying at one point "how can it not be". He reminded me that *Symbian* is a software invention which stored data and drew a parallel between this application and that one.

22 I am not convinced by this reasoning. Paragraph 54 of *Symbian* states that:

More positively, not only will a computer containing the instructions in question "be a better computer", as in Gale, but, unlike in that case, it can also be said that the instructions "solve a 'technical' problem lying with the computer itself". Indeed, the effect of the instant alleged invention is not merely within the computer programmed with the relevant instructions. The beneficial consequences of those instructions will feed into the cameras and other devices and products, which, as mentioned at [3] above, include such computer systems. Further, the fact that the improvement may be to software programmed into the computer rather than hardware forming part of the computer cannot make a difference – see Vicom; indeed the point was also made by Fox LJ in Merrill Lynch.

23 In this case the invention does not solve a technical problem lying with the computer itself. Mr. Wallin made it clear that the problems overcome were a)

allowing a user to access two or more (in use) databases in a unified view and b) avoiding errors by incrementally migrating data from a first database to a second database, whilst retaining access to the first database. To my mind these problems do not lie within the computer itself, but rather with the way a user wishes to use databases.

24 Mr. Wallin also reminded me that in *Symbian* it was decided that a software based invention was not excluded "*because it has the knock-on effect of the computer working better as a matter of practical reality"* [see paragraph 59]. This point is further emphasised in paragraph 34 of *Cvon*, where Lewison J states:

> *In Symbian itself, the invention was patentable because it resulted in a faster and more reliable computer. The increase in speed and reliability was not, as I understand the invention, dependent of the type of data being processed or the particular application being used to do the processing. The invention operated at a much higher level of generality within the computer.*

25 Mr. Wallin argued that the contribution in this case results in a better computer (as in *Symbian*) rather than just a better database, or application. He explained that the technology of the current case sat below the application level, that it is "middleware" and would work with any database and any type of data. Examples of the sort of data that could be used included council related data as already mentioned, school-student records, financial and record keeping data. In short, he argued that the technology had a broad generic use with a level of generality similar to that of *Symbian*.

26 Again, I am not convinced that the contribution in this case does operate at the same level of generality as that in *Symbian.* Furthermore, the inventions herein do not appear to make the computer or computer network itself faster, more reliable or in any other way inherently improved.

27 These points were further considered by Lewison J in *Cvon*, when trying to define a "technical effect". In paragraphs 39-41 of *Cvon*, he went on to say:

> *It seems to me, therefore, that Lord Neuberger's reconciliation of the approach in Aerotel (by which the Court of Appeal in Symbian held itself bound, and by which I am undoubtedly bound) continues to require our courts to exclude as an irrelevant "technical effect" a technical effect that lies solely in excluded matter.*
>
> *As Lord Neuberger pointed out, it is impossible to define the meaning of "technical effect" in this context, but it seems to me that useful signposts to a relevant technical effect are:*
>
> *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.

If there is a technical effect in this sense, it is still necessary to consider whether the claimed technical effect lies solely in excluded matter.

28 Although signpost (ii) is most relevant to the above argument, for thoroughness I will consider all of the signposts in turn:

i. The technical effect of the contributions identified above either does not extend beyond a single computer or, at best, extends across a standard computer network. Even in the latter case, the contribution lies entirely within how databases are accessed it has no effect on the network itself or anything beyond it.

ii. Mr. Wallin described the invention as being 'middleware'. The normal meaning of this term is something that sits between the operating system and the application layer. I would agree with this description - the technical effect clearly operates further away from the level of the architecture of the computer than that in *Symbian*. Despite Mr. Wallin's arguments about how it can operate with any type of data, that data is clearly very high level data rather than the type of data referred to in *Symbian*, nor is the same level of generality as *Symbian* achieved. Whilst the effect works whether school or council data is being processed using one database application or another, the effect is not truly produced irrespective of the data being processed or the applications being run. Rather, the data being processed comprises high-level data within certain databases and the effect only occurs with applications that access this data. The contribution sits just below the level of an application and thus at a high level within the hierarchy of the computer's software;

iii. In this case the computer itself is not operating in a new way. Only how databases are accessed is different;

iv. While a database user may be able to work in a faster and more reliable way, the computer, or computer network, itself remains unaltered;

v. The prior art problems of (a) viewing data relating to a single entity from more than one database and (b) migrating data from a first to a second database in one go, without being able to maintain access to the first database are overcome, but these are problems relating solely to the operation of high level software.

29 I conclude that the invention in this case does not meet the above signposts (i) to (v). Mr. Wallin brought to my attention the guidance in *Bilski*[6] by the Supreme Court of the United States which warns about rule setting, saying that "signposts cannot be the only thing". However, as acknowledged by Mr. Wallin, this is not binding on me, being outside of UK law.

30 Mr. Wallin also argued that a technical effect is present in this case, since the person using the software would be a technical person, such as a computer specialist or member of a technical institute. He added that integrating data from two databases is highly technical, as is a system that allows you to avoid the "big bang" problem of transferring data from one database to another in one go. Again, I do not find these arguments persuasive

31 So to recap: The contributions in this case are (a) a better way of viewing data from two databases and (b) a better way of incrementally migrating data by modelling data using the method claimed. This contribution resides just below the application level and, unlike the contribution in *Symbian*, it does not result in the computer itself operating better. In light of all of this I am forced to conclude that the contribution consists only of excluded subject matter as no more than a program for a computer as such. Furthermore, it does not have a relevant technical effect. It therefore fails the third & fourth *Aerotel* steps.

Decision

32 I have found that the contributions made by the invention defined in the independent claims of both the main set of claims and the auxiliary set fall solely in subject matter excluded under section 1(2). I have read the specification carefully and I can see nothing that could be reasonably expected to form the basis of a valid claim. I therefore refuse this application under section 18(3).

Appeal

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

Dr. S. Brown

Deputy Director acting for the Comptroller

[6] Bilski v Kappos 561 U.S.___ (2010)