BL O/100/10

31 March 2010

PATENTS ACT 1977

APPLICANT Avaya Technology LLC

ISSUE Whether patent applications GB0619051.6 and GB0803000.9 comply with Section 1(2)

HEARING OFFICER Peter Slater

DECISION

Introduction

1 This decision concerns the issue of whether the two inventions defined in the above patent applications relate to excluded subject matter.

2 Patent application GB0619051.6 ("the parent application") entitled "Data extensibility using external database tables was filed on 27 September 2006 claiming priority from an earlier US patent application dated 6 October 2005 ("the priority date"), and was published as GB2431022 on 11 April 2007.

3 The second of the two applications GB0803000.9 ("the divisional application"), was lodged on 19 February 2008, claiming divisional status from the parent application and therefore is deemed to have the same filing date and priority date as the parent application. This application was then published as GB2446723 on 20 August 2008.

4 The examiner has maintained throughout the proceedings that the invention claimed in both of these applications is excluded from patentability as a computer program under section 1(2)(c) of the Patents Act 1977. The applicant has not been able to overcome this objection, despite several rounds of correspondence, and has requested a decision be taken on the papers.

5 There are also a number of other objections which remain outstanding regarding the clarity of the claims in each case, and whether the divisional application

involves an inventive step. For the purpose of my decision, further consideration of these objections is deferred.

The Invention

6 The invention in both of these applications relates to Automatic Call Distribution (ACD) systems for use in call centres wherein incoming calls are switched to an appropriate operator or "agent" according to some predefined criteria including, for example, the skill set of the agent and any customer specific requirements. Monitoring of the call centre and agent's performance is then carried out using third party applications which can be used to store performance data from multiple sources in so called "data warehouses" which are essentially large scale databases whose structure contains entries, for example, for each agent and associated attributes thereof such as their skill set or group membership. Data within the database is accessed and tracked via a series of unique "keys" which are used to identify specific entries or records within the database tables. Entries within the database are often related "semantically".

7 When the proprietor of the call centre requires additional agents to be added to the database, or attributes associated with a particular agent such as a new agent identifier, to be added or amended, it often requires changes to the database structure itself e.g. the addition of new rows and/or columns. These types of change have to be managed to ensure that they do not lead to the introduction of "semantic" inconsistencies or changes in the relationship between individual elements in the database which may result in reporting inaccuracies or software malfunctions. A number of solutions to this problem already exist such as "database locking", in which requests to change the database structure are delayed for a predetermined period of time whilst extraction or loading of data is carried out, or the proprietor of the call centre is limited in its ability to affect changes to the database. These solutions often result in so called "race conditions" and can cause loss of data updates.

8 The parent application (GB0619051.6) discloses an arrangement in which the call centre manager ("first party") maintains its own "enterprise" database ("first database"), containing event and agent specific data. However, the call centre manager has restricted access, often read-only access, to the call centre software and associated database ("second database") which are maintained by a third party vendor ("second party"). As a result, the call centre manager is prevented from writing directly to the second database or effecting any changes to its data structure. Hence, for example, if the call centre manager wants to introduce a new agent identifier into the second database they must first create a data specification indicating that a column, for example, is to be added to the second database. An Extract Transfer and Load (ETL) module is then used to transfer corresponding data from the first database into a work queue in accordance with the data specification. The data in the work queue is then converted into a "semantically" compatible form suitable for loading into the second database, or an associated extension table by the input module. This ensures data compatibility and preserves any existing semantic relationships between data entries.

9 The most recent set of claims were filed on 16 October 2008 and include two independent claims to a data processing system (claim 1) and an associated method for managing the transfer of data between two databases (claim 6). The wording of the claims is as follows:

"*1. A data processing system, comprising: a first database maintained by a first party; a second database maintained by a second party different from the first party; work queue means for specifying data to be added to the second database; extract, transform and load means for writing data from the first database to the work queue means; data import means for importing data from the work queue to the second database, wherein the first party is not privileged to write the data directly to the second database, wherein the data in the first database is semantically incompatible with the second database, and wherein the data input module transforms the data written to the work queue to a semantically compatible form for the second database; and semantics means for effecting updates to type 2 dimension semantics in the second database to accommodate the imported data.*"

"*6. A method for managing a first and second database, wherein the first database is maintained by a first party, wherein the second database is maintained by a second party different from the first party, the method comprising: specifying data to be added to the second database; writing data from the first database to a work queue means; importing data from the work queue to the second database, wherein the first party is not privileged to write data directly to the second database, wherein the data in the first database is semantically incompatible with the second database, and wherein the data import module transforms the data written to the work queue to a semantically compatible form for the second database; and effecting updates to type 2 dimension semantics in the second database to accommodate the imported data.*"

10 The divisional application (GB0803000.9) is extremely similar to the parent. However, the claims define the invention in slightly different terms, including the additional feature whereby the data specification includes a definition of the modification required of the second database to incorporate the new data, for example, whether a custom table or column is to be created and means are provided for normalizing the data and writing it to the custom table or column in the second database.

11 The most recent set of claims were filed on 8 September 2009 and include two independent claims to a method of modifying a database and transferring semantically incompatible data between two databases (claim 1) and an associated data processing system (claim 11). The wording of the claims is as follows:

"*1. A method, comprising: (a) receiving from a first party a set of specifications defining an extension to a second database maintained by a second party wherein the first party has limited access to the second database; (b) modifying the second database as set forth in the set of specifications, wherein the modification comprises at least one of a custom table and a custom column in a*

table; (c) creating a work queue corresponding to the modification; (d) the work queue receiving first data from a first database; (e) normalizing the first data to form second data, wherein the first data is semantically compatible with the first database and semantically incompatible with the second database and wherein the second data is semantically incompatible with the first database and semantically compatible with the second database; and (f) writing the second data to the at least one of a custom table, and a custom column in a table."

"11. A data processing system, comprising: a first database maintained by a first party; a second database maintained by a second party different from the first party wherein the first party has limited access to the second database; a set of specifications, received from the first party, defining an extension to the second database; modifier means for modifying the second database as set forth in the set of specifications, wherein the modification comprises at least one of a custom table and a custom column in a table; work queue means corresponding to the modification adapted to receive first data from the first database; data import means adapted to normalize the first data to form second data, wherein the first data is semantically compatible with the first database and semantically incompatible with the second database and wherein the second data is semantically incompatible with the first database and semantically compatible with the second database; and semantics means for writing the second data to the at least one of a custom table and a custom column in the table."

The Law

12 The examiner has raised an objection under section 1(2)(c) of the Patents Act 1977 that the invention is not patentable because it relates to a program for a computer as such; the relevant provisions of this section of the Act are shown in bold below:

> ***1(2) It is hereby declared that the following (amongst other things) are not inventions for the purpose of the 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 provisions shall prevent anything from being treated as an invention for the purposes of the Act only to the extent that a patent or application for a patent relates to that thing as such.*

13 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008[1], the starting point for determining whether an invention falls within the exclusions of section 1(2) is the judgment of the Court of Appeal in *Aerotel/Macrossan*[2].

[1] http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm
[2] *Aerotel Ltd v Telco Holdings Ltd* and *Macrossan's Application* [2006] EWCA Civ 1371; [2007] R

14 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian Ltd's Application*[3]. *Symbian* arose under the computer program exclusion, but as with its previous decision in *Aerotel,* the Court gave general guidance on section 1(2). Although the Court approached the question of excluded matter primarily on the basis of whether there was a technical contribution, it nevertheless (at paragraph 59) considered its conclusion in the light of the *Aerotel* approach. The Court was quite clear (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was never intended to be a new departure in domestic law; that it remained bound by its previous decisions, particularly *Merrill Lynch*[4] which rested on whether the contribution was technical; and that any differences in the two approaches should affect neither the applicable principles nor the outcome in any particular case. But the *Symbian* judgment does make it clear, that in deciding whether an invention is excluded, one must ask does it make a technical contribution? If it does then it is not excluded.

15 Subject to the clarification provided by *Symbian*, it is therefore still appropriate for me, to proceed on the basis of the four-step approach explained at paragraphs 40-48 of *Aerotel/Macrossan* 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, which (see paragraph 45) is merely an expression of the "as such" qualification of section 1(2).
>
> 4) If the third step has not covered it, check whether the actual or alleged contribution is actually technical.

16 The operation of this test is explained at paragraphs 40-48 of the decision. 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 46 explains that the fourth step of checking whether the contribution is technical may not be necessary because the third step should have covered the point.

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[3] *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1
[4] *Merrill Lynch's Application* [1989] RPC 561

Arguments and analysis

The parent application (GB0619051.6)

Construing the claims

17 The first step of the test is to construe the claims. I do not think this presents any real problems since both the applicant and the examiner appear to agree as to the meaning of the claims.

Identify the actual contribution

18 For the second step, it is necessary to identify the contribution made by the invention. Paragraph 43 of *Aerotel/Macrossan* explains that this is to be determined by asking what it is - as a matter of substance not form - that the invention has really added to human knowledge having regard to the problem to be solved, how the invention works and what its advantages are.

19 The examiner defines the contribution in his letter of 16 June 2008 as follows:

"*a method/data processing system for adding data to a second database maintained by a second party from a first database maintained by a first party. The system has a work queue means for specifying data to be added to the second database. Data is imported from the work queue to the second database wherein the first party is not privileged to write the data directly to the second database. Semantics means is employed for effecting updates to type 2 dimension semantics in the second database to accommodate the imported data. The invention has particular application in contact centre database integration i.e. the integration of database applications which avoids semantical inconsistencies, data conflicts, collisions. It Allows unprivileged parties to make extensions to a database model while providing protection for logical semantics needed by the database model. Enables to combine the first and second database while effectively inhibiting data conflicts, collisions, and other inconsistencies from conflicting modifications to the second database*"

20 The agent's definition of the contribution, as I understand it, is best summarised in the agent's letter of 16 October 2008 where the agent asserts that:

"*The actual contribution of the invention is therefore the arrangement, interaction and configuration of the elements in the system. The two databases, maintained by different parties, are arranged to interact with the data import means. The data import means is configured to allow data to be imported into the second database. As part of this configuration, the data import means is configured to transform the data written to the work queue to a semantically compatible form for the second database.*"

21 So, what has the inventor actually added to the stock of "human knowledge"? The contribution to my mind, in its simplest form, amounts to a method, for example, to be used in call centre, in which it is desired to import data from one database to another, the two databases being owned by different parties wherein data from a first database is written into a work queue and is then converted to a

semantically compatible format suitable for import into the second database. Thereby enabling parties having restricted access to the second database to make modifications to the database whilst ensuring data compatibility and preserving any exiting semantic relationships between data entries.

Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?

22 The examiner argues that since the hardware involved is entirely conventional, then the contribution would seem to reside solely in the computer program being used to achieve the specific functionality and that the provision of means for effecting updates to the type-2 dimensional semantics in the second database does not add anything outside excluded matter. Furthermore, he states that:

"*Transferring data between two incompatible databases in which a transformation of the data takes place to render it compatible is not regarded as giving rise to a "relevant" technical effect. This is achieved by: A work queue to which data is sent, a data module that transforms the data in the work queue into a compatible form. This movement of data and its transformation is not regarded as adding anything outside excluded subject matter."*

23 In support of his arguments, the examiner made reference to the Hearing Officer's decision in *Fischer-Rosemount (BL 0/366/09)* where it was decided that a number of applications relating to a method of modifying process control data by converting it first to a "format-neutral" data format, and then to a variety of further formats for editing purposes was excluded as a computer program.

24 The agent argues that whilst the hardware may be entirely conventional this does not immediately mean that the method carried out by the hardware is conventional also. "In this case, using conventional hardware does not in any way prevent the method performed from being patentable because the invention lies in the way in which the hardware is configured and used. In this case the invention lies in the ability of the data import means to transform data from a form semantically compatible with the first database to a form semantically compatible with the second database and to import that data into the second database. The inventive features of the present invention are not features of a computer program."

25 Furthermore, in his letter of 7 September 2009, the agent argues that the invention provides a solution to a technical problem and that in line with the judgment in *Symbian*, the invention provides for the physical transfer of incompatible data between databases and therefore provides an "effect of practical reality" and should not be excluded. He states the following:

"*The claims of the present invention do not "move data in a conventional way" as suggested by the examiner. Conventional database systems would simply import or transfer data from one database to another without any transformation. However, the databases of the present invention are incompatible such that conventional data transfers are not possible. The claims require a work queue to which data from the first database is sent. The second database can then import data from the work queue where a data import module transforms the data into a*

compatible form for the second database (i.e. the form of the first database) to a form which is compatible with the second database. This is more than the simple movement of data.

The claims solve a technical problem in that the claims allow data to be transferred between two incompatible databases. The work queue and data import module provide features to accomplish the transfer. Thus the claims allow databases to integrate and function together regardless of the underlying database coding. The transfer of data between incompatible databases is a technical contribution of the claimed invention.

An effect of practical reality provided by the claims is therefore the effect of allowing data to be transferred between databases which are incompatible with each other. The transfer of the data is an "effect of practical reality" since the data is physically transferred between the databases.

Paragraph 56 of the Symbian decision describes a practical reality of what is achieved by the program of that application as being more than just a better program since there is a faster and more reliable computer. Applying this logic to the present case, a practical reality of what is achieved by the claimed invention is more than a better program for movement of data; there is provided an improved system which allows data to be transferred between databases that are incompatible with each other."

26 Having considered the papers in their entirety, it is clear to me that the hardware and the system as a whole, as the examiner suggests, is entirely conventional, and there is no doubt in my mind that the contribution requires a computer program for its implementation. However, the mere fact that the invention is effected in software does not mean that it should be immediately excluded as a computer program as such. What matters is whether or not the program provides a technical contribution.

27 Whilst the invention as claimed clearly provides a solution to the problem of transferring data between incompatible databases, I do not consider this to be achieved at a technical level. What the applicant has done has been to enable the exchange of data between the databases by providing a program which maps data from one format compatible with the first database to another format compatible with the second database. In effect, they have circumvented rather than solved the problem. What the invention does as a matter of practical reality is to transfer data between two databases which contain data having different formats, within a conventional call processing system. This is achieved by converting the data from one format to another suitable for importing into the second database. It does not result in a better, faster or more efficient system nor are there any changes to the systems hardware or computer architecture. This would therefore appear to me, to be no more than data manipulation by means of a computer program, and since the invention does not provide a technical contribution, it falls squarely within the computer program exemption of section 1(2)(c).

28 Looking at it from a different point of view, what is a database? A database is a structured arrangement of data held in memory and implemented in software. Hence, what the applicant has effectively done is to create, brilliant though it may be, a new computer program for transferring data between two existing databases, which themselves are computer programs. Hence, there is no doubt in my mind that the contribution lies in a computer program and as such is to be excluded.

29 The examiner also suggested in his letter of 14 May 2009 that aspects of the invention may be excluded as a method of doing business. However, having found the invention to be excluded as a computer program, I have no need to decide this issue.

The divisional application (GB0803000.9)

Construing the claims

30 Again, I do not think this presents any real problems since both the applicant and the examiner appear to agree as to the meaning of the claims.

Identify the actual contribution

31 The examiner in his letter of 16 June 2008 defines the contribution to lies in:

"*normalising/transforming first data which is compatible with the semantics of a first database to second data which is compatible with the semantics of a second database. This is essentially a mapping function. The second data is written to a custom table and/or a custom column in a table. The invention has particular application in contact centre database integration i.e. the integration of database applications which avoids semantical inconsistencies, data conflicts, collisions. It Allows unprivileged parties to make extensions to a database model while providing protection for logical semantics needed by the database model. Enables to combine the first and second database while effectively inhibiting data conflicts, collisions, and other inconsistencies from conflicting modifications to the second database."*

32 The agent's definition of the contribution, as I understand it, is again best summarised in the agent's letter of 16 October 2008 where the agent asserts that:

"*The actual contribution of the invention is therefore the arrangement, interaction and configuration of the elements in the system. The contribution lies in the configuration of the system such that it can receive specifications, modify the second database accordingly and create a work queue corresponding to the modification. Furthermore, the work queue can receive data from the first database which can be normalized to form second data which can then be written to the modified second database. The contribution lies in the configuration and use of the elements in the system to achieve the above steps."*

33 Here again the contribution in its simplest form, amounts to a method, for example, to be used in call centre, in which it is desired to import data from one database to another, the two databases being owned by different parties wherein data from a first database is written into a work queue and is then converted to a semantically compatible format suitable for import into the second database. However, here the contribution would appear to include the additional facility to specify the modifications required of the second database, to normalize and convert the data into a suitable format to be imported from the work queue into the modified database. Again enabling parties having restricted access to the second database to make modifications to the database whilst ensuring data compatibility and preserving any exiting semantic relationships between data entries.

Does the contribution fall solely within excluded subject matter? Is the contribution technical in nature?

34 The examiner argues that since the hardware involved is entirely conventional, then the contribution would seem to reside solely in the computer program being used to achieve the specific functionality and that the provision of means for effecting data normalization does not add anything outside excluded matter. He adds in the Official Letter dated 5 October 2009 that:

"The data modification and data transfer that allows for semantic differences between databases is not regarded as giving rise to a "relevant" technical effect. The manner by which this is achieved adds nothing outside excluded matter as has been explained in the earlier examination reports. The transfer of data between two incompatible databases is not regarded as being a technical problem i.e. it is a programming issue. A (second) database that is modified in accordance with specification received from the first party (who has limited access to the second database) is also regarded as being a programming issue. The issue at hand is not that a computer program has been used for the implementation of the invention- it is that in the implementation of the invention there is no contribution made outside the computer program exclusion."

35 In support of his arguments, the examiner again makes reference to the Hearing Officer's decision in *Fischer-Rosemount (BL 0/366/09).*

36 The agent again argues that whilst the hardware may be entirely conventional this does not immediately mean that the method carried out by the hardware is conventional also. "In this case, using conventional hardware does not in any way prevent the method performed from being patentable because the invention lies in the way in which the hardware is configured and used. In this case the invention lies in the ability of the system to modify the second database according to received specifications and to create work queues corresponding to the modification, such that first data can be received at the work queue and normalized to give second data which can then be written to the modification in the second database. The inventive features of the present invention are not features of a computer program."

37 Furthermore, in his letter of 7 September 2009, the agent argues that the invention provides a solution to a technical problem and that in line with the

judgment in *Symbian*, the invention provides for the physical transfer of incompatible data between databases and therefore provides an "effect of practical reality" and should not be excluded. He states the following:

"*The claims of the present invention do not "move data in a conventional way" as suggested by the examiner. Conventional database systems would simply import or transfer data from one database to another without any transformation. However, the databases of the present invention are incompatible such that conventional data transfers are not possible. The claims require a work queue to which data from the first database is sent. The second database can then import data from the work queue where data import means normalizes the data into a compatible form for the second database. The data is transformed from a form which is incompatible with the second database (i.e. the form of the first database) to a form which is compatible with the second database. This is more than the simple movement of data.*

Furthermore, the claimed invention requires the first party, who has limited access to the second database, to send a set of specification defining an extension to the second database, and to modify the second database as set forth in the specifications. Such modification of a database is more than simple movement of data.

The claims solve a technical problem in that the claims allow data to be transferred between two incompatible databases. The work queue and data import module provide features to accomplish the transfer. Thus the claims allow databases to integrate and function together regardless of the underlying database coding. The transfer of data between incompatible databases is a technical contribution of the claimed invention.

An effect of practical reality provided by the claims is therefore the effect of allowing data to be transferred between databases which are incompatible with each other. The transfer of the data is an "effect of practical reality" since the data is physically transferred between the databases. Furthermore, allowing a first party to send specifications setting forth modifications to be made to the second database, the first party having limited access to the second databases, and modifying the second database in accordance with the specifications is an "effect of practical reality" since the second database is physically modified.

Paragraph 56 of the Symbian decision describes a practical reality of what is achieved by the program of that application as being more than just a better program since there is a faster and more reliable computer. Applying this logic to the present case, a practical reality of what is achieved by the claimed invention is more than a better program for movement of data; there is provided an improved system which allows data to be transferred between databases that are incompatible with each other, and allows the second database to be modified in accordance with specification received from the first party."

38 In this case, the invention as claimed not only enables the transfer of data between incompatible databases (as was provided for in the parent application by means of a new computer program) but also provides a solution to the problem of enabling a user, with restricted access rights, to specify and ultimately make

changes to another parties' database. I do not consider this to be achieved at a technical level. What the applicant has done is to create yet another new program or variation of the program disclosed in the parent application which is designed to automatically modify the structure of the database in accordance with a user defined specification before actually importing the data. In effect, they have circumvented rather than solved the problem. What the invention does as a matter of practical reality is to add a custom table or column to an existing database, itself implemented in software. There again does not appear to be any change to the systems hardware or associated computer architecture, and the system does not appear to be enhanced in any way, it terms of its speed of operation or reliability which may have given rise to a technical effect. Again, this would appear to me, to be no more than the manipulation of data by means of a computer program, and since the invention does not provide a technical contribution, it falls squarely within the computer program exemption of section 1(2)(c).

39 Putting it another way, the applicant has created a computer program for modifying the structure of an existing database which is itself implemented in software. Hence, there is no doubt in my mind that the contribution lies in a computer program and as such is to be excluded.

40 The examiner also suggested in his letter of 15 May 2009 that aspects of the invention may be excluded as a method of doing business. However, having found the invention to be excluded as a computer program, I have no need to decide this issue.

Conclusion

41 In the light of my findings above, I conclude that the invention as claimed in both the parent application (GB0619051.6) and the divisional application (GB0803000.9) are excluded under section 1(2) because they relate to computer programs as such. Having read both the specifications in their entirety, I do not think that any saving amendments are possible. I therefore refuse both applications under section 18(3).

Appeal

42 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any Appeal must be lodged within 28 days of the receipt of this decision.

P Slater
Deputy Director acting for the Comptroller