



26 October 2011

PATENTS ACT 1977

APPLICANT Commonwealth Scientific and Industrial
Research Organisation.

ISSUE Whether patent application number
GB 0807932.9 complies with section 1(2)

C L Davies

DECISION

Introduction

- 1 Patent application GB 0807932.9 is the national phase application of a PCT application published as WO 2007051245. It was republished in the UK as GB 2447570.
- 2 The application has been subject to several rounds of correspondence between the Agent and Examiner. The Examiner has consistently argued that the application is excluded under Section 1(2) of the Act as a computer program as such. The Agent disagrees with this view and the Examiner in the examination report issued on 11th April 2011 offered a hearing on this matter.
- 3 The Applicant has accepted this offer and the matter came before me on 1st September 2011. The Applicant was represented by Mr Peer Watterson of Withers and Rogers. The hearing was also attended by the Examiner, Mr Jake Collins. I was also assisted at the hearing by Mr Nigel Hanley, a senior patent examiner in the IPO.
- 4 Prior to the hearing Mr Watterson filed an "alternate claim submission" in a letter dated 22nd July 2011. These claims were considered by the examiner who in a letter to the applicant on 17th August 2011 maintained his view that the application remained excluded under Section 1(2) of the Act.
- 5 Mr Watterson also provided a skeleton argument on 31st August 2011, in advance of the hearing.

Compliance Period

- 6 The period for putting this application in order expired on 26th July 2011. This was discussed at the hearing and Mr Watterson was made aware of options in this regard.

The invention

- 7 It is helpful if I set out my understanding of the application in suit. In keeping with many applications in the computing area of technology it comprises a method, a system and a computer program product.
- 8 The application is a method of matching data records from different sources that relate to the same entity. I have found it helpful to use the example in the specification here where the data sources are records for the same patient held by different hospitals. I understand this type of system deals with a problem known as “privacy preserving similarity join” (taken from the specification).
- 9 The method works by receiving clusters of data records from each source. Each record comprises a data item and an indication of the similarity between other records for the same entity. The records from each data source are then compared and the results of the comparison are used to decide which records relate to the same entity.

The claims

- 10 The claims considered at the hearing were those filed on 4th April 2011:

Claim 1

A method for matching data held by a plurality of data custodians that relate to a particular entity, said method comprising the steps of:

Receiving a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to a particular entity;

Comparing data record received from different ones of said data custodians based on the similarity of said data records to each other ; and

Determining which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said method is performed by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Claim 7

A method of matching data records held by a plurality of data custodians that relate to a particular entity, said method comprising the steps of:

For each data record held by a data custodian, identifying a cluster of data

records that are similar to the data record held by the data custodian; and

Submitting said clusters of data records to an independent party for matching with data records submitted by other data custodians;

Wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by respective data custodian that relates to said particular entity and wherein the data records relate to medical, financial or legal data records.

Claim 12

A computer system for matching data records held by a plurality of data custodians that relate to a particular entity, comprising;

A communications interface for transmitting and receiving data;

A memory unit for storing data and instruction to be performed by a processing unit; and

A processing unit coupled to said communications interface and said memory unit, said processing unit programmed to

Receive a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to said particular entity;

Compare data records received from different ones of said data custodians based on the similarity of said data records to each other ; and

Determine which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said computer system is operated by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Claim 18

A computer system for matching data records held by a plurality of data custodians that relate to a particular entity, comprising;

A communications interface for transmitting and receiving data;

A memory unit for storing data and instruction to be performed by a processing unit; and

A processing unit coupled to said communications interface and said memory unit, said processing unit programmed to;

For each data record held by a data custodian, identify a cluster of data records that are similar to the data record held by the data custodian; and

Submit said clusters of data records to an independent party for matching with data records submitted by other data custodians;

Wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by respective data custodian that relates to said particular entity and wherein the data records relate to medical, financial or legal data records.

Claim 23

A computer program product comprising a computer readable medium comprising a computer program recorded therein for matching data records held by a plurality of data custodians that relate to a particular entity, said computer program product comprising the steps of:

Computer program code for receiving a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to a particular entity;

Computer program code for comparing data record received from different ones of said data custodians based on the similarity of said data records to each other ; and

Computer program for determining which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said computer program product is executed by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Claim 29

A computer program product comprising a computer readable medium comprising a computer program recorded therein for matching data records held by a plurality of data custodians that relate to a particular entity, said computer program product comprising;

Computer program code for identifying a cluster of data records that are similar to the data record held by the data custodian, for each data record held by the data custodian; and

Computer program code for submitting said clusters of data records to an independent party for matching with data records submitted by other data custodians;

Wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by respective data custodian that relates to said particular entity and wherein the data records relate to medical, financial or legal data records.

- 11 Mr Watterson also provided an alternate claim submission on 22nd July 2011. This submission amended original claims 1, 12 and 23 (as listed above) by incorporating the subject matter of claims 6, 17 and 28. The submission also deleted independent claims 7, 18 and 29 and the claims dependent on them. The alternate claims are:

Claim 1 (Original Claim 1 as amended)

A method for matching data held by a plurality of data custodians that relate to a particular entity, said method comprising the steps of:

*Receiving a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to a particular entity, **wherein each data item is encrypted using a secret key that is known to each of said data custodians;***

Comparing data record received from different ones of said data custodians based on the similarity of said data records to each other ; and

Determining which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said method is performed by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Claim 6 (original Claim 12 as amended)

A computer system for matching data records held by a plurality of data custodians that relate to a particular entity, comprising;

A communications interface for transmitting and receiving data;

A memory unit for storing data and instruction to be performed by a processing unit; and

A processing unit coupled to said communications interface and said memory unit, said processing unit programmed to

*Receive a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to said particular entity, **wherein each data item is encrypted using a secret key that is known to each of said data custodians;***

Compare data records received from different ones of said data custodians based on the similarity of said data records to each other ; and

Determine which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said computer system is operated by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Claim 11 (Original Claim23 as amended)

A computer program product comprising a computer readable medium comprising a computer program recorded therein for matching data records held by a plurality of data custodians that relate to a particular entity, said computer program product comprising the steps of:

*Computer program code for receiving a plurality of clusters of data records from each of said plurality of data custodians, wherein each data record in a cluster comprises a data item and an associated measure of similarity between said data record and a data record held by a respective data custodian that relates to a particular entity, **wherein each data item is encrypted using a secret key that is known to each of said data custodians;***

Computer program code for comparing data record received from different ones of said data custodians based on the similarity of said data records to each other ; and

Computer program for determining which of said data records received from each of said data custodians relate to said particular entity based on the result of said comparison;

Wherein said computer program product is executed by a party independent to said plurality of data custodians and wherein the identity of said particular entity remains unknown to said independent party and wherein the data records relate to medical, financial or legal data records.

Issue to be decided

- 12 The issue to be decided is whether the invention is excluded under section 1(2)(c) of the Patents Act 1977 as a computer program as such. I note that novelty, inventive step and plurality issues in the case have been dealt with satisfactorily. However, I note that the “top-up” search has been deferred pending outcome of this decision on patentability. Consequently, should I find in favour of the applicant I need to remit this application to the examiner for further consideration.

The law

- 13 The relevant parts of section 1(2) read as follows:

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) 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.

- 14 Mr Watterson agreed that the correct approach for assessing patentability is that set out in by the Court of Appeal in its judgment in *Aerotel/Macrossan (Aerotel Ltd v Telco Holdings Ltd and Macrossan’s Application [2006] EWCA Civ 1371)* for deciding whether an invention is patentable. The test comprises four steps:

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

- 15 The operation of the test is explained at paragraphs 40-48 of the judgment. More recently, the Court of Appeal in the case of *Symbian [2009] RPC 1* confirmed that this structured approach is one means of answering the question of whether the invention reveals a technical contribution to the state of the art. In other words, *Symbian* confirmed that the four-step test is equivalent to the prior case law test of „technical contribution’, as per *Merrill Lynch, Gale and Fujitsu*. The result being that what matters is what the „technical contribution’ amounts to, not whether it happens to be implemented by a computer.

- 16 The examiner in his report has also followed the case law and has used the five signposts set out by Lewison J in *AT&T Knowledge Ventures/Cvon Ltd [2009]*

EWHC 343 (Pat). Mr Watterson also accepted the sign posts as a suitable basis for determining whether an application makes a “technical contribution”. The signposts are set out in paragraph 40 of the decision:

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.*

Arguments and analysis

First step: Properly construe the claim

- 17 The Examiner and Agent have come to the same conclusion as to the construction of the claims on file. It is also clear to me what is covered by the claim and I do not need to go into great detail in construing the claim. However, I think it would be useful if I briefly set out my understanding of the claim.
- 18 The application, as far as I understand it, revolves around problems that occur when trying to match data records from two different sources. This is made more difficult when the data is subject to confidentiality constraints. The specification refers to this problem as “privacy preserving similarity join”.
- 19 It is clearly a two part process, the first part being the preparing the data by the data custodian as shown in Fig 4a and the second, that of comparing the data at the linking service as shown in Fig 4b. Each data custodian selects from its data using a matching algorithm “data distances”. In the example of Fig 4a each custodian can then provide a cluster of records that are regarded as similar. The data linking service then compares the clusters received from each custodian and can identify those records which are considered to for the same entity.
- 20 To summarise each custodian identifies similar records which are then forwarded to a linking service. At the linking service the received data records are compared with a result that records for the same entity are identified.
- 21 I would add that I do not consider that referring explicitly to medical, financial or medical records adds little if anything to this underlying process.

Second step: Identify the actual or alleged contribution

- 22 The Examiner and the Agent also agree on the actual or alleged contribution of

the claims. Both agree that the contribution is:

the enabling of an independent party or service provider (e.g. linking service) to match data records held by multiple data custodians that relate to a particular entity without identifying the entity to the linking service or the other data custodians.

- 23 I do not disagree with this view and for the purposes of this decision it set out what the applicant claims to have added to the stock of human knowledge. I would add that the claim on file (4th April 2011) restricts the records to medical, financial or legal data records. I believe this further restricts the contribution in that it limits very precisely what type of data records are being matched. However at this point of the decision I will take the wider contribution and will return later to the specific nature of the records.

Third step: Ask whether the contribution relates solely to excluded matter

Conclusion to step 3

- 24 The question I need to address is whether this contribution is excluded. Both the Examiner and Mr Watterson agree that it is a computer program and I also agree with this. The question that must therefore be answered is whether the program makes a “technical contribution”. If it does, as Mr Watterson alleges, then it is patentable but if it does not, as the Examiner alleges, then it is not. This is the crux of the decision before me.
- 25 The current practice of the IPO in this area is to consider the application against the five signposts of the AT&T decision. It is here that the examiner and Mr Watterson differ in their views on the patentability of this application, with Mr Watterson inferring that the signposts show the application to make a technical contribution. In his skeleton argument and at the hearing however, Mr Watterson did not appear to demonstrate a clear understanding of how the signposts are to be interpreted.
- 26 In particular, he classified the signposts into three categories, namely
- a. An external effect as in signpost 1;
 - b. An internal “Symbian” style effect as in signpost 2;
 - c. A better computer as in signposts 3 & 4.
- 27 Firstly, he argued that there is an external effect in that the records are retrieved from data custodians. He also argued that as they are medical, financial or legal records this means they are clearly a separate process to that of the computer. He also put it to me that this was the same as in the case of *Vicom (T208/94)* from the EPO. In that case the image was represented as a series of data records which were subject to data processing to produce further records. His view was that his client’s case took data and processed it to produce improved data. If *Vicom* were allowable then so should his client’s application. In his skeleton he also made point that “*certain inventions which apply only to the processing of particular types of data can, nonetheless, constitute an invention,*

the contribution of which does not fall solely within the computer program exclusion”.

28 He also noted that the Court of Appeal in giving its judgement in *Merrill Lynch [1989] RPC 561* approved of the decision in *Vicom*. In the hearing he expanded on this point and sought to say that the key is that an invention that concerns the processing of the data is allowable and is not restricted to the operation of the computer. I am not sure that this reference helps the argument. My understanding of the decision in *Merrill Lynch* is that the type of data was of great importance in deciding that it was not patentable. Specifically, the data related to trading data and that made it a business method. In this case, the categorisation of the data as medical, financial or legal records raises similar questions. That said, the issue of whether this is a business method or not is not before me and I do not need to consider that issue. In any case I do not think it is. What I do take from this is that the key issue that needs to be resolved is whether this is anything more than a computer program.

29 The second strand of Mr Watterson’s argument is that as a result of the claimed invention the computer was more reliable or alternatively it made the computer operate in a new way. In doing so Mr Watterson drew upon the AT&T signposts.

30 I have considered this point in some detail and it is clear to me that there is a difference in how the Examiner and Mr Watterson have interpreted the signposts. As a consequence, I consider that this decision presents a useful opportunity to perhaps better explain how I see them and in particular, how they relate to this application in order to arrive at a decision on its validity or otherwise.

Signpost 1: Whether the claimed effect has a technical effect on a process which is carried on outside the computer.

31 In his review of the case law in *AT&T Knowledge Ventures [2009] EWHC 343 (Pat)* Lewison J carefully considered the comments of Neuberger LJ in *Aerotel* and came to the same conclusion that the key case to be considered was *Vicom*. This is not surprising as the *Vicom* case forms the basis on which much of UK law in the area of excluded matter is based and is particularly relevant to the computer program exclusion.

32 In *Vicom* the process is a process of digitally filtering an image. The board found that this was a “technical process” and that a “technical process carried out under the control of a program cannot be regarded as relating to a computer program as such”. Of equally important relevance is the view of the board that “even if the idea underlying an invention may be considered to reside in a mathematical method ... a claim to a technical process in which the method is used does not seek protection for the mathematical method as such”.

33 From the case law before me, I take this to mean that the process must operate on something external to the computer on which the computer program is being run. This was indeed the case in *Vicom* where it operated on an image. To make it less abstract, a good example is the use of a computer in the control of a car braking system. The braking system is clearly a technical process external to the computer running the program.

34 So, regarding the present application, does it present an external effect? I do not believe it does. The system in this case includes the computers of the data custodians and the linking service and the software running on them. I cannot identify any effect outside processing of the data – any effect remains entirely within the system. The system is simply a data processing system that operates on data records. Referring to the type of records does not assist Mr Watterson in this as they are merely specialised records. This sign post is therefore not satisfied.

Signpost 2: 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

35 This signpost asks the key question of what does the computer program actually do? If I understand Lewison J correctly, he is saying that if running the program changes how the computer runs internally, that may be allowable. The Hearing Officer in the case of *Intuit (O/347/10)* discussed what was meant by “the internal architecture of the computer” at paragraphs 18-20 stating:

18 In the AT&T decision, Lewison J draws heavily in paragraphs 21-34 on previous case law including the EPO Technical Board of Appeal decision in IBM (T 0006/83) to which Mr Davies has also referred. This case related to a “method of communication between different programs and files held at different processors within a known network”. In this case, the claim was allowable because it worked irrespective of the nature of the data and it was considered to relate to the architecture of the system. In this respect, the architecture of the system is how the computational components are connected and not the applications running on the computers.

19 I think it is clear that what Lewison J meant in his second signpost was that the architecture of a computing system is closely related to the internal components such as the operation of the processor, how the cache memory operates, or how the bus controllers and the power supplies interoperate. Each of these will continue to operate irrespective of which application runs on the computer components and I think that is the point he was making in the rider to the signpost. In this respect he was pointing out that application programs do not intrinsically have a “technical effect” but those that allow control or operation of the internal aspects of the computer may well do.

36 The question I must ask and address is whether there is an effect on the internal components on the computer or is any effect data centric. In my analysis of the application there is no functional relationship between the data being processed and any of the components – all the effects of the program are on specific data within an application. Accordingly, I find no evidence that there is an effect that would meet the second signpost.

Signpost 3: whether the claimed technical effect results in the computer being made to operate in a new way;

37 For this signpost to be met I believe there must be an effect that means the

computer operates differently as a result of the program running on it. Once again, in my analysis, I do not believe this to be the case. I oversimplify it when I say that it means that the underlying computer must run differently as a result of the program than it did before. Ultimately, there must be more than just running an application on a computer system. I do not believe that merely running a program on an otherwise general purpose computer is enough on its own to provide a technical contribution – the program must do more than that.

- 38 In this case it is clear that the underlying computer is standard. Indeed, Fig 5 of the drawings shows what can only be described as a diagram of such a computer. There is no evidence of any technical effect on this computer by running the program of the application and I can only conclude that this signpost also indicates a lack of a “technical contribution”.

Signpost 4: whether there is an increase in the speed or reliability of the computer;

- 39 The application in “Symbian” was allowable as it clearly made a difference to the reliability of the computer. In short, by providing the additional Dynamic Link Library (DLL) it was possible to ensure that an application that accessed the specific features in a DLL would still work even if the DLL was upgraded.

- 40 As a result, if the application makes the computer more reliable, then that is allowable. I think the key point here is that it has to be the computer that is more reliable and not the program. All programmers strive to make their programs more reliable but patents are not granted for these developments. Even in the contentious debates that occur in this area no one has, to my knowledge, suggested that a new version of software should be patentable because it was more reliable than the earlier version.

- 41 Coming back to the present application, I do not see how the matching program makes a difference to the speed and reliability of the computer. It may well be a more reliable and faster way of comparing two data records but that is exactly what it is – a program for matching data records. Any possibility beyond this is completely removed when one takes into account that the data records are medical, financial or legal data records. I conclude that this signpost is not satisfied.

Signpost 5: whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented

- 42 Mr Watterson did not address me on this particular issue but for the benefit of completeness I think it is important for me to consider it. The key point here is perhaps best demonstrated by the application in hand itself. In this application the problem occurs because data records are kept in different formats by the two organisations. The solution to this is clearly to ensure that the data record formats are the same which would make matching somewhat easier. But this is not the problem being addressed by the application and hence it is circumventing the problem rather than trying to find a solution to it. Consequently, I find that this signpost is not satisfied.

Step 4 – is the contribution technical in nature?

- 43 From my analysis of the contribution against the signposts I conclude that the application is for a computer program that does not make a technical contribution. As a result I do not need to specifically consider if the application is technical in nature since this has been considered as part of my analysis above.

Alternate Claim Set

- 44 The alternate claims submitted by Mr Watterson ahead of the hearing do not alter my view on patentability and I consider that they too are for a computer program that does not make a technical contribution. Specifically, the encryption of the data does not add to the technical contribution made by the application. At its heart, the application still remains a process for joining two data records whether they are encrypted or not.

Conclusion

- 45 I find that the invention is excluded under section 1(2) because it relates to a computer program as such. I therefore refuse the application under section 18(3).

Appeal

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

C L Davies

Deputy Director acting for the Comptroller