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PATENTS ACT 1977

APPLICANT Palantir Technologies Inc.

ISSUE Whether patent application numbers GB 1404499.4, GB 1404489.5 and GB 1404486.1 comply with Sections 1(1)(d) and 1(2) of The Act.

HEARING OFFICER Peter Mason

DECISION

Introduction

1 This decision concerns the question of whether the inventions set out in each of the patent applications GB1404499.4, GB1404489.5 and GB1404486.1 relates to excluded subject matter under section 1(2) of The Act. Each application has the same applicant, Palantir Technologies, and were each filed on 13th March 2014 requesting combined search and examination.

2 The '99.4 application was examined by the examiner who did perform a search and raised both Clarity and Novelty/Inventive step objections; amended claims for this application were received with the letter dated 16 March 2015 and those claims are the ones being considered here. The '89.5 and 86.1 applications were examined but no search performed in either case, reporting instead under Section 17(5)(b) that search would not serve a useful purpose. No amendments were filed to the claims of these latter two applications.

3 The two Examiners reported that they considered the claimed inventions to be excluded as being no more than computer programs as such and that they could see no saving amendment to the claims which would make them patentable. As no agreement on these applications could be found a joint hearing of all the three applications was offered. At the Hearing the applicant was represented by Mr Paul Derry and Mr Nicholas Jones, both of Verner Shipley LLP.

The Law

4 The examiners raised objections under section 1(2) of the Act stating that the invention is not patentable because it relates *inter-alia* to one or more categories of excluded matter. The most 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.

These provisions are designated in Section 130(7) as being so framed as to have, as nearly as practicable, the same effect as Article 52 of the European Patent Convention, to which they correspond. I must therefore also have regard to the decisions of the European Patent Office Boards of Appeal that have been issued under this Article in deciding whether the present invention is patentable although I am not bound to follow them. I am bound to follow the decisions of the UK Courts however.

5 There is a large amount of case law in relation to the provisions of section 1(2). The most significant recent judgments of the Court of Appeal on the matter are *Aerotel/Macrossan*[1] and *Symbian Ltd's Application*[2]. Following the guidance in *Symbian* I will use the four-step approach explained at paragraphs 40-48 of *Aerotel* and ensure in my consideration of steps (3) and (4) that I determine whether the invention makes a technical contribution. The steps are :

(1) Properly construe the claim;

(2) Identify the actual contribution;

(3) Ask whether it falls solely within the excluded subject matter;

(4) Check whether the actual or alleged contribution is actually technical in nature.

6 The Court said in *Symbian* (see paragraphs 8-15) that the structured four-step approach to the question in *Aerotel* was not a new departure in domestic law and that it remained bound by its previous decisions, particularly *Merrill Lynch*[3]. The *Aerotel* test is intended to be equivalent to the prior case law test of "technical contribution".

7 When considering the computer programme exclusion, it can be helpful to consider the 'signposts' set out in paragraph 40 of *AT&T/CVON*[4] which provide guidelines when considering whether a computer program makes a relevant technical

[1] *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007]
[2] *Symbian Ltd v Comptroller-General of Patents* [2009] RPC 1
[3] *Merrill Lynch's Application* [1989] RPC 561
[4] *AT&T Knowledge Ventures/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

contribution beyond the exclusion. The fourth signpost was subsequently reworded by the court of appeal in paragraphs 50-51 of *HTC v Apple*[5] following *Gemstar*[6]; The five reworded signposts are as follows:

> *(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 the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;*
>
> *(v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*

8 Prior to the hearing, Mr Derry sent a letter dated 9 November 2015 listing a number of judgements and decisions that he intended to refer to at the hearing; These included *Symbian, Aerotel, HTC v Apple* and *Gemstar* that I mention above and the *Raytheon*[7] , *Merrill Lynch*[8] UK court judgements. Mr Derry further listed a number of decisions of the EPO boards of appeal: IBM T0006/83[9], IBM T0115/85[10] and *Vicom*[11].

9 Somewhat unusually, following the hearing, Paul Derry sent a letter to the office dated 4 December 2015 in which he highlighted some passages from those decisions where the Judge has commented on the assessment of the contribution. Given that the letter merely sought to direct me to particular parts then I am content to consider it. These were: paragraph 224 of *Aerotel*, paragraph 53 of *Symbian*, paragraphs 10 and 33 of *Raytheon* and paragraph 138 of *Research in Motion*[12].

10 At the hearing Mr Derry asked if there was any 'hidden IPO guidance' regarding exclusions, and was told that there was none. There was common ground with Mr Derry that the *Symbian* approach was the correct one to use. There was also discussion about how the contribution should be assessed, with Mr Derry referring to the above decisions; again there was common ground on the approach to take.

The Inventions

11 I will apply the Symbian approach firstly to the GB1404499.4 application, and then I will apply it to the GB1404489.5 and GB1404486.1 applications together as these

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[5] HTC v Apple [2013] EWCA Civ 451
[6] *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10
[7] *Raytheon Co's Application* [2007] EWHC 1230 (Pat)
[8] *Merrill Lynch's Application* [1989] RPC 561
[9] *IBM* [1988] T0006/83
[10] *IBM* [1988] T0115/85
[11] *Vicom* [1986] T0208/84
[12] *Research in Motion UK Ltd v Visto Corp.* [2008] EWHC 335 (Pat)

latter applications are closely related. This reflects the order that the applications were discussed in the hearing.

GB1404499.4

12 The invention provides a method for selecting, from a larger dataset, a subset of records that are related to a common entity by using a classifier which produces a matching probability value for each record in the larger dataset. The subset is created from records having a probability value above a set threshold. The invention can identify potentially related records in a dataset whose records do not have well defined common attributes. The classifier uses a separate exemplar dataset to define the target entity. The classifier is preferably a machine learning algorithm and needs to be initially trained on a training dataset.

13 The invention of GB1404499.4 is defined by the amended claims received with the letter dated 16 March 2015 which comprise two independent claims: claim 1 which relates to a method of identifying related records from a database; and claim 12 which relates to a computer system having a program configured to identify related transaction records from a database. The method of both claims is substantially the same and therefore I will consider these claims together.

(1) *Properly construe the claims*

The two independent claims are given below, along with dependant claim 11:

> *1. A method of identifying related records from a database storing records for multiple entities, the method comprising:*
> *retrieving a plurality of record sets, wherein each record set includes one or more of the records sharing a common attribute value;*
> *receiving a selection of or selecting an exemplar record set, wherein the exemplar record set comprises a plurality of the records associated with a first entity;*
> *for each of the plurality of record sets:*
> *determining a probability that the record set includes records associated with the first entity by passing a record set and the exemplar record set to a classifier, wherein the classifier is configured to determine the probability that the record set includes records associated with the first entity, and upon determining the probability exceeds a threshold, resolving the record set as including records associated with the first entity.*
>
> *11. A computer program comprising machine readable instructions that when executed by computing apparatus causes it to perform the method of any preceding*
> *claim.*
>
> *12. A computer system, comprising: a memory; and a processor storing one or more programs configured to perform an operation for identifying related transaction records from a database storing records for multiple entities, the method comprising:*
> *retrieving a plurality of record sets, wherein each record set includes one or more of the records sharing a common attribute value;*

receiving a selection of or selecting an exemplar record set, wherein the exemplar record set comprises a plurality of the records associated with a first entity;

for each of the plurality of record sets:

determining a probability that the record set includes records associated with the first entity by passing a record set and the exemplar record set to a classifier, wherein the classifier is configured to determine the probability that the record set includes records associated with the first entity, and upon determining the probability exceeds a threshold, resolving the record set as including records associated with the first entity.

14 It is implicit that the method of claim 1 is for execution using instructions running on a computer system.

15 Claims 1 and 12 refer to a 'classifier' and I note that later dependant claims 2 and 13 state that it may be a '*random forest classifier'* and dependant claims 3 and 14 state that the classifier may be trained using training records. I note that a '*random forest classifier*' is a known algorithmic approach in general terms; it also appears to be admitted on page 7 of description that this type of classifier is known. It is clear from the description of the embodiment what the function of the classifier is and thus there is no issue in construing the claims.

(2) *Identify the actual contribution*

16 To assess the contribution, I will consider the problem said to be solved by the invention and the advantages the invention allegedly provides as well as considering how the invention works.

17 Mr Derry argued that the problem relates in general to the use of prior art filtering functions to identify related database records, and asserts that this has a low reliability resolution and provides an excess of mistakes. The advantages of the invention were said to be lower memory occupation because of an improved reliability of resolutions and elimination of mistaken record 'aggregates'. Mr Derry points to pages 1 and 2 of the description in support of this argument.

18 In addition to pages 1 and 2 of the description, I note that pages 3 to 5 restate the problem and the solution in terms of an example application of a database containing financial transaction records. It is stated that it may be a requirement to aggregate records relating to a common entity. A problem is that filtering for direct or approximate matches of specific record attributes which are expected to act as an ID will only be reliable if all of entity's records have a well-defined ID or set of ID attributes. If a data set has record attributes that do not represent well defined IDs for an entity or entities, such a filtering approach may well perform poorly. The solution uses a classifier that compares records in the database to an exemplar set of records representing a particular entity such that a confidence score is produced by the classifier; the score represents the likelihood a record is associated with the entity. The confidence score can be used to aggregate records that are presumed to be for the same entity. The comparison of the classifier can involve multiple attributes of a record.

19 Taking into account Mr Derry's arguments in the hearing and the similar statements on pages 1 and 2 of the description of the application, I am content to take as the alleged contribution :

A method of improving the reliability of resolutions and eliminating mistaken aggregates in identifying related database records by using a classifier to determine the probability that a record set includes records associated with a first entity, and upon determining the probability exceeds a threshold resolving the record set as including records associated with the first entity.

I am also content to accept that the method may in at least some circumstances reduce lower the number of false records being filtered in and that this may mean that less memory is used to store the results

***(3)** Does the contribution fall solely within the excluded matter?*

20 It was common ground that the invention relates in substance to a computer implemented method and thus the relevant part of Section 1(2)(c) is whether the invention is *a program for a computer ... as such*.

21 The general thrust of Mr Derry's argument appears to be that the contribution provides for lower memory usage, thus it is a better computer and more than just a program. Also highlighted is that the lower memory usage stems from the method producing the aggregate records in a more reliable manner and with less mistaken aggregate records. Mr Derry argued that the second and fourth of the five *AT&T/CVON signposts* were relevant in showing that the invention is more than just a program for a computer.

22 There was a discussion with Mr Derry regarding the architectural level at with the method acts and the importance of the database records. Mr Derry talked about the method being able to operate on generic data and I agree that there is nothing in the independent claims that confer significant limitation on what the data represents. I note the only example given in the description of the application is of these being financial transaction records.

23 Mr Derry attempted to draw parallels with the *IBM T0006/83* decision of the Enlarged Board of Appeal. I do not find that this decision is helpful here as the facts are significantly different.

24 I agree with Mr Derry, that if the technical effect was reliant on the data being image data or financial data for example, and thus the effect was reliant on the nature of the data in that sense, then the second signpost does not apply. I disagree however with Mr Derry when he says that because the claim does not explicitly refer to what the data represents, i.e. the nature of the data, then it must follow that the advantage of the contribution is achieved for any generic data set.

25 I put it to Mr Derry that the proportion of matching records and thus the size of an aggregated record set was dependant, for example, on the setting of the 'probability threshold' in this invention or the setting of the filter in the prior art method. Thus the memory usage is, at least in part, dependent on a software setting in each case. Mr Derry conceded that point and then commented on the 'accuracy' of the data

aggregated. Mr Derry also said that the claimed invention did not have to produce the comparatively lower memory usage effect under every operating circumstance, it would be acceptable as long as the advantage can be brought about.

26 I have not found anything in the specification that suggests the records could be related to the underlying functioning of a computer system at an operating system level. In other words, the database is envisaged to contain 'user data' and not 'system data'. I find that the memory usage and accuracy are dependent both on the data and the corresponding settings of the classifier; one of these settings being the 'probability threshold'. The broad teaching of the specification is that certain data sets work less well with filtering than others, and that for those problematic data sets the proposed invention is likely to be preferable. I find nothing that suggests the method is part of the operating system, and thus architecture, of a computer; the specification instead describes the embodiment of the method being an 'application' program. The second signpost is thus not relevant here.

27 Mr Derry then went on to present the argument regarding the fourth signpost, which was that the program causes there to be a better computer as a consequence of the lower memory occupation. He also referred to *HTC v Apple* asserting parallels with the arguments regarding a 'slide to unlock' feature which was an example of software resulting in a better computer; I do not see how this judgement is relevant here as the facts are significantly different.

28 The Examiner stated that while the program itself might be more effective and efficient, the computer itself is not more effective and efficient. I agree that this is the situation here. The user has in effect chosen to use more or less of the resources available from the computer; the underlying computer itself has not been changed so that is operates more efficiently and thus provides greater resources for a user. Any program, whether excluded or not, running on a computer will use resources up. Merely selecting an alternative program that may use less resources cannot be, of itself, a relevant technical effect; if it were, then it would follow that any running program could be considered to produce a better computer, as you could always compare it to when a less efficient program runs; this is not what I believe the law means.

29 I have found the *Raytheon* decision of The Patents Court, helpful here. The facts of that case related to assembling large composite (synthesised) images of equipment rack assemblies from smaller image fragments of individual equipment parts according to a list of parts describing the contents of each rack. In comparison to storing a separate large image for each of many rack assemblies, storing just the required images fragments and parts lists required less memory to be used. Justice Kitchin said in paragraph 37 :

The second, and more important, aspect of the contribution was the synthesis of representations of the rack from individual images of the components of the rack which were stored in digital form in the databases, so reducing the burden on the processor. This aspect of the contribution was no more than a reflection of how the programmer had chosen to create the desired representation. The fact that the programmer had chosen to devise a program to produce a visual representation of the rack and all it contained by synthesising the representation from a number of smaller images was simply a matter of

> *program design.* ***The result was not a new combination of hardware nor was it an improved computer*** *or an improved display.* ***The result was a computer of a known type operating according to a new program, albeit one which reduced the load on the processor and made an economical use of the computer memory. The hearing officer was correct in holding that this aspect of the contribution related to a computer program as such.***

I have highlighted the key portions above in bold; in other words, the fact that a new program uses less computer memory than the previous program did not cause the new program to be more that a program as such.

30 I find that the situation here is broadly comparable to that in *Raytheon*; there is a new program that in certain circumstances may be relatively economical on computer memory, but there is no change to the computer hardware, nor is there a change to the computer firmware or operating system. The computer is not improved and thus the fourth signpost is not relevant.

31 Considering the other three signposts, I find none of them are relevant here. The computer implementing the inventions is itself is not changed, the computer is not better by being more efficient or effective. While it can be argued that a problem is solved rather than circumvented, this is irrelevant as the problem is not a technical one.

32 I have considered the arguments of Mr Derry, but I am not persuaded by them. Reading the specification, I find the method is at the application/user level and the records are user data rather than system data. The contribution is nothing more than a computer program that uses a different record matching method to the prior art 'filtering' methods. Comparing performance using the same example data set, it is possible that the claimed method will use less memory resources than the prior method, but it is also possible that a different example data set will result in similar memory usage for both methods or conceivably more memory usage for the claimed method. Further, how relevant or accurate the aggregated data is depends on the specific data itself in relation to the software settings. Again, the computer is not better by being more efficient or effective.

33 Thus the contribution of either claims 1 or 12 in lies wholly within the scope of the computer program exclusion. Further, considering the dependant claims, none of these add anything that avoids this exclusion.

(4) *Check if the contribution is actually technical*

34 I have in effect already done this step, but for the avoidance of doubt I am content that there is no relevant technical contribution in the invention of application GB1404499.4.

GB1404486.1 & GB1404489.5

35 These inventions provide methods of comparing every record in a dataset with each of the other records, the comparison made only for selected attributes of each

record. The method of ’86.1 specifically searches for any matching records within the set, while the method of ’89.5 checks if a specific record is unique within the set. The methods are particularly suited for very large datasets.

36 These two applications are about methods for checking a data set to see if any records have an attribute or set of attributes with a common matching value or values. In the language of the claims, there are a plurality of *objects* (data set of many records), each having a plurality of *properties*, where a *slug* is a subset of the properties that are compared between all the objects (the specific attributes to be compared between records). The aim of the ’89.5 method is to check if the set of records are unique in terms of specific attribute(s) values (e.g. the slugs of each object are unique for the plurality of objects) The ’86.1 method has the related aim of finding matching records in a set in terms of specific attribute(s) values that match between each record. Thus in both methods each record of the data set must be compared to each of the other records of the data set. The comparison methodology for both methods is broadly the same and encompasses use of a Bloom filter.

(1) *Properly construe the claims*

37 No amendments have been made to the claims or description in either application and I will thus consider the claims as filed for each application. As I will comment on below, neither application has been searched.

38 The independent claims for GB1404486.1 are as follows :

1. A method for associating a first object with one or more objects within a plurality of objects, each object comprising a first plurality of properties, each property comprising data reflecting a characteristic of an entity represented by the object, the associated objects comprising matching data in corresponding properties for a second plurality of properties, the method comprising the following operations performed by one or more processors:

executing, for each object within the plurality of objects and for the first object, the following:

creating a slug for the object, the slug comprising the second plurality of properties from the object; and inputting the slug for the object into a Bloom filter; and

creating for a bin within the Bloom filter corresponding to the slug for the first object, an association between objects whose slugs correspond to the bin if the slugs for those objects match.

10. A method for associating objects within one or more groups of objects within a plurality of objects, each object comprising a first plurality of properties, each property comprising data reflecting a characteristic of an entity represented by the object, the associated objects within a group of objects comprising matching data in corresponding properties for a second plurality of properties, the method comprising the following operations performed by one or more processors:

executing, for each object within the plurality of objects, the following:

creating a slug for the object, the slug comprising the second plurality of properties from the object; and

inputting the slug for the object into a counting Bloom filter;

inputting for each created slug, the slug and its corresponding object into a multimap, if a bin within the counting Bloom filter corresponding to the slug has a

count value greater than 1, wherein the slug is a key to the multimap and the object is a value to the multimap; and

associating the objects stored as values for each multimap key with two or more corresponding values.

39 It is implicit that the methods of claims 1 and 10 are for execution using instructions running on a computer system. There are further claims 20 and 21 to a computer program and system that cross-reference to these method claims; these claims do not confer any additional technical features. Claims 1, 10, 20 and 21 cover substantially the same invention.

40 The independent claims for GB1404489.5 are as follows :

1. A method for identifying unique objects within a plurality of objects, each object comprising a first plurality of properties, each property comprising data reflecting a characteristic of an entity represented by the object, the method comprising the following operations performed by one or more processors:

executing, for each object within the plurality of objects, the following:

creating a slug for the object, the slug comprising a second plurality of properties from the object; and

inputting the slug for the object into a counting Bloom filter; identifying for each created slug whose corresponding bin within the counting Bloom filter has a count value equal to 1, the object associated with the slug as unique within the plurality of objects;

inputting, using at least one processor, for each created slug, the slug and its corresponding object into a multimap, if a bin within the counting Bloom filter corresponding to the slug has a count value greater than 1, wherein the slug is a key to the multimap and the object is a value to the multimap; and

identifying for each multimap key with one value, the object associated with the slug stored as the key as unique within the plurality of objects.

10. A system for identifying unique objects within a plurality of objects, each object comprising a first plurality of properties, each property comprising data reflecting a characteristic of an entity represented by the object, the system comprising: a memory device that stores a set of instructions; and at least one processor that executes the set of instructions to perform the following operations:

execute, for each object within the plurality of objects, the following: create a slug for the object, the slug comprising a second plurality of properties from the object; and input the slug for the object into a counting Bloom filter;

identify, for each created slug whose corresponding bin within the counting Bloom filter has a count value equal to 1, the object associated with the slug as unique within the plurality of objects;

input, for each created slug, the slug and its corresponding object into a multimap, if a bin within the counting Bloom filter corresponding to the slug has a count value greater than 1, wherein the slug is a key to the multimap and the object is a value to the multimap; and

identify, for each multimap key with one value, the object associated with the slug stored as the key as unique within the plurality of objects.

41 It is implicit that the method of claim 1 is for execution using instructions running on a computer system. There is a final claim 20 to a computer program which refers to the preceding method claims. Claims 1, 10 and 20 cover substantially the same invention.

42 As with the first application, I note that a *'Bloom filter'* is a well-known matching algorithm (using a specific internal data structure that uses bins filled by the output of hashing functions) that appears to have been introduced in the 1970s and has been developed since to include '*counting Bloom filters'* among other variations. It is known that a Bloom filter is potentially less memory intensive and faster that a brute force comparison between elements of a set, but is limited because it is probabilistic. A standard implementation can produce false positive matches, but does not produce false negative mis-matches. In contrast, a brute force approach can be definitive on both counts. Thus depending on the application, it is known that a Bloom filter may need to be used with a definitive check of these false positives, for example if one wanted to be certain of the nature of the potential matches. The Bloom filter set up in different ways; it can be made faster for a given size of set, but with a resultant higher probability of false positives. If you need to check for these false positives, then this is extra computation and you will lose at least some speed and storage advantage.

43 I have also found that the *'multimap'* is also a well-known matching algorithm and data-structure and it can define associations between elements in a set.

44 I consider that the Bloom filter and multimap are of themselves known concepts and terms in the art and their use is substantially clear in the claims. The term 'slug' is well defined by the description. Thus there is no issue in construing the claims.

(2) *Identify the actual contribution*

45 In the letters of 16 March 2015, Mr Derry provided his assessment of what the contribution was for these two applications; they are for GB1404486.1 :

> *Providing greater computational throughput and acceptable memory consumption without a reduction in comparison accuracy and for large dataset sizes by using a processor to identify unique objects though slug creation, input into a Bloom filter and particular association creation for a bin within the Bloom filter;*

And for GB1404489.5 :

> *Providing greater computational throughput and acceptable memory consumption without a reduction in comparison accuracy and for large dataset sizes by using a processor to identify unique objects though slug creation, input into a Bloom filter and particular handling of a multimap.*

46 At the hearing Mr Derry reiterated the problem that is to be solved by these inventions; a brute force direct matching approach scales poorly with large data sets as the scaling is exponential, this means that processing extremely large data sets may be beyond available resources. Mr Derry said that the inventions provide a solution for 'big data' problems as they do not have this scaling limitation. I agree that this is the case, and I agree that for large data sets these inventions are potentially preferable. For the specific tasks described in the application, the claimed methods avoid this adverse scaling. Avoiding this scaling issue has implications for both processing speed and memory requirements during the processing.

47 Mr Derry stated that the advantages provided by these inventions was not possible with the prior art techniques. I am not sure if this is the situation however as neither

application has been searched. It was agreed that Bloom filters and multimaps were known and Mr Derry conceded that the inventions were specific methods that used admittedly known techniques. Because the claims are not searched there is no evidence regarding the particular implementation of the Bloom filters with the 'slug creation'. I cannot therefore clearly decide what the actual contribution of the claimed methods is for these applications. Hence I will consider the contribution to be as alleged in the statements made by Mr Derry that are set out in paragraph 43 above.

(3) *Does the contribution fall solely within the excluded matter?*

48 It was again common ground that the invention relates in substance to a computer implemented method and thus the relevant part of Section 1(2)(c) is whether the invention is *a program for a computer ... as such*.

49 As with the previous application, Mr Derry's general argument appears to be that the contribution provides for both lower memory usage during processing and faster processing, thus resulting in less computational resource being required. Thus it is argued that the invention provides a better computer and is more than just a program. Mr Derry argued that these inventions were solving a technical problem using software and they produced technical advantages.

50 Mr Derry also highlighted, that for extremely large data sets, it may be impractical to provide the required resources if prior-art brute-force methods are considered.

51 Mr Derry argued that the second and fourth of the five *AT&T/CVON signposts* were relevant in showing that the invention is more than just a program for a computer.

52 Mr Derry discussed the architectural level at which the method acts where he emphasised that the method is able to operate on generic data and thus the technical effect is irrespective of the data processed. I agree that there is nothing in the independent claims that place any significant limitation on what the data represents. The example given in the description of both applications is of a data set of various types of vehicle data where some elements are expected to be unique to a specific vehicle, such a registration numbers, chassis numbers etc. I note that there are no examples of these methods being used at an architectural level, or acting on computer system data, rather that acting on user data. Mr Derry did admit that these methods were likely to be implemented as application level software. Mr Derry agreed that the extent of the benefit did depend on the size of the dataset.

53 Mr Derry also attempted to draw parallels with the *IBM T0006/83* decision of the Enlarged Board of Appeal. I do not find that this decision is helpful here as the facts are significantly different.

54 The second signpost is not relevant to either application; I find that these inventions are not operating at the architectural level of the computer.

55 Mr Derry then went on to present the argument regarding the fourth signpost, which was that the program causes there to be a better computer as a consequence of the lower memory occupation. I put it to Mr Derry that these inventions provided a comparatively more efficient algorithm but did not provide a more efficient computer.

Mr Derry mentioned that a more efficient image processing algorithm was patentable. Mr Derry also emphasised that the inventions of these two applications enabled processing of very large data sets that was not previously achievable. I again note that neither application has been searched.

56 Mr Derry further referred to *HTC v Apple* asserting parallels with the 'slide to unlock' feature that was an example of software resulting in a better computer; I do not see how this judgement is relevant here as the facts are significantly different.

57 I conclude that while the program itself might be more effective and efficient, the computer itself is not more effective and efficient. The underlying computer itself has not been changed so that is operates more efficiently and thus provides greater resources for a user. As I stated above, any program, whether excluded or not, running on a computer will use resources up. The inventions of these applications merely present an alternative program that use relatively less resources that an identified prior art program, this is not a relevant technical effect.

58 While Mr Derry focussed on the second and fourth signposts, I have also considered the remaining three. I do not find that there is a technical effect outside of the computer, nor is the computer operating in a new way. The computer is not better by being more efficient or effective. While it can be argued that a problem is solved a rather than circumvented, this is irrelevant as the problem is not a technical one. In conclusion, I find none of the signposts help to identify a relevant technical effect.

59 I find that the contributions do not provide for anything more than a computer program as such. The particular algorithms used within the methods appear to be nothing more than a programming design choice that is results in a particularly suitable method for completing the data matching task described in these applications. I find that the situation here is again broadly comparable to that in *Raytheon*. The fact that some of the prior art approaches are particularly poor with very large data sets, does not change this conclusion. Again, the computer itself is not changed, the computer is not better by being more efficient or effective.

60 Thus the contribution of either claims 1 or 10 in either of GB1404486.1 and GB1404489.5 lies wholly within the scope of the computer program exclusion. Further, considering the dependant claims for both of these applications, none of these add anything that avoids this exclusion.

***(4)** Check if the contribution is actually technical*

61 Mr Derry argued that these inventions were solving a technical problem using software and they produced technical advantages. I am not persuaded by this for the reasons I give above.

62 I find that there is no relevant technical aspect to the invention of application GB1404486.1 nor in the application GB1404489.5.

Decision

63 For each of the applications GB1404499.4, GB1404486.1 and GB1404489.5, I have found that the actual or alleged contribution defined by the claims falls solely in

matter excluded from patentability by virtue of Section 1(2) of The Act, namely a program for a computer as such. I therefore refuse these applications under Section 18(3).

Appeal

64 Any appeal must be lodged within 28 days after the date of this decision.

Peter Mason

Deputy Director, acting for the Comptroller