



27 February 2012

PATENTS ACT 1977

APPLICANT Agilent Technologies Inc.

ISSUE Whether patent application number
GB 0724403.1 complies with section 1(2)

HEARING OFFICER Stephen Brown

DECISION

- 1 Patent application number GB 0724403.1, entitled “Automated data processing reconstruction system and method” was filed on 14th December 2007 in the name of Agilent Technologies Inc. and was published as GB2445240. The application claims priority from US patent application number US11613940 filed on 20th December 2006.
- 2 Despite amendment of the claims during the substantive examination, the applicant has been unable to persuade the examiner that the application complies with Section 1(2) of the Patents Act 1977 (the Act). The applicants have requested that the matter be decided on the papers.

Decision in Brief

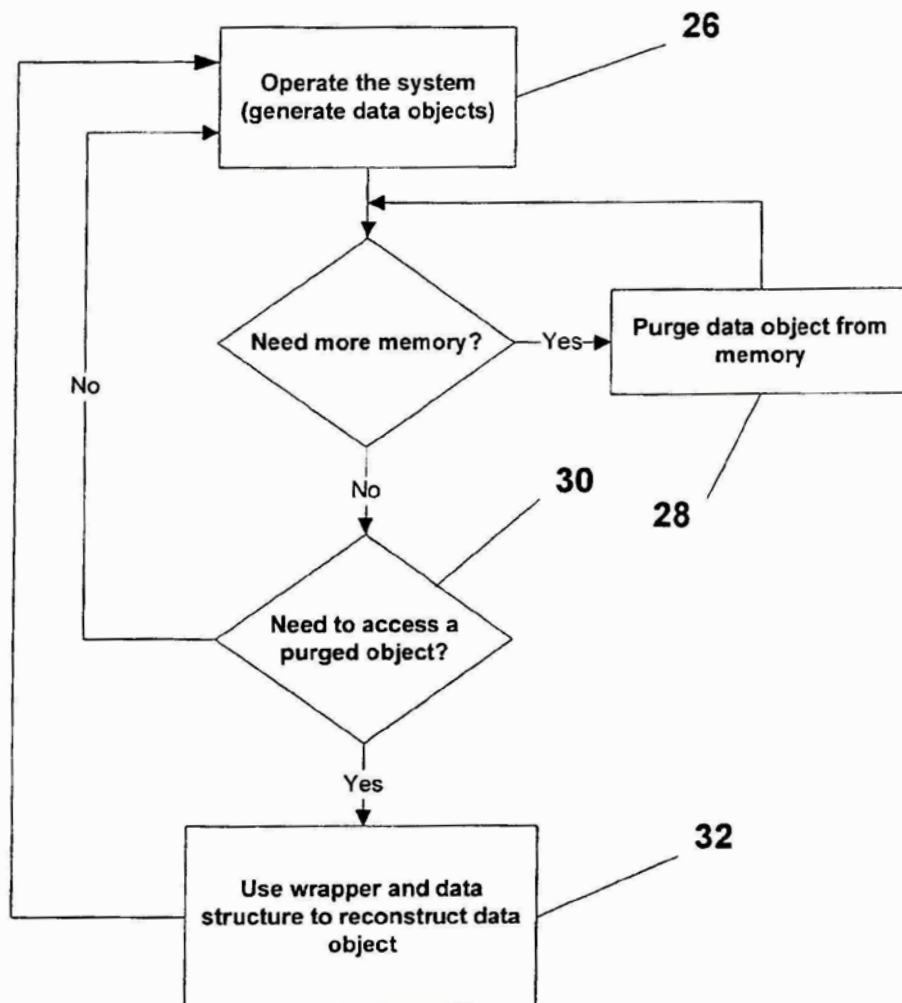
- 3 Following the *Aerotel* test, the contribution in this case can be identified as managing the memory of a mass spectrometer computing system by purging infrequently used data objects when spare memory is running low while still keeping enough information to be able to recreate said objects should they be needed again.
- 4 I consider that, unlike in *Symbian*, this contribution does not result in the computing system itself operating better. This conclusion is reinforced when the signposts in *Cvon* are considered. Further, unlike the contributions in *Vicom* and *Waters Investments* (BL O/146/07) it does not result in better measurement data or an improved data processing method. I am thus forced to conclude that the application **fails the *Aerotel* test as no more than a program for a computer as such**. I can see nothing that could be reasonably expected to form the basis of a valid claim and therefore refuse the application under section 18(3). The applicants may appeal within 28 days. I will now explain my decision in more detail:

The Application

- 5 The most recent set of claims were filed on 7th December 2011. There are 24 claims of which claims 1 and 12 are independent. Claim 1 relates to a data analysis system, claim 12 has an almost identical scope except that it relates to the equivalent method. Claim 1 reads:

A mass spectrometer data analysis system operable to perform a mass spectrometry procedure including respective tasks, each respective task including one of producing and processing versions of a respective data object which expresses an intermediate and/or final result of the mass spectrometry procedure, the system being arranged to: maintain a respective data structure for each respective one of the tasks, the data structure including instructions and parameters for performing the respective task, determine whether to keep a produced version of the respective data object in memory or to purge the version of the respective data object based on usage and capacity of the memory; and where a prior produced version of the respective data object has been purged and is now needed again, reconstruct the purged version of the data object using the respective data structure.

- 6 Figure 5 of the application provides a good overview of the claimed invention:



The law and its interpretation

7 Section 1(2) of the Patents Act reads:

It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of: ...

(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;

...

but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.

8 In addition to the above there is also the case law established in the UK in *Aerotel/Macrossan*¹, and further elaborated in *Symbian*² and *AT&T/CVON*³, which I am bound to follow. In *Aerotel* the Court of Appeal reviewed the case law on the interpretation of section 1(2) and approved a four-step test for the assessment of patentability, namely:

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

9 The operation of the test is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is essentially a matter of determining what it is the inventor has really added to human knowledge, and involves looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

Application of the *Aerotel* test

Properly construe the claim

10 I do not think that any significant problems arise over the construction of the independent claims. They relate to a system and method of mass spectrometer data analysis wherein data objects are stored in a memory. The description elaborates that these data objects may be mass spectra that have undergone various stages of data processing. If the system is running low on spare memory

¹ *Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan's Application* [2006] EWCA Civ 1371

² *Symbian Limited's Application* [2008] EWCA Civ 1066

³ *AT&T Knowledge Ventures LP and CVON Innovations Limited* [2009] EWHC 343

data objects can be purged depending on usage data. If at a later time a purged object is needed again the system can reconstruct it from data relating to the original processing used to produce the purged data object.

Identify the contribution

- 11 Mass spectrometers that capture, process and store spectra are well known. What this application has added to the stock of human knowledge relates to the management of the memory of the data analysis computing system. Namely its ability to purge infrequently used data objects when more memory is required while also being able to reconstruct purged objects if they are needed again.
- 12 Purging infrequently used data is well known in other computing systems. For example, the examiner brought paragraphs 9 & 13 of US6453386 B1 and paragraph 27 of US2003/0085932 A1 to the applicants' notice during the examination process. However its use specifically in a mass spectrometer computing system in combination with the specified method of reconstruction does not appear to be known.
- 13 It thus appears to me that the contribution is managing the memory of a mass spectrometer computing system by purging infrequently used data objects when spare memory is running low while still keeping enough information to be able to recreate said objects should they be needed again.

Ask whether it falls solely within excluded matter

- 14 There is no doubt that the contribution is delivered by software running on an otherwise conventional mass spectrometer computing system. The key question is thus: 'is this more than a program for a computer as such?'
- 15 In their responses to the examiner the applicants have argued that this case is analogous to that in this Office's decision in *Waters Investments*⁴. In that case the hearing officer allowed the claims, concluding that the contribution was "a better way of analysing samples using (data processing) techniques so that significant events in a mass of complex data can be identified more easily". In contrast, while all of the claims of the current application are limited to a mass spectrometer data analysis system the contribution itself does not act on the measured data to either analyse it in a better manner or to otherwise produce 'better' data. What it relates to is the management of the system's memory in which the data is stored – the nature of the data itself is unchanged by the contribution.
- 16 The applicants have also referred to the decision in *Halliburton*⁵. Again I do not think that the two cases are on all fours with each other. In *Halliburton* the contribution was a method of designing a drill bit which Birss J. concluded was an adequate technical contribution to place the claimed invention beyond the

⁴ BL O/146/07

⁵ Halliburton's Applications [2011] EWHC 2508 (Pat).

statutory exclusions of section 1(2). In the current case however there is no method for designing a technical item – the contribution is managing the memory of a computing device, albeit one in a technical measurement system.

- 17 I am also reminded of the decision in *Vicom*⁶. Here the EPO Board of Appeal concluded that a method of digitally processing images was patentable as it resulted in improving the resolution of a real world image resulting in better image data. Again the contrast with the current case is clear. In the current case the data itself is not 'better' in any way – the contribution concerns better ways of storing it in memory.
- 18 In light of the above decisions I am forced to conclude that the contribution in the current case does not escape exclusion as a way of producing better 'real world' data. The question thus becomes: "can a better method of managing the memory of a data analysis system be patentable?"
- 19 In their responses to the examiner the applicants argued that it can. They argue that the computing device within the mass spectrometer data analysis system will operate faster and in a more reliable manner when data objects require large amounts of memory. To reinforce the argument that the claimed computing system operates in a new way they highlighted paragraphs 54 & 56 of *Symbian* which state that:

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

56: Putting it another way, a computer with this program operates better than a similar prior art computer. To say "oh but that is only because it is a better program – the computer itself is unchanged" gives no credit to the practical reality of what is achieved by the program. As a matter of such reality there is more than just a "better program", there is a faster and more reliable computer.

- 20 However, there are number of differences between this case and that in *Symbian*. Firstly, the invention does not appear to solve a technical problem lying with the computing system itself. Rather it solves the issue of what to do when a purged data object is required contrary to the purging processes assumptions. It seems to me that this is a problem within the data purging process not with the wider computing system as a whole.

⁶ (T208/84)

21 Secondly, the invention does not result in a more reliable computing system. What it results in is a more reliable data purging process since it provides the option of recreating any data objects that have been purged. Lastly, while at times the contribution may result in the computing system operating faster as a result of having more free memory, that is no more than could be achieved with any of the prior art memory purging approaches. The specific advantage of this contribution, i.e. being able to recreate purged data objects, may actually slow down the operation of the computing system, especially when said recreation is occurring. In short, the computing system itself does not appear better as a matter of practical reality.

22 This conclusion is reinforced when I turn to CVON. In paragraphs 39-41 of this case Lewison J states:

It seems to me, therefore, that Lord Neuberger's reconciliation of the approach in Aerotel (by which the Court of Appeal in Symbian held itself bound, and by which I am undoubtedly bound) continues to require our courts to exclude as an irrelevant "technical effect" a technical effect that lies solely in excluded matter.

As Lord Neuberger pointed out, it is impossible to define the meaning of "technical effect" in this context, but it seems to me that useful signposts to a relevant technical effect are:

i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;

ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;

iii) whether the claimed technical effect results in the computer being made to operate in a new way;

iv) whether there is an increase in the speed or reliability of the computer;

v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

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

23 In their responses to the examiner the applicants specifically raised signposts (iii) and (iv). However, for completeness I will consider all of the signposts in turn:

i. The contribution identified above does not have any technical effect on anything outside the computing system;

ii. The contribution identified above does not operate at the level of the architecture of the computing system. It only operates when data objects

that have been purged from memory require recreation. This seems to me to be operating at a far higher level within the computing system's hierarchy than the invention in *Symbian*. Far from operating irrespective of the data being processed, or the applications being run, it only operates on a subset of mass spectrometer data objects – i.e. those that require recreation;

- iii. As reasoned above in paragraph 21, I do not consider that the computing system itself is operating in a new way. What is new is the ability to recreate purged data objects;
- iv. Again, as reasoned above, I am not convinced that the contribution can be said to result in a faster computing system. Also, while the contribution results in a more reliable data purging process, it is my opinion that the computing system itself remains unaltered;
- v. I believe the question in this signpost to be a moot point in this case. It does not matter whether or not the contribution overcomes or circumvents the problem of what to do when a purged data object is required again. This is a problem within the data purging process not within the computing system as a whole.

24 So to recap: The contribution in this case is a better method of managing the memory of a mass spectrometer computing system. In their responses to the examiner the applicants have argued that this is plainly more than a computer program as such – it is an automated mass spectrometer data processing reconstruction method. I am afraid though that I cannot agree with their conclusion. Unlike the contributions in *Waters Investments* and *Vicom* it does not result in better measurement data or an improved data processing method. Unlike the contribution in *Symbian*, it does not result in the computing system itself operating better. Neither does it meet any of the signposts in CVON. Thus, whether approaching the contribution from the direction of computing devices or from that of measurement systems the conclusion remains the same: The contribution consists only of excluded subject matter as no more than a program for a computer as such. It therefore fails the third *Aerotel* step.

Check whether the contribution is actually technical in nature

25 As reasoned above, the contribution does not have a relevant technical effect. Thus the application also fails the fourth *Aerotel* step.

Decision

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

Appeal

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

Dr. S. Brown

Deputy Director acting for the Comptroller