



22 September 2010

**PATENTS ACT 1977**

APPLICANT           Hewlett-Packard Development Company

ISSUE                Whether patent application number  
GB0426775.3 complies with Section  
1(2)

HEARING OFFICER           Phil Thorpe

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**DECISION**

**Introduction**

- 1     This decision concerns whether the invention defined in patent application GB0426775.3 relates to excluded matter. The application was filed on 7 December 2004. It was published as GB 2421106 A on 14 June 2006.
- 2     The examiner has maintained throughout an objection that the invention claimed in this application 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 amendments to the application.
- 3     The applicant did not wish to be heard and is content for me to decide the matter on the basis of the papers already filed.

**The Invention**

- 4     The invention is concerned with preparing paper and electronic documents for publishing. In particular it is concerned with publishing variable data documents.
- 5     Variable-data publishing is a form of on-demand publishing where similar but not identical documents are published. A simple example of this

according to the description is the use of a mail-merge facility within a word-processor to allow individual names and addresses to be applied to the same basic letter. However, variable-data printing can go far beyond printing different names and addresses on a document. For example, there are many applications in which it is desirable to insert different graphics into a document, change the layout and/or the number of pages, print a unique barcode on each document, and more. The term variable-data publishing as used in the application encompasses both paper and electronic documents.

- 6 In order to more fully understand the background to the invention and critically the problem that the invention is considered to address, it is necessary to explain a little about how documents are prepared for publishing and printing.
- 7 In a printing process document data is typically converted into the appropriate printer language. The printer language subsequently instructs the printer to create a rasterised image. Rasterisation is a process of converting the data that describes the text and graphics into the format required by the printer. Rasterisation is performed by a "raster image processor", also known as a RIP.
- 8 With some systems, the RIP is a computer that is integral to the printer itself. Desktop printers, such as an inkjet printer, will typically have an integral RIP within the printer. With other systems, such as commercial printers, the RIP is separate from the printer. In this case, the RIP is implemented in software that runs on a computer separate from, but connected to, the printer.
- 9 High- volume print jobs can easily contain tens of thousands of pages that all have to be rasterised. The amount of rasterising can however be reduced by specifying reusable content. Reusable content are assets that are used on many of the pages within the same document. Reusable content can be fonts, logos, signatures, diagrams, images and the like. An object that is reusable is often referred to as a resource. By using appropriate printer language it is possible to identify which resources are needed at a particular point in a print job. This allows a resource to be rasterised once and used many times, instead of being rasterised on every page on which it is used. An example of a print language for use with reusable content is Personalised Print Mark-up Language (PPML). PPML itself in fact only defines how existing resources are combined to create pages, documents and jobs e.g. PPML defines where on a page a graphic object is to appear and the space into which it must fit.
- 10 The use of print languages that specify resources to be used within a document also allow individual documents to be personalised or varied. Although languages such as PPML allow different resources to be inserted into individual documents within a print run, there remains the problem of ensuring that each individual resource fits within the space allowed for it in the document layout.

- 11 It is that particular problem that the invention seeks to overcome. To explain how it does this it is useful to consider the specific example set out in the description. Here a multipage document has a number of data content areas into which individual resources or data objects are to be inserted. Each area has a defined size and one or more styles, for example font, to be applied to objects inserted into the area. Each area also has a parameter defining how the style is to be modified if the object does not fit into the area. Figure 2 of the description (reproduced below) shows three such areas (items 5,7 and 9) with one of these areas (5) split into two columns. Objects, in this case text, are inserted into the three areas in accordance with the styles associated with the areas. In this example the amount of text and the defined font size means that the text does not fit in area 9. One option would be to modify the font size for area 9 to enable all the text to be inserted into the area. However this would result in different font sizes being used on these two pages. An alternative solution would be to correspondingly reduce the size of the font for the other two areas on the earlier page. According to the application this is however not possible since in current systems the earlier page would have already been rasterised and printed by then.

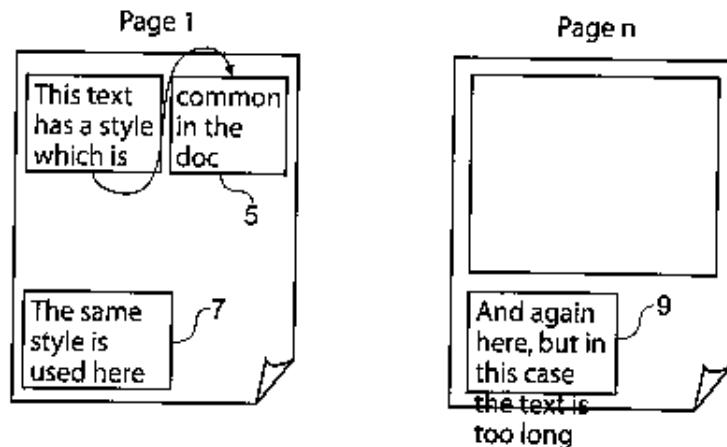


Fig. 2

- 12 The solution to this problem according to the invention is to associate the three areas with one another. Hence any modification made to one of the associated areas is then made to the other areas. The result of this for the example referred to above is as shown in figure 3 below. Modifications to content area 9 have been replicated in areas 5 and 7. The modified text in areas 5 and 7 no longer fill those areas; the applicant however argues that this is preferable to using different fonts for these areas.

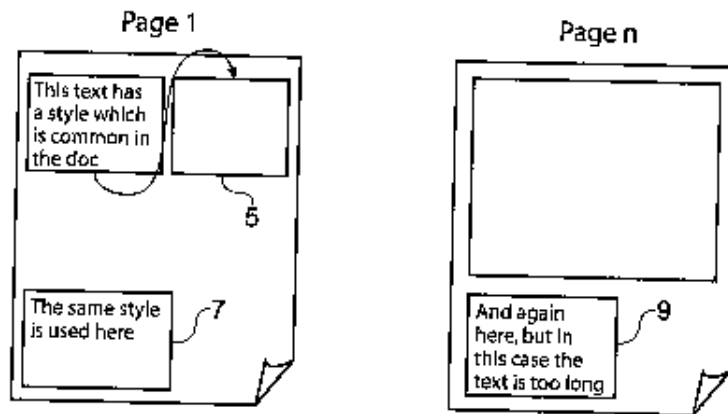


Fig. 3

- 13 The application is not particularly helpful in explaining how the method according to the invention is integrated into the method of printing or displaying the final document. I will return to this later in this decision.

### The Claimed invention

- 14 The latest set of claims was filed on 22 April 2010. These include two independent claims which read as follows:

#### Claim 1

A method of preparing a variable data document for publishing, the method comprising:

defining a plurality of data content areas across a plurality of pages of the document in which respective specified data objects are to be inserted, each data content area having a defined size;

for each data content area defining one or more style parameters to be applied to the specified data object and defining one or more style modification parameters;

associating the plurality of data content areas with one another;

rasterising each of the associated plurality of data content areas and storing the rasterised data in a cache memory, wherein rasterising includes applying the or each style parameter to the specified data objects for each data content area;

and wherein if one or more data objects exceed the size of the respective data content areas, then modifying the or each style parameter of each associated data content area in accordance with the respective style modification parameters; and

repeating the step of rasterising for each of the associated plurality of data content areas using the or each modified style parameter and storing the rasterised data in the cache memory.

### Claim 10

An apparatus for preparing a variable-data document for publishing, the apparatus comprising a document processor and a document buffer, the document processor being arranged to:

receive a plurality of data objects and to receive a plurality of input files, the input files defining a plurality of data content areas across a plurality of pages of the document in which respective specified data objects are to be inserted, the data content areas being associated with one another, each data content area having a defined size, defining one or more style parameters to be applied to a specified data object and defining one or more style modification parameters;

rasterise each of the associated plurality of data content areas by applying the respective style parameters to each associated data object and storing the result in the document buffer;

determine if one or more data objects exceed the size of the respective data content area, if one or more data objects exceed the size of the respective data content area, modify the applied style parameters of each associated data content area in accordance with the respective style modification parameters;

repeat the rasterisation of each of the associated plurality of data content areas using the or each modified style parameter and store the result in the document buffer.

## The Law

- 15 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.*

- 16 As explained in the notice published by the UK Intellectual Property Office on 8 December 2008<sup>1</sup>, 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*<sup>2</sup>.
- 17 The interpretation of section 1(2) has been considered by the Court of Appeal in *Symbian Ltd's Application*<sup>3</sup>. *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*<sup>4</sup> 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.
- 18 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* 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.
- 19 The applicant has not contested that this is the right approach to take.

### **Properly construe the claims**

- 20 This step causes no difficulty: the claims are sufficiently clear.

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<sup>1</sup> <http://www.ipo.gov.uk/pro-types/pro-patent/p-law/p-pn/p-pn-computer.htm>

<sup>2</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7

<sup>3</sup> *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1

<sup>4</sup> *Merrill Lynch's Application* [1989] RPC 561

## Identify the contribution made by the invention

- 21 For the second step, it is necessary to identify the contribution made by the invention. Paragraph 43 of *Aerotel* 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.
- 22 The applicant argues that the contribution of the invention lies in maintaining uniformity of style across a multiple page document and also in that this uniformity of style can be obtained even for a large document while making efficient use of the memory and processing resources of the computer or printer in which the invention is implemented. The advantages of the invention are particularly evident where the constraints on the available memory in the computer or printer do not allow the entire document or particular pages in a document across which associated data content areas are defined, to be rasterised together.
- 23 I can readily accept that the invention does enable a uniformity of style to be achieved across a number of associated data content areas which can span a number of pages. It is however necessary to explore a little more the claim that the manner in which the inventor has chosen to achieve this makes “efficient use of the memory and processing resources of the computer or printer”.
- 24 A useful starting point is to consider how the prior methods of publishing that are touched on in the application utilise the memory and processing resources of the computer or printer. I will start with the basic method which is described on page 6 lines 14-17 of the application where a whole page is rasterised and then printed. The next page is then rasterised and printed and so on until the whole document is printed. I shall refer to this as the “page-by-page method”. As noted if a later page needs to be modified then it is not possible to apply that modification to an earlier page because by then that page would have been printed.
- 25 An alternative to the page-by-page method would be rasterise page by page the whole document before it is printed (this method is touched on at page 1 of the description). I will call this the “whole document” method. This whole document method would enable modifications to be made before printing. It does however require the use of considerably more memory than the page-by-page method.
- 26 As recognised in the application, the advent of computer languages such as PPML enables improvements to be made to both of these methods. Removing the necessity to re-rasterised repeated resources reduces the processing, and the memory required. I will initially consider the baseline for assessing the contribution to be the basic page-by-page and whole document methods as enhanced through the use of languages such as PPML.
- 27 I turn now to the method of the invention. The aim of the invention is clear.

It is to ensure that each individual resources fits within the space allowed for it and to do so in a way that maintains uniformity of styles between a set of associated resources. The description is also clear as to how this is done (see paragraphs 11 and 12 above). What is perhaps less clear from the description is the impact of the invention on the processing and memory required by the printer or the computer. The description in the paragraph bridging pages 6 and 7 states that:

“In preferred embodiments, the individual sections of PPML instructions relating to each individual content area within a page-sequence are rasterised in turn and are individually stored in cache memory provided by the RIP. This allows the rasterised data for individual copy-holes within a page-sequence to be subsequently retrieved if it transpires that style attributes from a later content area need to be applied to the earlier ones. The amount of cache memory required to store the ripped data is relatively small compared to that required to store an entire ripped page.”

- 28 I take from this, using as an example the pages shown in figures 2 and 3 above, that the PPML instructions relating to content area 5 are first rasterised and stored in the cache memory. The same is then done for content area 7 and finally content area 9 which is on a different page. If as shown in figure 2 modifications are necessary to content area 9 in order to accommodate the text then those are made and then the rasterised data for content areas 5 and 7 is retrieved from the memory cache. The content areas 5 & 7 are then re-rasterised with the necessary modifications to ensure the style is the same as that used in modified content area 9.
- 29 Although it is not clear from the application, I will assume for the moment that these steps are performed prior to rasterising the remainder of the document. Hence once these steps have been performed for all the associated content areas in the document, then page 1 would be rasterised using the rasterised data already produced for content areas 5 and 7. Page 1 would be printed and then the next page rasterised and printed and so on. So the contribution of the invention in this scenario would be to provide, by means of associating a number of content areas, the ability to ensure uniformity of styles across these content areas. This would be achieved through some additional processing and a greater use of memory than in the previous page-by-page method.
- 30 But the applicant is arguing that the contribution is more than this. It argues that a more obvious solution to the problem of achieving uniformity of styles across pages would have been to go down the whole document method route. In other words rasterise and store the whole document and then, prior to printing, modify those parts that need to be modified. The applicant argues that it did not go for this “obvious” solution. Instead it came up with a better solution that requires less processing and memory than this “obvious solution”. Hence the contribution of the invention is more than just a method for maintaining styles. It is a method that is more efficient than some other possible methods that might have been arrived



at.

- 31 More generally what the applicant is saying is that starting with problem A, it has considered obvious solution B but disregarded that in favour of solution C which requires less processing and memory than B. Hence its contribution is more than just solving problem A. I can see some force in this argument; provided of course that solution B is something that would have readily been considered by the person skilled in the art as an obvious solution to problem A. In this particular case I think it would. I should stress that in reaching this position I am giving the benefit of considerable doubt to the applicant especially given the paucity of discussion in the application itself.
- 32 So in conclusion I consider the contribution here to be a method of maintaining uniformity of styles across a number of associated areas in a multiple page document and also doing that in a way that requires less processing and the use of less memory than if the whole document was rasterised, stored and modified prior to printing.
- 33 Having determined the contribution I need to consider the third step.

**Ask whether the contribution falls solely within excluded subject matter**

- 34 At the heart of the invention is a computer program. However just because it is a computer program does not necessarily mean it is excluded from protection. What is determinative is whether the program makes a “technical” contribution to the art.
- 35 The applicant has referred to the signposts set out in the *AT&T Knowledge Ventures LP and CVON Innovations Limited* decision for assessing whether a contribution provides a “technical effect”. These 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.
- 36 In particular the applicant argues that in using the memory and processing resources of the computer or printer more efficiently, the invention prevents or reduces the risk of the print processes not running correctly, and improving the chance that rated print engine speeds can be met. It refers to page 1 lines 28-31 of the description which highlights this as a problem

with previous methods. Thus, the invention results in improvements in the reliability of the computer or printer in which the invention is implemented and therefore the contribution identified provides a relevant technical effect in accordance with at least the fourth signpost in the *CVON* decision.

- 37 I am not persuaded by this argument. The invention in this case may indeed solve a problem in a way that uses less processing and less memory than other likely solutions to that problem. In doing so it may also allow certain larger documents to be prepared for publishing that might otherwise overload the memory capacity if prepared in a less efficient manner. But it achieves this by re-engineering the way the data is processed. This does not in my mind equate to increasing the speed or reliability of the computer as referred to in the signposts in *CVON*. The contribution here does not provide such a technical effect. It does not make the computer work better as was the case in *Symbian*. The contribution in this case is not technical in nature. It is data processing performed by a computer program and as such falls squarely within the computer program exception.

#### **Check whether the contribution is actually technical in nature**

- 38 I have already considered this.

#### **Conclusion**

- 39 I have found the invention to be excluded from patentability as a computer program. Having read the specification I do not think that any saving amendment is possible. I therefore refuse the application under section 18(3).

#### **Appeal**

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

**P Thorpe**

Deputy Director acting for the Comptroller