Intellectual Property Office

BL O/580/17

20 November 2017

PATENTS ACT 1977

APPLICANT	Xerox Corporation
ISSUE	Whether patent application GB1202345.3 complies with section 1(2) of the Patents Act
HEARING OFFICER	Stephen Brown

DECISION

Introduction

1 The application relates to a tactile user interface (TUI) utilising a virtual bridge to populate a virtual magnet with text highlighted in documents being viewed. The virtual magnet allows queries to be performed without the need for either a physical or soft (virtual) keyboard. The application was filed on 10 February 2012, with an earliest date of 21 February 2011, and published as GB2488217 on 22 August 2012. The extended compliance date of the application was 11 August 2017.

2 The examiner argued that the invention is excluded from patentability under section 1(2) of the Act as a computer program as such. The applicant requested a hearing to decide the matter, which took place on 13 July 2017 and was attended via video link by Mr Robert Skone James and Mr Michael Vallance of Gill Jennings & Every LLP representing the applicant. The examiner Mr James Palmer was also present together with Dr Simon Grand acting as my hearing assistant, and Mr Stephen Williams observing.

The invention

3 The application relates to the field of tactile user interfaces (TUIs) and in particular the use of these in the generation of queries relating to text documents displayed on the screen of the TUI. One problem which may arise in this context is that text needs to be entered expressing the query via a keyboard. A device without a hardware or software keyboard would be unable to receive such a query. Also, TUIs often utilise a virtual keyboard rather than a conventional hardware keyboard. These virtual keyboards can be inaccurate, difficult to use and can take up a large part of the display.

4 This invention aims to provide a solution to this problem by using a ‘virtual bridge’ to populate a ‘virtual magnet’ with the text being queried. The ‘virtual bridge’ comprises two touches on the TUI – a first highlighting touch and a second populating touch that transfers the highlighted text to a ‘virtual magnet’. The ‘virtual magnet’ is in essence an icon with associated functions, such as keyword searching or more advanced functions such as named entity extraction or fact extraction. In this way a query can be performed on the document text without the need for a keyboard.

5 The claims considered at the hearing were those filed with the agent’s letter of 16 February 2017. There are two independent claims, claims 1 and 19. Claim 1 reads:

> *A method for dynamically generating a query comprising: providing one or more virtual magnets movable on a display device of a tactile user interface in response to touching on the tactile user interface; providing for a user to select one of the set of text documents; displaying the selected text document on the display; recognizing a highlighting gesture on the tactile user interface over the displayed document as a selection of a text fragment from text content of the document; populating one or more than one of the virtual magnet(s) with a query which is based on the text fragment selected from the displayed text document by the highlighting gesture, whereby the populated magnet is configured for causing at least one of: at least a subset of displayed graphic objects to exhibit a response to the magnet as a function of the query and text content of respective documents which the graphic objects represent; and responsive instances of the query to be displayed in a text document, wherein the recognizing includes detecting a first touch contact on the displayed text document as a highlighting gesture and extracting a corresponding highlighted text fragment, wherein the populating comprises detecting a second touch contact on the or one of the virtual magnets as generating a virtual bridge between the first and second contacts, the virtual bridge causing the query to be based on the highlighted text fragment.*

6 Claim 19 reads:

> *A tactile user interface comprising: a display device comprising a touch-screen; instructions stored in memory for: displaying a set of graphic objects on the display, each graphic object representing a respective text document, causing at least one virtual magnet to move on the display device in response to touching on the touch-screen, displaying one of the text documents in response to selection of a respective one of the graphic objects, recognizing a highlighting gesture over the displayed text document as selection of a fragment of the text in the displayed text document, populating the magnet(s) with a query based on the selected text fragment; and a processor in communication with the memory and display device for executing the instructions, wherein the recognizing includes detecting a first touch contact on the displayed text document as a highlighting gesture and extracting a corresponding highlighted text fragment, wherein the populating comprises detecting a second touch contact on the or one of the virtual magnets as generating a virtual bridge between the first and second contacts, the virtual bridge causing the query to be based on the highlighted text fragment.*

The law

7 The relevant parts of section 1(2) of the Patents Act read as follows:

> *1(2) 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 order to decide whether an invention relates to subject matter excluded by section 1(2), the Court of Appeal has said that the issue must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. In *Aerotel/Macrossan*[1], the Court of Appeal reviewed the case law on the interpretation of section 1(2) and approved the following four-step approach to help decide the issue:

> *1) properly construe the claim;*
> *2) identify the actual (or alleged) 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.*

9 The operation of this approach 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.

10 The case law in this area has been further elaborated in *Symbian*[2], *AT&T/CVON*[3] and *HTC v Apple*[4]. In particular, *AT&T/CVON* provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*, Lewison LJ reconsidered the fourth of these signposts and felt that it had been expressed too restrictively. The signposts, as modified in *HTC v Apple*, 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*

[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
[4] *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451

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 being merely circumvented.

11 Additionally, there is the judgment in *Gemstar*[5]. In paragraph 50 of this judgment, Mann J states:

> *"So the case comes down to a consideration of whether there is a technical effect as required by step 4 (or perhaps step 3) of Aerotel. The technical effect relied on by Gemstar is a better interface, or a different interface if "better" is not relevant. That is an abstract concept. It does not in terms describe some physical activity or effect. There is a different display on the screen, but that is not enough, in my view. That is still part of the computer program and is not an external effect (Mr Birss did not rely on any internal effect). Many computers running a program are likely to have a display output, and if that were enough to be a technical effect then every program in such a computer would be likely to fall outside the exclusion, which is unlikely to have been the intention of the draftsman of the Act. A different display to that shown before does not seem to me to go far enough to amount to a technical effect which makes a difference. Mr Birss describes the technical content as being a better user interface (usually) or a user interface (sometimes). That way of describing it does not overcome the difficulty he faces. Ultimately they are both ways of describing, in different terms from the patent, what the invention is said to achieve. But they are both judgmental, the first more so than the second. The fact that what the user perceives and interacts with is "better" does not make the advance technical at all (nor is it part of the claims). Nor does characterising it as an interface give it a technical effect that it would not otherwise have had. One has to look to see what the effect actually is, and in my view it is not technical. In fact, in the sense in which Mr Birss uses the expression, "interface" confirms this – it is an abstract, not a physical, concept."*

12 The final case I want to include at this point is the judgment in *Autonomy*[6]. At paragraphs 40-42 of this judgment, Lewison J discusses whether the contribution is solely excluded matter:

> *"In my judgment, as Mr Tappin submitted, automatic text analysis, comparison and results generation is a paradigm example of a case in which the contribution falls squarely within excluded matter, i.e. a program for a computer. The claimed contribution, so far as the first element is involved does not exist independently of whether it is implemented by a computer. On the contrary, it depends on a computer processing or displaying information in an active window, and on a*

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[5] *Gemstar–TV Guide International Inc v Virgin Media Limited* [2010] RPC 10
[6] *Autonomy Corp Ltd v Comptroller General of Patents, Trade Marks & Designs [2008] EWHC 146 (Pat*)

search program to analyse it and to compare and generate results. Nor does it require new hardware or a new combination of hardware; and it does not result in a better computer. The only effect produced by the invention is an effect caused merely by the running of the program, which consists of the manipulation of data. It is in short a claim to a better search program.

The second element of the claimed contribution is also, in my judgment, a computer program as such. What the second element of the claimed contribution does is to provide an icon on a graphical user interface which represents a category of links which can be revealed (as can a contents summary). This is done by embedding the icon, displaying the links when the icon is activated, and displaying the contents summary when the cursor is placed on the link. This element of the claimed contribution lies in program design, i.e. the inventor has chosen to denote the output from its text analysis and comparison exercise by means of a nested series of representations (icon, link, contents summary). As Mr Tappin submitted, when one considers how this is provided, there can be no doubt that this part of the contribution relates to a computer program as such. A computer program has been designed to embed an icon, display the links and display the contents summary on appropriate mouse / cursor actions.

Again the claimed contribution does not exist independently of the computer. It is described in terms that envisage the display of an icon on a computer screen and the underlying links being accessible via the icon. It does not require new hardware or a combination of hardware; and it does not result in a better computer. Again the only effect is produced by running the computer program, which so far as this element of the contribution is concerned, consists of the display of information. In my judgment the Hearing Officer was right to conclude that the claimed invention is a computer program as such."

Application of the *Aerotel* test

Step 1: Properly construe the claim

13 I find nothing in the independent claims that poses a problem with construction. At the hearing, Mr Skone James stated that these claims relate to a method and system for generating a user interface using a TUI. The two key steps are highlighting the displayed text to be searched using a first touch and then populating the virtual magnet by creating a virtual bridge using a second touch. I am happy to agree with this construction of the claims.

Step 2: Identify the actual (or alleged) contribution

14 At the hearing, Mr Skone James asserted that the invention, as construed above, involved two technical effects: i) avoiding the need for any type of keyboard, and ii) a simple 'first touch, second touch' method of inputting queries. More specifically, he argued that the contribution is, as set out in his letter of 16 February 2017, "providing a query in a tactile user interface without the use of a keyboard".

15 I note that this is a broader contribution than the one asserted by the examiner in his pre-hearing report of 12 April 2017. There, the examiner argued that the contribution was "a method for generating a query by highlighting text in a text document and touching a virtual magnet".

16 Naturally, Mr Skone James disagreed with this identification and drew my attention to paragraph 43 of *Aerotel/Macrossan*[1]. This states that the contribution is to be assessed in terms of the problem to be solved. In this case, Mr Skone James argued, that means performing a query without the need for a keyboard. At least for the sake of argument I will accept Mr Skone James' formulation of the contribution but with one added caveat. It is clear, from both the claims and description, that the query relates to text from a text document and thus the contribution must also be so limited.

17 Thus to summarise, I will consider the contribution to be "providing a query, relating to text from a text document, in a tactile user interface without the use of a keyboard".

Steps 3 and 4: Ask whether the contribution falls solely within excluded subject matter and whether it is technical in nature

18 There is no doubt that the invention is performed using software running on some sort of computer. It is thus appropriate to consider the AT&T signposts as modified in *HTC v Apple*[4].

19 At the hearing, Mr Vallance wished to focus on the first, fourth and fifth signposts. However, for completeness, I asked him to cover the remaining signposts as well. In his response Mr Vallance offered no argument that the computer was being made to operate in a new way and thus I will disregard the third signpost.

20 Regarding the second signpost, Mr Vallance argued that since it was possible to conduct the claimed method on any display of text the technical effect was at the level of the architecture of the computer. I am afraid that I do not think that this conclusion is correct. The technical effect is clearly limited to querying text documents. Many applications and processes in a computer make no use of text documents and so the effect is not produced irrespective of the data being processed or the applications being run. Thus I do not believe that the contribution meets the second signpost.

21 In relation to the first signpost, Mr Vallance asserted that the contribution resulted in a different hardware requirement since a physical keyboard is no longer needed to generate queries. Further, he argued, that this lack of a physical keyboard is clearly an effect outside the computer. Unfortunately, I am unconvinced by this line of argument. The present invention is at least as likely to be run on a device with a virtual keyboard and such a keyboard is not a piece of hardware. Thus, in my view, a new hardware requirement is not an intrinsic feature of the contribution.

22 Mr Vallance went on to argue that even if the contribution only replaced the need for a virtual keyboard, there was a technical effect outside of the computer as the user

interacts with the device in a different way. He emphasised that we were not merely talking about how the data is processed.

23 Mr Vallance then drew my attention to the judgment in *HTC v Apple*[4]. This case concerned how to process multi-touch events in a touch screen device with the technical effect being that the claimed method made it easier to write software. This was deemed to be evidence of an external technical effect and thus the invention was not excluded from patentability. Mr Vallance suggested that the present invention is similar in that it involves an adaptation of a computing device which makes it easier to generate a query through a TUI. In both cases, Mr Vallance asserted, the effect is clearly outside of the computer and thus in the present case the first signpost is met for similar reasons to *HTC v Apple*[4].

24 Again though, I am not convinced. In *HTC v Apple*[4] the way the interface operates was changed for every application using the touch screen by determining how secondary touches on the interface are perceived i.e. whether they are treated as intentional or accidental (and therefore to be ignored). In contrast the present application does not change the way that all touches on the TUI are interpreted – it merely defines how a particular second touch, in relation to a particular virtual magnet, is to be interpreted when viewing text documents. It seems to me that if I accept that making it easier to generate a text query is something occurring outside of the computer then I am dangerously close to accepting that any interaction with a TUI amounts to a technical effect outside of the computer. I do not believe that such an approach can be correct. I find myself in agreement with the examiner when, in his pre-hearing report, he states "the fact that the invention benefits the user, and the user is external to the computer, is not considered to be evidence of an external technical effect…". I further note in this instance that whilst the virtual bridge makes the process quicker, the first act by the user is an entirely standard touch to select the appropriate text. Overall, I therefore consider that the first signpost is not met.

25 In relation to the fourth signpost, Mr Vallance put forward the view that the contribution results in a better computer because the device is operational for receiving an input to generate a query even in the absence of an external or virtual keyboard. Furthermore, he stated that an input interface is a fundamental characteristic of a computing device, it is more than merely an improved program. Thirdly, he argued that generating a query via a virtual bridge "makes the device more efficient to operate because the query can be generated using different digits in just two taps".

26 I do not accept these arguments. In my view, the above advantages are all indicative of a better method of accessing a text searching program. I can see no evidence that the underlying computer itself, including its TUI, is changed in any way. I thus conclude that the fourth signpost is not met.

27 In relation to the fifth signpost, Mr Vallance argued that the proposed solution does not circumvent the problem to be overcome. He quoted the examiner's summation of the problem, namely that it is "how best to input a search query in a user interface for searching text documents and how to present the results to a user". I agree that the contribution does overcome this problem and that the fifth signpost has been met. However, the issue then becomes: is this a technical solution to a technical problem? This leads me on naturally to the fourth step of the Aerotel test.

28 As discussed above, after considering the first to fourth HTC signposts, I have concluded that the contribution is a better method of accessing a text searching program. This appears to me to amount to no more than a program for a computer as such since the computing device itself, including its TUI, is completely unchanged. As such I conclude that the contribution falls solely within matter excluded under section 1(2) of the Act and further that it is thus not otherwise technical in nature. In this case the fact that the contribution meets the fifth HTC signpost is not enough to save it, since I have decided that the solution does not have a technical effect beyond that of a program running on a computer. Overall, I conclude that the invention fails the third and fourth steps of the Aerotel test.

29 For the sake of completeness I note that the examiner referred to the judgment in *Gemstar*[5] prompting a response from Mr Vallance at the hearing. This judgment asked if providing a better, or simply a different, interface was technical and concluded that, in that case at least, the answer was "no". Mr Vallance asserted that *Gemstar*[5] was unrelated to the present application because TUIs provide their own unique set of challenges given their dual function as both display and input device. At least for the sake of argument, I am content to agree with Mr Vallance and conclude that Gemstar[5] is not close enough to the issues of TUIs to be of help with my current deliberations.

30 The examiner also referred to the judgment in *Autonomy*[6] in which the court held that a superior search application does not provide a technical effect. At the hearing, Mr Vallance re-iterated that in his view the technical effect here is not limited to a superior search application, more fundamentally it concerns how a user provides an input through a TUI, this going beyond a search application and beyond a computer program as such. As I have already reasoned, it appears to me that what is provided is a better method of accessing a text searching program. Therefore whether I treat this as part of a superior search application, as per *Autonomy*[6], or regard it as a different computer program, it still, in my view, remains a program for a computer as such.

Conclusion

31 I find that the contribution made by the invention falls solely within matter excluded under section 1(2) as a program for a computer as such. Having reviewed the application, I do not consider that any saving amendment is possible. I therefore refuse this application under section 18(3).

Appeal

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

S Brown
Deputy Director, acting for the Comptroller