



PATENTS ACT 1977

APPLICANT	Innoplexus AG
ISSUE	Whether patent application GB1804920.5 is excluded under section 1(2)
HEARING OFFICER	J Pullen

DECISION

Background

- 1 Patent application GB 1804920.5 ("the application") entitled "System and method for crawling" was filed on 27 March 2018 in the name of Innoplexus AG. It was published as GB 2572543 A on 9 October 2019.
- 2 On 25 September 2018, the examiner issued a Combined Search Report under section 17(5)(b) and an Abbreviated Examination Report under section 18(3), stating that search would serve no useful purpose because the application seeks to claim subject matter excluded under section 1(2). In the Abbreviated Examination Report the examiner set out an objection that the invention relates to a program for a computer as such and is excluded from patent protection under s.1(2).
- 3 The applicant responded by filing a set of amended claims with their agent's letter of 26 March 2020. The applicant also disagreed with the examiner's objection and argued that the invention was not excluded under s.1(2). The examiner maintained the objection in a second examination report dated 12 July 2021.
- 4 On 14 September 2021 the applicant's agent wrote to the office to request a decision based on the papers on file. In due course, the examiner issued a pre-hearing report, dated 7 December 2021, setting out the issues to be decided.
- 5 I confirm that I have considered all papers currently on file in reaching my decision.

The invention

- 6 The application relates generally to computer networks; and more specifically, to systems that crawl. The invention is concerned with methods of (for) crawling websites, for example for crawling restricted websites, and specifically to, analysing source information associated with the websites to determine a crawling protocol thereof.

- 7 Figure 1 below depicts a block diagram illustration of a system 100 that crawls, in accordance with an embodiment of the present disclosure. The system 100 comprises a data processing arrangement 102; optionally, the data processing arrangement 102 includes a combination of custom digital hardware (for example, ASIC's and FPGA's), data processor, data memories, data bus drivers and similar. Furthermore, the data processing arrangement 102 comprises a communication interface 104 and a crawling module 106. Moreover, the communication interface 104 is operable to access a wide area computer network. Furthermore, the crawling module 106 is operable to crawl relevant Unique Resource Identifiers. Additionally, the data processing module 102 is communicably coupled to a database arrangement 108. Furthermore, the database arrangement 108 is operable to aggregate at least one relevant data element based on assigned chronological score.

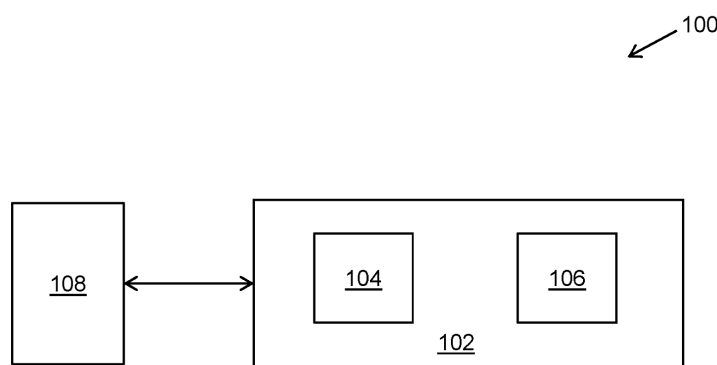


FIG. 1

- 8 Figure 2 below illustrates the steps of a method 200 of (for) crawling, in accordance with an embodiment of the present disclosure. At a step 202, at least one Uniform Resource Identifier is received. At a step 204, a source information associated with the at least one Uniform Resource Identifier is retrieved. Furthermore, the source information includes a pool of data elements. At a step 206, at least one relevant data element from the pool of data elements is determined. At a step 208, the at least one relevant data element is analysed to determine an importance factor associated therewith. At a step 210, a chronological score is assigned to each of the at least one relevant data element based on the determined importance factor thereof. At a step 212, each of the at least one relevant data element is crawled based on the assigned chronological score thereof.
- 9 The crawling module is operable to analyse the at least one relevant data element to determine an importance factor associated therewith. For example, the relevant data elements "I" and "N" may be assigned the numerical values 1 and 2 respectively as importance factors i.e. data element "I" is more important than data element "N".
- 10 The crawling module is also operable to assign a chronological score to each of the at least one relevant data element based on the determined importance factor thereof. Typically, the chronological score refers to a numerical value that may be used to arrange the at least one relevant data element. In the example, the relevant data elements "I" and "N" may be assigned the chronological score 1 and 2

respectively. The chronological score 1 is assigned to the relevant data elements "I" and the chronological score 2 is assigned to the relevant data elements "N" as the data element "I" is more important than "N".

- 11 The database arrangement is operable to aggregate the at least one relevant data element based on the assigned chronological score. The crawling module is configured to provide the database arrangement with the associated importance factor and chronological score associated with each of the relevant data element. In the example, a set of instructions included in the database arrangement may be configured to store the relevant data elements "I" and "N" wherein the relevant data elements "I" is accessed before the relevant data elements "N" while accessing data elements chronologically.

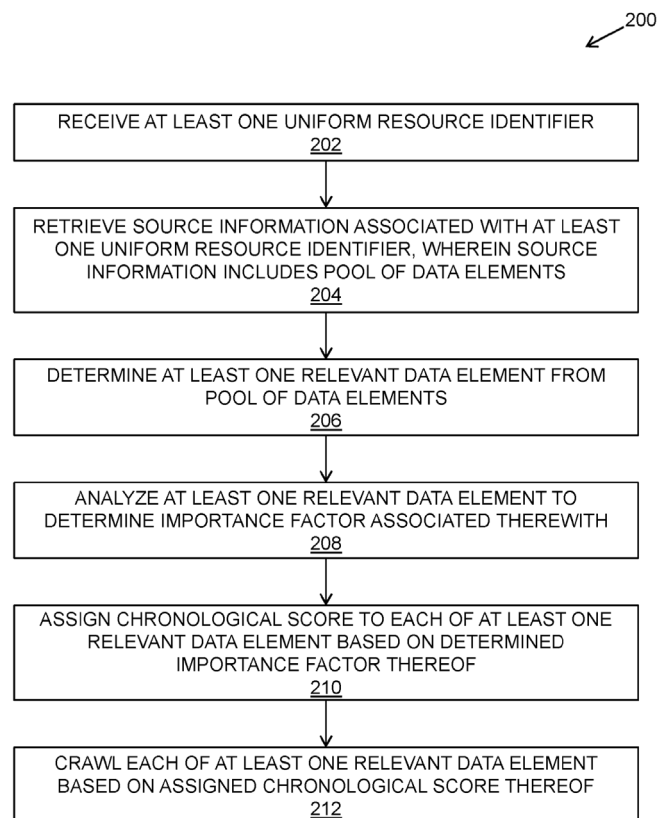


FIG. 2

- 12 The latest set of claims filed with attorney's letter dated 26 March 2020 has sixteen claims including three independent claims directed to a system (claim 1), a method (claim 10) and a computer readable medium (claim 16) which are set out below:

1. A system that crawls, wherein the system includes a computer system for executing data processing tasks, characterized in that the system comprises:

- a data processing arrangement comprising a communication interface for accessing a wide area computer network and a crawling module, wherein the crawling module is operable to:

- receive at least one Uniform Resource Identifier;*
- retrieve source information associated with the at least one Uniform Resource Identifier, wherein the source information includes a pool of data elements;*

- determining at least one relevant data element from the pool of data elements, wherein determining the at least one relevant data element includes:

- identifying at least one attribute associated with each data element in the pool of the data elements,
- analyzing the at least one identified attribute, based on predefined qualifier conditions, for detecting a relevance factor for the each data element, and
- using the relevance factor to determine the at least one relevant data element from the pool of data elements;

- analyze the at least one relevant data element to determine an importance factor associated therewith;
- assign a chronological score to each of the at least one relevant data element based on the determined importance factor thereof; and
- crawl each of the at least one relevant data element based on the assigned chronological score thereof; and

- a database arrangement communicably coupled to the data processing arrangement, wherein the database arrangement is operable to aggregate the at least one relevant data element based on the assigned chronological score.

10. A method of (for) crawling, wherein the method includes using a computer system for executing data processing tasks, characterized in that the method comprises:

- (i) receiving at least one Uniform Resource Identifier;
- (ii) retrieving source information associated with the at least one Uniform Resource Identifier, wherein the source information includes a pool of data elements;
- (iii) determining at least one relevant data element from the pool of data elements, wherein determining the at least one relevant data element includes:
 - identifying at least one attribute associated with each data element in the pool of the data elements,
 - analyzing the at least one identified attribute, based on predefined qualifier conditions, for detecting a relevance factor for the each data element, and
 - using the relevance factor to determine the at least one relevant data element from the pool of data elements;
- (iv) analyzing the at least one relevant data element to determine an importance factor associated therewith; and
- (v) assigning a chronological score to each of the at least one relevant data element based on the determined importance factor thereof;
- (vi) crawling each of the at least one relevant data element based on the assigned chronological score thereof; and
- (v) aggregating the at least one relevant data element based on the assigned chronological score.

16. A computer readable medium containing program instructions for execution on a computer system, which when executed by a computer, cause the computer to perform method steps of a method of (for) crawling, the method comprising the steps of:

- receiving at least one Uniform Resource Identifier;
- retrieving source information associated with the at least one Uniform Resource Identifier, wherein the source information includes a pool of data elements;
- determining at least one relevant data element from the pool of data elements, wherein determining the at least one relevant data element includes:
 - identifying at least one attribute associated with each data element in the pool of the data elements,
 - analyzing the at least one identified attribute, based on predefined qualifier conditions, for detecting a relevance factor for the each data element, and
 - using the relevance factor to determine the at least one relevant data element from the pool of data elements;

- analyzing the at least one relevant data element to determine an importance factor associated therewith;
- assigning a chronological score to each of the at least one relevant data element based on the determined importance factor thereof;
- crawling each of the at least one relevant data element based on the assigned chronological score thereof; and
- aggregating the at least one relevant data element based on the assigned chronological score.

The law

- 13 The examiner has raised an objection under section 1(2) of the Patents Act 1977 that the invention is not patentable because it relates inter-alia to one or more categories of excluded matter. The relevant provisions of this section of the Act are shown in bold below:

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 –

- (a) a discovery, scientific theory or mathematical method;
- (b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;
- (c) a scheme, rule or method for performing a mental act, playing a game or doing business, or **a program for a computer**;
- (d) the presentation of information;

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

- 14 The examiner and the applicant agree that the assessment of patentability under section 1(2) is governed by the judgment of the Court of Appeal in *Aerotel*¹, as further interpreted by the Court of Appeal in *Symbian*².
- 15 In *Aerotel*, the court reviewed the case law on the interpretation of section 1(2) and approved a four-step test for the assessment of what is often called "excluded matter", as follows:

Step one: properly construe the claim

Step two: identify the actual contribution (although at the application stage this might have to be the alleged contribution)

Step three: ask whether it falls solely within the excluded matter

Step four: check whether the actual or alleged contribution is actually technical in nature.

- 16 Subsequently, the Court of Appeal in *Symbian* made clear that the *Aerotel* test is not intended to provide a departure from the previous requirement set out in case law, namely that the invention must provide a "technical contribution" if it is not to fall

¹ *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371, [2007] RPC 7

² *Symbian Ltd's Application* [2008] EWCA Civ 1066, [2009] RPC 1

within excluded matter. The *Aerotel* test has subsequently been endorsed by the Court of Appeal in its decisions in both *HTC*³ and *Lantana*⁴.

- 17 Lewison J (as he then was) in *AT&T/CVON*⁵ set out five signposts that he considered to be helpful when considering whether a computer program makes a technical contribution. In *HTC* the signposts were reformulated slightly in light of the decision in *Gemstar*⁶. The signposts 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 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.

- 18 Paragraph 41 of *AT&T/CVON* emphasises that consideration of the signposts should properly reflect both stages 3 and 4 of the *Aerotel* approach:

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.

- 19 The signposts are merely guidelines; although they provide a useful aid in assessing the technical character of a claimed invention, they were not intended to provide a definitive test (as Lewison LJ's obiter remarks in paragraph 149 of *HTC* make clear). Several judgments have emphasised this point - John Baldwin QC (sitting as a Deputy Judge) in *Really Virtual*⁷ noted that the signposts, although useful, are no more than signposts and that there will be some cases in which they are more helpful than in others. Kitchin LJ made similar remarks in paragraph 51 of *HTC* that their usefulness does not mean they will be determinative in every case.

Arguments and analysis

- 20 Whilst independent claims 1, 10 and 16 relate to different categories of protection, they do not differ in substance so they will stand or fall together.
- 21 The examiner maintains that the claims define an invention which consists of a program for a computer. His position is set out most recently in his pre-hearing report. Detailed arguments against the examiner's position are contained in the applicant's response to the initial abbreviated examination through their attorney.

³ *HTC Europe Co Ltd v Apple Inc* [2013] RPC 30

⁴ *Lantana v Comptroller-General of Patents, Designs and Trade Marks* [2014] EWCA Civ 1463

⁵ *AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents* [2009] EWHC 343 (Pat)

⁶ *Gemstar-TV Guide International Inc v Virgin Media Ltd* [2010] RPC 10

⁷ *Really Virtual Co Ltd v UK Intellectual Property Office* [2012] EWHC 1086 (Ch)

Taking all these arguments into account, I must determine whether the claimed invention relates solely to excluded subject matter under section 1(2)(c) of the Patents Act 1977 as a program for a computer as such.

Step 1: Properly construe the claims

- 22 The first step of the test is to construe the claims. There is no dispute between the applicant and the examiner as to how the independent claims should be construed. I do not think understanding the meaning of the claims presents any real problem and I consider them to be clear.

Step 2: Identifying the actual or alleged contribution

- 23 Jacob LJ outlined the considerations to be applied when identifying the contribution made by the claims in paragraph 43 of *Aerotel* – the critical factors for the examiner to consider are emphasised:

“The second step – identify the contribution - is said to be more problematical. How do you assess the contribution? Mr Birss submits the test is workable – it is an exercise in judgment probably involving the problem said to be solved, how the invention works, what its advantages are. What has the inventor really added to human knowledge perhaps best sums up the exercise. The formulation involves looking at substance not form – which is surely what the legislator intended.”

- 24 The examiner considers the hardware used in implementing the method of the invention to be conventional. In other words, the present application does not contribute a ‘new arrangement of hardware’. I agree with the examiner’s view.
- 25 The examiner and the applicant agree on the alleged contribution made by the present invention, namely that identified by the applicant in their agent’s second letter of 26 March 2020:

A method of crawling webpages in order to aggregate more relevant data elements from a pool of data elements, based on assigned chronological score, and then store these data elements based on the assigned chronological score.

- 26 I also agree this is the contribution made by the invention.
- 27 The applicant also explains that the alleged advantages are that the invention reduces the amount of data communicated within the data communication networks, and thereby potentially reduces energy dissipation in the data communication network and improves the networks temporal responsiveness when in operation.
- 28 The examiner considers the invention to attempt to overcome problems with previous systems (as set out in the description) wherein websites are becoming more dynamic and as such may obstruct the crawling process. Additionally, crawlers may be led to dummy websites. As such the invention attempts to provide a system that will allow for a substantial reduction in manual intervention required when crawling.

Steps 3 and 4: Does the contribution fall solely within excluded matter/is it technical in nature?

- 29 What I must now decide is whether the contribution identified above relates solely to a program for a computer as such. This corresponds to step three of the *Aerotel* test.
- 30 The fourth step of the test is to check whether the contribution is technical in nature. In paragraph 46 of *Aerotel* it is stated that applying this fourth step may not be necessary because the third step should have covered the question. This is because a contribution which consists solely of excluded matter will not count as being a "technical contribution" and will not, as the fourth step puts it, be "technical in nature". Similarly, a contribution which consists of more than excluded matter will be a "technical contribution" and so will be "technical in nature".
- 31 In this case, the arguments concerning whether the invention is excluded are very much wrapped up with the question of whether the contribution is technical in nature. Given that, I have considered the third and fourth steps together.

Computer program

- 32 In this case, it is clear that the arrangement of hardware used to implement the invention is immaterial to the working of the invention. The hardware is all conventional hardware. Given this point, the contribution must therefore be viewed as being embodied purely in a computer program. Whilst the invention undoubtedly uses a computer program for its implementation, the mere fact that the invention is effected in software does not mean that it should be necessarily excluded as a program for a computer as such. What matters is whether or not the program provides a technical contribution.
- 33 The examiner and the applicant have made reference to the *AT&T/CVON* signposts in their respective arguments. In his assessment of the five signposts the examiner determined that the contribution failed to satisfy any of the signposts (i), (iv) and (v). To the contrary, the applicant has argued that these signposts are in fact satisfied by the contribution.
- 34 I note that the applicant has not relied on signposts (ii) or (iii) during prosecution. I agree with the examiner that signposts (ii) and (iii) do not assist the applicant.

Signpost (i)

- 35 The first signpost asks whether the claimed technical effect has a technical effect on a process which is carried on outside the computer. The applicant argues in their agent's letter that the first signpost is met:

The technical effect provided by the Applicant's claimed invention is that more relevant data elements from the pool of data elements are provided. The database arrangement of the claimed system may include programs or sets of instructions that are operable to store the relevant data element based on the chronological score associated therein. Thus, the Applicant's claimed method and the system provides data elements which are more relevant from the pool of data elements. In other words, more efficient crawling provided by the Applicant's claimed invention reduces an amount of data communicated within the data communication networks, and thereby potentially reduces energy dissipation in the data communication networks and improve their temporal

*responsiveness when in operation. The above-mentioned technical effect is in relation to the database arrangements **which are obviously external to the computer system**, thus the first signpost is met.* (Applicant's emphasis)

- 36 The examiner disagrees and argues that any effect in the database arrangement is not sufficient because the database arrangement is not "outside" a computer in the sense of the first signpost. The examiner explains that in this case, 'the computer' is a computing arrangement comprising more than one computer (i.e. a data processing arrangement in communication with wide area network) and everything is going on inside the overall arrangement. The use of the term "outside the computer" as defined in the signpost can be seen to read outside of a computer system or network of computers. The examiner refers *Lantana v Comptroller-General of Patents*⁸ in support of his view, where Birss J at paragraph 30, points out that two computers connected by a network is entirely conventional and does not necessarily confer patentability

"The fact that two computers and the internet are required is not what makes a software invention patentable".

- 37 I agree with the examiner. In this case, everything the identified contribution does goes on inside the computer system of claim 1. This is the case even though claimed computer system is an arrangement of computers. The contribution made by the invention is not a task or process that is specific and external to the computer (i.e. the arrangement of computers) as required by the first signpost. Therefore, in my view the first signpost is not met and points away from there being a technical contribution.

Signpost (iv)

- 38 The fourth signpost asks whether contribution makes the computer a better computer in the sense of running more efficiently and effectively as a computer i.e. the computer must operate more efficiently and effectively as a result of running the program. The applicant argues in their agent's letter that the fourth signpost is met:

*The above-mentioned technical effect is in relation to database arrangement of the computer system. As a database arrangement is not necessarily application-specific but is a large collection of data that may be used by many different applications. Adapting the executional framework provided by a different database structure, namely, namely aggregating relevant data elements from the pool of data elements as disclosed in the Applicant's amended claim 10 affects the **computer as a whole**, not only a single program. Thus, the fourth signpost is met.* (Applicant's emphasis)

- 39 The examiner disagrees and argues that the present application is not concerned with "adapting the executional framework provided by a different database structure", it is concerned with the gathering and storing in terms of relevance, specific web-based data. There is no change to the way in which a usual database works. The computer as a whole is not running more efficiently or effectively as a computer as

⁸ *Lantana v Comptroller-General of Patents* [2013] EWHC 2673 (Pat)

such, it is merely a normal computer running a new perhaps better web crawling application.

- 40 I agree with the examiner. The contribution made by the invention is limited to a single program, i.e. the claimed task of web crawling using a data processing arrangement to assign an importance factor and a chronological score to data elements and a database arrangement to aggregate the data elements based on the chronological score. This is not an effect that means all applications running on the computer inherently run more efficiently and effectively. I agree with the examiner that the invention may be a better web crawling application but that this does not mean the invention is a better computer. While I accept that many applications may use databases, the contribution made by the invention does not extend to making the underlying computer operate more efficiently and effectively in the sense required by the fourth signpost. The operation of the underlying computer is unchanged by the way in which the invention works. Therefore, the fourth signpost is not satisfied.

Signpost (v)

- 41 The fifth and final signposts asks whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented. The applicant argues in their agent's letter that the fifth signpost is met:

In this regard, the Applicant respectfully submits that reducing the need for manual intervention is clearly technical in that it allows the operation of information retrieval or searching to be performed without interruptions and/or with less errors! AT&T signpost v) is therefore fulfilled. Furthermore, information retrieval is technical in nature and is neither a pure data processing nor presentation of information. The pure data processing, in the context of databases, is restricted to querying the same database over and over, possibly entering and deleting entries. It does not include restructuring databases, namely aggregating relevant data elements from the pool of data elements as disclosed in the Applicant's amended claim 10, completely nor does it include collating data from several databases and compiling this into a smaller database. (Applicant's emphasis)

- 42 The examiner does not consider the fifth signpost to be relevant in this case since the application is not concerned with solving a technical problem (such as how to provide a better computer system or perform a technical task). The problem addressed by the invention relates to providing an optimized, faster and more efficient method of web crawling and extracting relevant information from the internet that allows for reduced human intervention. The claimed invention may have solved this problem. The problem and solution, however, are regarded as not technical and as such the fifth signpost is not relevant.
- 43 I agree with the examiner am not persuaded the claimed solution is technical in nature. For example, I do not agree that reducing the need for human intervention to reduce interruptions and/or errors involves any technical consideration. Furthermore, I agree with the examiner that there isn't any restructuring of the underlying database. In my view, aggregating more relevant data based on an assigned importance factor and a chronological score, as defined by the claims, is something

that consists of the manipulation of textual data and is not technical beyond the running of a computer program. The invention may relate to a better web crawling program, but it is no more than a program for a computer as such and it is not technical in nature.

- 44 And as noted by the examiner, Lewison J in paragraph 40 of *Autonomy*⁹ held that claims to “a better search program” were “a paradigm example of a case in which the contribution falls squarely within excluded matter”.
- 45 Further, the invention doesn’t solve a technical problem lying within the computer or network. It merely provides a software function by which more pertinent information results from web crawling is obtained through use of scoring system. The contribution is not a technical solution, but an exercise in data and information manipulation and selection. Therefore, signpost (v) is not satisfied.
- 46 Looking at the fourth step, as discussed above I do not consider the contribution to be technical in nature.
- 47 Therefore, I consider the contribution identified above to relate to a program for a computer as such.

EPO case law

- 48 Finally, I add for completeness that the agent’s letter of 26 March 2020 relies on two decisions of the EPO Boards of Appeal, T 0721/09 and T 1351/04. The applicant argues these decisions are of persuasive value. The applicant argues that the examiner’s assessment that the present invention is excluded subject matter is inconsistent with these two decisions.
- 49 I accept that, taking into account s.130(7), the provisions of s.1(2) are intended to have, as nearly as practicable, the same effect as the corresponding provisions of the EPC, in this case Art. 52 EPC. I also accept that although decisions of the EPO Boards of Appeal regarding patentability are not binding on me, they may have persuasive value.
- 50 Yet, I also have no doubt that I am bound to follow the *Aerotel* approach and that each case must be determined on its own facts bearing in mind the guidance handed down by the UK Courts¹⁰.
- 51 I have considered T 0721/09 and T1351/04 very carefully and I find nothing in them that persuades me that present claim 1 makes a contribution that is technical in nature, as required by the *Aerotel* approach.

Conclusion

⁹ *Autonomy Corp Ltd v Comptroller General of Patents, Trade Marks & Designs* [2008] EWHC 146 (Pat)

¹⁰ See e.g. *HTC v Apple* [2013] EWCA Civ 451 at § 45

52 For all the reasons set out above, I find that the claimed invention is excluded under section 1(2)(c) as a program for a computer as such. I refuse this application under section 18(3).

Appeal

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

J Pullen

Deputy Director, acting for the Comptroller