Intellectual Property Office

BL O/0879/23

18 September 2023

PATENTS ACT 1977

APPLICANT	Grzegorz Malewicz
ISSUE	Whether patent application GB 2215689.7 complies with section 1(2) of the Patents Act 1977
HEARING OFFICER	J Pullen

DECISION

1 Patent application GB 2215689.7, entitled "A method for searching or comparing sites using travel between sites and places within a transportation system", entered the national phase on 24 October 2022. It was subsequentially published as GB 2608776 A. The application is derived from PCT/US2021/029024, filed 25 April 2021, and published as WO 2021/222046 A1 on 4 November 2021. The application claims priority from a number of earlier applications, the earliest of which is dated 1 May 2021.

2 Upon filing, the applicant requested accelerated examination under the Patents Prosecution Highway scheme and filed amended claims which were said to be consistent with the claims accepted for grant by the Japanese Patent Office.

3 The examiner raised in the first examination report, dated 2 December 2022, an objection to the invention as being excluded under section 1(2) of the Patents Act 1977 ("the Act") as a program for a computer as such. There have been several rounds of correspondence between the examiner and the applicant without agreement being reached as to a form of claims which would overcome the excluded subject matter objection.

4 A hearing was offered in the examination report of 30 May 2023. In response, the applicant filed amendments and further submissions on 21 June 2023. The examiner then issued a pre-hearing report of 4 July 2023. The issue to be decided is whether the claimed invention relates to excluded subject matter, and in particular whether the invention falls into the category of section 1(2)(c) of the Patents Act 1977 as a program for a computer as such.

5 In emails dated 11 July 2023 and 19 July 2023 the Office contacted the applicant to determine if a hearing was required or if a decision on the papers was requested. No meaningful reply to these correspondences was forthcoming and so I will decide the matter on the basis of the papers on file.

6 I confirm that I have considered all documents on file before making my decision.

7 I note that the examiner has deferred updating the search. If I find the claims to be allowable it will be necessary to remit the application to the examiner to update the search and any necessary further substantive examination of the application.

The invention

8 The "Background of the Invention" section of the description recites:

> *"The present invention relates to searching or comparing sites. A traditional goal of searching is to find a site, from among a range of possible alternatives, that achieves an optimization objective, such as minimize a route length given specific travel requirements and desired features of the sought site. For example, when searching for real estate properties given required destinations of commutes and real estate property features, a goal may be to enumerate real estate properties with matching features that have the shortest commute durations. Other goal may be to compare any real estate properties using commute durations."*

9 As explained in the "Brief summary of the invention":

> *"According to an embodiment of the present invention, a method for searching or comparing sites using routes or route lengths is provided. The method uses extensive preprocessing to precompute and store in a database routes or route lengths between each site and representatives within a transportation system. The method introduces a search-or-compare framework for sites. When a request containing a route specification is received, precomputed data is retrieved from the database to rapidly compute a route or a route length for each site. Sites may be searched or compared using routes or route lengths."*

10 It appears, from the description as a whole, that the invention relates to the determination of a description of travel within a transportation system between two locations, places or sites, that uses precomputed and prestored information for at least part of the description of travel.

The law

11 The examiner has raised an objection based upon the fact that the invention is excluded from being patented as a program for a computer, as such. The relevant section of the Act is s.1(2), the most relevant provision of which is shown below with my emphasis added:

> *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) ...;*
> *(b) ...;*
> *(c) … **or a program for a computer**;*
> *(d) ...;*
>
> *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.***

12 The Court of Appeal has said that the issue of whether an invention relates to subject matter excluded by Section 1(2) must be decided by answering the question of whether the invention reveals a technical contribution to the state of the art. The Court of Appeal in *Aerotel/Macrossan*[1] set out the following four-step approach to help decide the issue:

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

13 The operation of the approach is explained at paragraphs 40-48 of the judgment. Paragraph 43 confirms that identification of the contribution is an exercise in judgment involving the problem said to be solved, how the invention works and what its advantages are; essentially, what it is the inventor has really added to human knowledge, looking at substance, not form. Paragraph 47 adds that a contribution which consists solely of excluded matter will not count as a technical contribution.

14 In *Symbian*[2] the Court of Appeal reaffirmed the *Aerotel* approach while considering a question of "technical contribution" as it related to computer programs emphasising the need to look at the practical reality of what the program achieved, and to ask whether there was something more than just a "better program".

15 The case law on computer implemented inventions was further elaborated in *AT&T/CVON*[3] (*AT&T*) which provided five helpful signposts to apply when considering whether a computer program makes a relevant technical contribution. In *HTC v Apple*[4], Lewison LJ reconsidered the fourth of these signposts and felt that it expressed too restrictively. 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.*

16 I must bear in mind that the signposts are guidelines for a technical contribution and should not be applied in a prescriptive manner. I also note that the paragraph after signposts in the *AT&T* judgment cautions me to consider if the claimed technical effect lies solely in excluded matter if I decide that there is a technical effect based

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[1] *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371; [2007] RPC 7
[2] *Symbian Ltd v Comptroller-General of Patents*, [2009] RPC 1
[3] *AT&T Knowledge Ventures/Cvon Ltd* [2009] EWHC 343 (Pat)
[4] *HTC Europe Co Ltd v Apple Inc* [2013] EWCA Civ 451

upon the signposts. I must decide whether the claimed invention makes a technical contribution when considered on its own merits.

Assessment

(1) Properly construe the claim

17 The claims were amended in the correspondence filed 20 June 2023. There are two fully independent claims as follows:

> *1. A method for searching or comparing at least one site using at least one description of travel within a transportation system between the at least one site and at least one place, wherein each embodiment of the method is patentable under the Patents Act 1977, the method comprising:*
> *(a) receiving at least one representative, wherein each representative is a location included in the transportation system;*
> *(b) receiving a request comprising the at least one place; and*
> *(c) responding to the request with a result of searching or comparing obtained using the at least one description of travel;*
> *the method characterized by:*
> *(d) determining at least one partial description of travel and storing it in a database before the request is received, wherein each first partial description of travel comprises a part of a description of travel within the transportation system between a first site included in the at least one site and a first representative included in the at least one representative; and*
> *(e) computing the at least one description of travel that comprises a description of travel within the transportation system between an endpoint site included in the at least one site and an endpoint place included in the at least one place,*
> *wherein the computing comprises:*
> *i. retrieving from the at least one partial description of travel at least one second partial description of travel, wherein each second partial description of travel comprises a part of a description of travel within the transportation system between the endpoint site and a second representative included in the at least one representative;*
> *ii. determining a description of travel within the transportation system between the endpoint place and a location x included in the second partial description of travel; and*
> *iii. determining a description of travel within the transportation system between the location x and the endpoint site.*
>
> *2. A method for determining a description of travel within a transportation system from a source location to a target location, wherein each embodiment of the method is patentable under the Patents Act 1977, the method comprising:*
> *(a) receiving at least one representative, wherein each representative is a location included in the transportation system;*
> *(b) receiving a request comprising the source location and the target location; and*
> *(c) responding to the request with the description of travel;*
> *the method characterized by:*
> *(d) determining at least one partial description of travel and storing it in a database before the request is received, wherein each first partial description of travel comprises a part of a description of travel within the transportation system between an endpoint location included in the transportation system and a first representative included in the at least one representative; and*
> *(e) computing the description of travel using steps comprising:*

i. determining at least one part P and at least one part Q, wherein the part P and the part Q are included in the transportation system, and wherein:
A. the part Q is the target location, and the part P is retrieved from the at least one partial description of travel wherein the endpoint location is the source location,
B. the part P is the source location, and the part Q is retrieved from the at least one partial description of travel wherein the endpoint location is the target location, or
C. the part P is retrieved from the at least one partial description of travel wherein the endpoint location is the source location, and the part Q is retrieved from the at least one partial description of travel wherein the endpoint location is the target location,
ii. determining a description of travel within the transportation system from a location x_P included in the part P to a location x_Q included in the part Q,
iii. determining a description of travel within the transportation system from the source location to the location x_P, and
iv. determining a description of travel within the transportation system from the location x_Q to the target location.

18 Firstly, the applicant has, in their latest amendments, added "wherein each embodiment of the method is patentable under the Patents Act 1977" to both claims 1 and 2, in an attempt to overcome the examiner's excluded matter objections, since the claims are now limited to non-excluded embodiments.

19 In their pre-hearing report, the examiner has referred to *Warner-Lambert v Generics*[5] to explain that the amendment cannot be held to be a valid approach to claim drafting or claim construction. This judgment was previous discussed in the examination report of 2 February 2023 in relation to the applicant submitting in their letter of 6 December 2022 that a "validating principle" of claim interpretation should be used and any excluded embodiments encompassed by the claims would not be a "reasonable interpretation" of the claimed subject matter.

20 I agree with the examiner on this issue. Firstly, the claims should be drafted in terms of the technical features in the invention and should not contain statements relating to non-technical matters. The added section to claims 1 and 2 is intended to be a legal statement and does not relate to technical features. There is no doubt the judgment of *Warner-Lambert v Generics* explicitly rejects a "validating principle" at paragraphs 97 and 105 in particular. Instead, it endorses a purposive construction based upon claims as drafted. Based upon this, I will disregard the statement added in the amendments of 20 June 2023.

21 Although the claims are not explicitly limited to being computer-implemented, given the references to "determining at least one partial description of travel and storing it in a database before the request is received", I will construe the claims as defining computer-implemented methods.

22 Of particular importance to the construction of the claims is the definition of a "description of travel". The definition of "description of travel" is found at paragraph 43 of the description this can mean directions, a monetary value or cost or a distance. In paragraph 282, a route may be a "description of travel". This means that the term is not clearly defined and the claims are unclear in scope. However, for the purposes of this analysis, I will use distance as the meaning of "description of travel".

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[5] *Warner-Lambert Company LLC v Generics (UK) Ltd (t/a Mylan) & Anor (rev 1) [2018] UKSC 56*

23 A “site” may be real-estate properties or other physical location, such as a home; a “place” is also a physical location, such as a workplace, school or a favourite restaurant.

24 The “transportation system” is a public transportation system, such as a subway system or bus network, with the “representative” being a vehicle stop of the transportation system, see paragraphs 22 & 33 for example.

25 Claim 1 then defines the receiving of a request that includes a place (a physical location) and responding with “a result of searching or comparing obtained using the at least one description of travel”. This is not clear in meaning without considering the description, and even then it is not fully clear, given the issues in construing “description of travel”. Even if I use “distance” as the meaning of “at least one description of travel”, it is not clear what the “result” actually is.

26 Likewise, the characterising steps of the method of claim 1 are not clear, even when the description is considered. This is because of the lack of meaningful definitions of the first and second partial descriptions of travel, the endpoint place and the endpoint site and the location x, as found in the steps of the method, amongst many other issues.

27 Given the description, and as seen from the brief summary of the invention, it seems that the “result” is meant to be at least one pre-known site that best fits the requestors requirements based on distance to be travelled through a transportation network, and walking to and from the transportation network, for example. The fact that the site is pre-known allows part of a potential route distance to be pre-computed and stored in a database and then retrieved when requests are received. The rest of the distance between the site and the place in the request can then be calculated when the request is received.

28 Claim 2 has many similar issues to claim 1. It determines a description of travel (distance for example) between two locations, a “source location” and a “target location”. These locations are part of a request that is received. Also received is at least one representative, which appears to be a stop of a transportation system, such as a bus stop or a subway station. It is not clear if this is received at the same time as the source location and the target location are received.

29 The characterising features of the method of claim 2 are also unclear, particularly because it is not clear if the source location and the target location are required to be locations (stops) within the transportation system given the definition that an endpoint location is included in the transportation system and later that the endpoint location may be the source location, the target location or, in one alternative, both the source location and the target location. This is third option is a further clarity issue since it is unclear how the endpoint can be both the source location and the target location.

30 It seems that the method of claim 2 is intended to reflect the embodiment of Fig 18, at least, and define the determination of a distance of travel between two locations in a transport system using at least one predetermined travel distances, but possibly using two such predetermined travel distances. I will proceed on this basis.

(2) Identify the actual or alleged contribution

31 The problem said to be solved relates to the searching through real estate properties that may be available. However, the claims are not limited to addressing such a problem, though the claimed invention may be useful for such a task.

32 The advantages of the invention are said to relate to the speed of the results returned by the methods (given the pre-computed and pre-storing and subsequent on-demand retrieval of parts of the travel distance used in the claimed methods). Other embodiments that do not appear to be claimed may have other advantages but these are not relevant to the claims.

33 The claimed invention works by using graph theory to determine graph paths between locations and stops of a public transportation network and determine a distance between locations using the transport network. It seems that the invention is intended to provide the distance of travel between the two locations and attempts to smooth travel between the two locations which use two different public transport routes.

34 There is no suggestion in the specification that the claims use anything other than conventional computers that are suitably programmed to implement the claimed functions.

35 The applicant has provided no submissions regarding the actual contribution made by the claims.

36 In light of this, and my construction of the claims, I consider the contribution made by the claims to be:

Computer-implemented methods of determining smoothed distance between two locations via public transportation systems in which at least part of the distance is pre-computed and pre-stored and retrieved in the methods and the remaining distance is determined upon request, the method being faster than a complete calculation of distance at the time of request.

(3) Ask whether it falls solely within the excluded subject matter, and (4) Check whether the actual or alleged contribution is actually technical in nature

37 The applicant has not provided any observations regarding why they believe the present claims are not excluded.

38 I have considered the *HTC/Apple* signposts but none of 1 to 4 are satisfied for the reasons given in the examiner's report of 2 December 2022, namely:

> There is no technical effect on a process that is carried on outside the computer – the searching or comparing of locations or the determination of a

description of travel is not a technical effect, so the first signpost is not satisfied;

There is no change or improvement to the computer implementing the invention as a computer nor any architectural change to the computer, and so none of the second, third or fourth signposts are satisfied;

39 With respect to the fifth signpost, the problem addressed by the invention may be solved to a degree, as the claimed methods may allow faster distances to be calculated. Therefore, the fifth signpost may be satisfied, to an extent. However, the claimed methods rely upon prior calculation of at least part of the distance between the two locations. This will require time and resources before the request is made. This means that the perceived problem is at least partially circumvented by the claims rather than being fully solved.

40 However, the problem of a faster distance calculation is not considered to be a technical problem and so, I do not believe that there is a technical element to the actual contribution. This is consistent with the caveat to the signposts provided by Lewison LJ in paragraph 149 of *HTC v Apple*:

> *"I should perhaps emphasise that these signposts were not intended to be prescriptive conditions; nor did I intend to suggest that if only one of the signposts was found to exist an invention would automatically be patentable."*

41 Stepping back and considering the claims as a whole, insofar as I am able given the considerable clarity issues, the claims relate to computer-implemented methods for the determination of a smoothed distance between two requested locations via a public transportation system, based upon graph theory and using both pre-calculated and on-request elements, the methods being faster than fully on-request determinations. These methods relate specifically to distance calculation through a transportation system rather than any improvement to the operation of the computer itself, regardless of the task carried out by the computer. I am not persuaded that the claims provide a contribution that is technical in nature.

42 I find that neither of the claims has the required technical contribution and both are excluded from patentability as a program for a computer, as such.

Conclusion

43 The application does not comply with section 1(2) as it relates to a program for a computer, as such. I therefore refuse the application under section 18(3).

Appeal

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

J PULLEN

Deputy Director, acting for the Comptroller