



## PATENTS ACT 1977

APPLICANT	Innoplexus AG
ISSUE	Whether patent application GB1804892.6 is excluded under section 1(2)
HEARING OFFICER	J Pullen

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### DECISION

#### Background

- 1 UK patent application GB1804892.6 entitled, "System and method for parsing user query", was filed on 27 March 2018 in the name of Innoplexus AG.
- 2 On 16 October 2018, the examiner issued a Combined Search Report under section 17(5)(b) and 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 via their agent's first letter dated 27 March 2020. The applicant disagreed with the examiner's objection and argued that the invention avoids exclusion under s.1(2). The examiner maintained the objection in a second examination report dated 23 September 2020. The applicant responded again, this time by filing a set of amended claims with their agent's second letter dated 20 November 2020 and by arguing that the amended claims overcome the objection. Upon re-examination, the examiner was not persuaded. The examiner issued a third examination report, dated 16 June 2021, maintaining the objection, and offering the applicant a hearing to decide the objection.
- 4 On 12 August 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 20 December 2021, setting out the objection 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 data processing, specifically to methods for parsing a user query. The invention is concerned with analysing the semantics (e.g. inferring the contextual meaning) of segments (e.g. words) of the user query.
- 7 The set of claims presently on file includes three independent claims directed to a system (claim 1), a method (claim 3), and a computer-readable medium (claim 10). While claims 1, 3 and 10 relate to different categories of protection, they do not differ in substance so they will stand or fall together. It is only necessary for me to consider claim 1 in detail here.
- 8 Claim 1 defines the invention in the following terms:

*1. A system that parses a user query to retrieve a data record from a search database, wherein the system includes a computer system, characterized in that the system comprises:*

- a database arrangement operable to store an ontology; and*
- a processing module communicably coupled to the database arrangement, the processing module operable to*
  - receive the user query from the user;*
  - refine the user query to obtain a search query using an algorithm, wherein the search query comprises query segments;*
  - generate a plurality of strings for the obtained search query, wherein the plurality of strings comprise at least one query segment;*
  - sort the plurality of strings in a decreasing order of length of the plurality of strings, wherein the length of a string corresponds to a number of query segments in the string;*
  - assign a part-of-speech tag to each of the query segments of the plurality of strings based on the ontology;*
  - identify at least one of the query segments as at least one output class or at least one input class based on the assigned part-of-speech tags;*
  - establish semantic associations between the query segments based on the ontology to obtain the parsed user query; and*
  - retrieve at least one context-based data-record from the search database based on at least one of:*
    - the identified at least one output class or the at least one input class associated with the query segments; and*
    - the established semantic associations between the query segments.*

## The law

- 9 There is no disagreement between the examiner and the applicant as to the relevant law.
- 10 Section 1(2)(c) provides that a program for a computer *as such* is not an invention for the purposes of the Act:

*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) ... **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**.*

11 Well-established UK case law provides that an invention making a *relevant technical contribution* avoids exclusion under s.1(2). In *Aerotel Ltd v Telco Holdings Ltd & Ors*<sup>1</sup> the Court of Appeal set out the following four-step approach for determining whether an invention is excluded under section 1(2):

- 1) properly construe the claims;*
- 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.*

12 The examiner has based their analysis on *Aerotel*. The examiner has also made use of the set of 'signposts' of *AT&T/CVON*<sup>2</sup> and *HTC v Apple*<sup>3</sup>:

- 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 a program makes a 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.*

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<sup>1</sup> [2007] RPC 7

<sup>2</sup> [2009] EWHC 343 (Pat), see § 40

<sup>3</sup> [2013] EWCA Civ 451, see §§ 50-51 and §§ 148-151

- 13 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.*

### **Argument and analysis**

- 14 Beginning with stage 1) of the *Aerotel* approach, there is no dispute between the applicant and the examiner as to how claim 1 should be construed.
- 15 In the pre-hearing report, the examiner explains that the description puts particular meanings on certain terms appearing in the claims:
- i) With reference to page 10 of the description, “refining” the user query involves removing unwanted information, such as punctuation.
  - ii) With reference to page 10 of the description, “query segments” are elements of the user query, such as a single word from the query.
  - iii) With reference to pages 11 and 12 of the description, “generating a plurality of strings” relates to generating combinations of some or all of the query segments in the search query. This step may comprise generating a complete set of the possible combinations of query segments from a search query. For example, if the search query is “cure for cancer”, the plurality of strings generated may be “cure for cancer”, “cure for”, “for cancer”, “cure”, “for” and “cancer”.
  - iv) With reference to page 14 of the description, a “part-of-speech tag” is a tag which labels a query segment with its syntactic role in the search query. For example, the word from the search query may be labelled as a noun or adjective.
  - v) With reference to page 15 of the description, an “ontology” relates to the properties and semantic associations between concepts within a particular field. In the context of the claims, the skilled person would understand the ontology to be a dataset which enables the syntactic classification of the query segments.
  - vi) With reference to pages 18-21 of the description, the terms “input class” and “output class” relate to categories of query segments. For example, if a noun phrase is found within a query, it may be used as an input class. Page 19 gives the example that in the query “drugs for curing lung cancer”, drugs is identified as the output class and lung cancer is determined as the input class.
- 16 The applicant does not dispute the examiner’s construction of these terms. I agree that this is how these particular terms appearing in the claims would be construed in light of the description.

- 17 Moving on to stage 2), the examiner and the applicant agree on the actual contribution made by the present invention, namely the contribution identified by the applicant in their agent's second letter of 20 November 2020:

*A method that includes retrieval of a data record from a search database by refining a user query to obtain a search query having query segments, generating a plurality of strings for the obtained search query, sorting the plurality of strings in a decreasing order of length, assigning a part-of-speech tag to query segments of the plurality of strings based on an ontology, identifying at least one query segment as at least one output class or input class based on part-of-speech tags, establishing semantic associations between the query segments based on the ontology, and retrieving at least one context-based data-record from the search database based on at least one of the identified output or input class and the established semantic associations.*

- 18 I also agree this is the actual contribution made by the invention.
- 19 The examiner and the applicant have been unable to agree on application of stages 3) and 4) of *Aerotel*, i.e. whether the invention reveals a *relevant technical contribution*. Both examiner and applicant approach this point by considering the 'signposts' of *AT&T*. I shall do the same.

*Signpost i*

- 20 In the first agent's letter of 27 March 2020, the applicant argues that signpost *i* is met:

*The technical effect provided by the Applicant's claimed invention is that a large number of unstructured data sources (e.g. digital media sources) are replaced by one, structured database with data records more relevant to user's query. The Applicant's claimed invention provides a system and a method for parsing a user query to understand the contextual meaning of the user query which results in a collection of data records which are most relevant to the user's field of interest. Such relevant data records are stored in database which are external to computer systems. Thus, the first signpost is met. (Applicant's emphasis.)*

- 21 The examiner disagrees, saying that an effect in a database is not sufficient because the database is itself executed by a computer, i.e. that the database of records is not "outside" a computer in the sense of signpost *i*.
- 22 I agree with the examiner. In this case, everything the identified contribution does – the parsing of the query and the retrieval of the database record – goes on *inside* the computer system of claim 1. This is the case even if the claimed computer system is taken to be an arrangement of computers, e.g. if the database of claim 1 is embodied in a computer separate or external to a computer embodying the processing module of claim 1. The contribution made by the invention is not a task or process that is specific and external to a computer (or an arrangement of computers) as required by signpost *i*. In my view, signpost *i* does not assist the applicant.

*Signposts ii & iii*

- 23 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 iv*

- 24 The agent's first letter of 27 March 2020 argues that signpost *iv* is met:

*The above-mentioned technical effect is in relation to databases of the computer system. As a database 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 affects the **computer as a whole**, not only a single program. Thus, the fourth signpost is met. (Applicant's emphasis.)*

- 25 The examiner disagrees, arguing that the improvement made by the invention is not to the computer as a whole, but rather to the claimed task of understanding the contextual meaning of a user query which results in a collection of data records which are most relevant to the user's field of interest. The examiner says this improvement amounts to a better search program but not a better computer.

- 26 I agree with the examiner. The contribution made by the invention is limited to a single program, i.e. the claimed task of parsing a query to understand its contextual meaning and using this understanding to retrieve a record from a database. This is not a technical 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 search program* because it provides search results of greater relevance to the user's query (compared to previous search methods). However, I also agree with the examiner 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 signpost *iv*. The operation of the underlying computer is unchanged by the way in which the invention works.

- 27 The agent's first letter goes on to argue that signpost *iv* is met because there is an effect on bandwidth:

*Furthermore, as external social media platforms do not need to be interrogated or searched to the same extent utilizing the claimed invention, the invention also affects the bandwidth of the computer executing the claimed invention, which enables all applications of the computer to execute more efficiently. Thus, the fourth signpost is also met in this regard.*

- 28 While I accept the invention may have the advantage of avoiding the need to interrogate or search external social media platforms, in my view this is only an effect relating to the use of the claimed program, not the underlying computer. The bandwidth of the underlying computer is not improved by the way in which the invention works.

29 For these reasons, I agree with the examiner that signpost *iv* does not point to allowability.

*Signpost v*

30 The applicant and the examiner agree on a definition of the problem that is addressed by the invention, namely the definition offered in the agent's second letter dated 20 November 2020:

*how to enable increased accuracy in retrieval of relevant data records from a search database in response to a user query in a time efficient manner.*

31 I agree this is a reasonable definition of the problem addressed by the invention.

32 The agent's letter of 20 November 2020 argues that this problem is technical in nature:

*We contend that such a problem is technical in nature, and that there are inherent technical considerations involved in determining how to enable increased accuracy in retrieval of relevant data records from a search database in response to a user query in a time-efficient manner. For example, in the method of the present invention the splitting and labelling of the search query into strings labelled by entity type requires technical consideration to determine how many strings are created whilst still achieving efficiency, and the establishment of semantic associations requires a technical comparison with the ontology.*

33 I am not convinced. For example, it does not seem to me that the steps of splitting and labelling the search query into strings, labelled by entity type, to determine how many strings are created involve any technical consideration at all. In my view, these are steps that relate only to the manipulation of data in the form of textual information. They are not technical beyond the mere running of a computer program. Similarly, the step of establishing semantic associations by a comparison with the ontology involves only the manipulation of textual data so it is also not technical beyond the running of a program.

34 The agent's letter of 20 November 2020 goes on to argue that the solution to this problem is technical in nature because of the way in which the invention works:

*Such a technical problem is overcome by the system of the present invention, which implements a method that includes refining a user query to obtain a search query having query segments, generating a plurality of strings for the obtained search query, sorting the plurality of strings in a decreasing order of length, assigning a part-of-speech tag to query segments of the plurality of strings based on an ontology, identifying at least one query segment as at least one output class or input class based on part-of-speech tags, establishing semantic associations between the query segments based on the ontology, and retrieving at least one context-based data-record from the search database based on at least one of the identified output or input class and the established semantic associations. There are clear technical considerations involved in determining how to accurately retrieve relevant*

*records from a search database in response to a user query in a time-efficient manner, and the solution to the above-mentioned technical problem is considered technical in nature.*

- 35 I am not persuaded the claimed solution is technical in nature. For example, I do not agree that the way in which the claimed invention works to determine how to accurately retrieve relevant records from a search database in response to a user query in a time-efficient manner involves any technical consideration. In my view, determining how to retrieve relevant records from a search database, as defined by claim 1, is something that consists of the manipulation of textual data and is not technical beyond the running of a computer program. Claim 1 may relate to a better search program, but it is no more than a program for a computer as such and it is not technical in nature.
- 36 I am unable to agree with the applicant that signpost v is met in this case. In my view neither the problem addressed by the invention nor its solution are technical in nature. Even if the problem addressed by the invention can said to be solved, its solution does not reveal a technical effect beyond the mere execution of a program for a computer as such.

#### *EPO case law*

- 37 Finally, I add for completeness that the agent's first letter of 27 March 2020 relies on two decisions of the EPO Boards of Appeal, T 0844/07 and T1351/04. 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.
- 38 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.
- 39 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 courts<sup>4</sup>.
- 40 I have considered T 0844/07 and T1351/04 very carefully and I find nothing in them that persuades me that present claim 1 makes a contribution to the known art that is technical in nature, as required by the *Aerotel* approach.

#### **Conclusion**

- 41 For all the reasons set out above, I conclude that claim 1 does not reveal a relevant technical contribution.

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<sup>4</sup> See e.g. *HTC v Apple* [2013] EWCA Civ 451 at § 45.



- 42 It is my decision that the invention defined in claim 1 is not an invention for the purposes of the Act because it is excluded under section 1(2)(c) as a program for a computer as such. It follows that claims 3 and 10 are also so excluded.
- 43 I am unable to identify any amendment that would overcome exclusion under section 1(2)(c). I refuse this 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