



06 August 2012

PATENTS ACT 1977

APPLICANT Tencent Technology (Shenzhen)
 Company Limited

ISSUE Whether patent application number
 GB1001438.9 complies with section 1(2)

HEARING OFFICER J E Porter

DECISION

Introduction

- 1 Patent application GB 1001438.9 entitled “Chat system, method and apparatus for virtual pet” results from the entry into the UK national phase of international application PCT/CN2008/070642, in the name of Tencent Technology (Shenzhen) Company Limited.
- 2 The international application was filed on 31 March 2008, with a claim to a priority date of 28 June 2007. It was published as WO 2009/000176 on 31 December 2008, and was reprinted as GB 2 465 302 A after entering the UK national phase.
- 3 Following amendment of the claims and correspondence between the examiner, Mr Stuart Purdy, and the applicant’s attorneys, Dehns, the examiner remains of the view that the claimed invention is excluded from patentability under section 1(2). With the position unresolved, the applicant has requested that the matter be referred to a hearing officer for a decision on the papers.

The law

- 4 Section 1(2) declares that certain things are not inventions for the purposes of the Act, as follows:

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.

5 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. In this judgment, 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.

6 Subsequently, the Court of Appeal in *Symbian*² 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 within excluded matter.

7 The applicant’s written submissions in response to the examination reports cover various points concerning how the *Aerotel* test should be applied to the invention in question, including reference to *Symbian*. I consider these submissions as a part of my analysis below.

The invention

8 The invention is concerned with language-based interaction with a virtual pet – that is to say, a computer-generated pet image with which it is possible to interact for entertainment purposes.

9 In particular, the invention sets out how the user may input a sentence in natural language and receive from the virtual pet a natural language response. This involves processing the natural language input so that it is understood, and obtaining the user’s language characteristics from a database. These characteristics are adjusted in light of the understanding of each natural language input, with the result that the virtual pet keeps learning the language characteristics of the user, and employs language which embodies those characteristics. This is said to provide the user with much more intelligent entertainment experiences.

10 The latest claims set, which was filed on 26 April 2012, comprises 18 claims of which 3 are independent. Claim 1 is directed to a chatting system as follows:

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

A chatting system for a virtual pet, comprising: a pet client, a virtual pet server, a questioning and answering server and a pet master language information database;

the pet client is configured to receive a natural language sentence of a pet master, and send the natural language sentence to the virtual pet server;

the virtual pet server is configured to forward the natural language sentence to a questioning and answering server, and return a natural language response to the pet client;

the pet master language information database is configured to store language characteristics of the pet master; and

the questioning and answering server is configured to perform processing of natural language understanding on the natural language sentence; obtain language characteristics of the pet master stored in the pet master language information database; adjust the language characteristics of the pet master stored in the pet master language information database according to the natural language understanding result; generate the natural language response according to a natural language understanding result and the language characteristics of the pet master; and return the natural language response to the virtual pet server.

11 Claim 10 is an independent method claim and reads:

A chatting method for a virtual pet, comprising:

receiving a natural language sentence of a pet master;

performing processing of natural language understanding on the natural language sentence;

obtaining language characteristics of the pet master stored in a pet master language information database;

adjust [sic] the language characteristics of the pet master stored in the pet master language information database according to a natural language understanding result; and

generating a natural language response according to a natural language understanding result and the saved language characteristics of the pet master.

12 Independent claim 14 is directed to a questioning and answering server. It comprises features that are configured to carry out processing steps which closely correspond with those that the server is configured to perform in claim 1. The claim also states that the server may have the pet master language information database embedded within it.

Arguments and analysis

13 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 letter of 16 May 2012. Detailed arguments against the examiner's position are contained in the applicant's responses, through their attorneys, of 31 October 2011 and 24 April 2012.

- 14 What I must do is determine whether the claimed invention relates solely to excluded subject matter under section 1(2).

Construing the claims

- 15 In their most recent substantive response, of 24 April 2012, the applicant suggests that step one should be answered as follows: the claims relate to a chatting system, a chatting method and a questioning and answering server for a virtual pet, in which the questioning and answering server can adjust the language characteristics of the pet master stored in a pet master language information database according to the natural language understanding result; generate the natural language response according to a natural language understanding result and the language characteristics of the pet master; and return the natural language response to the virtual pet server.
- 16 I am largely content to adopt this, subject to the following observations.
- 17 First, I think that a proper construction of the claims needs to include the claimed feature of performing processing on the received natural language sentence of the pet master, in order to generate the natural language understanding result.
- 18 Second, I note that claim 10 does not refer explicitly either to the questioning and answering server or the virtual pet server, and so is more broadly drawn.
- 19 Third, the independent claims are “for a virtual pet” but it is well-established that a claim to an apparatus for a particular purpose is construed as a claim to any apparatus, having the features specified, which is suitable for that purpose. While it could be said that subsequent pet-specific terms in the claims (such as “pet master” instead of “user”) limit the claim to virtual pets, I think this is highly arguable and so I will give the applicant the benefit of any doubt in this respect.
- 20 Thus I consider the independent claims to relate to a chatting system, method and questioning and answering server, all suitable for a virtual pet, in which a received natural language sentence of the user is processed to generate a natural language understanding result; the language characteristics of the user stored in a user language information database are adjusted according to the natural language understanding result; and the natural language response to be returned is generated according to the natural language understanding result and the language characteristics of the user.

Identifying the contribution

- 21 In paragraph 43 of *Aerotel*, it is made clear that identifying the contribution is probably best summed up as determining what the inventor has really added to human knowledge, and this involves looking at the substance and not the form of the claims (as construed in step one). However, the court in *Aerotel* acknowledged that, for a patent application (as opposed to a granted patent), it may only be possible to identify the alleged, and not the actual, contribution.

- 22 In the applicant's response of 24 April 2012, they state their view that the contribution relates to "the ability of continuously learning by the virtual pet the language characteristics of its master and reflect [*sic*] the language characteristics of its master in the response". Thus, they say, the problem to be solved (as per paragraph 43 of *Aerotel*) is "how to enable an ability of a virtual pet to continuously learn language characteristics of its master and respond to its master and reflect the language characteristics of its master in the response".
- 23 However, the applicant goes on to make some further points. They argue that the invention relates to "how to provide additional functionality within an electronic system" and they contend that the contribution "relates to the underlying functionality in the hardware". In their response of 31 October 2011, the point is expressed in terms of referring to the invention as "achieved by a new configuration of hardware and software" rather than in software alone. The applicant points to paragraph 53 of *Aerotel*, arguing that it emphasises "that such hardware aspects should not be disregarded when assessing the contribution of the invention".
- 24 In paragraph 53 of *Aerotel* the conclusion was that, although the system in question could be implemented using conventional computers, "the key to it is a new physical combination of hardware". The system as a whole was held to be new and so the contribution was found to be that new system.
- 25 Thus it does not necessarily follow that, because a particular element of a system is known, any contribution made by that element can be dismissed. This is because it is not as simple as slicing the invention up into its component parts and then assessing the novelty or inventiveness of each of those parts. What is required is to assess the contribution made by the claimed invention as a whole, and so the interaction between the various elements (known or otherwise) needs to be considered when making that assessment.
- 26 What does this mean for the present invention? First, although the invention as claimed clearly involves both hardware and software aspects, I can see no indication in the specification that the hardware involved is anything other than conventional. The server or servers operate and communicate in conventional ways and the user communicates through one of a number of conventional communication platforms. Neither can I see any basis in the specification for saying that the invention involves a new physical combination of that hardware.
- 27 Furthermore, I can see nothing in the specification to suggest that the known hardware has a fundamentally different quality or way of working as a result of performing the steps of the invention. I am not persuaded that there is any particular interaction between the known hardware and the software of the invention – such as that which provides continuous learning of the user's language characteristics – for it to be said that there is a contribution made to the sum of human knowledge by those hardware and software elements interacting in combination. I disagree with the applicant's contention that the contribution extends beyond the software itself, or should be considered as a new system or new configuration of hardware and software together.

- 28 The applicant also says that the contribution could find application in “other technical fields” and so is not exclusively related to virtual pet systems.
- 29 I agree that the contribution is not limited specifically to virtual pet systems. As noted under step one, the claims as construed are only limited to a system, method and server suitable for a virtual pet, and so the contribution must be identified accordingly. Whether or not the contribution is made in one or more “technical fields” is a point which falls to be considered under step three.
- 30 Therefore, I find that the contribution made by the claimed invention is software which provides better user interaction with a virtual entity, by enabling the continuous learning of the language characteristics of the user, and by generating responses to the user which reflect those language characteristics.

Does the contribution fall solely within excluded matter / is it technical in nature?

- 31 What I must now decide is whether the contribution identified above relates solely to a program for a computer, and so is excluded from patentability under section 1(2). This corresponds to step three of the *Aerotel* test.
- 32 The fourth step of the test is then 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 thus 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”.
- 33 In this respect, the applicant refers to paragraph 48 of *Symbian* and to the fact that the issue of exclusion must be resolved by answering the question of whether there is a technical contribution to the state of the art. I agree – the Court of Appeal in *Symbian* confirmed that the *Aerotel* steps do not depart from the requirement set out in previous case-law that the invention must provide a “technical contribution” if it is not to fall within excluded matter.
- 34 The applicant also says that “the mere fact that the invention is (or uses) a computer is not sufficient to decide exclusion”. Again, I agree that this is entirely right. The contribution made by the invention may reside solely in hardware, in software and hardware working together, or (as I have found in this case) solely in software. But, provided the contribution is a technical one, the invention is not excluded.
- 35 In the present case, the arguments concerning whether the contribution is excluded as being solely a computer program are entirely wrapped up with the question of whether the contribution is technical in nature. I have therefore considered the third and fourth questions together.

- 36 Some of the applicant's arguments in relation to steps three and four are based on an assessment of the contribution as being a new or improved electronic system, or a new configuration of hardware and software. Given my finding in relation to the contribution, these arguments fall away.
- 37 Nevertheless, the applicant also asserts that the continuous learning of the user's language characteristics, and the reflecting of those characteristics in the responses, is technical in nature. They say that "a new form of communication can be performed between two electronic devices and that undeniably involves a technical consideration".
- 38 I am uncertain what is meant by "involves a technical consideration", but if it means that the invention uses and involves computers and communication between servers, client software, databases and so on, then of course that is correct. But that is not the same as saying that the contribution, as identified in step two, is a technical one.
- 39 In terms of a "new form of communication", it is clear that what is new is the content of the communication from the virtual entity to the user. This improved content is generated by virtue of the analysis done on the user's language characteristics by the process of continuous learning carried out by the software. At a technical level, the communication processes and protocols between the devices are, to the extent they are discussed in the specification, conventional. It is the language processing and content provided by the software which is new, and which leads to an improved user experience. It does not seem to me that there is, in any technical respect, a new form of communication between devices taking place.
- 40 That said, it is helpful in this regard to consider the "signposts" set out by Lewison J in his judgment in *AT&T / CVON*³. These signposts can be used to indicate whether there is a relevant technical contribution, thus overcoming an excluded matter objection. They are:
- (i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;
 - (ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;
 - (iii) whether the claimed technical effect results in the computer being made to operate in a new way;
 - (iv) whether there is an increase in the speed or reliability of the computer;
 - (v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.

³ *AT&T Knowledge Ventures' Application and CVON Innovations Ltd's Application* [2009] EWHC 343 (Pat), [2009] FSR 19

- 41 I have my doubts that there is a “process” going on outside the computer at all, within the meaning of the first signpost. But if there is one, then it is the process of a user interacting with a virtual entity. The contribution made by the invention has an effect on this process, which is to make the language characterizing the content of the responses more realistic or enjoyable. I cannot see how this can be said to be a technical effect on the process; the technical aspects of the process of interaction are unchanged. The first signpost does not point towards a technical contribution.
- 42 On the second signpost, the identified contribution clearly does not operate at the level of the architecture of the computers involved. The architecture is conventional, and the effect being produced is entirely dependent on the software that is being run on the hardware involved.
- 43 I have already concluded, in assessing the contribution made by invention, that it does not extend to the known hardware elements having a fundamentally different quality or way of working. The software runs on conventional devices which communicate in a conventional way. They function with their conventional speeds and reliability. The software in question does not alter their conventional operation at a functional level. Signposts three and four do not point towards a technical contribution in the present case.
- 44 The fifth signpost looks for the overcoming of the perceived problem, rather than its circumvention. The problem identified in the present case is that of achieving more life-like and enjoyable responses from a virtual entity. Although the problem is overcome, rather than circumvented, by the language processing of the software, I am not persuaded – for the various reasons already given – that this amounts to providing a technical solution or improvement in light of a technical problem.
- 45 Having considered the five signposts, I do not see that any of them indicate that the present invention is patentable. I am satisfied that the contribution made by the invention is not “technical in nature”. It falls solely within excluded matter and fails to comply with steps three and four of the *Aerotel* test.

Conclusion

- 46 I conclude that the claimed invention is excluded from patentability under section 1(2)(c) because it is no more than a program for a computer.
- 47 I can find no further disclosure in the specification upon which patentable claims might be based. I therefore refuse the application under section 18(3) for failure to comply with section 1(2)(c).

Appeal

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

Dr J E PORTER

Deputy Director acting for the Comptroller