



PATENTS ACT 1977

APPLICANT	Google LLC
ISSUE	The Patents Act 1977: whether patent application GB2116574.1 complies with section 1(2) of the Act
HEARING OFFICER	Dr L Cullen

DECISION

- 1 This decision relates to whether the application, GB2116574.1, meets the requirements of section 1(2) of the Patents Act 1977 (“the Act”).

Background

- 2 Over several rounds of correspondence, the Examiner dealing with this case has maintained that both the claimed invention and the entire content of the application are excluded from patentability under section 1(2)(c) of the Act. No search for the invention has been performed, on the basis that it would serve no useful purpose in advancing the application under section 17(5)(b) of the Act.
- 3 The applicant contested the finding of excluded matter in a response to the examiner’s initial Abbreviated Examination Report (dated 29 November 2021) and requested a hearing before a hearing officer – a senior officer at the IPO who has not previously been involved with this application - in a letter dated 23 March 2022 responding to a further examination report from the examiner (dated 4 February 2022).
- 4 The issues to be decided by the hearing officer were set out in detail by the examiner in an annex to an official letter dated 16 May 2022 and the matter came before me at a hearing on 2 August 2022. The applicant was represented by Dr Robinson of Marks & Clerk LLP to whom I am grateful for skeleton arguments provided in advance of the hearing.
- 5 My analysis in the present decision is based upon the claims filed on 24 January 2022 and the corresponding specification.
- 6 The dossier for this patent application, including the claims and the related specification and drawings, the objections raised by the examiner and the applicant’s

arguments and observations can all be viewed at the IPO's online file inspection service:

<https://www.ipo.gov.uk/p-ipsum.htm>

Subject matter of the invention

- 7 As set out in the opening paragraphs of the description, the invention relates generally to “*determining reply content for a reply to an electronic communication and/or providing the reply content for presentation via a computing device for inclusion in the reply to the electronic communication*”.
- 8 The invention is described at length. Figure 1 and paragraphs 39 to 43 (included below) put the invention in context:

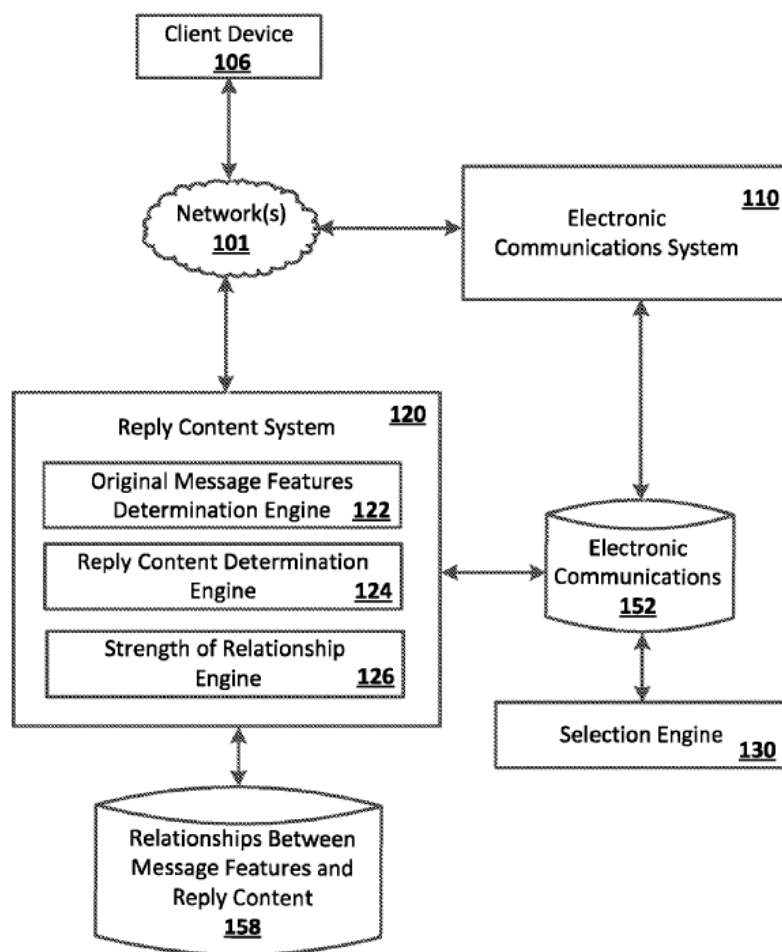


FIG. 1

“[0039] FIG. 1 illustrates an example environment in which a corpus of electronic communications may be analyzed to determine relationships between one or more original message features and reply content and/or in which reply text to include in a reply to a communication may be determined based on at least one defined relationship between one or more message

features of the communications and the reply text. The example environment includes a communication network 101 that facilitates communication between the various components in the environment. In some implementations, the communication network 101 may include the Internet, one or more intranets, and/or one or more bus subsystems. The communication network 101 may optionally utilize one or more standard communications technologies, protocols, and/or inter-process communication techniques. The example environment includes a client device 106, an electronic communications system 110, a reply content system 120, a selection engine 130, an electronic communications database 152, and a relationships [sic] between message features and reply content database 158.

[0040] Electronic communications system 110 and reply content system 120 may each be implemented in one or more computers that communicate, for example, through a network (not depicted). Electronic communications system 110 and reply content system 120 are example systems in which the systems, components, and techniques described herein may be implemented and/or with which systems, components, and techniques described herein may interface. Electronic communications system 110 and reply content system 120 each include one or more memories for storage of data and software applications, one or more processors for accessing data and executing applications, and other components that facilitate communication over a network. In some implementations, electronic communications system 110 and/or reply content system 120 may include one or more components of the example computer system of FIG. 9. The operations performed by electronic communications system 110 and reply content system 120 may be distributed across multiple computer systems. In some implementations, one or more aspects of reply content system 120 may be combined with electronic communications system 110 and/or one or more aspects of electronic communications system 110 and/or reply content system 120 may be implemented on the client device 106.

[0041] Generally, in some implementations reply content system 120 analyzes a corpus of electronic communications, such as a corpus of electronic communications of electronic communications database 152, to determine relationships between one or more original message features of "original" messages of communications and reply content that is included in "reply" messages of those communications. In some of those implementations, the relationships between the original message feature(s) and the reply content may be determined without allowing direct human access to one or more (e.g., any) of the electronic communications of the corpus.

[0042] Generally, in some implementations, reply content system 120 additionally and/or alternatively determines and provides reply text to include in a reply to a communication, such as a communication provided by client device 106 and/or a communication of electronic communications database 152 to which a user has yet to reply. The reply content system 120 may determine the reply text based on one or more determined

relationships between one or more message features of the communication and the reply text. In some implementations, the reply content system 120 may provide the reply text for inclusion in a reply to a communication independent of any textual input provided by the user in generating the reply to the communication.

[0043] The electronic communications database 152 includes one or more storage mediums that include all, or portions of, electronic communications of a plurality of users. In some implementations, the electronic communications database 152 is maintained by the electronic communications system 110. For example, the electronic communications system 110 may include one or more email systems and the electronic communications database 152 may include a plurality of emails that are sent and/or received via the email systems. As another example, the electronic communications system 110 may include one or more social networking systems and the electronic communications database 152 may include a plurality of messages, posts, or other communications that are sent and/or received via the social networking systems.”

The Invention as claimed

9 The invention has two independent claims. Claim 1, as amended, reads as follows:

“1. A method implemented by one or more processors, the method comprising:

identifying an electronic communication that is formulated by a sending user and sent to a receiving user;

determining one or more message features of the electronic communication;

providing the one or more message features as input to a trained machine learning system;

receiving, as output from the trained machine learning system in response to providing the given message features as input, an indication of multiple suggested textual replies that are appropriate for replying to the electronic communication, wherein the multiple suggested textual replies include at least a first textual reply and a second textual reply;

determining, based on the output, to provide at least the first textual reply and the second textual reply as suggestions for replying to the electronic communication;

before the receiving user has started typing, via a client device, any reply to the electronic communication:

causing the client device to present the first textual reply and the second textual reply along with a presentation of the electronic communication, wherein the first textual reply and the second textual reply are each selectable;

receiving a selection of the first textual reply or the second textual reply; and in response to receiving the selection:

automatically sending a reply to the electronic communication, wherein the reply includes the selected of the first textual reply or the second textual reply.”

10 Claim 6, as amended, reads as follows:

“6. A method implemented by one or more processors, the method comprising:
identifying an electronic communication that includes:
an original message formulated by a sending user, and
a reply message that is responsive to the original message and that
is formulated by a replying user, wherein the reply message
includes a textual segment that includes a particular name of the
sending user and one or more additional terms;
generating a training example based on the electronic communication,
wherein generating the training example includes:
generating one or more input parameters for the training example
based on at least one feature of the original message;
generating at least one output parameter for the training example,
wherein the at least one output parameter indicates the given textual
segment with the particular name of the given sending user replaced by a
higher level indication of a sender's name;
training a machine learning system based on the training example
and based on a plurality of additional training examples generated based
on additional electronic communications;
subsequent to training the machine learning system:
identifying a new electronic communication sent by an additional
sending user to an additional receiving user;
providing given message features of the new electronic
communication as input to the trained machine learning system;
receiving, as given output from the trained machine learning system
in response to providing the given message features as input, a given
indication that the given textual segment with the higher level indication of
a sender's name is appropriate for inclusion in a given reply to the given
electronic communication;
generating a suggested textual reply by replacing the higher level
indication of the sender's name with a name of the additional sending user
that sent the new electronic communication, wherein the suggested textual
reply includes the name of the additional sending user and includes the
one or more additional terms;
causing a client device of the additional receiving user to present the
suggested textual reply as a suggestion for inclusion in the given reply to
the new electronic communication,
wherein causing the client device to present the suggested textual
reply comprises causing the client device to present the suggested textual
reply along with presentation of the new electronic communication and
before the additional receiving user has started typing, via the client
device, any reply to the new electronic communication.”

Claim 6 falls within the scope of claim 1 as it includes additional features relating to machine learning to the features claimed in claim 1.

The Relevant Law

Section 1(2) - Excluded Subject Matter

- 11 The relevant law is defined in section 1(2) of the Act and can be viewed online at the IPO's website:

The Act: <https://www.gov.uk/guidance/the-patent-act-1977>

- 12 In the present case we are interested in the exclusion from patentability under the Act for a program for a computer and for a method of doing business.

- 13 The Manual of Patent Practice ("The Manual") explains the IPO's practice under the Act and makes helpful references to relevant case law. The Manual can be viewed online at the IPO's website:

The Manual: <https://www.gov.uk/guidance/manual-of-patent-practice-mopp>

- 14 In particular, sections 1.07 to 1.40.4 of the Manual, which relate to excluded subject matter, are relevant to the issues before me.

- 15 There is no dispute concerning the relevant law and its application to the facts of this case.

The Relevant Case Law

- 16 There is no dispute that the correct approach to dealing with excluded matter cases is the four step test set out in [Aerotel Ltd v Telco Holdings Ltd & Ors Rev 1 \[2007\] RPC 7](#) (*Aerotel/Macrossan*). The test comprises four steps, which are as follows:

- (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.

- 17 As indicated already, in this case we are concerned with whether the present application in suit is excluded under Section 1(2) of the Act as (a) a computer program as such; and/or (b) as a method for doing business. I will consider each of these exclusions in turn following the approach set down in *Aerotel/Macrossan*.

(a) Program for a computer

Step 1 – Properly Construe the Claim

- 18 Regarding construction, the examiner and Dr Robinson are agreed that claim 1 is clear and I agree.

Step 2 – Identify the Actual Contribution

- 19 As for the contribution, ostensibly the examiner and Dr Robinson agree once again. However, whereas Dr Robinson argues that the contribution lies in an improved human-computer interface, the examiner sees it as a computer program that performs a number of tasks. According to Jacob LJ in paragraph 43 of *Aerotel/Macrossan* – the critical factors for the examiner to consider are:

“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.”

- 20 What has the inventor added to human knowledge here? What is claimed is a method implemented by one or more processors that begins with an incoming electronic communication and ends with sending a reply to that communication. There are a number of steps between the incoming and outgoing messages, one of which is a selection that is made by a user. Consequently, it seems to me that a human-computer interface is an implicit feature of the invention. However, as paragraph 1.21 of the Manual of Patent Practice explains, in the *Lantana*¹ decision from the Court of Appeal, Kitchin LJ set out the importance of considering the proper context of an invention when assessing the contribution, accepting the *“submission that it is the claim as a whole which must be considered when assessing the contribution which the invention has made, and that it is not permissible simply to cut the claim into pieces and then consider those pieces separately and without regard to the way they interact with each other”*. In this case I do not feel that the contribution can be summed up as a human-computer interface, although that is apparently a necessary feature of the invention.
- 21 I have some sympathy with the examiner’s formulation of the contribution since it reflects a number of the steps in the method that is claimed. Since the method claimed is explicitly *“implemented by one or more processors”* it seems inevitable that a computer program is involved. Once again though I feel that this is necessary, but not sufficient, to reflect what the inventor has added to human knowledge.
- 22 To my mind the contribution that the applicant has made is:

an improved communication process between two users, the alleged improvement lying in a faster and more accurate process for determining and presenting to a user two alternative replies. This process uses the features of the message from the first user to offer a choice of two replies to the second user who chooses which one to use, which is then sent

I say alleged improvement since in the absence of a search I cannot readily comment on what advance there is over the prior art.

Step 3 - ask whether the contribution falls solely within the excluded subject matter.

Step 4 – check whether the actual or alleged contribution is actually technical in nature

¹ *Lantana v Comptroller-General of Patents* [2014] EWCA Civ 1463 (see especially para 64)

- 23 Both the examiner and Dr Robinson considered the updated signposts that were provided in *HTC v Apple* [2013] EWCA Civ 451 as guidance when considering whether a program for a computer makes a technical contribution:
- (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.
- 24 The examiner considered all of the signposts and Dr Robinson commented on signposts (i), (iii) and (iv) in his skeleton arguments and, more particularly, on signposts (i) and (iv) during the hearing. I will consider each signpost in turn below.
- 25 Whilst acknowledging that the second user is outside the computer, for the examiner any effect on the user is not technical and signpost (i) does not indicate a technical contribution. They went on to argue that simply automating a manual step is insufficient to be a technical contribution. In their initial abbreviated examination report, the examiner made reference to the *Lantana* decisions^{1,2} in order to make the point that the computer, for the purpose of signpost (i), need not be a single computing device and may include one or more processors and client devices such as referred to in claim 1 of this application. The examiner also stated that “*the mere use of real-world data or user input (e.g., a user replying to an email) does not provide the required technical contribution*”.
- 26 By contrast Dr Robinson argued that the task is inherently related to communication between two devices. That such communication is outside the computer is clear, not least given the presence of users, but signpost (i) refers to a technical effect on such a process. Dr Robinson took me to the *Protecting Kids The World Over (PKTWO)* decision³ to argue that the process of the present invention is analogous to a process discussed in *PKTWO* in which alarms are sent to a user at a remote terminal more rapidly and more reliably. He noted that this process was found not to be excluded in *PKTWO*. He made a similar point regarding the on-screen selection mechanism that resulted in data transfer in the so-called transfer patent discussed in *Gemstar*⁴ and referenced in *PKTWO*.

² *Lantana v Comptroller-General of Patents* [2013] EWHC 2673 (Pat)

³ *Protecting Kids The World Over (PKTWO) Ltd's Patent Application* [2011] EWHC 2720 (Pat)

⁴ *Gemstar–TV Guide International Inc v Virgin Media Limited* [2009] EWHC 3068 (Ch)

- 27 I am not persuaded by the previous argument, in my view, the contribution made by the present application is providing the results of the analysis of the features of the communication provided by the computer program so the receiving user can choose which one to use. Thus it is relying on the effect of the presentation of this choice to the user. Including the step of sending the chosen communication to the sending user in reply does not alter this in my view.
- 28 To my mind what is claimed in claim 1 of this application is essentially a computer implemented alternative to a human correspondence assistant instructed to check incoming messages, then, based on their experience of previous communications, to draft two potential responses for the receiving user to select from and then to send out the selected response. Such a human implemented method might well be quicker and more accurate from the perspective of the receiving user, but the effect produced is not a technical effect. The effect produced by the method of claim 1 is much the same effect and is similarly not a technical effect to my mind and so signpost (i) does not point to a technical contribution.
- 29 Dr Robinson had nothing to say regarding signpost (ii) and as the examiner observed in their latest letter (see annex to official letter dated 16 May 2022) the invention does not operate at the level of the architecture of the computer and I agree with the examiner that this signpost does not apply here.
- 30 Regarding signposts (iii) and (iv), Dr Robinson argues that the computer operates in a new way since the method allows a response to an electronic communication to be more quickly and accurately transmitted and, as a consequence, the computer runs more efficiently and effectively.
- 31 For their part, the examiner states that the computer itself must operate differently than it did before as a result of the programme being run for signpost (iii) to indicate a technical contribution or for signpost (iv) to indicate that an intrinsically better computer has been provided.
- 32 To accept Dr Robinson's argument regarding signposts (iii) and (iv), would I think be tantamount to accepting that the mere running of a program results in a computer operating in a new way and operating more efficiently and effectively. The method claimed in this invention does not, in my view, result in either outcome and so signposts (iii) and (iv), do not point towards a technical contribution.
- 33 In the alternative, Dr Robinson has argued that the invention of claim 6 (see above) makes an additional contribution that indicates a technical effect according to signpost (iv).
- 34 Claim 6 provides additional details of how the machine learning system is trained. According to Dr Robinson this overcomes a problem in which "bad" training data results in an ineffective trained machine learning system and as a result the computer will work more effectively as a computer. I cannot see that the argument regarding claim 6 is any different to that regarding claim 1. The machine learning steps are conventional so far as they relate to the use of previous communications from the sending user to provide training examples to inform the suggested responses for the receiving user to choose and send. This does not alter the overall contribution outlined above in my view and so does not provide any additional aspects that render this

contribution technical. To my mind, signpost (iv) does not suggest a technical effect from the invention of claim 6.

- 35 As the examiner considers that neither the problem to which the invention is addressed nor the approach it proposes to tackle this problem is technical, then, in their view, signpost (v) cannot apply. While Dr Robinson did not address me directly regarding signpost (v), he did argue that the invention as claimed allows a user to send a response to an electronic communication more quickly and accurately. This coincides with the thinking of the examiner in describing the problem at paragraph 8 in the annex to their letter dated 16 May 2022. I think that this is much the same as the “*better*” or “*different interface*” discussed in *Gemstar*. I note that the examiner made this point in paragraph 20 of the annex to their letter dated 16 May 2022. On balance, this is about what the user perceives and interacts with, and whether this is “*better*” does not give the invention a technical effect. As I said in the context of signpost (i) above, it seems to me that the improved speed and accuracy of responding to an electronic communication which the invention claims to provide is not a technical effect. It follows that I agree with the examiner that signpost (v) does not apply.
- 36 As a final step I must check whether the contribution, alleged rather than actual in this case, is technical in nature.
- 37 From the above discussion, I have concluded that improved speed and accuracy of responding to an electronic communication which the invention is claimed to provide is not a technical effect.

(b) Method of doing business

Step 1 – Properly Construe the Claim

- 38 I considered this above in the context of the program for a computer exclusion and agreed with the examiner and Dr Robinson that claim 1 is clear.

Step 2 – Identify the Actual Contribution

- 39 I concluded earlier that the contribution that the applicant has made is essentially an improved communication process between two users, the alleged improvement lying in a faster and more accurate process for determining and presenting to a user two alternative replies. Once again, I say alleged improvement since in the absence of a search I cannot readily comment on what advance there is over the prior art.

Step 3 - ask whether the contribution falls solely within the excluded subject matter.

Step 4 – check whether the actual or alleged contribution is actually technical in nature

- 40 In their initial abbreviated examination report of 29 November 2021, the examiner argued that determining and generating suitable replies to an electronic communication is a business consideration, administrative in nature, and reducing the time taken to reply to a communication is a business advantage. The examiner relied

on *Merrill Lynch*⁵ and *Halliburton*⁶ to point out that simply providing an improvement over previous methods, for example, by being faster or more efficient as a result of being computerized, is immaterial to section 1(2)(c) considerations regarding a business method. Subsequently, the examiner reiterated the business method objection mainly by referencing this initial examination report.

- 41 In his skeleton arguments Dr Robinson argues that the invention allows a user to respond to an electronic communication with minimal interactions and as little distraction as possible. He referred to real-world problems, device limitations, speed and accuracy of response, reduction in display refresh requirements and device resources. Much of this line of argument seems to be exactly the sort of argument that Birss J cautioned against in *Halliburton*^{6,7}.
- 42 At the hearing Dr Robinson argued that he could not see that the invention of claim 1 could be carried out by a businessperson, the implication being that as a result it could not be a business method.
- 43 If that were the test then I think that most, if not all, computer implemented inventions would evade the business method exclusion, including the computerized book-keeper to which Birss J referred in *Halliburton*. That cannot be the correct approach. To quote Fox LJ from *Merrill*:

“The section draws no distinction between the method by which the mode of doing business is achieved. If what is produced in the end is itself an item excluded from patentability by section 1(2), the matter can go no further.”

- 44 It seems to me that preparing and presenting alternative replies to communications based on features, such as words, of those communications and subsequently sending a selected one of the alternatives is, essentially, an administrative act. As such, it is one that I have noted could be conceived as being performed by a suitably trained person, but in this case is performed by one or more processors and a trained machine learning system. It further seems to me that it follows that such an administrative act falls within the business method exclusion

Compliance Date

- 45 I note that the compliance period under Section 20 of the Act and Rule 30 of the Patents Rules 2007, as amended, (the Rules) for the present application was extended under Rule 108(3), until 25 July 2022. No further request to extend the compliance period has been received within the two-month period immediately following this date.

Conclusion

- 46 Taking all of the above into account, I consider that claim 1 relates to a computer program as such and also to a method for doing business. Thus, patent application

⁵ *Merrill Lynch's Application* [1989] RPC 561

⁶ *Halliburton Energy Services Inc's Applications* [2012] RPC 129

⁷ See especially para 35

GB2116574.1 fails to meet the requirements of section 1(2)(c) of the Act and it is refused under section 18(3) of the Act.

Appeal

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

Dr L Cullen

Deputy Director, acting for the Comptroller