



PATENTS ACT 1977

APPLICANT Adobe Systems Incorporated

ISSUE Whether Patent application GB1610166.9 complies
with Section 1(2)

HEARING OFFICER Mrs S E Chalmers

DECISION

- 1 Patent application number GB 1610166.9 was filed on 10 June 2016 claiming a priority date of 11 August 2015 from an earlier application. It was published on 15 February 2017 as GB2541275.
- 2 The abbreviated examination report, dated 28 November 2016, reported that the claimed invention was excluded from patentability as a business method and a computer program as such and no search was performed as it would not serve a useful purpose. Several rounds of amendment and re-examination followed which overcame other objections, but the examiner maintained that the invention was excluded throughout. A hearing was offered in the examination report of 20 June 2019 highlighting that if the agent responded but did not request a hearing then the application may, nonetheless, be passed for a decision on the papers on file. The agent responded on 13 August 2019 with further amendments and arguments, but these didn't convince the examiner and the case was passed to me for a hearing on the papers. A letter, setting out the issue upon which the hearing was to be held, was sent further on 24 October 2019.
- 3 I confirm that in reaching my decision I have considered all the correspondence on file.

The Invention

- 4 The application is entitled "Visitor Identification based on feature selection" and describes techniques whereby clickstream data of interactions with online resources by unknown visitors are associated with known visitors. It is said that the characteristics of individual users can be gleaned by analysis of clickstream data (e.g., logging of page requests, selections, clicks, navigation actions, and the like). The application provides an alternative to conventional tracking cookies which are said to have several problems as they can change over time, be deleted or disabled, are different for multiple different devices that a user may employ and provide no

way to link related clickstreams across devices and time. As a result, tracking data used to analyse and make marketing decisions is incomplete, which can adversely impact digital marketing objectives, such as for revenue, satisfaction and offer acceptance.

- 5 The described system includes a data collection module to collect clickstream data for interaction with digital media content corresponding to an unknown visitor and a visitor identification module to identify individuals corresponding to those interactions. The system uses an information retrieval model based on features of clickstream data which correspond to attributes of web traffic such as time and date fields, device ID, browser type, user identifiers, device settings, language, user agent string, IP address, cookie ID, and location. The features are selected for completeness (a feature that occurs in each data instance of an individual profile), consistency (a feature has the same value for each instance), and uniqueness (such as a unique identifier, does not occur in any other profile) among a corpus of profiles. Scores are computed as a sum over the selected features of factors indicative of uniqueness and frequency of the selected features relative to the individual profiles. Weights are associated with the factors to enable tuning of the influence of different factors on the score. The visitor identification module determines whether a threshold relevance score is achieved and merges the clickstream data with a top-ranking profile. If the threshold relevance score is not achieved, a new profile is created for the clickstream data.
- 6 In some implementations, a digital marketing environment operates to identify consumers associated with interactions with resources to control access to the digital media content and serve individualized marketing offers and content targeted to characteristics of the consumers indicated by their profiles. Such offers may include advertisements, links to other services and content, individualized digital media content, digital coupons, informative and promotional offers. The described system is said to enable more efficient and effective marketing decision analysis, which increases the likelihood that users will be satisfied with targeted content or offers provided based on the marketing decision analysis.

The claim

- 7 The current claim set includes a single claim:
 1. *A computing system comprising:
a processing system;
one or more computer-readable media storing instructions that, when executed by the processing system, implement a data collection module (122) and a visitor identification module (126) configured to perform operations to identify individuals corresponding to visitor interactions with resources available from a service provider including:
obtaining, using the data collection module (122), clickstream data for interaction with digital media content corresponding to an unknown visitor;
transforming, using the visitor identification module (126), the clickstream data into a query for an information retrieval model arranged to utilize features selected according to feature selection analysis that accounts for completeness, consistency, and uniqueness of features among a corpus of profiles established for known visitors,*

wherein completeness measures an extent to which a feature occurs in each clickstream data instance of an individual profile,
wherein consistency measures an extent to which a feature has the same value across different clickstream data instances of an individual profile, and
wherein uniqueness measures an extent to which a feature does not occur in any other profile;
computing, using the visitor identification module (126), relevance scores for the query with respect to individual profiles, the relevance scores computed as a sum over the selected features of factors indicative of uniqueness and frequency of the selected features relative to the individual profiles,
wherein computing relevance scores comprises assigning different weights to different selected features to control influence of the selected features to the overall relevance score;
ranking, using the visitor identification module (126), relevance of profiles to the query according to the relevance scores;
determining, using the visitor identification module (126), whether a threshold relevance score is achieved; and
when the threshold relevance score is achieved, merging the clickstream data with a top-ranking profile; or
when the threshold relevance score is not achieved, creating a new profile for the clickstream data.

The law

- 8 The section of the Act concerning inventions excluded from patentability is Section 1(2), which reads:
- “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) a scheme, rule or method for ... doing business 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.”
- 9 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 (or alleged) contribution;*

¹ *Aerotel Ltd v Telco Holdings Ltd (and others) and Macrossan’s Application* [2006] EWCA Civ 1371

- 3) *Ask whether it falls solely within the excluded subject matter;*
- 4) *Check whether the actual or alleged contribution is actually technical in nature.*

- 10 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.
- 11 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”.
- 12 The case law on computer implemented inventions was further elaborated in *AT&T/CVON*³ 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 had been 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 make the computer a better computer in the sense of running more efficiently and effectively as a computer; and*
 - v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.*
- 13 The reports on file also refer to the decisions in *Lantana*⁵, *Halliburton*⁶, *PKTWO*⁷ and the Hearing Officer’s decisions in other Adobe applications⁸.

Application of the Aerotel approach

Step 1: Properly construe the claim

² *Symbian Ltd’s Application* [2009] RPC 1

³ *AT&T Knowledge Ventures LP and CVON Innovations Limited v Comptroller General of Patents* [2009] EWHC 343

⁴ *HTC v Apple* [2013] EWCA Civ 451

⁵ *Lantana v Comptroller-General of Patents* [2013] EWHC 2673 (Pat)

⁶ *Halliburton Energy Services Inc’s Applications* [2011] EWHC 2508 (Pat), [2012] RPC 129

⁷ *Protecting Kids the World Over (PKTWO) Ltd’s Patent Application* [2011] EWHC 2720 (Pat), [2012] RPC 13

⁸ *Adobe Systems Incorporated BL O/420/19 and Adobe Systems Incorporated BL O/360/19*

- 14 The agent and examiner agree that the independent claims are substantially clear in scope. I agree.

Step 2: Identify the actual (or alleged) contribution

- 15 The examiner proposes that the application seeks to overcome problems with targeted advertising and personalising content within a digital media environment matching content to users who are not logged in whilst acknowledging that claim 1 is not limited in this regard. They say that the application works by selecting features to use for the matching of clickstream data collected for unknown visitors to profiles established for known visitor identifiers and matching the consumers to the profiles established for the known visitor identifiers based on relevance scores of the clickstream data for the unknown visitors relative to the profiles; if a relevance score threshold value is not reached a new profile may be created.
- 16 The agent acknowledges in their letter of 13 August 2019 that such considerations could be considered as an aim of the invention but proposes that there is a distinction between the aim and the actual contribution that the implementation of the claimed invention defines. They go on to say that from a sufficiently high-level perspective the subject-matter of nearly every application ultimately has business aims as business considerations are the reasons businesses choose to patent a given invention in the first place.
- 17 The examiner asserts that the alleged contribution does not reside in the hardware or the system per se as any hardware is commonplace. Whilst no formal search was conducted the examiner was aware of a document, US 7251687 B1, which they say supports this assertion. Instead they say that the alleged contribution lies in matching users to profiles and delivering targeted/personalised content. The examiner considers the alleged contribution of claim 1 to be:

A computer implemented method of merging clickstream data with a profile or creating a new profile for the clickstream data. Clickstream data for interaction with digital media content corresponding to an unknown visitor is obtained and transformed into a query for an information retrieval model which is arranged to utilise features that account for completeness, consistency, and uniqueness of the features among profiles of collected clickstream data. Relevance of profiles to the query are ranked according to a relevance score which is influenced by weightings applied to different selected features. If a threshold relevance score is achieved the clickstream data is merged with the top-ranking profile. If it is not achieved a new profile is created. This provides the advantage of allowing the system to disambiguate between users without the need for a user to explicitly identify themselves.

- 18 The agent disagrees with this assessment. They say, in their letter of 9 August 2017, that while the claim includes various business like features, at its core, the contribution can be thought of as a method for allowing a system of computing devices to disambiguate between users (i.e. decide whether to merge an unknown user with an existing profile or to create a new profile) even when users use different client devices and without the need for users to explicitly identify themselves. Turning to US 7251687 B1 the agent asserts that it is primarily concerned with accumulating profiles on individuals from a plurality of different data sources, that it

cannot handle any kind of ambiguity in identifying users nor does it disclose the specifically claimed features. In their letter dated 13 August 2019 the agent proposes that the contribution is:

A technique which can disambiguate between users using a computer system without explicit user identification, the implementational technique allowing for straightforward adaptation to a variety of different usage scenarios (through the manipulation of model weight features), even where users use inconsistent client devices.

- 19 The examiner argues that the agent's contribution is essentially the same as his without explicitly stating the steps of how the clickstream data is analysed and merged into known and new profiles. To my mind neither proposed contribution truly captures the essence of the alleged invention. I will proceed based on the following alleged contribution:

A computing system configured to disambiguate between users from attributes of web traffic for interactions with content by; transforming the web traffic attributes into a query for an information retrieval model; computing relevance scores for the query with respect to individual profiles as a sum of weighted selected features; and, determining whether a threshold relevance score is achieved (whereby the user matches a profile of a known user).

Steps 3 and 4: Ask whether it the contribution falls solely within the excluded subject matter and whether it is technical

- 20 The examiner argues that the alleged contribution is no more than business method and computer program as such. The agent disagrees noting that regardless of whether or not an invention includes non-technical aims, the implementation of that invention can, and they propose the present claims do, involve technical considerations. The agent asserts that the contribution to the art is actually technical and provides a system which is able to automatically identify users across a plurality of client devices without the need for a user to explicitly identify themselves.
- 21 The examiner proposes that analysing clickstream data to probabilistically match a user to a user profile, or create a new profile, to update data which could be considered to fall within the definition of marketing data can be considered to fall within the excluded matter as a method of doing business. They consider that the task is administrative in nature and is undertaken for marketing purposes in the described embodiments. Whilst they acknowledge that the claim is not directed specifically to such embodiments they conclude that such embodiments fall within the scope of the claim and that the method of doing business exclusion is still applicable.
- 22 As stated above the agent acknowledges that business considerations could be considered to be an aim of the alleged contribution, but they propose that there is a distinction between the aim and the contribution that the implementation of the claimed invention defines.
- 23 I agree with the examiner. The embodiments of the invention refer extensively to a specific example implementation in which the user is identified to serve

individualized marketing offers; no other example implementations are given. Whilst the claim is not limited to these features marketing falls within the scope of the claim which thus relates to a method of doing business as such.

- 24 Turning to the computer program exclusion the examiner has no doubt that claim 1 would be effected by a computer program but acknowledges that that does not mean that it is immediately excluded as a computer program as such. I agree. They go on to consider whether the program provides a technical contribution considering the *AT&T* signposts as a helpful guide as to whether there is a technical contribution and I will do the same.
- 25 Considering the first signpost the examiner notes that the reference to ‘the computer’ in this signpost covers arrangements/networks of computers as was the case in *Lantana*. They say that the invention involves a conventional network of computers and that there isn’t a technical effect on a process which is carried on outside the network. The examiner proposes that the invention analyses user clickstream data in relation to known user profiles and is effected entirely within the network computers. I agree, this signpost is not satisfied.
- 26 The agent argued in their letter of 9 August 2017 that the technical effect operates at the level of architecture of the computer because it disambiguates between users on behalf of any application and irrespective of what data is being processed. The examiner disagrees stating that the claimed technical effect clearly does not operate at a level of the architecture of the computer. Instead they say that the claimed effect is a result of running an application on the computer which deals only with analysing user interactions with digital media content and user profile management. They assert that the application is intrinsically linked to the data being processed and as a result the second signpost points away from a technical contribution as it does not operate irrespective of the data being processed. I agree, the effect does not operate at the level of architecture of the computer and the second signpost is not met.
- 27 With regards to the third signpost the examiner proposes there is nothing other than the sort of effect that any computer would have if programmed differently and that therefore the third signpost does not assist the applicant. I agree.
- 28 Regarding the fourth signpost the examiner asserts that the program does not make the computer a better computer in the sense of running more efficiently and effectively as a computer. They propose that computer itself is not operating more efficiently and effectively, rather it is operating in much the same way as before albeit it is being asked to do something different and the fourth signpost does not indicate that the program provided a technical contribution. Again, I agree.
- 29 The examiner notes that the fifth signpost looks at the technical character of an alleged invention by means of the problem addressed. When the problem is a technical one, the alleged invention can be considered to have a technical nature leading to it falling outside the exclusion if it solves the problem. They highlight that in *Lantana* Mr Justice Birss stated:

“It makes sense to think of something which is a solution to a technical problem as itself having technical character because it takes that character from the technical nature of the problem to be solved. But if a thing is not

solving the technical problem but only circumventing it, then that thing cannot be said to have taken any technical character from the problem.”

- 30 In their letter of 9 August 2017, the agent asserts that the contribution is technical because it solves, rather than circumventing, the technical problem of identifying users across a plurality of devices. The examiner acknowledges that this problem may have been addressed by the method of claim 1 rather than merely being circumvented. However, they say that this is not a technical problem, but a non-technical problem relating to profile management and the probabilistic matching of users to profiles through analysis of non-technical user data, i.e. clickstream data.
- 31 In the letter dated 13 August 2019 the agent notes that they are not advancing the argument that disambiguating between users per se is a technical problem. They identify the problem of ‘how a computer system can be provided with a technical implementation which is capable of disambiguating between users’ and assert that this is technical. They go on to state that the solution to this implementational problem works by ‘using an information retrieval model arranged to utilize weighted features considering their completeness, consistency and uniqueness in a corpus of known models to answer a query generated from newly acquired clickstream data.
- 32 The examiner doesn’t agree that this is the problem the proposed invention seeks to address and notes that such an argument could be made for essentially any computer program (i.e. that the problem is not what the program seeks to solve but how to implement the solution on a computer). The examiner highlights the judgement of HHJ Birss QC in *Halliburton Energy Services Inc's Applications* [2011] EWHC 2508 (Pat) {which is reproduced by Mr Justice Floyd in *Protecting Kids the World Over (PKTWO) Ltd's Patent Application* [2011] EWHC 2720 (Pat)} to conclude that this is not enough to overcome the exclusions. They go on to say that they can’t identify a technical contribution in the current system and instead propose that it amounts to high-level software programming, applying known data analysis techniques to the particular problem of identifying user behaviours matching/not matching profiles to disambiguate between users. The examiner also notes that the argument that the problem addressed is ‘how a computer system can be provided with a technical implementation which is capable of...’ has been dismissed in each of several recent hearings on other applications including *Adobe Systems Incorporated* BL O/420/19 and *Adobe Systems Incorporated* BL O/360/19 amongst others for similar reasons. And as such, they conclude that there is nothing in the fifth signpost that indicates the program provides a technical contribution.
- 33 To my mind the problem the application seeks to mitigate relates to inefficient and ineffective marketing decision analysis which arises from using tracking cookies. The solution analyses clickstream data to disambiguate users and thereby enable more efficient and effective marketing decision analysis. This is a marketing problem not a technical problem and the fifth signpost is not met.
- 34 None of the signposts point to the alleged contribution providing a technical effect. Taking a step back and considering it more broadly I find the alleged contribution is not technical in nature. Therefore claim 1 also relates to a program for a computer as such.

35 In conclusion I find that the invention defined by claim 1 is excluded by Section 1(2) of the Act as a method for doing business and program for a computer as such. I have considered the whole specification and cannot identify any features which would alter this conclusion.

Decision

36 I have found that the contribution made by the invention defined by the claims falls solely in matter excluded from patentability by virtue of Section 1(2) of the Act as a method for doing business and program for a computer as such. I therefore refuse this application under Section 18(3).

Appeal

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

Mrs S E Chalmers

Deputy Director, acting for the Comptroller