

This document includes some recent decisions of the EPO in 2024 with regards to software related inventions and shows relevant extracts from the respective decisions.

T 1170/23 17-05-2024

Europäischer Rechtsprechungsidentifikator ECLI:EP:BA:2024:T117023.20240517

VERFAHREN ZUM BETREIBEN EINES FAHRZEUGS UND ZUM BETREIBEN EINES FERTIGUNGSSYSTEMS

Erfinderische Tätigkeit - (ja)

Anmeldenummer 15784654.4

IPC-Klasse B62D 65/18, G05D 1/02, G06Q 10/08

Name des Anmelders Robert Bosch GmbH

Kammer 3.2.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t231170du1.pdf>

Anspruch 1 des Hauptantrags lautet wie folgt:

Verfahren zum Betreiben eines Fahrzeugs (401), wobei das Fahrzeug (401) im Rahmen seiner Fertigung autonom oder ferngesteuert innerhalb eines Fertigungssystems (501) zur Herstellung von Fahrzeugen fährt (101), wobei das Fertigungssystem (501) eine Fertigungsstraße für eine Fahrzeugfertigung und einen Parkplatz aufweist, wobei das Fahrzeug (401) am Ende der Fertigungsstraße zum Parkplatz fährt (201) und sich auf dem Parkplatz abstellt (203), wobei das Fahrzeug (401) ein AVP-Fahrzeug, also ein autonomes fahrendes Fahrzeug, das zusätzlich noch automatisch ein- und ausparken kann [ist], wobei überprüft wird, ob die AVP-Funktionalität des Fahrzeugs (401) betriebsbereit ist und wobei das Fahrzeug (401) für die autonome Fahrt relevante Daten empfängt, basierend auf welchen das Fahrzeug (401) autonom innerhalb des Fertigungssystems (501) fährt oder wobei für das ferngesteuerte Fahren ein oder mehrere Fernsteuerungsbefehle von dem Fahrzeug (401) empfangen werden, wobei das Fahrzeug (401) ansprechend auf den oder die Fernsteuerungsbefehle entsprechend ferngesteuert fährt, und wobei die für die autonome Fahrt relevanten Daten oder die Fernsteuerungsbefehle von dem Fertigungssystem (501) an das Fahrzeug gesendet werden, so dass das Fertigungssystem (501) hinsichtlich der AVP-Funktionalität die Funktionalität eines Parkplatzmanagementsystems oder Parkplatzverwaltungssystems übernimmt.

1. Der Gegenstand des Anspruchs 1 ist neu gegenüber Dokument D1 (Artikel 54 EPÜ) und **beruht auf einer erfinderischen Tätigkeit, ausgehend von Dokument D1 in Kombination mit dem allgemeinen Fachwissen** (Artikel 56 EPÜ).

Die Prüfungsabteilung hat dies für den seinerzeit vorliegenden Anspruch 1 in Abrede gestellt.

1.1 Im wesentlichen unterscheidet sich der Gegenstand des Anspruchs 1 von dem Verfahren aus D1 durch die folgenden Merkmale:

- a) "...ein AVP-Fahrzeug, also ein autonom fahrendes Fahrzeug, das zusätzlich noch automatisch ein- und ausparken kann...";
- b) "...das Fertigungssystem hinsichtlich der AVP-Funktionalität die Funktionalität eines Parkplatzmanagementsystems oder Parkplatzverwaltungssystems übernimmt";
- c) es wird überprüft, "ob die AVP-Funktionalität betriebsbereit ist".

1.2 Merkmal c) wird hierbei von der Kammer als eine Folge der Merkmale a) und b) gesehen, denn die Merkmale a) und b) ermöglichen eine Überprüfbarkeit der AVP-Funktionalität. Mit den Merkmalen a) und b) wird nämlich die Aufgabe gelöst, im Rahmen der Fahrzeugfertigung bereits festzustellen, ob die AVP-Funktionalität des Fahrzeugs betriebsbereit ist oder nicht. Dies stellt damit die mit den Merkmalen a) und b) zu lösende Aufgabe dar.

1.3 Das Dokument **D1 zeigt nicht die Merkmale a) und b).**

a) Für den Fachmann ist aus der Anmeldung deutlich erkennbar, dass die AVP-Funktion eine Funktion des fertigen und für den Endkunden bestimmten Fahrzeugs ist. Der Begriff Automatic Valet Parking (AVP) macht dem Fachmann auch ohne eine Definition weiterer technischer Merkmale klar, dass in irgendeiner Weise ein Fahrer in einer geeigneten Infrastruktur an einem Übergabepunkt dieses Fahrzeug abgeben und es dann automatisch abgestellt und geparkt werden kann.

Dem wird auch durch den Parkhausgedanken, Seite 3 der Anmeldung unten, und dem Merkmal b) Rechnung getragen.

Demgegenüber offenbart D1 ein Fahrzeug (2), was im Sinne der Erfindung als normales Fahrzeug bezeichnet wird, siehe Seite 3, vorletzter Absatz der Anmeldung, da es nach Auslieferung an den Endkunden weder autonom fährt, noch zwingend eine automatische Ein- und Ausparkfunktion besitzt. Das Fahrzeug (2) der D1 wird erst mittels einer nur in der Fertigung benötigten "kraftfahrzeuggebundenen Einrichtung (6)" ertüchtigt, einem Korridor zu folgen und sich in einer Zielposition abzustellen, siehe auch Figur 1. Diese kraftfahrzeuggebundene Einrichtung (6) ist ausweislich Paragraph [0016] der D1 ein Bestandteil des Fertigungssystems und nicht des Fahrzeugs, und wird am Ende des Fertigungsprozesses wieder entfernt.

b) **Ein Parkplatzmanagementsystem oder eine Parkplatzverwaltungssystem ist in D1 nicht offenbart.** Selbst wenn man das Abstellen auf einem Rollenprüfstand als einen Parkvorgang im Sinne der Erfindung ansehen würde, so offenbart D1 kein "Management" oder eine "Verwaltung" dieser Prüfstandsplätze. Stattdessen fährt das Fahrzeug in D1 jeweils

individuelle Prüfstationen an, die bereits vorab festgelegt wurden und anhand eines Strichcodes auslesbar sind (siehe Absatz [0009]), d. h. in D1 wird dem Fahrzeug nicht ein gerade freier Prüfstand spontan von der stationären Rechnereinrichtung zugeteilt, sondern eine festliegende Reihenfolge abgearbeitet.

1.4 Da - wie ausgeführt - das **Dokument D1 kein AVP Fahrzeug offenbart**, ist **selbstverständlich**, dass in D1 auch **die Aufgabe (siehe oben, Merkmal c)), nämlich die AVP Funktionalität zu überprüfen, dem Fachmann nicht nahegelegt wird.**

Diese wird in der vorliegenden Erfindung erfinderisch dadurch gelöst, dass sich das Fertigungssystem wie ein Parkhaus verhält und das AVP-Fahrzeug dort mit den fahrzeugeigenen AVP Funktionen parkt.

T 1425/21 (Distilled Machine Learning Models/Google) 07-02-2024

European Case Law Identifier ECLI:EP:BA:2024:T142521.20240207

TRAINING DISTILLED MACHINE LEARNING MODELS

Inventive step - (no)

Inventive step - effect not made credible within the whole scope of claim

Application number 19173347.6
IPC class G06N 3/08, G06N 3/04, G06N 20/20
Applicant name Google LLC
Cited decisions T 0702/20, T 0748/19

Board
3.5.06

<https://www.epo.org/boards-of-appeal/decisions/pdf/t211425eu1.pdf>

Claim 1 of the main request defines:

A method performed by one or more computers, the method comprising:
training a first machine learning model, wherein the first machine learning model is configured to receive an input and generate a respective score for each of a plurality of classes representing a probability that the class is a classification of the input; and

training a second machine learning model on a plurality of training inputs, wherein the second machine learning model is also configured to receive inputs and generate scores for the plurality of classes representing a probability that the class is a classification of the input, wherein the second machine learning model has a different architecture to the first machine learning model and has fewer parameters than the first machine learning model such that

generating output from the second machine learning model requires less memory than generating output from the first machine learning model, the training comprising:

processing each training input using the first machine learning model to generate a first target soft output for the training input; and

training the second machine learning model to, for each of the training inputs, generate a soft output that matches the first target soft output for the training input, wherein the first target soft output and the soft output that matches the first target soft output comprises a respective soft score for each of the plurality of classes generated by a last layer of the respective machine learning model, and wherein each soft score satisfies:

FORMULA/TABLE/GRAPHIC

wherein q_i is the score for a class i , z_i is a weighted combination of outputs of a previous layer of the respective machine learning model received by the last layer, j ranges from 1 to a total number of classes in the plurality of classes, T is a temperature constant, and wherein to generate the soft scores, T is set to a higher value than used to generate scores for the classes after the respective machine learning model has been trained.

The application and the prior art

1. The application relates to machine learning models such as deep neural networks. It proposes to approximate "cumbersome" machine learning models with "distilled" machine learning models which require less computation and/or memory when deployed. For instance the distilled model may be a neural network with fewer layers or fewer parameters. The cumbersome model may be an ensemble classifier, possibly combining full classifiers with specialist classifiers. The distilled model is trained on a "plurality of training inputs" and the associated outputs of the cumbersome model, so as to "generate outputs that are not significantly less accurate than outputs generated by the cumbersome machine learning model" (page 1).

1.1 The training procedure aims at minimizing the differences between the "soft outputs" of the distilled model and those of the cumbersome model on the given training inputs, e.g. through backpropagation (page 6).

1.2 The soft outputs represent a class probability obtained according to a form of the softmax equation using a "temperature" parameter T , which is set higher during training than during subsequent use (see description page 4, see claim 1 of all requests).

2. Document D1, like the application, proposes to replace an ensemble of classifiers with an approximator. In D1, the "basic strategy is to approximate a given ensemble of classifiers by an alternative representation that needs much less storage, while still maintaining the same or similar accuracy as the ensemble" (page 226, bottom).

2.1 The approximator in D1 is trained on what is called a "pseudo training set" labelled by the ensemble classifier and with the objective to minimize the difference between a class probability vector output by the ensemble and the class probability vector output by the approximator (section 3.2).

2.2 D1 presents results (Table 1 on page 233) based on an ensemble of ten component classifiers where each component is a single-hidden-layer neural network, and so is the approximator.

Main request

3. The Examining Division acknowledged two differences of the claimed matter over D1 (decision, point 14.2 of the reasons). As paraphrased by the Appellant (statement of grounds of appeal point 2), these are that:

(a) the second machine learning model (distilled machine learning model) has fewer parameters than the first machine learning model (cumbersome machine learning model) such that generating output from the second machine learning model requires less memory than generating output from the first machine learning model; and

(b) the second machine learning model is trained based upon a soft score satisfying a particular form as set out in claim 1.

4. The Examining Division was of the opinion that **these two differences did not provide a technical effect**.

4.1 The training procedure based on a particular form of softmax was "not based on technical considerations as regards the functioning of the one or more computers" and did **not serve a technical purpose** (14.3).

4.2 Although it accepted that the distilled model required less storage, it argued that a technical effect could not be acknowledged on that basis because

(a) the claim allowed for both learning machines to co-exist on the same computer (14.4 and 14.5),

(b) no technical details of the device, on which the second machine learning model may run, were specified (14.4, but also 18.2).

Claim interpretation

13. The Appellant interprets the feature of

"training the second machine learning model to, for each of the training inputs, generate a soft output that matches the first target soft output for the training input"

as a functional feature requiring a selection of a second model and its training so that its outputs actually "match", i.e. are the same or equivalent, to those of the first model.

14. **The Board does not consider that the person skilled in the art would interpret the claims in that manner.** Rather, in the Board's view, the **skilled person** would adopt the more immediate interpretation according to which the **cited feature only defines the objective of the training process.**

14.1 Indeed, a neural network is trained by modifying the values of its parameters so as to minimise an error functional which measures the difference between the desired and the actual output. The standard training proceeds sample by sample, and the parameters are optimised as a function of the error for each sample. This corresponds to the structure of the claim:

"..the training comprising:

processing each training input using the first machine learning model to generate a first target soft output for the training input; and

training the second machine learning model to, for each of the training inputs, generate a soft output that matches the first target soft output for the training input..".

15. In the Board's view, therefore, **the claim does not require that the second model is selected so that its outputs, once trained, actually "match" those of the first one, but only that the training procedure has this "match" as an objective.** There is **no guarantee that this objective is reached.**

Articles 52 and 56 EPC

16. The Board notes that the **features differentiating the invention from D1, or even the entire set of features defining the distilled model and its training, as a difference to a known cumbersome learning model, are mathematical methods** which **cannot, under the established case law of the boards of appeal (the "COMVIK" approach), be taken into account for inventive step unless they contribute in a causal manner to a technical effect.**

17. It accepts that the **distilled model has reduced memory requirements** when compared to the cumbersome model; after all this is expressly claimed. However, **a reduction in storage or computational requirements of a machine learning model is insufficient, by itself, to establish a technical effect.** One **also has to consider the performance of the "reduced" learning model** (see decision T 702/20, reasons 14.1, from this same Board).

18. It is **not credible in general that any model with fewer parameters can be as accurate as the more complex one it is meant to replace.** For example, the complexity or architecture of the reduced model may be insufficient or inadequate for the given problem.

19. The Board **disagrees with the Appellant's counter-argument that the invention (by "knowledge transfer" see point 8 above) reliably ensures that any given smaller network can provide the same accuracy as the given larger one.** The input and output complexity is the same for both networks. Hence, **also the smaller network must be complex enough to be**

able to model the input-output relationship (see e.g. D1, section 4.3, for a discussion on accuracy and complexity of approximating classifiers of a single type).

19.1 The Board also does not see that the **temperature-based training process ensures** that the smaller model has **an equivalent accuracy**. It is not clear how exactly the temperature must be first set (for both models), and then varied, and what accuracy may be expected. The application simply does not discuss this.

19.2 Since, in the Board's view, the claim does not imply a step of selecting or obtaining a smaller model, but simply defines one as a given, the Appellant's arguments relating to trial and error are not pertinent (and even if they were, they would not succeed, see below).

20. The Board concludes therefore that the **technical effect advanced by the Appellant (see point 11 above) cannot be acknowledged over the whole scope of the claim**, i.e. for all sets of smaller and larger models. The **second model may use fewer resources, but it cannot be said to produce the same results and many smaller models will, in fact, be considerably worse**.

20.1 In principle, it appears possible to argue that the smaller model represents a "good" trade-off between resource requirements and accuracy, i.e. that the smaller model may be less accurate but have (predictably) smaller resource requirements. However, the application lacks any information in that regard.

20.2 Since **no technical effect** can be acknowledged, claim 1 of the main request **lacks an inventive step**.

Further remarks: the Appellant's claim interpretation and Article 83 EPC

21. As discussed with the Appellant during the oral proceedings, the Appellant's interpretation of the claim would give rise to an objection under Article 83 EPC. This objection, on which this decision does not rely, is presented here for the sake of argument.

22. Were the Board to adopt the interpretation of the Appellant, and assume that the claim implies a step of selecting a suitable smaller model, the **Board disagrees with the argument that the skilled person would be able to provide smaller networks with reduced memory needs and equivalent accuracy with only "few routine tests" for all classification tasks**.

23. The **application itself does not guide the skilled person towards an understanding as to which distilled models might replace which cumbersome models**, and how accurate they might be in comparison. No examples of pairs of cumbersome and distilled learning models are provided, nor are any results showing the performance of the distilled models.

23.1 While the skilled person might be aware of the various architectures and types of networks available from common general knowledge, the **number of these possibilities is quite large**. For each of them, downsizing can be done in different ways, by reducing the number of layers, of neurons, of weights etc., and each of these in various ways.

23.2 The **trial-and-error process would also have to keep an eye on the desired trade-off between size and accuracy as already discussed above, which is not a simple endeavour.** The performance of machine learning models is not easily predictable and can vary considerably according to the task at hand (see e.g. again D1).

24. Further, the **Board does not see that the temperature-based training process as claimed simplifies the trial-and-error process.** As already stated, the application simply does not discuss how exactly the temperature must be set and varied and what accuracy gains, if any, may be expected.

25. The Board further notes that the **person skilled in the art must be able to carry out the invention over the whole scope of the claim, i.e. in principle for any classification task and given larger model.** The claims cannot be, a priori, be construed as excluding instances which (e.g. after trial and error) turn out not to work (see T 748/19 reasons 13 to 13.2). Thus **the argument of the Appellant that non-working embodiments do not fall under the scope of the claim cannot succeed.**

25.1 The Board is therefore of the opinion that the **application does not sufficiently teach how to carry out in practice the claimed invention. It rather only sketches out an idea whose implementation over the full scope of the claim requires a separate research program.**

T 1557/20 (Malfunction prediction/HITACHI ENERGY) 24-10-2023

European Case Law Identifier ECLI:EP:BA:2023:T155720.20231024

MALFUNCTION PREDICTION FOR COMPONENTS AND UNITS OF TECHNICAL ENTITIES

Predicting a future specific malfunction of a transformer based on the measurement of specific parameters (technical)

Application number 15747459.4
IPC class G06Q 10/06
Applicant name Hitachi Energy AG
Cited decisions G 0001/19, T 0641/00, T 1227/05, T 3226/19, T 0929/18
Board
3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t201557eu1.pdf>

The invention

1. The invention concerns predicting future malfunctions of mechanical or electrical components based on the measured current values of one or more parameters ([0001], [0005], [0009], [0021] of the published application).

2. Essentially, the invention is calculating the probability of a malfunction at a future point in time based the current state of the parameter(s). Mathematically, using the law of total probability, this is the sum of the conditional probabilities of the malfunction given each possible state of the parameter, multiplied by the probability of that state at the future point in time ([0063]). The latter is calculated, using a Markov chain, by multiplying the current state of the parameter by a transition matrix T, representing the conditional probability for the parameter to switch state after a time period DeltaT, given its previous state ([0062]).

3. In the claimed embodiment, the component is a transformer having coils surrounded by oil or cooling fans, the malfunction is an insulation defect, the measured parameter is one of temperature of the coils, vibration of the cooling fans, oil condition or temperature of the oil.

Inventive step - Article 56 EPC

6. The examining division held that calculating the probability of an unspecified malfunction in a generic mechanical or electrical component constituted a **non-technical modelling and forecasting process, which was an abstract intellectual activity**. The calculated probability was a piece of information which lacked a technical effect in itself; any effect depended on human decision-making. The only technical feature was the use of a known computer to automate the claimed method, which was obvious.

Specifying, as in the third auxiliary request, the type of component (transformer), the malfunction (insulation defects) and the parameters to be measured (temperature of the coils, vibration of the cooling fans, oil condition or temperature of the oil) was **not sufficient to establish an inventive step, as no technical considerations concerning the specific component and parameters chosen were apparent from the application as a whole.**

7. The Board essentially agrees with the division's assessment of technicality of the (then) main request.

However, it arrives at a different conclusion in respect of the present sole request, which is based on the refused third auxiliary request, for the reasons which follow.

8. Present claim 1 is **limited to the prediction of a specific malfunction (insulation defect) of a transformer, based on the measurement of well-defined parameters (temperature of the coils, vibration of the cooling fans, oil condition or temperature of the oil).**

Performing a measurement has a technical character (see for example decision G1/19, OJ EPO 2021, A77, point 99). Moreover, the Board agrees with the appellant that the choice of the parameters to be measured in function of the type of malfunction to be predicted inherently reflects technical considerations and knowledge concerning the functioning of the transformer. In the Board's judgement, in order to acknowledge technicality it is not necessary that these considerations be explicitly mentioned in the description, as long as they would be apparent to the skilled person in the context of the application.

9. On the other hand, the claimed mathematical steps, when considered in isolation, are non-technical. These steps generate numerical data, i.e. the conditional probability of a future malfunction in an electrical or mechanical component.

10. The key question for the assessment of inventive step is therefore whether these steps contribute to the technical character of the invention, i.e. whether they contribute to the solution of a technical problem by providing a technical effect. If they do, they must be examined for obviousness. If not, they can be incorporated into the formulation of the technical problem (T 641/00 - Two identities/Comvik).

11. For the question of technicality dealt with in this case, decision G 1/19 prevails over decision T 1227/05, cited by the appellant. G 1/19 identifies two main situations in which numerical calculations/data may contribute to the technical character of the invention.

First, when they are used to provide a technical effect, and said use ("further use") is specified in the claim, at least implicitly. This is the case when their potential use is limited to technical purposes (G 1/19, points 124, 128).

Second, when they **represent an indirect measurement of the physical state or property of a specific physical entity. Even though they may involve significant computing effort, indirect measurements are still related to physical reality and thus, like direct ones, have a technical nature regardless of what use is made of the results** (G 1/19, point 99; see also decision T 3226/19, points 2.5 to 2.7).

12. The Board considers that the first situation does not apply here, since the calculated conditional probability might be used for non-technical purposes. For example, it can be used to assess financial loss or determine insurance premiums due to potential component downtime.

13. However, the **Board sees the conditional probability obtained by the method of claim 1 as an indirect measurement of the physical state of the transformer.** This conclusion is based on the following observations:

13.1 The **claimed method involves taking a measurement of a specific physical entity at a first point in time, and inferring the state of this physical entity** (i.e. its probability of failure) at another point in time. This is similar to the example in G 1/19, point 99, where the measurement of a specific physical entity at a specific location is obtained from measurements of another physical entity and/or measurements at another location.

13.2 **The estimate of the future state of the component credibly reflects reality.** The Board considers this an essential factor in deciding whether the calculated numerical data can be seen as an indirect measurement.

Arbitrary or speculative models and algorithms that are not grounded in reality are not capable of predicting the physical state or property of a real physical entity. Such abstract calculations could not be regarded as (indirect) measurements.

In claim 1, however, there is a credible causal link between the parameters measured (temperature of the coils, vibration of the cooling fans, oil condition or temperature of the oil) and the specific malfunction predicted (insulation defect).

Moreover, the malfunction probability is calculated from the transition matrix T, the conditional probability distribution $P(M|a)$, and the current measurement of the parameter. The mathematical framework in the claim is rooted in stochastic modelling and simulation, specifically Markov chains, which are recognised for credibly capturing and predicting the transition dynamics of systems based on empirical data.

The fact that the result is a probability does not detract from its ability to provide a technically meaningful estimate of the component's state. Making accurate predictions in the real world, given all its uncertainties, is rarely possible.

14. In summary, the Board is satisfied that the calculated quantity provides a credible estimate of the future physical state of a specific physical entity and can be seen as an indirect measurement.

For these reasons, the Board judges that the mathematical steps in claim 1 are part of a technical measurement method, and that all features in claim 1 contribute to the technical character of the invention and must be examined for obviousness.

15. Notoriously known technical means are not an appropriate starting point for this examination. As the search report does not cite any prior art document, the Board deems a search necessary. This is a special reason for remitting the case in the sense of Article 11 RPBA.

T 0072/20 (Accessing cookies from different Internet domains/NIELSEN) 30-11-2023

European Case Law Identifier ECLI:EP:BA:2023:T007220.20231130

METHODS AND APPARATUS TO DETERMINE MEDIA IMPRESSIONS USING DISTRIBUTED DEMOGRAPHIC INFORMATION

Application number 11850570.0
IPC class G06Q 30/00
Applicant name The Nielsen Company (US), LLC
Cited decisions T 0931/95, T 0258/03

Technical character - accessing cookies from different Internet domains (yes)

Board
3.5.01

<https://www.epo.org/boards-of-appeal/decisions/pdf/t200072eu1.pdf>

1. The invention

1.1 The invention concerns monitoring users' access to online media content, and linking this information to demographics in proprietary databases, such as Facebook.

1.2 In claim 1, there is a client device (108), an impression monitor system (IMS - 102) that monitors the user's access to media via a "tag instruction" in the content, and a database proprietor (104a; 104b) that stores demographics information and provides a login-based Internet service. Both the IMS and the database proprietor set cookies on the client device (AME cookie - 208 and Partner A cookie - 228, respectively) to identify the user. However, since Internet browsers restrict access to cookies from outside the domain that set them, the IMS and the database proprietor cannot readily access the cookie of the other in order to link the monitoring information with the demographics information (paragraph [0028]).

1.3 The invention in claim 1 solves this "same origin" problem of access to cookies in the following way:

First, a "cookie reporter" (202) at the client device detects a login event to the service of the database provider. The cookie reporter has been provided to the client device by an audience measurement entity (AME - 103) which is associated with the IMS. In response to detecting the login event, the cookie reporter sends a dummy request (116) to the IMS, which causes the IMS to set the AME cookie (208) on the client device. The cookie reporter also generates and sends a "login reporting message" (118) to the database proprietor. The login reporting message comprises the AME cookie and the Partner A cookie set by the database proprietor. Now the database proprietor has both cookies and can link them.

1.4 Further, in claim 1, when the user accesses the media content, the tag instruction in the HTML code causes the client device to send a tag request (112) to the IMS, the tag request including the AME cookie and a content ID or an ID of the content publisher. The IMS logs this and sends a "logged media impression" to the database proprietor that looks at its mapping and retrieves for the AME cookie demographic data stored for the Partner A cookie. The result is provided in an "impression report" to the IMS.

...

4. Technicality

4.1 The examining division considered that the **features relating to accessing cookies from different domains were administrative in nature.**

The problem of "how to combine information extracted from cookies respectively associated to different domains, when one of the domains is not accessible to the entity setting a cookie in a different domain due to existing protocols" was said to be circumvented by means of administrative steps as in T 258/03 - Auction method/HITACHI and T 931/95 - Controlling pension benefits system/PBS PARTNERSHIP.

4.2 The Board, however, takes the view that accessing cookies from different domains is a technical issue and that the invention in claims 1 and 10 provides a technical solution to this issue. This technical solution is circumventing a browser restriction, which is itself a technical feature albeit possibly implementing a non-technical policy. This is not the same as circumventing a technical problem by modifying a non-technical scheme as in T 258/03.

5. Remittal to the examining division

5.1 The examining division did not cite any documents relating to accessing cookies from different domains, and the Board has doubts whether the European supplementary search covered this aspect. Firstly, the division considered this issue to be non-technical and probably did not consider it to be significant for the search. Secondly, the field of search indicated in the search report is G06Q (business methods). In the Board's view, the search should probably cover also computer security and web systems.

T 3292/19 (Dealing with malware/WEBROOT) 12-12-2023

European Case Law Identifier ECLI:EP:BA:2023:T329219.20231212

Methods and apparatus for dealing with malware

Inventive step - (no)

Application number 13167436.8
IPC class G06F 21/56, G06F 21/57
Applicant name Webroot Inc.
Cited decisions G 0001/19, T 0115/85, T 0528/07, T 0543/14

Board
3.5.06

<https://www.epo.org/boards-of-appeal/decisions/pdf/t193292eu1.pdf>

Claim 1 of the main request reads as follows:

"A method of determining the protection that a first remote computer of a plurality of remote computers has from malware, the method comprising: receiving at a database (7) of a base computer (3) information of all or selected security products loaded on or available at a point

in time on said first remote computer (2); receiving at the database (7) information of all or selected security products loaded on or available at a point in time on other remote computers (2) of said plurality of remote computers connected to the database (7); receiving at the database (7) details of processes run by said plurality of remote computers (2); storing the information and the details in the database (7); searching the database (7) to identify any processes marked as being malware that occurred on computers (2) having the same particular combination of security products as the first remote computer (2) and that were not locally detected; and providing information to the user of said first remote computer (2) that said first remote computer (2) may be susceptible to attack by said identified any processes marked as being malware."

2. Summary of the invention

2.1 The application relates to determining the protection that a remote computer has from malware, the remote computer apparatus being connected via the internet to a base computer; see the fourth and fifth aspects of the invention, page 9, line 1, to page 10, line 5.

2.2 The base computer classifies computer objects (referred to below as "objects") as malware or not, the application using the term "malware" to refer to an executable computer file, such as a virus, a Trojan, a worm, spyware or adware; see page 1, lines 13 to 15.

2.3 To classify an object, the base computer receives data about the object via the internet from a plurality of other remote computers, on which the object is stored, compares the data and, based on the result, classifies the object.

2.4 The data stored about the object comprises executable instructions in the object, the size of the object, its name, the logical storage location or path of the object on the remote computers, the vendor of the object, the software product and version associated with the object and events initiated by or involving the object when the object is created, configured or runs on the remote computers; see page 23, line 4, to page 24, line 22.

2.5 As shown in figure 1, the base computer (3) is linked to a community database (7) connected via the internet (1) to a plurality of remote computers (2). The database contains signatures or keys relating to objects (4) and their effects; see page 17, lines 10 to 22. As shown in figure 2, if an object is known not to be malware from the database of a remote computer then it is allowed to run on that computer. If the object is known to be unsafe, then the user may be asked for approval before running it. If the object is unknown then a signature is created and passed via the base computer (3) to the database (7); see page 18, line 8, to page 19, line 20. Figure 3 illustrates the use of a mask to classify an object as malware if its behaviour extends beyond a safe limit defined by the mask; see page 26, line 22, to page 27, line 2. Figure 4 shows how local security products (40) generate keys (41) of objects which are sent to the community database (42). The database returns potential "risks" of computers having a given product and settings; see page 29, lines 10 to 23.

4. The board's understanding of the invention

4.1 The board understands the term "malware" in claim 1 of all requests to mean, as explained on page 1, lines 13 to 15, of the description, any executable computer file, that is or contains malicious code, and thus includes viruses, Trojans, worms, spyware and adware. For the purposes of the following assessment, the board interprets the term "malware" accordingly, to the appellant's benefit even where the claim lacks that definition.

4.2 Claim 1 of all requests sets out searching the database to identify any processes (run by the plurality of remote computers) "marked" as being malware without an indication as to how that marking occurred. Accordingly, the board understands "marked" to mean "deemed". In other words, the **claim is not restricted to malware being identified as such, for instance by a virus checking program. The claim covers "marking" in accordance with a company policy, for instance, that all programs from a certain vendor are deemed malware.**

4.3 The term in claim 1 of all requests "security product" is a program able to detect malware as defined above. The references to security products being "loaded on or available to" a remote computer cover the case that the product is either stored in the remote computer itself or on a network memory device accessible from the remote computer.

6. Inventive step, Article 56 EPC

6.1 The main request

6.1.1 According to the decision (point 3), the subject-matter of the independent claims differed from the disclosure of D1 in that

i. the information that the computer may be susceptible to attack was provided to the user, and

ii. the search of the database was performed in a different way.

Difference "i", being a presentation of information, could not contribute to inventive step. Difference "ii" was not allowable, as it was open to objection under Articles 76(1), 84 and 83 EPC. Hence the independent claims did not involve an inventive step in view of D1.

6.1.2 According to the appellant, feature "i" was not a mere presentation of information, but rather had a technical effect on the system. Moreover feature "ii" complied with Articles 76(1), 84 and 83 EPC and lent inventive step to the claim. The difference features not only presented information to the user, but also had the technical effect of increasing the computer's effective security, since the user could be expected to take action, once they became aware that their computer had a previously undetected vulnerability.

6.1.3 In view of the above analysis of D1, the board is of the opinion that the **subject-matter of claim 1 differs from the disclosure of D1 in almost all its features**, namely:

"receiving at a database (7) of a base computer (3) information of all or selected security products loaded on or available at a point in time on said first remote computer (2); receiving at the database (7) information of all or selected security products loaded on or available at a point in time on other remote computers (2) of said plurality of remote computers connected to the database (7); receiving at the database (7) details of processes run by said plurality of remote computers (2); storing the information and the details in the database (7); searching the database (7) to identify any processes marked as being malware that occurred on computers (2) having the same particular combination of security products as the first remote computer (2) and that were not locally detected; and providing information to the user of said first remote computer (2) that said first remote computer (2) may be susceptible to attack by said identified any processes marked as being malware."

6.1.4 According to the appellant, D1 disclosed a different approach to increasing computer security to that claimed, namely forcing computers to update the malware definition data used by their malware scanning software if it was out of date; see [30], last ten lines. The invention involved remote computers providing information on their security products and all running processes to a community database which warned the remote computers of undetectable vulnerabilities of their configuration to malware that had not reached the remote computers yet. Hence, although the security product on a remote computer had not identified a process running on it as malware, the database on the base computer could identify that process as malware and warn the user of the remote computer of its vulnerability. This was possible because the base computer and the remote computer had different security products, the base computer having the database. The appellant disputed whether the "marking" of an object as malware, which included viruses, worms and adware, could be based on non-technical criteria such as the identity of the vendor. The warning to the user constituted functional data and was not a mere "presentation of information". Hence the difference features over D1 allowed a fast propagation of malware through the computer network to be prevented and precautionary measures to be taken. Referring to decisions T 543/14 and T 528/07, the appellant argued that informing the user of a computer of a malware vulnerability concerned indicating the technical conditions, in other words the internal state, of the computer which helped the user to properly operate the computer and thus had a technical effect. The objective technical problem being solved was to enable, efficiently and in real time, reducing or even stopping propagation of malware across a plurality of remote computers. Thus the claimed solution was not obviously derivable from D1.

6.1.5 **The board finds that the difference features over D1 lack a technical effect and thus cannot contribute to inventive step.** The result of the difference features is namely to inform the user of the first remote computer about "malware" that has "occurred" on a remote computer and that has not been locally detected.

6.1.6 The board notes that the **claims do not define the "security products"** in question, what service they provide and when they provide it. The claims do not specify whether or not the malware in question was identified as malware at the remote computers where it "occurred"; alternatively, **the remote computer might have simply reported to the base computer, as a matter of course, the download of a program which was "known" to the database to be malware.** The claims also do **not set out whether the remote computer was able to identify the**

malware before it was run, and thus whether it was, effectively, already sufficiently protected or not.

6.1.7 If the remote computer was sufficiently protected, the local computer would appear to be sufficiently protected as well, as it is equipped with "the same particular combination of security products" as the remote computer. **Informing the user about a potential future "attack" may then not represent a security problem at all.**

6.1.8 If the remote computer was not sufficiently protected, then **the user would be informed about the risk of being "attacked" by the malware in question before it had "occurred" at the local computer.** The appellant has argued that the user could be expected to take action, once they became aware of that risk. However the **claims are not limited to such action being taken, and thus cover the case where the user ignores the information and takes no action.**

6.1.9 The board does not regard a **warning of an undetected potential "attack" in the first remote computer as necessarily falling under the definition of gaining insight into the internal technical state of the first computer**; see G 1/19, reasons 98. Firstly, as just explained, the claim language does not allow the conclusion that the potential attack poses an actual risk to the first computer. Secondly, the **definition of what is deemed ("marked as") malware can involve non-technical considerations, for instance relating to the identity of the vendor of a digital object, e.g. a piece of software**; see page 17, lines 14 to 20. **The malware definition could merely implement a company policy that products from a certain vendor are deemed to be "malware" and not to be loaded onto company computers.** Such a policy could also be required by law in government agencies.

6.1.10 In the present case the **board is not persuaded that an indication that a computer is "susceptible to attack" by a certain executable file (malware) can be considered to shed light on the "internal state" of the computer.** Firstly, the **"attack" in question does not imply an actual threat.** While the potential attacker (the process flagged by the database) is identified, it is **not established, due to the vagueness of the notion of "security products", that an actual vulnerability exists** (e.g. because the length of data written to a buffer is not checked). Moreover, given the vague definitions of what is "marked as being malware" and "security products", **the user is, at best (see point 6.1.9 above), informed that they might be at risk of violating a possibly non-technical policy.** Such a policy need not be actually security relevant. In the board's judgment, **compliance with a non-technical policy is not a technical property of a computer system, the mere display of which can be acknowledged as a technical effect.**

6.1.11 Hence the board finds that the difference features over D1 **do not have a technical effect, so that the subject-matter of claim 1 does not involve an inventive step**, Article 56 EPC.

6.2 The requested referral to the Enlarged Board of Appeal

6.2.1 Editorial amendments by the board aside, the question formulated by the appellant reads as follows:

1. In the assessment of inventive step, can the provision of information about not detecting processes run on a computer being marked as malware (with a selected security product configuration) contribute to solving a technical problem by producing a technical effect according to case law T 543/14 and T 528/07 or not?

2. If the answer to the first question is no, what are the relevant criteria for assessing whether the said information providing a technical condition of the computer is considered to be a technical feature capable of contributing to solving a technical problem?

6.2.2 A condition for referring a question, such as that formulated by the appellant (see point VII above), to the Enlarged Board of Appeal is that an answer to the referred question is considered necessary to decide the case to ensure uniform application of the law or if a point of law of fundamental importance has arisen.

6.2.3 The board finds that **both parts of the question are intimately linked to the technical facts of the case and so do not concern a "point of law of fundamental importance"**.

6.2.4 Moreover the board sees no reason why the board's decision in the present case would be contrary to a uniform application of the law.

6.2.5 With its questions, the appellant implicitly refers to the case law of the boards of appeal going back to case T 115/85, which held in its headnote 1 that "Giving visual indications automatically about conditions prevailing in an apparatus or system is basically a technical problem", and implies that the ratio of that decision has an impact on the present case. The decision T 528/07, referred to by the appellant, discussed this decision and identified two interpretations of it (see reasons 3.4): "either the visual indications must concern technical conditions of the system in order to relate to a technical problem [...] or they may also concern non-technical conditions", but "follow[ed] the more restrictive approach according to which only technical conditions of a system can be taken into account" (see reasons 3.5). Further decisions were identified sharing this view. The present board also endorses it.

6.2.6 More specifically, in decision T 528/07 (see reasons 3.6) it was decided that in the assessment of the inventive step of a computer system **for providing a business-to-business relationship portal the indication of conditions relating to a business undertaking did not establish a technical effect** and could therefore not be taken to contribute to inventive step. In the present case, **a "susceptibility to an attack" may simply be a potential non-compliance with a non-technical company policy prohibiting the installation or execution of software from a certain source. Hence the board considers that informing a user of that vulnerability does not provide the user with technical information about the internal state of the remote computer at all.**

6.2.7 Decision T 543/14 concerned a portable electronic device having a touch-sensitive display, application icons on the display changing according to a mode of operation of the device. The board found that informing the user of the device mode of operation was an indication of the technical state of the device; see point 2.1, page 6, 2nd para. In the present

case, **a vulnerability may be a non-compliance with a non-technical company policy and thus is not a technical mode of operation of the first remote computer.**

6.2.8 Hence the board cannot see why its finding in the present case should be considered inconsistent with the conclusions in the cited cases T 528/07 and T 543/14. Regarding the former decision, it seems to be rather consistent regarding its restrictive approach vis-à-vis indications of non-technical conditions. As regards the latter one, the conclusions may be different, but so are the technical circumstances. The board cannot see why the positive finding in T 543/14 should imply a positive conclusion in the present case. Consequently the cited cases do not suggest any lack of uniform application of the law.

6.2.9 For these reasons the board finds that an answer to the above question from the Enlarged Board of Appeal is not required for a decision in the present case, Article 112(1) EPC. In the board's view, the answer to the first part of the question is "no", at least when limited to the circumstances of the present case, and the answer to the second part is that it depends on the facts of the case.

T 1594/20 (Verfahren zum Aufteilen eines Kommissionierauftrags/KNAPP) 30-04-2024

Europäischer Rechtsprechungsidentifikator ECLI:EP:BA:2024:T159420.20240430

VERFAHREN ZUM AUFTEILEN EINES KOMMISSIONIERAUFTRAGES

Erfinderische Tätigkeit - Hauptantrag, Hilfsanträge 1 bis 4 (nein)

Erfinderische Tätigkeit - Mischung technischer und nicht-technischer Merkmale

Anmeldenummer 16159681.2
IPC-Klasse G06Q 10/08
Name des Anmelders KNAPP Systemintegration GmbH
Angeführte Entscheidungen G 0001/19, T 0641/00

Kammer 3.5.01

Orientierungssatz

Eine mathematisch rechnerische Optimierung zur effizienten Aufteilung eines Kommissionierauftrags bewirkt nicht zwangsläufig auch eine Simulation des zugrunde liegenden physikalischen Vorgangs (hier Warentransport), sondern es sind vom hier vorliegenden Anspruchsgegenstand auch rein deterministische mathematische Optimierungen umfasst.

Eine geltend gemachte Energieeinsparung ist rein spekulativ und kann nicht ohne weiteres zur Annahme eines technischen Effekts führen. Dazu wäre erforderlich, dass ein solcher Effekt mit technischen Mitteln erreicht würde. Beim beanspruchten Gegenstand wäre eine

Energieeinsparung (sofern tatsächlich erzielt) aber Folge einer rein organisatorischen oder algorithmischen Optimierung, die im Wesentlichen auf einer gedanklichen Tätigkeit basiert. Daraus kann kein technischer Effekt zur Berücksichtigung einer erfinderischen Tätigkeit abgeleitet werden (vgl. insbesondere Entscheidungsgründe 1.6 und 1.11).

<https://www.epo.org/boards-of-appeal/decisions/pdf/t201594du1.pdf>

Der unabhängige Anspruch 1 gemäß dem Hauptantrag lautet:

"1. Verfahren zum physischen Aufteilen eines eine Vielzahl von Kolli (8) umfassenden Kommissionierauftrages auf mehrere Ladungsträger (7), welche Kolli (8) von einem Quelllager mittels eines Transportfahrzeuges in ein Ziellager und im Ziellager zu Zielpositionen transportiert werden, dadurch gekennzeichnet, dass vor einer Aufteilung des Kommissionierauftrages mehrere Varianten möglicher Aufteilungen rechnerisch gebildet werden, wonach eine Auswahl einer Variante erfolgt, gemäß welcher die Aufteilung durchgeführt wird, wobei für verschiedene berechnete Varianten eine Anzahl von Fahrten bestimmt wird, welche erforderlich sind, um die einzelnen Kolli (8) im Ziellager mit den Ladungsträgern (7) vom Transportfahrzeug zu den Zielpositionen zu transportieren, und wobei die Anzahl der Fahrten in die Auswahl eingeht, wonach der Kommissionierauftrag gemäß der ausgewählten Variante physisch auf die einzelnen Ladungsträger (7) aufgeteilt wird."

Hauptantrag

1. Artikel 56 EPÜ - Erfinderische Tätigkeit

1.1 Die Kammer stimmt mit der angefochtenen Entscheidung überein, dass das in Anspruch 1 **beschriebene Verfahren lediglich einen administrativen Ablauf zur Transportoptimierung im Bereich der Logistik unter Berücksichtigung mathematischer Methoden zum Aufteilen von Kommissionieraufträgen betrifft**, welches seinen technischen Charakter aufgrund einer Implementierung auf einem herkömmlichen Computersystem mit Recheneinheit, Speichereinrichtung und Kommunikationseinrichtung bezieht. **Weder das Computersystem, noch dessen Arbeitsweise werden in technischer Hinsicht weitergebildet**. Die Kammer kann **weder im beanspruchten Gegenstand noch in den Anmeldungsunterlagen als Ganzes** Implementierungsdetails für dieses Konzept finden, welche von **technischen Überlegungen** bestimmt sind, die die interne Funktionsweise eines Computers betreffen. Die technischen Merkmale des beanspruchten Gegenstandes beziehen sich somit lediglich auf die computergestützte Umsetzung der mathematischen/geschäftlichen Optimierungsmethode.

1.2 Dabei stellen die **Schritte nach Anspruch 1 lediglich ein abstraktes Verfahren** dar, welches **unabhängig von einem Computersystem durch einen Geschäftsmann aus dem Bereich Logistik ausführbar** ist (siehe dazu auch Punkt 12.2.11 der angefochtenen Entscheidung).

1.3 Der Gegenstand von Anspruch 1 stellt eine "Mischerfindung" dar, die aus technischen und nichttechnischen Merkmalen besteht und als Ganzes technischen Charakter aufweist. Nach der ständigen Rechtsprechung der Beschwerdekammern ist für eine solche Mischerfindung

der COMVIK-Ansatz (T 0641/00 - Zwei Kennungen/COMVIK, Abl. EPA 2003, 352) für die Beurteilung der erfinderischen Tätigkeit anzuwenden. Dabei werden nur die Merkmale, welche zum technischen Charakter beitragen, zur Beurteilung der erfinderischen Tätigkeit herangezogen. Merkmale, die keinen solchen Beitrag leisten, können das Vorliegen einer erfinderischen Tätigkeit nicht stützen, jedoch als Rahmenbedingungen für die zu lösende technische Aufgabe aufgegriffen werden, insbesondere als eine zwingend zu erfüllende Vorgabe.

Im vorliegenden Fall stimmt die Kammer der angefochtenen Entscheidung zu, dass sich die **technischen Merkmale** des Gegenstandes von Anspruch 1 **auf ein konventionelles vernetztes Computersystem beschränken**, worin auch der **nächstliegende Stand der Technik zur Beurteilung der erfinderischen Tätigkeit** gesehen wird. Ergänzend wird auch auf die Druckschrift D1 (siehe Figur 1, Spalte 3, Zeile 63ff. mit computer system 22) oder D3 (siehe Figuren 1 und 2 mit [0024] der Beschreibung) verwiesen, die genau diese technischen Merkmale offenbaren und somit ebenfalls einen geeigneten Stand der Technik darstellen.

1.4 Auch zeigt **Anspruch 1 keinen konkreten Algorithmus** auf, der eine solche **Optimierung ausführen könnte**. Vielmehr **definiert er lediglich das gewünschte Ziel einer Optimierung**, ohne nähere Anweisungen dafür zu geben, wie genau der Fachmann vorgehen muss, um dies zu erreichen. Es wird lediglich spezifiziert, dass "mehrere Varianten möglicher Aufteilungen rechnerisch gebildet werden" und schließlich "eine Auswahl einer Variante" erfolgt. Nach welchen Kriterien die Auswahl erfolgt, wird nur sehr allgemein mit Hinweis auf die Anzahl der Fahrten bestimmt. **Wie gerechnet werden soll, bleibt offen. Allerdings wäre selbst ein konkreter Algorithmus bzw. eine mathematische Berechnungsvorschrift im Bereich der vom Geschäftsmann vorgegebenen nicht-technischen Spezifikation einzuordnen.**

1.5 Die Beschwerdeführerin hat auf Grundlage der Entscheidung T 1227/05 argumentiert, es handele sich bei dem beanspruchten Gegenstand um ein **computergestütztes Simulationsverfahren**.

1.6 Die Kammer bezweifelt, dass überhaupt eine Simulation eines technischen Gegenstands vorliegt. Eine **mathematisch rechnerische Optimierung bewirkt nicht zwangsläufig auch eine Simulation des zugrunde liegenden physikalischen Vorgangs** (hier Warentransport), sondern es sind vom hier vorliegenden Anspruchsgegenstand auch **rein deterministische mathematische Optimierungen** umfasst. Die optimierte **Aufteilung eines Kommissionierauftrags nach rein kaufmännischen Kostenbetrachtungen** (z.B. break-even-point) ist ebenso umfasst wie **mathematische Optimierungsalgorithmen analog zum bekannten travelling-salesman-problem**. Dabei werden **kognitive geschäftsbezogene Daten verarbeitet** und es liegen **keine technischen Überlegungen** zugrunde, die zu einer erfinderischen Tätigkeit nach Art. 56 EPÜ beitragen können.

1.7 Selbst wenn man von einer Simulation ausgeht und die im Laufe des Beschwerdeverfahrens ergangene Entscheidung G 1/19 heranzieht, lässt sich im Hinblick auf den beanspruchten Gegenstand nach Anspruch 1 feststellen, dass **die Formulierung eines zugrunde gelegten Modells oder von Berechnungsvorschriften auch dann eine gedankliche Tätigkeit darstellen, wenn diese durch einen Computer unterstützt wird**

(vgl. G 1/19, Entscheidungsgründe Nr. 106 und 112). Sie tragen somit nicht zum technischen Charakter des Anspruchsgegenstands bei.

Nach dem COMVIK-Ansatz (siehe oben) können numerische Daten den technischen Charakter einer Erfindung normalerweise nicht begründen. Jedoch können berechnete numerische Daten, die das physische Verhalten eines in einem Computer modellierten Systems widerspiegeln, den technischen Charakter einer Erfindung dann begründen, wenn das berechnete Verhalten das Verhalten des der Simulation zugrunde liegenden realen Systems (hier des physikalischen Warentransports) adäquat widerspiegelt (vgl. G 1/19, Entscheidungsgründe Nr. 128).

Für die Zwecke der Beurteilung der erfinderischen Tätigkeit kann eine computerimplementierte Simulation eines technischen Systems oder Verfahrens, die als solche beansprucht wird, durch Erzeugung einer technischen Wirkung, die über die Implementierung der Simulation auf einem Computer hinausgeht, eine technische Aufgabe lösen. Für diese Beurteilung ist es aber keine hinreichende Bedingung, dass die Simulation ganz oder teilweise auf technische Prinzipien gestützt wird, die dem simulierten System oder Verfahren (hier dem Warentransport) zugrunde liegen (vgl. G 1/19, Entscheidungsformel 1 und 2). Die Kammer sieht im beanspruchten Gegenstand jedoch keine technische Wirkung, die über die Implementierung auf einem Computer hinausgeht.

1.8 Die **optimale Aufteilung eines Kommissionierauftrages ist keine technische Aufgabe**, die mit technischen Mitteln gelöst wird, **sondern erfordert eine administrative Entscheidung im Bereich der Logistik, wie kognitive Daten zu organisieren sind**.

1.9 Ein möglichst effizienter Transport von Waren eines Kommissionierauftrages von einem Quelllager zu einer Zielpositionen mag physikalisch technische Vorgänge beinhalten. Jedoch werden diese durch die beanspruchte Lehre nicht weitergebildet. Vielmehr erfolgt eine **rein organisatorische Optimierung auf der Basis bekannter Warenbeförderungsvorgänge**. Eine verbesserte Infrastruktur zur Warenbeförderung oder verbesserte Transportmittel zur Warenbeförderung sind nicht erkennbar.

Das beanspruchte Verfahren soll zwar zur Transportoptimierung dienen, jedoch werden in Anspruch 1 **keine Merkmale spezifiziert, die eine konkrete Veränderung an der Art und Weise vornehmen, wie die Waren transportiert werden**. Dabei werden auch **keine funktionalen Wirkungen bzw. technischen Eigenschaften der zu transportierenden Waren berücksichtigt**.

1.10 Ein technischer Effekt ergibt sich auch nicht durch den **Warentransport** selbst, da dieser **nicht Bestandteil von Anspruch 1** ist. Der Anspruchsgegenstand **betrifft nur Auswertungsergebnisse**.

1.11 Die Beschwerdeführerin argumentiert, dass mit dem beanspruchten Gegenstand eine **Reduktion der Anzahl von Fahrten** erreicht werde und damit eine **Energieeinsparung** verbunden sei (vgl. Eingabe vom 14. Juli 2023, Seite 3, Absatz 2 sowie auch in der mündlichen Verhandlung). Die **Kammer ist davon nicht überzeugt**. Die angeführte Energieeinsparung ist **rein spekulativ und kann nicht ohne weiteres zur Annahme eines**

technischen Effekte führen. Auch wäre dazu erforderlich, dass ein solcher Effekt mit technischen Mitteln erreicht würde.

Die Beschwerdeführerin hat in der mündlichen Verhandlung argumentiert, dass die beanspruchte **Erfindung vergleichbar sei mit einer Optimierung des Reifendrucks** bei der Warenbeförderung, wodurch ebenfalls eine Energieeinsparung erzielt würde.

Dieses **Argument überzeugt die Kammer jedoch nicht.** Denn während es sich bei der Regulierung des Reifendrucks um eine technische Maßnahme handelt, wäre beim beanspruchten Gegenstand eine **Energieeinsparung (sofern tatsächlich erzielt) die Folge einer rein organisatorischen oder algorithmischen Optimierung**, die im Wesentlichen auf einer gedanklichen Tätigkeit basiert. Daraus kann **kein technischer Effekt** zur Berücksichtigung einer erfinderischen Tätigkeit abgeleitet werden.

Sollten mit dem erfindungsgemäßen Verfahren also **Auswirkungen auf den Energieverbrauch verbunden sein**, so wird **dies nicht durch den Einsatz von technischen Mitteln erreicht, sondern ist eine Folge der administrativen bzw. organisatorischen Maßnahmen.**

1.12 Die Kammer stimmt daher der angefochtenen Entscheidung zu, dass die objektive technische Aufgabe darin besteht, das mathematische Verfahren zur Warenkommissionierung, welches vom Geschäftsmann der Logistik als Spezifikation vorgegeben wird, auf einem Computersystem zu implementieren.

1.13 Bei der **Implementierung** sieht die Kammer **keinen technischen Effekt, welcher über die reine Automatisierung hinausgeht.** Diese erfordert lediglich die Implementierung der abstrakten Verfahrensschritte zur Transportoptimierung mittels geläufiger Programmierkenntnisse. Weder Anspruch 1, noch den Anmeldungsunterlagen insgesamt lassen sich technische Implementierungsdetails entnehmen, welche eine Grundlage für eine erfinderische technische Leistung im Rahmen der Implementierung darstellen könnten.

1.14 Dem Gegenstand von Anspruch 1 **fehlt es somit an einer erfinderischen Tätigkeit gegenüber einem fachnotorisch bekannten vernetzten Computersystem** oder ausgehend von der Lehre von D1 oder D3, jeweils vor dem Hintergrund der allgemeinen Programmierkenntnisse eines EDV-Fachmanns.

T 1384/21 (Predictive search/GOOGLE LLC) 20-03-2024

European Case Law Identifier ECLI:EP:BA:2024:T138421.20240320

Predictively presenting search capabilities

Inventive step - (yes)

Application number 13812330.2
IPC class G06F 17/30
Applicant name Google LLC
Cited decisions T 2028/11

Board 3.5.07

<https://www.epo.org/boards-of-appeal/decisions/pdf/t211384eu1.pdf>

Claim 1 of the new main request reads as follows:

"A method comprising:

storing a plurality of whitelisted locations, and associating one or more search types with each whitelisted location, wherein the one or more search types comprise a visual search type corresponding to one or more of a barcode scanning capability, a quick response code scanning capability, an image recognizer capability, and an optical character recognition capability;

determining (180), by a mobile computing device (2), a geographic location of the mobile computing device;

determining that the geographic location of the mobile computing device matches one of the whitelisted locations;

obtaining (184) the one or more search types associated with the matched whitelisted location;

responsive to obtaining the one or more search types, outputting (186), by the mobile computing device and for display, a graphical user interface (14) comprising an indication for each of the one or more search types associated with the matched whitelisted location;

responsive to receiving user input selecting an indication of one of the one or more search types, obtaining (190), by the mobile computing device, a search input for the one of the one or more search types associated with the matched whitelisted location, and transmitting the search input to a networked device via a network, the one of the one or more search types comprising the visual search type; and

receiving one or more search results from the networked device and outputting the search results for display."

Application

1. The invention concerns predictively presenting, in the graphical user interface (GUI) of a computing device, specific "search capabilities" depending on the current location.

1.1 In the invention, different "whitelisted locations" may offer different search capabilities for users to obtain information. For example, in a museum the user may use the smartphone camera to recognise artwork, whereas in a shop the user may scan a barcode for "comparison shopping" (see paragraphs [0013], [0014], [0016] and [0030] of the published application). A search capability, also named "search type" in the application, may be a "visual search type" that uses optical sensor(s) to obtain image(s). For example, visual search types may be based

on barcode scanning, image recognition or optical character recognition. Other search types may include audio and textual search types (paragraph [0031]).

1.2 After determining that the current location matches a whitelisted location in a stored list of whitelisted locations, the computing device obtains the search types which are associated with the matched whitelisted location. The computing device then provides, in the GUI, a selectable GUI element, referred to as "indication", for each of the obtained search types. When the user selects one of these indications, a search is performed based on the selected search type (paragraphs [0033],[0034] and [0041]).

New main request

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5. Inventive step - claim 1

5.1 The inventive-step reasoning of the decision under appeal is still relevant to the assessment of claim 1 of the main request, which has been amended mainly for clarity reasons.

5.1.1 In the decision under appeal, the examining division decided that the subject-matter of claim 1 of the then main request was not inventive. The claimed subject-matter differed from the disclosure of document D4 in that it included the following features:

"storing a plurality of whitelisted locations, and associating one or more search types with each whitelisted location

search types are associated with the matched whitelisted location,

determining that the geographic location of the mobile computing device matches one of the whitelisted locations;"

5.1.2 The **examining division found that these features concerned administrative and personal constraints and resulted in a different search method being performed based on the location. This was not a technical effect because it related merely to presentation of information.**

5.1.3 The appellant argued that, in addition to the distinguishing features identified in the decision under appeal, document D4 did not disclose the steps of obtaining the search types associated with the matched whitelisted location and outputting a graphical user interface with indications of obtained search type(s). The appellant contested the examining division's finding that the distinguishing features made no technical contribution. The distinguishing features provided a user interface which facilitated user selection of a search type.

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5.3 Document D4 therefore discloses a navigation system in a mobile device, which also reads QR codes, searches nearby scenic spots and positions friends. The user can scan a QR code to obtain the coordinate of a scenic spot and then choose to go to that spot (page V5-69).

5.4 As acknowledged in the decision under appeal, document **D4 does not disclose a list of locations and specific search types associated to each location in the list** (see point 5.1 above).

In the decision under appeal, the examining division found that the claimed steps of "obtaining the one or more search types associated with the geographic location" and "outputting ... at least an indication of the one or more search types associated with the location" were disclosed on page V5-68 of document D4. The examining division cited the following passage:

"When the user inquires an address by using position searching interface, position searching module will match the address with the database. When the user further searches nearby scenic spots, scenic spots searching module works".

The board does not agree that page V5-68 discloses the two steps as argued by the examining division. The two **claimed steps provide a predictive GUI that allows the user to select a search type from the list of "search types" applicable to the current (whitelisted) location**. In the example of the first sentence of the cited passage, however, the position search interface may have been activated by the user. In the second example, no interface is explicitly mentioned. Page V5-68 of D4 cited in the decision under appeal does not disclose the GUI of D4 predictively displaying an interface for a particular search, such as a position search or a scenic spot search of D4, let alone a specific interface based on a location.

The **board thus agrees with the appellant that document D4 does not disclose the steps of obtaining the search types and outputting the respective indications, both steps depending on there being search types associated with whitelisted locations**.

5.5 In view of the above, the method of claim 1 differs from the disclosure of document D4 at least in that it includes the following two groups of steps (the first group corresponding to the distinguishing features identified in the decision under appeal, see point 5.1.1 above):

- storing a plurality of whitelisted locations, associating one or more search types with each whitelisted location and determining that the geographic location of the mobile computing device matches one of the whitelisted locations;
- obtaining the search types associated with the matched whitelisted location and responsive to obtaining the one or more search types, outputting a GUI comprising an indication for each of the search types associated with the matched whitelisted location.

5.6 The **"indication" for a search type is an interactive element of the GUI which offers a specific search function and is a technical feature** (see also T 2028/11, Reasons 3.6). The board does not agree with the assessment of the decision under appeal that the distinguishing features, even those of the first group identified in the contested decision, **relate only to**

presentation of information as such and that "[i]t is irrelevant from a technical standpoint which searches or search types are offered by a technical system, only the personal requirements of a user dictate such choices". **Since the functionality of the system is determined by the interactive GUI elements displayed, it is technically relevant that specific interactive elements are displayed.**

Moreover, the distinguishing **features mentioned above are not determined by the subjective wishes of the user but result in the GUI being automatically adapted to the location of the mobile device in that the GUI provides the search functionality which is applicable to the location. This is a technical difference.** The board agrees with the appellants that these distinguishing features facilitate the selection of a visual search type associated with the location of the mobile phone.

5.7 None of the prior-art documents D1 to D3 cited in the proceedings discloses the distinguishing features.

5.8 Furthermore, since none of the cited documents describes or suggests the starting concept of the invention, i.e. that there are specific search types, such as QR code scanning, associated with certain locations and that in order to perform a search at a location the user selects a search type associated with the location, the board considers that no combination of the cited prior art can render the subject-matter of claim 1 obvious.

5.9 Therefore, the subject-matter of claim 1 of the new main request is **inventive over the cited prior art.**
