

This document includes some recent decisions of the EPO in 2017 with regards to software related inventions and shows relevant extracts from the respective decisions.

T 2539/12 (Searching a hierarchically structured database/SOFTWARE AG) of 18.1.2018

European Case Law Identifier: ECLI:EP:BA:2018:T253912.20180118

Method for searching a database and database

Inventive step - after amendment (yes)

Application number: 03028668.6
IPC class: G06F 17/30
Applicant name: Software AG
Cited decisions: T 1351/04

Board: 3.5.07

<http://www.epo.org/law-practice/case-law-appeals/pdf/t122539eu1.pdf>

Invention

2. The invention concerns the efficient searching of a hierarchically structured database for the results of "combined queries" comprising two or more conditions that must each be fulfilled for the same element. In one example, the database is in the form of an XML document and stores information about books (see e.g. original description, page 2, lines 15 to 25, and page 3, lines 7 to 10).

2.1 According to the description on page 2, lines 5 to 25, prior-art indexes are not adequate to perform some complex queries. The description gives an example of using the prior-art indexes to obtain the result of a search directed to books of the author "Jim Miller", i.e. first name = "Jim" and last name = "Miller", which results in books being found where the first name of one author is Jim and the last name of another is Miller. The purpose of the invention is to efficiently obtain the correct result for such queries.

2.2 According to the invention, the database includes elements, each element (e.g. corresponding to a book) comprising one or more hierarchically structured nodes for defining attributes of the element (e.g. first and last names of the author, chapter title and text). A unique identifier EID is assigned to each node of a plurality of selected nodes (page 7, lines 1 to 11, Figure 2). A reference index is created which assigns to each unique EID of a selected node the corresponding element of the database (page 7, lines 11 to 14, Figure 3). For nodes which can be the subject of search conditions of a query, search indexes are created which

correlate the values of the nodes with the EIDs of ancestors of those nodes. A search index, also called "EID index" in the application, may be created for each search condition (page 7, lines 22 to 30, Figures 4 and 5).

2.3 A search for elements satisfying conditions c_0, c_i, \dots is performed as described on page 8 with reference to Figure 6, in combination with original claims 1 and 2, essentially by

(d') retrieving a list L of EIDs of ancestor nodes for nodes satisfying the first search condition c_0 using the EID index (i.e. the search index) corresponding to c_0 ;

(e') for each further condition c_i :

- investigating the EID index corresponding to the search condition c_i to retrieve a further list E_i of EIDs of ancestor nodes for nodes which fulfil c_i , and

- updating the list L by calculating its intersection with E_i , $L := L \text{ intersection } E_i$;

(f') looking up the reference index for the EIDs in list L in order to obtain the searched elements.

Claim 1 of the main request reads as follows:

"Method for searching within elements of a hierarchically structured database (10), wherein each of the elements has hierarchically structured nodes for defining attributes and respective sub-attributes of said element, and wherein one or more nodes of the searched element must fulfill two or more search conditions (c_0, c_i, \dots), the method comprising the following steps:

a. selecting a plurality of nodes and assigning a unique identifier (EID) to each of the selected nodes;

b. creating a reference index (20) that allows to derive for each unique identifier (EID) of a selected node the corresponding element of the database (10);

c. creating search indexes (31, 32) which correlate the values of nodes, which can be the subject of the respective search conditions (c_0, c_i, \dots), with the unique identifiers (EID) of ancestors of these nodes;

d. investigating the search index (31) corresponding to the first search condition (c_0) to retrieve (101) a set L of unique identifiers (EID) of ancestor nodes for nodes which fulfill the first search condition (c_0);

e. for each further search condition (c_i) of the two or more search conditions (c_0, c_i, \dots):

- investigating the search index (32) corresponding to the further search condition (c_i) to retrieve (103) a further set E_i of unique identifiers (EID) of ancestor nodes for nodes which fulfill the respective search condition; and

- intersecting (104) the set L with the further set E_i and assigning the result to the set L of unique identifiers (EID), thereby obtaining $L = L \cap E_i$;

and if there are no further search conditions (c_i) to be satisfied:

f. retrieving (105) the searched elements based on the set L of unique identifiers (EID) and the reference index (20)."

5. Inventive step

5.1 In the Board's opinion, it is clear from the wording of the claim that it concerns a computer-implemented method for searching for elements in a database stored in a computer, which uses data structures - the reference and search indexes - to access the data in the computer during the search. The claimed method therefore has technical character.

5.2 Document D1 is the closest prior art. It discloses a system for managing and searching a database of structured documents such as XML documents (paragraph [0008]).

The system of document D1 maintains the information on the XML documents in a relational database (paragraphs [0022] and [0023]). A structured document includes elements (e.g. document, sheet, page), and multiple instances of an element may occur in a document (see paragraphs [0023] and [0031], Figure 5). Unique element identifiers are associated with the element instances. For example, Figure 5 illustrates two instances of the document element, the first document with ID 1001 including two instances of the page element, page 1 with ID 1003 and page 2 with ID 1006.

The terminology of document D1 is different from that of the present application. The present application uses the term "element" only for root elements of the database such as "book" in the examples given in the application (see page 1, lines 13 to 22, page 7, lines 1 to 20). The elements in document D1 correspond to either elements or nodes in the language of the present application.

5.5 The subject-matter of claim 1 differs from the method of document D1 in that the performed search is such that "one or more nodes of the searched element must fulfill two or more search conditions (c_0, c_i, \dots)" and in that it includes steps c to e.

Since the search indexes are data structures which provide access to stored data, the distinguishing features, which are based on the search indexes, contribute to the technical character of the claimed method (see e.g. T 1351/04 of 18 April 2007, reasons 7.2).

5.6 Document D1 discloses how to implement a search on the basis of search terms using the element and navigation tables, but **does not disclose a concrete implementation of the type of search described in the claim.**

The distinguishing features therefore **solve the problem of implementing a search for elements each satisfying multiple search conditions on its nodes.**

5.7 In the Board's opinion, starting from document D1 the skilled person faced with that problem would modify the method of D1 to perform the search for elements each satisfying multiple search conditions on its nodes using the element tables and navigation table. For example, the skilled person would consider using, at each iteration corresponding to each search condition, not only the element table for the specific search condition but also the navigation table in order to obtain the root identifiers corresponding to the entries found in the element table. Since the solution of document D1 is based on specific index structures, the skilled person would attempt to solve the problem of supporting new query types by modifying the steps of the method using the same index structures as before.

However, the **solution of claim 1 is different to and more efficient** than solutions based on the indexes of document D1, because it does not require additional steps of consulting the navigation table for each entry found.

The Board **is not persuaded that it would be obvious for the skilled person, without a further hint**, to modify the solution of document D1 by **changing not only the method but also the indexes in the way of the distinguishing features in order to solve the problem** addressed by the present invention.

None of the other cited prior-art documents gives such a hint. Document D2 describes the requirements for a query language for XML data. The queries disclosed on page 920, point (1) "Data match for select", cover the type of query described in the present application. However, document D2 describes only the query language, not the implementation of the queries. In particular, it does not mention indexes. The other cited prior-art documents are very remote from the claimed subject-matter.

5.8 From the above it follows that the subject-matter of claim 1 is inventive over the cited prior art and satisfies Articles 52(1) and 56 EPC. The same applies to corresponding independent claim 6 and the dependent claims.

T 1157/12 (Supplying a result to a plurality of registers/INTEL) of 8.1.2018

European Case Law Identifier: ECLI:EP:BA:2018:T115712.20180108

SIGNAL PROCESSING DEVICE AND METHOD FOR SUPPLYING A SIGNAL PROCESSING RESULT TO A PLURALITY OF REGISTERS

Inventive step - (yes)

Claims - clarity (yes)

Sufficiency of disclosure - (yes)

Application number: 01991757.4

IPC class: G06F 9/38, G06F 9/30

Applicant name: Intel Corporation

Board: 3.5.06

<http://www.epo.org/law-practice/case-law-appeals/pdf/t121157eu1.pdf>

Claim1 according to the main request reads as follows:

"1. A signal processing device comprising a plurality of functional units (UCI-UCn) for processing digital data based on an instruction word, and a plurality of register files (RF1-RFn) for storing results obtained from respective ones of said functional units, wherein said functional units are arranged to supply a result and a logical register address derived from respective instructions in said instruction word, characterized by register allocation means (RA), wherein the functional units are arranged to supply the result and the logical register address to the register allocation means (RA), and wherein the register allocation means (RA) are arranged for selecting at least two of said register files (RF1-RFn) and for supplying said result and said logical register address or a register address derived from the logical register address to said selected register files, if said instruction word comprises a corresponding indication."

2. Summary of the invention

2.1 The application relates to a digital signal processor (DSP) using VLIW ("Very Large Instruction Words") containing a plurality of instructions so that a plurality of partial tasks are processed in parallel by individual functional units, i.e. pipeline stages.

2.2 The DSP uses "data stationary" instruction encoding, understood by the board to mean that an instruction travels together with associated data in a pipeline and controls the sequence of operations performed on these data in each pipeline stage. A consequence is that complex hardware is required to buffer data path control information supplied by the processor sequencer. The results from the functional units are stored in register files comprising a plurality of register files (RF) addressable using a "result register index" (RRI). Often a functional unit can only read its operands from, or write its result to, a subset of register files. If a register file is inaccessible to a functional unit, then a copy of the variable has to be written to an accessible register file. The writing of a result in the same cycle to multiple register files is termed "broadcasting" or "multicasting".

2.3 In a data stationary processor an output port of the functional unit has to select one of multiple result buses to which the register file write ports are connected to perform a write operation. This leads to an undesirable increase in processor cost when implementing a broadcasting function, the board understanding that the extra cost is caused by extra complexity. The invention is thus directed to the problem of reducing device complexity in implementing a broadcasting function; see page 2a, lines 9 to 10. The invention solves this problem by overlapping register address spaces; see page 3, lines 10 to 11. This is achieved by addressing several register files using the same logical register address; see page 3, lines 4 to 6. This has the effect that copy operations between register files can be eliminated, since, as shown in figures 1 and 4, the result data and a logical register address are supplied to a

register file allocation means (RA) which generates result register indices (RRI) to select at least two register files (RF1-RFn) and supplies the result data and the RRI to the selected register files. Hence the results of the functional units (see "Result data") are broadcast to multiple registers of different register files in a single processor cycle; see figure 1, page 3, lines 7 to 10, and page 4, lines 9 to 19.

2.4 Figure 2 shows how the result values (D1-Dn) and logical register addresses (RI) produced by the functional unit clusters (UC) are passed to the register file allocation unit (RA); see page 4, line 20, to page 5, line 7. As a result, any of the result data (D1-Dn) and logical register addresses (RI) can be distributed to any or several partitioned register files (RF1-RFn) to realize a broadcasting or multicasting function. Figure 4 shows corresponding steps of a broadcasting method.

2.5 According to page 4, lines 16 to 19, the register file allocation unit (RA) may be implemented using a demultiplexer, as shown in figure 3, which shows a register file allocation unit (RA) implemented by three de-multiplexers (DM1-DM3) feeding two OR-gates; see page 5, lines 20 to 29.

7. Inventive step, Article 56 EPC 1973

7.1 In a communication dated 27 December 2007 the examining division raised an inventive step objection against a previous version of claims 1 and 8 on the basis that their subject-matter only differed from the disclosure of D1 in setting out a plurality of register files, while D1 disclosed a plurality of register file segments located in one register file. **The objective technical problem was seen as finding an alternative to the known processing device, and the storage of the results from the functional units in a respective register file (as claimed) or a respective register file segment (as known from D1) were both regarded as obvious alternatives not involving an inventive step.**

7.2 Point 15.3 of the appealed decision states that, in contrast to the disclosure of D1, the register files in the application were arranged such that the logical register address range of a part of the file overlapped with that of other files, but not necessarily with all other files, as was the case in D1. **The application was thus aimed at a cheaper (the board understands this to mean "simpler") form of broadcasting using a few physical registers with the same logical register address in different register files.**

7.3 The appellant has stated that the **subject-matter of claim 1 differs from the disclosure of D1 in that D1 does not disclose the register file allocation unit (RA).** In D1 data was exchanged by using global registers, and writing a result to a global register for one register file segment automatically overwrote the corresponding global register for all the other functional units. **The objective technical problem was thus to allow the global registers of one register file segment to be overwritten without overwriting the global registers of all the other register file segments.** This was achieved by the register file allocation unit (RA) allowing a register to be used as a broadcast register or a unicast register.

7.4 The **board agrees** with the appellant that the subject-matter of claim 1 differs from the disclosure of D1 in that D1 does not disclose the register file allocation unit (RA). In the

board's view, the objective **technical problem formulated by the appellant, namely to allow the global registers of one register file segment to be overwritten without overwriting the global registers of all the other register file segments**, is a fair one, and it is **indeed solved by the characterising features** setting out the register allocation unit.

7.5 Since D1 does not disclose, or even hint at, the characterising features, which are not themselves usual matters of design, the board finds that the subject-matter of claim 1 involves an inventive step, Article 56 EPC 1973. As the method steps set out in claim 8 correspond to the features of the device of claim 1, the subject-matter of claim 8 also involves an inventive step for the same reasons.

T 1357/13 (Wireless control of printers/VIDEOJET) of 22.2.2018

European Case Law Identifier: ECLI:EP:BA:2018:T135713.20180222

PRINTER CONTROL METHOD

Claims - clarity (yes)

Inventive step - after amendment

Application number: 06755657.1

IPC class: G06F 3/12

Applicant name: Videojet Technologies, Inc.

Board: 3.5.05

<http://www.epo.org/law-practice/case-law-appeals/pdf/t131357eu1.pdf>

Claim 1 of the main request reads as follows:

"A method for controlling a printer (11, 12, 13) to carry out a printing operation, the method comprising, at a controller device (10):

reading an identifier (14, 15, 16) associated with said printer (11, 12, 13), the identifier comprising machine readable information being a barcode, magnetically readable information, a radio frequency identifier or machine readable text;

generating first input data in response to said read identifier (14, 15, 16), said first input data comprising data for identifying said printer (11, 12, 13);

generating data identifying any printers (11, 12, 13) within a wireless communications range of said controller device (10);

determining whether one of said identified printers (11, 12, 13) is said printer identified by said first input data; and

if said determining indicates that one of said identified printers (11, 12, 13) is said printer identified by said first input data, establishing a wireless connection between said controller device (10) and said printer (11, 12, 13) in response to said first input data; and

using said established wireless connection to control said printer."

2. Prior art

D3 discloses a system for validating delivery of a receipt roll to receipt printers. A barcode associated with a receipt roll and a barcode associated with a printer are scanned and compared to validate a match indicating a correct delivery.

D4 discloses a system for determining an identifier of a printing device that a user wants to select for printing a job. A list of printers is displayed on the user's mobile device. The user physically operates a key on the desired printer, which changes a variable on the printer entry in the list to indicate that the printer has been selected by the user. By selecting the printer entry on the list, the selected printer sends a unique identifier to the user's mobile device, which in response sends print job information to the selected printer.

3.2 Article 56 EPC

D4 has been considered in the decision under appeal as the closest available prior art, and the board does not see any reason to depart from this position since it is the only available prior art that relates to the wireless transmission of printing data from a mobile controller device to a printer.

There are however **numerous differences between the subject-matter of claim 1 and the disclosure of D4:**

- in claim 1, **the controller device, operated by the user, reads a machine-readable identifier of the printer that is to be controlled**, whereas in D4 the user operates a key, e.g. an on/off button, on the printer that is to be controlled and identifies the printer, based on this key, in a list of printers displayed on the controller device,

- in claim 1, **it is checked whether the printer selected by the controller device belongs to the group of printers that are in a wireless communication range of the controller device**, whereas in D4 the list of printers comprises all the printers in the area defined by the fixed network, which are all deemed connected.

The **technical effects of these differences are that the user only needs to perform one operation with the controller device, namely read the machine-readable identifier, e.g. the barcode, of the printer it wants to select to check the availability of the wireless connection from the controller device to the printer.**

The **objective technical problem can thus be defined as how to provide an improved method for controlling a printer using a mobile controller device.**

The **skilled person** would not find in D4 itself any hint to modify the process shown in Figure 1A and B of D4. In particular, the skilled person would not be incited to circumvent the querying of a predetermined list of printers in the area defined by the network since this feature is at the basis of the process of D4 (see steps 4, 8, 10 and 12 of Figure 1 and paragraph [0012]).

Further, the **skilled person** would not find in D3 any feature for improving the control of a printer by a mobile controller device since D3 is solely related to the different context of validating matches between receipt rolls and printers using them, and not to the use of barcodes for identifying printers in a printer control process. In any case, even if the skilled person were using barcodes associated with the printers in the arrangement of D4, it would not achieve anything given that identification of the printers is inherently provided in D4 by the repeated query of the network list of printers.

The appellant further plausibly argued that the **method of claim 1 provides the advantage over the method of D4 in that it requires a single action by the user, namely using the controller device to read the machine-readable identifier of the selected printer, thereby removing the source of possible errors caused by incorrect user input at the controller device.**

For these reasons the board judges that the subject-matter of claim 1 involves an inventive step, having regard to the available prior art (Article 56 EPC).

T 2516/12 (Laundry monitoring / ECOLAB) of 9.11.2017

European Case Law Identifier: ECLI:EP:BA:2017:T251612.20171109

DATA PROCESSING SYSTEM FOR MANAGING CHEMICAL PRODUCT USAGE

No Inventive step - no technical problem

Application number: 00959523.2
IPC class: G06F 17/60
Applicant name: ECOLAB INC.

Board: 3.5.01

<http://www.epo.org/law-practice/case-law-appeals/pdf/t122516eu1.pdf>

Claim 1 according to the main request reads as follows.

A data processing system for managing use of chemical product in a chemical application system corresponding to a first customer account identified by an account identifier, the system comprising:

Examples of recent 2018 Board of Appeals decisions related to Software Innovations

a chemical product dispenser distributing the chemical product to the chemical application system;

a monitor module detecting dispenser data based on distribution of the chemical product by the chemical product dispenser;

a database coupled to the chemical product dispenser and storing the account identifier in association with the dispenser data of the chemical product dispenser;

the database further storing corporate data in association with the dispenser data and the account identifier; and

an analysis application analyzing the dispenser data in relation with the corporate data to characterize use of the chemical product in the chemical application system.

XIV. The appellant's arguments can be summarised as follows.

The appellant supplied not only chemical products for laundries, but whole laundry facilities and services including monitoring and identification of problems. It was in this field that the **skilled person worked**, and which would inform his understanding of the terms used in the claims, in particular the term corporate data. **He would understand corporate data to mean data that could have a bearing on the correct functioning of the facility**. That would include occupancy of a hotel, hospital, or other facility, but not, for example, whether Mr X had worked on Tuesday. In particular, the wording analyzing the dispenser data in relation to the corporate data to characterize use of the chemical product ... expressed the technical outcome (the amount of various products used) and entailed a limitation on the meaning of corporate data.

XV. With reference to the main request, the invention differed from D1 by storing corporate data and dispenser data together. The examining division were wrong to dismiss this as non-technical, because it was particularly suitable for computer implementation and allowed more accurate detection of, and reaction to, errors or inefficiencies. It allowed water, energy, and chemical product to be saved. As these were technical effects, the Comvik approach did not apply. The effects did not rely on any modification to the washing machines. It was sufficient that the user get better information and could react to errors and inefficiencies. The invention was also technical by virtue of displaying the status of a technical system.

XVI. Any lack of clarity in the term corporate data was removed in the second the third auxiliary requests by the specification that it described "occupancy of a facility at which the chemical application is operating". The restriction of corporate data to occupancy established, if it was not already implicit in the main request, the technical relationship between such data and the aim of identifying abnormal situations. This was because the use of resources (water, energy, and chemicals) depended on occupancy.

Background

1. The application is careful to specify that the invention applies to the automatic dispensing of chemicals in general (published application, page 1, line 17 to page 2, line 12). However,

the real focus of the invention is industrial laundries with automatic dispensing of cleaning products.

2. The idea is to keep a record of the dispensing of the cleaning products in relation to data that reflect the circumstances of use. A laundry operating in a hotel or hospital, for example, might keep track of how the amount of detergent used relates to the number of rooms or beds occupied. This information can be analyzed and used to improve procedures. As an example, hotel laundries can be compared in terms of how much detergent they use per occupied room, and poorly performing laundries can be identified.

3. According to the published application, existing approaches to automatic recording of detergent usage failed to provide the capability or capacity of automatically detecting large amounts of dispenser data, communicating and recording dispenser data and corporate data to a central database, and analyzing the data to provide feedback ... (published application, page 3, lines 19 - 22).

4. However, it is now common ground that D1 and D3 disclose the logging of data collected from various dispensers. It is also agreed that **D1 does not disclose the storage of corporate data**, at least in so far as that term has a clear meaning. **An inventive step, if there is one, must come from this corporate data.**

5. The **examining division considered that corporate data were not technical and so could not contribute to inventive step**. The **appellant** does not dispute that the corporate data would not be technical in isolation, but **argues that their use in a technical context allowed technical effects to be achieved**.

12. The appellant argued that neither disclosed the storage of, or analysis using corporate data.

13. **D3 does disclose the use of data that might be classified as "corporate"**, in the form of "change in specials, pricing or facility operations that vary with time of day or day of week" (D3, column 4, lines 30 - 33), but **that is not the sort of data the appellant has in mind**. **What is intended, as the appellant argues the skilled person would understand, is the sort of data that can give an indication of how much detergent, say, an laundry would expect to use**. More guests, more laundry, more detergent. D3 does not disclose that sort of "corporate data".

14. In the appellant's view, there is a further difference. The systems of D1 and D3 use many different forms of sensor to gather their dispenser data. D3 measures, for example, room temperature, hot water temperature, hot and cold water pressure, motion within the facility, and indications of whether doors are open or closed (D3, column 3, lines 40 - 47). The invention, however, only stores the amount of a chemical product that was dispensed.

15. The Board cannot acknowledge this difference. Claim 1 says only that dispenser data "based on distribution of the chemical product" is detected. D1 and D3 do that. They do more too, but the claim does not exclude that. **The only difference lies in the use of corporate data.**

16. The **examining division thought corporate data was not technical** and so could not contribute to inventive step. The **appellant thinks that was wrong**: while corporate data by itself was not technical, including it allowed problems with the laundry to be detected; it gave an indication of the internal state of a technical system.

17. The **Board is not persuaded** that the system of claim 1 does provide **an indication of the technical state of a technical system**. The invention analyses dispenser data and corporate data. Examples would be, respectively, the amount of detergent and number of guests in a hotel. This data might be collected for many hotels, and the average detergent use per guest might be calculated. If a laundry uses significantly more than the average (the application calls this "inflated detergent"), that would indicate a problem. **In the Board's judgment, it might indicate a problem, but the problem might or might not be a technical one**. It might be an inadequately trained operative choosing the wrong settings of a machine or even not properly washing by hand (published application, page 3, lines 1 - 7). The operative would then be provided with "corrective instructions" from one or more "field service managers".

18. **The system, therefore, provides information on the state of a laundry, but it is not technical information. It may be (and in the examples given in the application it is) administrative information.**

19. **Corporate data is, in itself, not technical**. It is **used in the invention to obtain a non-technical effect**. In the absence of a technical solution to a technical problem, the Board cannot acknowledge an inventive step (Article 56 EPC).

20. The main request, therefore, cannot be allowed.

The second auxiliary request

21. According to this request, the **corporate data is restricted such that it "describes occupancy"**. It may be the number of beds occupied in a hospital or hotel at the relevant time.

22. **This more restricted meaning of corporate data is no more technical than the broad version.**

23. The problems in the laundry system that might be indicated are the same as in the main request. It may be that an operative has been inadequately trained or pushed to do more than can be done properly in the time given.

24. The Board, therefore, can see no more inventive step than in the main request. The second auxiliary request, therefore, cannot be allowed.

T 0790/14 (Programming language construct/MATHWORKS) of
12.1.2018

European Case Law Identifier: ECLI:EP:BA:2018:T079014.20180112

METHOD OF USING PARALLEL PROCESSING CONSTRUCTS

Inventive step - (no)

Application number: 09751296.6
IPC class: G06F 9/50, G06F 9/45
Applicant name: The MathWorks, Inc.
Cited decisions: T 1539/09, T 0423/11

Board: 3.5.06

1. Summary of the invention

The application relates to the **definition of a specific parallel programming language construct**, the so-called SPMD command (see figure 8 and page 14, line 28, to page 16, line 10; in particular page 15, line 27), **including the way it is supposed to be executed on a parallel computer system**.

2. Inventiveness

2.1 Programming language constructs (i.e. the commands and their syntax) are the main part of the definition of a programming language. The way they are executed also belongs to the definition of a programming language, namely to its operational semantics.

2.2 However, **programming language constructs are even more abstract than programs which are as such excluded from patentability**. Furthermore, **programming is a mental act, and programming language constructs have the intrinsic aim of enabling and easing the work of a programmer which itself lacks technical character** (see T423/11, 3.9-3.12 and T1539/09, 4.).

2.3 Therefore, **the design and the definition of programming language constructs** (including the operational semantics, the data flow, the error handling and side effects) **is not considered to contribute to the technical character** of claimed subject-matter and thus cannot establish the presence of an inventive step. In the present case, the claimed method merely represents the operational definition of the SPMD command.

2.4 The board finds that the technical effects indicated in the grounds of appeal (page 9, bottom to page 10, first paragraph; page 15, second paragraph) are not convincing:

- "resource allocation is efficient and flexible": the **resource allocation is mainly done by the programmer** who has to deliver remote references to labs in one of the input variables of the program he/she is writing (see step of detecting input variables in claim 1); see below for a

more detailed argumentation; furthermore, there is no technical disclosure of the allocation in the description;

- "it is easy to send ordinary variables into parallel code"/"data is transferred between code executed in parallel and code executed sequentially in an easy and efficient way": this **relates to the design and the definition of the SPMD command and therefore does not contribute to the technical character**; furthermore, the input variables (i.e. the variables which are used in the SPMD body (= inner parallel context) before they are assigned values; see page 23, second paragraph) anyway have to be transmitted to the labs, since otherwise the labs cannot execute the code in the SPMD body;

- "minimal data transfer via the use of remote reference": this **also relates to the operational definition of the SPMD command; furthermore, the word "minimal" needs a point of comparison**; however, **other parallel programming language constructs are deliberately defined to work differently; they cannot be compared with the present SPMD command in order to show a technical improvement (i.e. a technical effect), since they are defined to do something different**; see below for a more detailed argumentation;

- "when an error occurs and parallel execution is interrupted, work can be picked up from where the interruption occurred and need not be resumed from the beginning of a task": this relates to the design of the error handling in the definition of the SPMD command; furthermore, error handling is no longer set out in the claims.

2.5 The board agrees with the appellant that, **in contrast to a mere (non-technical) definition of a programming language construct, a computer-implemented method for executing a program might produce a technical effect while it executes a program, for example if the new method executes the program faster than a prior art method, or if less data transfer is needed during execution** (as is stated in the letter dated 29 August 2017, page 7, second para-graph; for the prior art method see the paragraph bridging pages 7 and 8). However, **this effect can only be produced if the new method executes the same program as the prior art method.**

2.6 In the present case, **a second program containing the new programming language construct ("SPMD command") would have to be written by a human programmer to perform exactly the same function (i.e. having the same input-output-behaviour) as a first program which does not contain the new construct and can be executed by the prior art executing method.**

2.7 Thus, **in order to compare the two methods executing the same program, a human programmer is needed to transform one program into another** in order to make it executable by the other execution method.

2.8 Therefore, **no technical effect is achieved by a new execution method with respect to an existing execution method, if the programming language accepted by each of the two execution methods is different.** This is the case if the new programming language contains at least one new command. A command is new, even if the keywords of the new command are already used (here "SPMD" and "END"; see page 15, line 27), but the command allows additional information to be entered by the programmer (here "IN1" and "OUT1" for the input and output variables; see also page 15, line 27) or is to be executed differently.

2.9 Furthermore, it is this extra work by the programmer (to indicate the input and output variables to be transferred between the client computer and the lab computers) which allows the new execution method to reduce the amount of data to be transferred (see letter of 29 August 2017, page 8, second paragraph).

2.10 Thus, even if the former argument of the impossibility of comparison with an existing execution method were not valid, **an inventive step would still not be involved, since the new method merely does what the programmer tells it, namely only transferring the input and output variables which the programmer has indicated.** The inventive merit of the alleged reduction in the data transfer would be due to the programmer, and not to the execution method.

2.11 Therefore, the subject-matter of the claims is not inventive.

T 0119/11 (Compliance monitoring / Yaszistra Fund III) of 6.10.2017

European Case Law Identifier: ECLI:EP:BA:2017:T011911.20171006

ELECTRONIC RECORD MANAGEMENT SYSTEM

**Inventive step - electronic tag for storing email deletion policy (no
Inventive step - implementation of a non-technical requirement)**

Application number: 99955083.3

IPC class: G06F 17/60

Applicant name: Yaszistra Fund III, LLC

Board: 3.5.01

<http://www.epo.org/law-practice/case-law-appeals/pdf/t110119eu1.pdf>

Claim 1 according to the main request reads as follows.

A system for managing electronic email messages for compliance with a compliance policy in a distributed computing environment, the system comprising:

means for recording an electronic email message in a central database, the central database adapted to be accessed by the distributed computing environment;

means for generating an electronic tag that uniquely identifies an individual electronic email message, the electronic tag being generated based on compliance information taken from the user profile and the workstation specification of the user sending the electronic email message, and a reference code;

storage means for storing the electronic tag in the distributed computing environment;

means for sending the electronic email message to a recipient device via the distributed computing environment; and

a policy compliance monitor for extracting the compliance information stored in the electronic tag and determining purge characteristics for the associated electronic email message based on the extracted compliance information and the compliance policy.

Background

1. The invention is concerned with emails written in the workplace. There may be legal requirements to retain certain emails, just as there may be personal or business interests in deleting them. Other emails should, for a variety of reasons, be deleted after a given period of time. Organisations need to manage the storage of emails to ensure that those that have to be kept are kept, and those that have to be deleted are deleted.

2. As the application puts it, there is a need for an email system to track, sort, index, manage, authenticate, purge and store email messages, with other documents, in a database to insure that the email messages retained in the database may be the email messages an organization chooses to retain as their official records versus unorganized messages that may have the potential to create a liability for the organization (published application, page 2, lines 15 - 19).

3. The invention stores what it calls an electronic tag that uniquely identifies an email (or other document). The tag is based on the user's profile and workstation. Based on the information in the tag, emails are monitored for compliance with the organization's policies.

Inventive step

4. The principles on the basis of which inventive step is to be assessed are well established and set out in section I.D of Case Law of the Boards of Appeal of the European Patent Office, 8th Edition, 2016.

An important factor in the present case is the treatment of technical features that implement some non-technical requirement. The relevant subsection of the Case Law Book is 9.1. The Comvik approach is discussed in subsection 9.1.3.

The main request

5. Claim 1 defines a system that is able to store an email in a database, send the email to a recipient, generate and store an electronic tag, and determine, on the basis of information in the tag, when the email may or should be deleted.

6. The application starts from a workplace email system. It can send and store emails. Emails can be kept or deleted. This is a reasonable starting point for the assessment of inventive step.

7. The **invention differs from that starting point** in that it provides means (an electronic tag) for **storing, for each email, the data relevant to a deletion policy and for extracting that data (a policy compliance monitor) to determine when the email should be deleted.** The data is based on information in a user's profile, the workstation used, and a reference code that might be no

more than an identifier of a sort of email and of the user (page 10, lines 29 - 32 of the published application).

8. The **policies themselves, and in particular the choice of what information (such as a user's job description), are not technical**. They are a matter of law or of business or perhaps of personal preferences. Under the Comvik approach, the implementation of such policies can be given to the technically-skilled person as a non-technical requirement.

9. The appellant's argument regarding a stable record of information gathered at the time an email is sent does not reflect the claim, which does not specify any particular time for the creation of the tag or the gathering of information in it. However, even if the argument were accepted, it would not help, because **the choice of what information is to be stored is dictated by the non-technical policy**.

10. In the Board's view, the requirement given to the technically-skilled person is to provide for the tracking of emails so that they can be linked with the correct deletion policy.

11. To fulfil this requirement, there is no choice but to provide means for identifying which emails belong to which policies. That requires the storage of some data. The system will require some modification to do that, and the technically-skilled person might have to solve some technical problem in making the modifications. The means of storage and monitoring, however, are specified only to the extent that they are able to implement the non-technical requirements. There is **no specification of how they are implemented technically**. Thus, the **modifications necessitated by the invention are just those imposed by the non-technical requirements. The implementation does not solve any technical problem beyond fulfilling the requirement given to the technically-skilled person**.

12. As claim 1 does not go beyond the definition of features that are strictly necessary to fulfil a non-technical requirement, the combination of features it defines would have been obvious for the technically-skilled person who has the task of fulfilling it.

13. The main request, therefore, cannot be allowed (Article 56 EPC).
