This document includes some recent decisions of the EPO in 2016 with regards to software related inventions and shows relevant <u>extracts</u> from the respective decisions.

T 2374/11 (Instruction emulation/NORTHROP) of 23.6.2016

European Case Law Identifier: ECLI:EP:BA:2016:T237411.20160623

Emulation of microprocessor instructions

Inventive step - (no)

Application number: 04002677.5
IPC class: G06F 9/455
Applicant name: Northrop Grumman Systems Corporation

Board: 3.5.06

http://www.epo.org/law-practice/case-law-appeals/pdf/t112374eu1.pdf

1 Overview of the invention

The application relates to what is usually called "static binary trans-lation" of legacy processor object code to host processor object code (see for example https://en.wikipedia.org/wiki/Binary_translation). Assuming that the instruction set of the host proces-sor is sufficiently similar to that of the legacy processor, some instructions can be mapped one to one (called "Ring 0 category" in the application; see description sections [28] and [29]). If a legacy instruction cannot be mapped to one instruction of the host processor (Rings 1-3), it is replaced by an unconditional branch instruction (i.e. a jump) to a so-called "instruction handler". The latter is a subprogram in host processor object code to emulate one specific instruction of the legacy object code (figures 8 and 13A). In this way, the distance between instructions is not changed by the translation, so that the offset values of relative branch instructions remain valid and do not have to be adapted ([40], [41]). If the host processor is capable of "branch folding" ([29], sentence 6, and [42]), the insertion of unconditional branch instructions does not impair the host processor's branch prediction capabilities.

Claim 1 of the main request reads as follows:

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"1. A method for emulating instructions (22) of a legacy microprocessor comprising the steps of:

(a) providing a host processor with host processor instructions (34);

(b) running emulated legacy instructions (22) on said host processor, wherein the instruction sets of the legacy processor and the host processor are different from each other;

(c) categorizing each of said legacy instructions (22) into one of four categories as Ring 0, Ring 1, Ring 2 and Ring 3 instructions, wherein

- a legacy instruction (22) falling into the Ring 0 category can be replaced with a single host instruction that performs the same function;

- a legacy instruction (22) falling into the Ring 1 category requires utilizing multiple host instructions (34) which together perform the same function as a single legacy instruction (22);

- a legacy instruction (22) falling into the Ring 2 category requires utilizing multiple host instructions (34) and one or more scratch pad registers;

- a legacy instruction (22) falling into the Ring 3 category is replaced with compiled higher-order language instructions which together perform the same function as the legacy instruction (22);

(d) converting each Ring 0 legacy instruction by directly mapping said Ring 0 instruction to a single host instruction (34); and

(e) providing instruction handlers (36) and directing said Ring 1, Ring 2 and Ring 3 instructions to said instruction handlers (36) for further processing, wherein an instruction stream (72) containing emulated Ring 0 instructions and unconditional branch instructions to said instruction handlers (36) for said Ring 1, Ring 2 and Ring 3 instructions is formed."

2 Overview of the decision

Starting from the prior art acknowledged in the application ([1]-[6]), the subject-matter of claim 1 of both requests lacks an inventive step (Article 56 EPC 1973), because its central features relate to schemes, rules and methods for performing mental acts (Article 52(2)(c) EPC) and are therefore not considered technical.

3 Inventiveness of claim 1 of the main request

3.1 The claim and the application mix steps from different phases in preparing and performing the emulation.

3.2 The first phase is the preparation of the translation. This comprises steps (a) and (c)-(e). During this phase, <u>a human being first has to study the description of the two processors and their respective instruction sets in order to find equivalent or similar instruc-tions of the host processor to emulate each instruction of the legacy processor</u>. For some of the instructions, he

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may find 1:1 translations, notes these pairs of instructions (legacy instruction and equiva-lent host instruction) in a table similar to table 1 in the description (pages 20-23) and marks them with the category "Ring 0". He might come to the conclusion that a binary reorganisation (i.e. trans-lation of the object code) is necessary ([45]), that sub op code fields must also be translated ([47], second sentence) and that registers and immediate value fields have to be moved "as necessary" (third sen-tence). He may also decide to map legacy registers (last sentence).

3.3 Then the person preparing the translation has to program small object code subroutines - perhaps using scratch pad registers (which are not provided by many host processors, e.g. mainstream desktop processors, see https://en.wikipedia.org/wiki/Scratchpad_memory) - in order to build Ring 1 and Ring 2 translation schemes for legacy instructions. He adds these translation schemes to his translation table.

3.4 The person may then realise that some instructions are "not easily emulated" using host instruc-tions ([60]) - which raises the question of what "not easily" means in this context - and decide to program the translation of a specific instruction in a high-level programming language, such as C or C++. He then enters these programs into his computer and starts a compiler program to translate the programs into host instruc-tions. He either notes these host instructions in its translation table on paper, or stores it electroni-cally.

3.5 To summarise, <u>the person has to understand the exact semantics of all instructions of both processors and to take many decisions. He further has to write object code or high-level programs to do (more or less) the same on the host processor as the legacy instruc-tion on the legacy processor.</u>

3.6 The second phase is the translation of the legacy object code into host object code (steps (d) and (e)). This <u>can be done either using pencil and paper</u> or with the help of a computer. The claim leaves this open. If the preparing person wants to let a computer (e.g. a computer with the host processor or a computer with a another processor) perform the translation, there is another phase, not explicitly set out as a step in the claims, namely a programming phase during which he has to program translation software, called the crack map object in the description ([34] and figure 1: 32). In doing so, he has to enter and to formalise the translation schemes and host object codes from its translation table and to write the program text of the "instruction cracking" program ([10]) in some high-level programming language, so that it performs the steps of figure 2 (see also [35]-[39]).

3.7 **The board considers the tasks performed during the preparation and programming phases to be mental acts, <u>in particular the categorisation</u> into Rings 0-3.**

3.8 After the translation phase, the execution phase can start during which the host object code (translated from the legacy object code) is executed on a host processor (step (b)). This can happen separately from the translation phase, possibly on a different computer (which can be termed the target computer containing a host processor) and triggered by a start command from (possibly) another person, the user of that target computer.

3.9 In view of the above, the only technical aspects of claim 1 would occur when performing the method for emulating instructions of a legacy microprocessor. As this is known from D1

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(see page 1, first sentence), claim 1 does not involve an inventive step, Article 56 EPC 1973, in view of D1.

T 1357/10 (Selecting a font/MICROSOFT LICENSING) of 16.3.2016
European Case Law Identifier: ECLI:EP:BA:2016:T135710.20160316
Method for selecting a font

Inventive step - (yes)

Application number: 03003931.7
IPC class: G06F 17/21
Applicant name: Microsoft Technology Licensing, LLC

Board: 3.5.07

2. The invention

2.1 The application relates to font selection techniques that use mark-up language documents to define one or more selection criteria (see paragraph [0001] of the description as filed).

A glyph generation module, which executes as part of the operating system, generates the glyphs that are to be shown on the display, obtaining the glyphs from one or more font files (paragraphs [0019] and [0020]). The determination of which font to be used is based on further information forwarded by the operating system such as user language, which may be obtained from the locality setting of the keyboard, or locality information associated with a document (paragraphs [0007] and [0019]). Using the forwarded information, the glyph generation module selects the appropriate font file from a virtual font file (paragraph [0020]), which is named "the mark-up language document" in the claims.

The virtual font file contains instructions in a markup language to select a particular font on the basis of the forwarded information (paragraph [0022]). The application shows in paragraph [0023] a virtual font file in XML and gives in paragraphs [0027] to [0030] some examples of the way the invention would use the virtual font file. In those examples, the glyph generation module receives from the operating system a Unicode value and further information such as the user's language and then determines from the virtual font file how to handle the Unicode value. The proper font to use may depend on whether the code is within a particular range (paragraph [0025]). The virtual font file also defines default fonts (paragraph [0026]).
Claim 1 of the sole request reads as follows:

"A method to be performed by a glyph generation module executing as a part of an operating system, the method comprising:

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receiving, from the operating system, a code indicating what character is required by a computer program;

receiving, from the operating system, language information corresponding to a keyboard locality setting;

referencing a mark-up language document, wherein the mark-up language document is linked to a plurality of font files; and

determining, based on the received language information and the received code and the contents of the mark-up language document, which of a plurality of fonts is needed by the computer program to display the character required by the computer program, wherein if the needed font is not available, a default font specified by the mark-up language document is used."

4. Inventive step

4.1 In its assessment of inventive step, the Examining Division found that document D1 disclosed a method for selecting a font comprising most of the claimed steps and started its assessment of inventive step from that document.

Document D1 concerns the style sheet language Cascading Style Sheets, level 2 (CSS2), which allows users and authors to attach style, e.g. fonts, to structured documents, e.g. HTML documents and XML applications (see abstract). Section 15, starting on page 196, describes in detail features of CSS2 for determining fonts and glyphs to be used when a document's text is displayed.

Document D1 discloses a "visual user agent" or "user agent" responsible for rendering a character and explains that CSS2 offers more flexibility to style sheet authors to describe the fonts to be used, and to user agents in "selecting a font when an author's requested font is not immediately available" (see page 196).

The Board therefore agrees with the Examining Division that document D1 discloses features of the claimed method.

4.2 The user agent of document D1 has similar functions to those of the glyph generation module. According to pages 196 and 197, in order to render a character, the user agent checks whether there is a font directly or indirectly specified for the character. If the font is available, the user agent maps the character using the font; otherwise, it substitutes the font by a different one or retrieves the font from the Web. Authors specify font characteristics via a series of font properties. Document D1 therefore discloses that the user agent receives a code indicating a character as essentially recited in claim 1.

In the Board's view, the browser in the context of the disclosure of document D1 corresponds to the computer program mentioned in the claim. On the other hand, document D1 explains on

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page 23 that the user agent is often referred to as a "browser". Consequently, the skilled person would understand from document D1 that the glyph generation in D1 is performed by a module of the user agent or browser.

4.5 The invention of the present application therefore differs from the disclosure of document D1 in that:

(a) the glyph generation module executes as part of the operating system (and is not part of the computer program as in document D1),

(b) the operating system forwards the code indicating what character is required and language information associated with a keyboard locality setting to the glyph generation module, and

(c) the forwarded language information as well as the received code are taken into account to determine the font to be used.

4.6 The distinguishing features reflect the central concept of the invention of providing the glyph generation functionality in a module as part of the operating system to be used by different programs in the system. In this way the computer programs do not have to deal with the problems of glyph generation.

The Board finds that since document **D1** does not describe determining fonts by a generic utility at the operating system level, it **does not address the main problem of the present invention.** Furthermore, the teaching of document D1 is directed to simplifying Web authoring and site maintenance by separating the presentation style from the content of documents (see abstract), which is different from the general problem addressed by the present invention. Under those circumstances, it is questionable whether document D1 is an appropriate starting point for the assessment of inventive step of the present claims.

If, in spite of that, document D1 were considered to be the closest prior art, **the distinguishing features would be considered to solve the technical problem of providing improved font selection to programs in a computer system.**

As explained above, the approach of document D1 is very different from that of the claimed invention. Furthermore, at the date of priority of the present application, the typical areas of application of the technology of document D1, such as Web authoring (see abstract of document D1), were very different from that of the present invention, where the font selection is used at the operating system level to provide a generic utility for applications running in the computer (features (a) and (b)).

The Board is therefore not convinced that without a further hint it would be obvious for the skilled person facing the above mentioned problem to add features (a) to (c) to the font selection features described in a different context, in separate passages of document D1.

The other three prior-art documents D2, D3 and D4 cited in the search report do not disclose using mark-up files or any equivalent techniques for font selection. In fact, those documents describe inventions which are very different from that of the present application. Hence, none of the cited prior-art documents discloses features (a) to (c) or similar features or gives a hint

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that would lead the skilled person to combine the distinguishing features with the techniques known from document D1. From the above, it follows that none of those documents would be an adequate starting point for assessing inventive step of the claimed invention either.

From the above, it follows that the Board cannot deny inventive step of the subject-matter of claim 1 in light of the available prior art. The same applies to claims 2 to 6, each including all the features of claim 1 or corresponding features.

4.7 The Board is therefore satisfied that the claims meet the requirements of Articles 52(1) and 56 EPC with respect to the prior art on file.

T 0690/11 () of 1.3.2016

European Case Law Identifier: ECLI:EP:BA:2016:T069011.20160301

DIALYSIS SYSTEM COMPRISING A DISPLAY DEVICE, A WEB BROWSER AND A WEB SERVER

Patentable invention - technical character of some features of the invention - (yes) Inventive step - (yes)

Application number: 03736716.6
IPC class: A61M 1/16, G06F 19/00, A61M 1/36
Applicant name: Baxter International Inc., Baxter Healthcare SA
Opponent name: Fresenius Medical Care Deutschland GmbH
Cited decisions: G 0001/95, G 0007/95, T 0553/02, T 0930/05, T 0528/07, T 0336/14

Board: 3.2.02

http://www.epo.org/law-practice/case-law-appeals/pdf/t110690eu1.pdf

2. The invention

The invention concerns a dialysis system.

More particularly, as explained in the description of the patent as granted, it may <u>relate to automated peritoneal dialysis (APD)</u>.

Together with hemodialysis, peritoneal dialysis is a <u>commonly employed therapy to treat loss of kidney function (paragraph [0004]) by a patient</u>. Peritoneal dialysis utilises a dialysate which is infused via an implanted catheter and then left dwelling in the patient's peritoneal cavity for a certain period of time. There, the dialysate contacts the peritoneal membrane, through which waste, toxins and water from the bloodstream are transferred to the dialysate due to diffusion and osmosis. After the dwelling time the spent dialysate together with the

substances transferred to it are drained from the peritoneal cavity and disposed of (paragraph [0005]).

Automated peritoneal dialysis (APD) is a particular kind of peritoneal dialysis in which a dialysis machine automatically performs several drain, fill and dwell cycles overnight, while the patient sleeps. A "last fill" is typically performed at the end of the treatment, such that, when the patient disconnects from the dialysis machine, the dialysate remains in the peritoneal cavity during the day (paragraphs [0008] to [0010]). Automated peritoneal dialysis (APD) is a convenient treatment for the patient who does not have to go to hospital regularly for hemodialysis and does not need to perform the drain, fill and dwell steps manually.

According to the invention, the dialysis system comprises a display device, and a web server and web browser operating with the display device to display information that may guide an operator through the set-up procedure for performing a dialysis treatment and then illustrate the progress of that treatment.

More particularly, the display shows a plurality of set-up screens that require an operator input and a plurality of dialysis treatment screens that graphically illustrate the progress of one step of the therapy in "at least substantially real time".

As a result, a simplified APD system could be provided, which is ergonomically improved and hence easier for the patient to use and operate (paragraph [0011]).

Claim 1 of the patent as granted reads as follows:

"A dialysis system (10,100) comprising:

a display device (40); and

a web browser (602) and web server(604) embedded in the dialysis system, characterized in that the browser and the server operate with the display device to:

display a plurality of dialysis therapy set-up procedure screens that require an operator input, and

display a plurality of dialysis treatment screens that graphically illustrate the progress of at least one step in the dialysis therapy in at least substantially real time."

3. *Technical features of claim 1 of the patent as granted*

One aspect of the appellant's case was the assertion that features defining mere presentation of information did not possess any technical character and should be disregarded in the assessment of novelty and inventive step. This was the case for the features of claim 1 of the patent as granted, according to which the display device is operated to "display a plurality of dialysis therapy set-up procedure screens that require an operator input", and "display a plurality of dialysis therapy treatment screens that graphically illustrate the progress of at least one step in the dialysis therapy in at least substantially real time".

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The Board agrees with the appellant that, in accordance with the established jurisprudence of the boards of appeal, <u>non-technical features should be disregarded in the assessment of inventive step.</u> It is therefore crucial to establish whether those features of claim 1 possess a technical character or not.

According to Article 52(2)(d) EPC, presentations of information shall not be regarded as inventions. As a result, features concerning only presentations of information are not to be regarded as technical. The exclusion set out in Article 52(2)(d) EPC aims to protect freedom of expression and information. Consequently, according to the established jurisprudence of the boards of appeal, a feature is to be regarded as a mere presentation of information without technical character if it is defined solely by its information content, in other words if it is exclusively directed to the human mind. Decisions T 930/05 and T 528/07, cited by the appellant, follow this line, since it was considered in both that features solely concerning a mental concept lacked a technical character.

In the Board's opinion, **the claimed features relating to the display of a plurality of dialysis therapy set-up procedure screens and a plurality of dialysis therapy treatment screens possess more than a mere information content directed exclusively to the human mind**. The displayed **information is not solely defined by its information content, but is inextricably linked to the operation of the claimed system**. As the respondent submitted, **<u>the operation of the system would not be possible without the operator input that is required by the claimed dialysis therapy set-up procedure screens. In fact, the requirement of an operator input implies the presence of input means in the system and the requirement of a display of a plurality of screens implies a sequence of successive images, each being displayed after a respective operator input via the input means</u>**. Moreover, the **<u>display of the dialysis treatment screens in real time amounts to technical information pertaining to the state of the dialysis system during the treatment, and assists the operator to monitor the correct operation of the claimed system, which is, as such, a technical task.</u>** In other words, the claimed display of a plurality of dialysis therapy set-up procedure screens and a plurality of dialysis therapy treatment screens **<u>relates to the interaction between the system and the operator and, hence, implies technical means for the transmission and handling of respective signals contributing to the correct operation of the system. This confers a technical character on the claimed features</u>**.

In decision T 553/02, cited by the appellant, it was held that in a claim directed to a bleaching composition and a set of instructions for using the composition, the instructions were by themselves just a presentation of information without a technical effect on the bleaching composition. However, the present case is different, since, as explained above, <u>the claimed display of information has a direct technical effect on the operation of the claimed system</u>. The analogy alleged by the appellant between the input required in the dialysis therapy set-up procedure screens and the simple turning of pages of a hypothetical standard instruction manual does not hold true. In particular, the operator is not required to turn the pages of a standard instruction manual in order for the system to operate correctly.

Decision T 336/14, more closely related to the subject-matter of the patent in suit, follows the line of the established jurisprudence too. In particular, the deciding board concluded that the display of operating instructions not related at all to any internal system state concerning the proper functioning of the underlying machine (point 1.2.5 of the Reasons) had to be

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considered a mere presentation of information without any technical character. However, in the present case the situation is different, since the claimed display of a plurality of dialysis therapy set-up procedure screens and a plurality of dialysis therapy treatment screens does relate to the internal system state concerning the functioning of the underlying dialysis system.

For these reasons it is concluded that the claimed features according to which the system is operated to display a plurality of dialysis therapy set-up procedure screens that require an operator input, and

display a plurality of dialysis treatment screens that graphically illustrate the progress of at least one step in the dialysis therapy in at least substantially real time possess a technical character and are to be duly considered in the assessment of novelty and inventive step.

5. Inventive step

5.2 The Board shares the appellant's view that D1, in addition to the features of the preamble of claim 1, also discloses that the web browser and the web server operate with the display device. In particular, an interaction between the web browser and the web server, and the display device is clearly disclosed in paragraph [0013] and shown in the figure.

However, claim 1 does not just require any interaction between the web browser and the web server, and the display device. Rather, a specific interaction is defined, i.e. that the server and the browser operate with the display to display the set-up procedure screens and the dialysis treatment screens.

In other words, the web server and the web browser manage the specific display of the screens and the operator input, thereby constituting the communication and management platform of the set-up procedure and the treatment. This implies, for example, that the signals related to the operator inputs and to the progress of at least one step in the dialysis therapy are evaluated by the web browser and the web server.

The web server and the web browser of document D1 are intended for the common task of surfing and exchanging data with a data net (paragraph [0014]).

It follows that D1 discloses neither the display of the specific screens as claimed, nor that the display of such screens is done specifically by the web browser and the web server operating with the display device.

In conclusion, the Board agrees with the respondent that document D1 does not disclose the whole characterising portion of claim 1 of the patent as granted.

5.3 The distinguishing features of the subject-matter of claim 1 have the technical effect that the operator is forced to go through the whole set-up procedure of the dialysis system and can readily obtain system state information during operation, under the control of a suitable software platform.

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As submitted by the parties, the **<u>objective technical problem solved is how to provide a more user-friendly and safer dialysis system</u>**.

5.4 The appellant argued that the subject-matter of claim 1 was obvious over D1 alone because the skilled person would use the display of the dialysis system of D1 not only to display generic information available on the Internet but also to display information relating to the dialysis treatment and its progress.

However, this argument does not address the fact that, according to the distinguishing features of claim 1, specific screens requiring an operator input are displayed, and that this is all done by the web server and the web browser operating with the display device. This is not derivable from or suggested by D1.

It follows that the subject-matter of claim 1 is inventive in view of D1 alone.

T 2278/12 (GRAPHICAL USER INTERFACE FOR DISPLAYING STRUCTURED ELECTRONIC … of 15.4.2016

European Case Law Identifier: ECLI:EP:BA:2016:T227812.20160415

PORTABLE ELECTRONIC DEVICE, METHOD, AND GRAPHICAL USER INTERFACE FOR DISPLAYING STRUCTURED ELECTRONIC DOCUMENTS

Inventive step - (yes)

Application number: 07814690.9
IPC class: G06F 3/048
Applicant name: APPLE INC.

Board: 3.5.05

http://www.epo.org/law-practice/case-law-appeals/pdf/t122278eu1.pdf

Independent claim 1 according to the main request (sole request) reads as follows:

"1. A computer-implemented method, comprising:

at a portable electronic device with a touch screen display,

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displaying at least a portion of a web page on the touch screen display, wherein the web page comprises a plurality of boxes of content (6006) with defined positions relative to each other;

detecting a first gesture at a location on the displayed portion of the web page (6010);

determining which of the displayed plurality of boxes is at the location of the first gesture (6012);

enlarging the boxes and centering the determined box on the touch screen display (6020) whilst maintaining the defined positions of the boxes on the display;

while the boxes are enlarged and the enlarged determined box is centred, detecting a second gesture on a second enlarged box, of the plurality of displayed boxes, other than the determined box (6040); and, in response to detecting the second gesture, substantially centering the second enlarged box on the touch screen display (6042) whilst maintaining the boxes in the defined relative positions on the display."

3. Interpretation of the independent claim 1

In comparison to the set of claims according to the main request, on which the decision under appeal was based, Claim 1 as amended during appeal now specifies that the step of enlarging is directed to all boxes including the second box and it now specifies the step of centering the respective box on the touch screen display by additionally maintaining the defined positions of the other boxes on the display. Therefore, when centering the second enlarged box, it is now clear that the first centered box is not replaced, but all the boxes are translated according to the underlying structure (e.g. defined in the html-code). This results in the first box being translated out of the center while the second box is centered and the structure of the boxes, in particular the ones surrounding the second box, is maintained. Claim 1 as amended is therefore directed to a very different concept of swapping between boxes of content to be displayed.

4.1 Claim 1 as amended now specifies what happens to boxes other than the determined box when the determined box is enlarged. All other boxes are enlarged as well which is not disclosed in D2 according to which only the selected thumbnail is enlarged. D2 does not teach to have more than one box in an enlarged state at the same time.

Furthermore, D2 is silent with regard to maintaining the defined positions of the boxes on the display whilst centering the determined box on the touch screen display.

4.2 **The objective problem underlying these differences is regarded as allowing for an efficient way of swapping between different boxes of content.**

4.3 According to D2 a single web page is represented by multiple thumbnails (see e.g. figures 11 and 12). In order to solve the objective problem, D2 only teaches to enlarge the selected thumbnail in focus, while all non-focus pages or boxes are reduced to the same size (see D2, section 2.2.1). However, no translation of the structure of different boxes according to the defined relative positions of the boxes takes place when centering. Therefore, D2 teaches a different concept and teaches away from the claimed solution.

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T 1145/10 (Document region protection/MICROSOFT TECHNOLOGY LICENSING) of 26.2.2016

European Case Law Identifier: ECLI:EP:BA:2016:T114510.20160226

Method and apparatus for protecting regions of an electronic document

Inventive step - (no)

Application number: 04102462.1
IPC class: G06F 17/24, G06F 1/00, G06F 17/60
Applicant name: Microsoft Technology Licensing, LLC
Cited decisions: T 0643/00, T 0154/04, T 0690/06

Board: 3.5.07

http://www.epo.org/law-practice/case-law-appeals/pdf/t101145eu1.pdf

The invention

2. The invention is directed to a method for protecting regions within an electronic document in a word-processing application.

The word-processing application provides an administrative mode and an enforcement mode (see the description of the application as filed, page 3, lines 28 to 32).

In the administrative mode, a protection scheme may be defined for the entire document, for instance making the entire document read-only. Additionally, the user may select a region within the electronic document and identify users authorised to freely edit the region (page 2, line 17 to page 3, line 2, page 3, line 32 to page 4, line 2, page 9, line 26 to page 10, line 30).

In the enforcement mode, when a request to edit a region of the electronic document is received, the word-processing program of the invention determines whether the user making the request is authorised to edit the region. If the user is not authorised, the request is denied (page 3, lines 3 to 18, page 4, lines 3 to 7, page 10, line 31 to page 11, line 8).

Claim 1 of the main request reads as follows:

"A method for protecting regions within an electronic document, the method comprising:

executing a word processing application program (30) on a computer, the word processing application program operative to provide an administrative mode (1506; 1602; 1720) and an enforcement mode (1510; 1608; 1702), wherein

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in the administrative mode the word processing application program is operative

to receive the selection of a region (62; 90; 92) within the electronic document and the identities of one or more users (68A; 68B) authorized to freely edit the selected region,

and to receive the selection of a protection scheme to be applied to the entire electronic document, wherein said protection scheme comprises one of rendering the entire electronic document read-only; allowing only comments to be inserted into the electronic document; allowing users to only freely edit form fields contained in the electronic document; and allowing tracked edits to be freely made to the entire document;

and wherein, in the enforcement mode, the word processing application program is operative

to apply the selected protection scheme to the document,

to receive requests to edit regions of the electronic document and to deny (1708) requests to edit regions of the electronic document made by users not authorized to freely edit the regions,

and to dynamically displaying a message (104) to the user depending on the location of the insertion point (110), wherein, if the insertion point is located within a region that may be freely edited by the user, the message indicates that the user may freely edit within the region, whereas, if the insertion point is within a region of the electronic document that the user is not authorized to freely edit, the message indicates that the user is not permitted to edit in the region."

Main request - inventive step

3. The main request corresponds to the third auxiliary request considered in the contested decision. The Board agrees with the Examining Division that the claims define a mix of technical and non-technical features. In particular, the invention of claim 1 implements an administrative method comprising

(a) defining the protection scheme for an entire document, where the protection is one of: read-only, only insertion of comments, editing only of form fields, or allowing tracked changes,

(b) defining regions within a document and identifying for each region one or more users authorised to freely edit the region,

(c) enforcing the protection scheme and authorisation settings of (a) and (b).

4. The Examining Division recognised that applying the protection scheme and denying editing of a (region of a) document were technical features (see section 1.8.2 of the decision). In the opinion of the Board, in the context of a computer implementation of the administrative method, those features, which essentially correspond to (c) above, indeed result in stored data being retrieved or changed, or in a user being denied write access to stored data. The Board considers those effects technical, in line with decision T 690/06 of 24 April 2007 (see reasons

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7 and 8). Consequently, the Board finds that features (c) "interact with technical features to produce a technical effect", and contribute to the technical character of the invention (see T 154/04, OJ EPO 2008, 46, see reasons 5(F) and 13).

In the inventive-step analysis for claim 1 of the then third auxiliary request, the Examining Division started from "a generally known computer system with a word processing application", which it considered to be notorious (sections 4.2 and 4.5). According to the decision, the applicant had agreed that an inventive step could only be based on feature (d) above. The Examining Division considered feature (d) to simply relate to an additional user requirement which was "the wish of the user to be notified by a message of whether or not a document region situated at or around the insertion point can be edited" (section 4.2). The objective problem underlying the distinguishing features could therefore only be seen as how to implement the requirements specification on "a generally known computer system within a word-processing application". The mere implementation of such a method, even if considered technical, was "a matter of common general knowledge of a skilled person" (section 4.3).

5. Depending on the case at hand, it may be acceptable to start the inventive-step assessment of a particular invention including a mix of technical and non-technical features from a "general-purpose computer system" or a "standard computerised system" as known at the effective filing date, without citing documentary evidence. **However, the inventive-step reasoning should normally mention which features, especially which technical features of the invention, are anticipated by that well-known prior art. Moreover, where specific technical features or functionality of the standard computerised system are required to implement the non-technical features, those specific well-known technical features and functionality should be clearly identified.**

In the present case, the Board finds that the implementation of the non-technical administrative process (a) to (c) requires technical functionality relating to control of access to parts of a document, user access rights, or support for multiple users. It is not clear whether the Examining Division considered such features to be part of the generally-known standard functionality of word-processing applications at the date of priority of the present application. The decision to add such essential technical functionality to a known standard system not supporting it, even if originally motivated by a non-technical requirement, involves technical considerations and might involve an inventive step.

The Examining Division did not explain in detail in the decision which functionality it considered standard or well-known functionality of the "notorious closest prior art which is a computer with a word processing application". The Board is aware that in previous communications the Examining Division had cited document D2, which discloses prior art originating from the former applicant. It relates to the version of 2002 of Microsoft Word, a well-known and widely used word-processor at the date of priority of the present application. However, this document was not cited in the decision to illustrate the generally-known functionality of a standard word-processor. Furthermore, even if in principle the functionality of such a well-known word-processor can be considered common knowledge for the skilled person, it is doubtful whether the advanced functionality derived from document D2 was notoriously known. The functionality described in it, e.g. control of access to parts of a document, was anyway neither discussed nor mentioned in the decision as being well-known from standard word-processing applications.

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Consequently, the Board is not entirely persuaded by the reasoning of the contested decision with regard to inventive step, including that relating to the subject-matter of claim 1 of the then third auxiliary request, corresponding to the present main request.

8. The subject-matter of claim 1 of the main request therefore differs from the method for protecting regions within a document by the system of document D2 in that

(a') the selected and applied protection scheme may also be that of allowing only comments to be inserted according to (a) above,

(b') for a selected region the identities of the users authorised to freely edit the region (see step (b) above) are received and, in the enforcement mode, requests to edit regions made by non-authorised users are denied,

and in that a dynamically displayed message indicates whether the user may freely edit the current region, as recited in (d) above.

9. Steps (a) and (b) relate to non-technical administrative constraints reflecting the types of policies required by an authority, or an owner or administrator of a document, with respect to certain operations to be allowed or denied for particular users of the document, for instance co-authors, collaborators or clients. Establishing such policy types does not involve any technical considerations.

The problem underlying the subject-matter of the distinguishing features (a') and (b') is therefore the implementation of the non-technical administrative steps (a) and (b) on a method performed by the system of document D2.

Steps (a') and (b') follow directly from the administrative scheme. As explained above, feature (a') is actually a minor modification of features of document D2. Taking into account that the system of D2 knows the user name, and supports user-based functions (see e.g. first paragraph of page 135) and control of access to parts of the document (page 216), **it would be obvious for the skilled person to add the distinguishing features (a') and (b') to a method performed by the word-processing system of D2, in order to arrive at a method carrying out administrative steps (a) and (b).**

T 1370/11 (On-demand property system/MICROSOFT) of 11.3.2016
European Case Law Identifier: ECLI:EP:BA:2016:T137011.20160311
Extensible on-demand property system

Application number: 03014099.0
IPC class: G06F 9/54
Applicant name: Microsoft Technology Licensing, LLC
Cited decisions: G 0003/08, T 1173/97, T 0049/99, T 0641/00, T 2048/07, T 0042/10

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Board: 3.5.06

http://www.epo.org/law-practice/case-law-appeals/pdf/t111370eu1.pdf

The invention

2. In general, the application refers to software applications written in terms of "objects" and their "proper-ties".

2.1 When the value of one "first" property depends on that of another "second" one, the question arises of how to update the first if the second changes. The applica-tion discloses that the prior art uses so-called "listener functions" which detect changes of the second property and, when that happens, change the first property accordingly (see the description, page 1, lines 1-25).

2.2 It is mentioned that programmers may unintentionally define circular dependencies between properties. When listener functions are used, such circular dependencies may lead to infinite computations because the properties involved in a circle may continue to change states indefinitely (see page 2, paragraph 1). It is also suggested that the storage requirements of the listener functions are undesirable (page 1, last paragraph).

2.3 In order to overcome the shortcomings of the prior art, the invention proposes an "on-demand type of property system" (see page 2, last paragraph, line 4, and page 4, lines 4-5), i.e. a system in which "a change in a [...] property does not affect a dependent property until an operation, associated with the dependent property, is called" (page 4, lines 5-7).

Claim 1 according to the main request reads as follows:

"A computer-implemented method for managing properties (216, 218, 232, 234, 236, 238, 240) of objects (404), the method comprising:

associating an expression (212, 214, 222, 224, 226, 228, 230) with a property of an object, the expression defining a relationship between the property and at least one source property;

in response to a request for a value of the property, checking (502) a cache to determine whether a value of the property has been previously cached, and if not, evaluating (506) the expression to determine the value of the property, returning the value of the property and updating (512) the cache; and

invalidating (608, 706) the value of the property if the at least one source property changes, wherein invalidating comprises clearing (706) the value of the property from the cache."

5. Part of claim 1 relates to terms in which any appli-cation using the invention will have to be modelled, name-ly objects, properties, relationships (i.e. dependen-cies) between properties and "expressions" de-fi-ning how the value of a "source" property determines the values of a dependent property. Claim 1 also refers to the possibility that the value of the source property might change.

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5.1 The board considers that document D2 discloses all these fea-tures. The "components" corres-pond to the claimed "ob-jects" and so do the associated "properties". D2 discloses that dependent properties can be computed from others. The skilled person would un-der-stand this as a reference to a piece of code to be exe-cu-ted in order to carry out the computation. This piece of code necessarily has to refer to the properties involved and thus implicitly must define the claimed dependency "relation-ship". Moreover, the board takes the view that this piece of code represents an "expression", broadly con-strued, to be "evaluated"- when computing one property from the other.

5.2 At the same time, the **board considers that objects, properties, relationships and expressions are merely abstract concepts used to structure and model an application domain so that it can be implemented- on a computer device. The modelling however inevitably precedes the implementation and is, as such, an entirely mental activity which remains within the domain of non-technical knowledge and cannot, by it-self, con-stitute the technical solution to a technical problem.** In this, the board endorses the reasoning of T 49/99 (catchword and reasons 7).

6. The remainder of claim 1 specifies that property values may be requested and that they are retrieved from a "cache". When a requested value is missing, the cache is updated to hold the result of evaluating the expression concerned, and when the source property changes, that value must be "invalidated" and "cleared [...] from the cache".

Does the invention solve a technical problem?

7. The appellant argued that the claimed invention solved two technical problems in comparison with D2.

a) The computing time was reduced by evaluating the "expression" only on request - i.e. only when needed - and caching the result, and

b) the problem of circular property dependencies and infinite computations could be avoi-ded.

9. Regarding a), the board accepts that the claimed caching method is not known from D2 and has the effect that unne-cessary evaluation or re-evaluation of an expression can be avoided.

9.1 It is questionable whether this implies that the over-all computing time is actually reduced. That depends on whether the management of the cache is less computationally demanding than the evaluation of the expressions, which in turn depends on the type of expressions and the number of times they typically have to be evaluated. Since, however, nothing is known about the expressions **it cannot be demonstrated that the computing time is reduced, either for the general or for the average or typical case**.

9.2 However, for the sake of argument, it is assumed that the claimed cache does indeed have the alleged advantage of reducing the computing time required.

Is the reduction of computing time a technical problem?

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10. In the board's view, the argument that a computer program or computer-im-plemented method is inventive because it is faster than an earlier one is on its own insufficient to establish an inventive step. More specifi-cally, **the improved speed of a computer program is not by itself a technical contribution to the art**.

10.1 By way of illustration, let it be assumed that the method in question is a non-tech--nical one, for example a mathema-tical method or a method of doing bu-si-ness.

10.2 Under Article 52(2)(a) and (c) and (3) EPC, this method will not be regarded as an invention in the sense of Article 52(1) EPC.

10.3 **Any computer program implementing that method will, of necessity, need a particular amount of computing resources, in particular time. This is merely a consequence of the "nor-mal" physical interactions between program (soft-ware) and computer (hardware)** (see T 1173/97, OJ EPO 1999, 609; headnote and reasons 6.6, 9.6, 13). According to established jurisprudence of the boards of appeal, the computer program would thus be found not to comply with Article 52(2)(c) and (3) EPC for lack of a "further" technical effect. And because the computing time does not contribute to the technical character of the computer program, it could not support the presence of inventive step of a corresponding computer-implemented method (see T 641/00, OJ EPO 2003, 352; headnote 1).

10.4 **These findings cannot be changed by a do-cu-ment which discloses an alter-native, earlier non-tech-nical method which takes longer to carry out on a com-puter. In other words, it cannot be argued that a computer program must be regarded as an invention in the sense of Article 52(1) EPC, i.e. as a technical invention, for the sole reason that an earlier computer program happens to exist which solves the same, non-technical problem more slowly (see also T 42/10, reasons 2.12, for a similar conclusion).** Otherwise, the ex-clusion of computer-implemented me-thods under Article 52(2) and (3) EPC would become meaningless, because for any given computer program a less efficient one is either known or conceivable. As a consequence, a computer-implemented method cannot be found to show an inventive step for the sole reason that a slower computer-implemented method exists in the prior art.

10.5 **Therefore, for a computer-imple-men-ted method or a computer program to be patentable it must be estab-lished that it has a "further" tech-nical effect and solves a technical problem independently of its absolute or relative computing time.** Only then, and **only if the alleged speed-up affects an established technical effect, can it be argued that the speed-up contributes to a technical effect and thus to inventive step** (see again T 641/00, headnote 1).

12. In summary, the appellant did not convince the board that the claimed invention had any genuinely technical effect over D2. In fact, it also failed to show that the claimed method could be considered to have any "further" technical effect beyond being computer-implemented.

13. Therefore, the board finds that the subject-matter of claim 1 according to the main request lacks inventive step, Article 56 EPC 1973.

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