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Datasheet for the decision of 21 January 2011

Case Number: T 0813/07 - 3.5.05

Application Number: 97922672.7

Publication Number: 0978079

IPC: G06F 19/00

Language of the proceedings: EN

Title of invention:
Respirator selection program

Applicant:
MINNESOTA MINING AND MANUFACTURING COMPANY

Headword:
Migrating rules about standards into data structures external to the procedural code of a program/3M

Relevant legal provisions:
EPC Art. 84, 56
RPBA Art. 15(3)

Relevant legal provisions (EPC 1973):
EPC Art. 106, 107, 108

Keyword:
"Lack of clarity and of support by the description; missing essential feature - main request (yes);
Lack of clarity and of inventive step - auxiliary request (yes)"

Decisions cited:
J 0010/07, T 0409/91, T 1194/97

Catchword:
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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0813/07 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 21 January 2011

Appellant: MINNESOTA MINING AND MANUFACTURING COMPANY
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 28 December 2006 refusing European patent application No. 97922672.7 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: A. Ritzka
Members: M. Höhn
F. Blumer

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division, dispatched on 28 December 2006, refusing European patent application No. 97922672.7 because of lack of clarity and lack of support by the description (Article 84 EPC 1973), lack of novelty (Articles 52(1) EPC and 54(2) EPC 1973) and lack of inventive step (Articles 52(1) EPC and 56 EPC 1973) having regard to the disclosure of, *inter alia*,

D2: M. LEE; K. FOONG: "A Knowledge Acquisition Framework for an Intelligent Decision-Support System" ANZIIS94, SECOND AUSTRALIAN AND NEW ZEALAND CONFERENCE ON INTELLIGENT INFORMATION SYSTEMS, 1994, 29 November 1994 to 2 December 1994, pages 432-436, AU; and
D3a: B. RUPAREL: "Designing and Implementing an Intelligent Database Application: A Case Study" EXPERT SYSTEMS WITH APPLICATIONS, vol. 3, no. 4, 1991, pages 411-430, US.

II. The notice of appeal was received on 13 February 2007. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 27 April 2007. The appellant requested that the appealed decision be set aside and that a patent be granted on the basis of the main request or the auxiliary request on which the appealed decision is based. Oral proceedings were requested on an auxiliary basis.

III. A summons to oral proceedings to be held on 21 January 2011 was issued on 5 November 2010. In an annex accompanying the summons the board expressed the

preliminary opinion that the subject-matter of the independent claims did not fulfil the requirements of Articles 52(1), 54(2), 56 and 84 EPC. The board gave its reasons for the objections and expressed the view that the appellant's arguments were not convincing.

IV. Independent claim 1 according to the main request reads as follows:

"1. A method of selecting a respirator comprising the steps, performed by a data processing system, of (a) executing program code to accept first and second chemicals entered by a user, and (b) executing program code to select the respirator based upon a database containing data on chemicals and respirators and based upon the first and second chemicals entered by the user, the method BEING CHARACTERIZED in that: the execution of program code to select the respirator is through use of a non-standards based engine."

Independent claim 1 according to the auxiliary request reads as follows:

"1. A method of selecting a respirator comprising the steps, performed by a data processing system, of (a) executing program code to accept first and second chemicals entered by a user, and (b) executing program code to select the respirator based upon a database containing data on chemicals end respirators and based upon the first and second chemicals entered by the user, the method BEING CHARACTERIZED in that:
the execution of program code to select the respirator is through use of an engine that accesses standards

from a database and that incorporates essentially no standards in its program code."

Independent claim 49 of both requests is directed to a corresponding apparatus.

V. By fax received on 18 January 2011 the appellant informed the board that it would not be represented at the oral proceedings.

VI. The appellant requested in writing that the decision under appeal be set aside and that a patent be granted on the basis of the

main request (claims 1-64):
– claims 2 (part), 3 to 48, 52 to 64 filed with letter dated 16 November 1998
– claims 1, 2 (part), 49 to 51 filed with letter dated 30 January 2003

or, subsidiarily, on the basis of the

auxiliary request (claims 1-64):
– claims 2 (part), 3 to 48, 52 to 64 filed with letter dated 16 November 1998
– claims 2 (part), 50, 51 filed with letter dated 30 January 2003
– claims 1, 49 filed with letter dated 29 September 2006

VII. Oral proceedings were held on 21 January 2011 in the absence of the appellant. After due deliberation on the basis of the written submissions in the statement

setting out the grounds of appeal and on the requests, the board announced its decision.

Reasons for the Decision

1. Admissibility

The appeal complies with the provisions of Articles 106 to 108 EPC 1973, which are applicable according to J 0010/07, point 1 (see Facts and Submissions, point II above). Therefore the appeal is admissible.

2. Non-attendance at oral proceedings

In its letter of 18 January 2011 the appellant announced that it would not be represented at the oral proceedings. The board considered it expedient to maintain the date set for oral proceedings. Nobody attended the hearing on behalf of the appellant.

Article 15(3) RPBA stipulates that the board shall not be obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case.

Thus, the board was in a position to take a decision at the end of the hearing.

Main request

3. Article 84 EPC

In the decision under appeal, independent claims 1 and 49 were refused because of a lack of clarity and lack of support by the description in view of the expression "non-standard based selection engine" or "non-standards based engine", respectively. The intention behind this expression appears to be that the selection engine and the corresponding program code do not comprise standard based knowledge in the form of rules. Such rules are stored in an external database and are accessed by the selection engine. The expression was objected to, *inter alia*, because it was not an established term of art. Claims 1 and 49 were considered to be broader than justified by the extent of the description and drawings and by the contribution to the art. In addition, the wording of those claims did not define all essential technical features, because it was not specified how the selection of a respirator "based on a database" was performed. The requirements of Article 84 EPC were therefore held not to be fulfilled.

3.1 The description of the present application uses the expression "non-standards based engine" several times, but fails to give a clear definition of what exactly has to be understood by it for the purpose of defining the subject-matter of the independent claims. The board agrees with the decision under appeal that it is not an established term of art. If the applicant uses terms which are not known, the description must contain a concrete definition of what has to be understood by them. It is disclosed that the expression means that

the selection component is "non-rules based" and "contains substantially none of the standards" (see present application, page 13, lines 20-23). The term "substantially" renders the definition unclear, because the skilled reader does not know which standards may be part of the engine and which not.

3.2 It is further disclosed in the application that "government standards are built as databases rather than into rules" (see page 20, line 20 onwards). However, standards table database 205 as shown in figure 7 of the application contains rules (see e.g. Sn-1, Sn, Sn+1) defining ranges according to which certain respirator types are to be applied. It is not clear to the board what the appellant actually intends to express when arguing that "the standards have been reduced to uncoded data" (see statement setting out the grounds of appeal, page 3, line 7 from the bottom - emphasis added). If there was an active step of reducing the standard data, this would be an essential feature of the invention which would have to be specified in the independent claims.

3.3 In this context the question arises how to present the cognitive data content of the standards rather than creating functional data (see e.g. reason 3.3 of decision T 1194/97, OJ EPO 2000, 525). The board interprets the application to the effect that the selection engine has to load the standards data from database 205 and has to have same kind of hard coded knowledge which enables the engine to decide what respirator to select depending on the cognitive standard data. Such hard coded knowledge (functional data) is at least equivalent to "rules" which, however,

is in contrast to the appellant's argument that there "are essentially no coded rules anywhere" (see statement setting out the grounds of appeal, page 3, line 6 from the bottom). Therefore, the appellant's argumentation that the present invention does not use rules does not convince the board.

3.4 The flow-chart in figure 10, in particular block 1018 (see page 18, line 17 onwards) for calculating the highest combined hazard ratio HR, teaches how the selection of a respirator according to the invention is actually performed. However, the application does not disclose how the "appropriate standards table" (see page 14, line 23 of the description) is determined. The lack of this teaching requires some knowledge or rule, at least the definition of criteria for a selection depending on the actual value of HR. Such knowledge, however, is contained in standards data table 205 itself (see figure 7) showing what respirator type is to be chosen depending on the range in which the value HR falls. The board considers this knowledge of the ranges contained in standards data table 205 to be a rule (IF..condition.. THEN..action..), because it contains the condition component (i.e. the ranges) and the corresponding action component (i.e. the type of respirator).

3.5 The board interprets the description and the drawings in the sense that the disclosed invention is also a partially rule-based system as referred to in the introductory part of the present application (see page 2, line 8 onwards) and as known from e.g. publication D3a, because the invention uses hard coded knowledge or rules in the program code of the selection

engine (for selecting the right standards table and for accessing and analysing the right fields) as well as in the data sets of the standards database (condition and action components for selecting the correct respirator).

3.6 Using an unclear expression in the independent claims which neither has an established meaning in the art nor can be clearly understood with reference to the description has the effect that the meaning of the claims cannot be understood from the wording of the claim alone. Further, the board agrees with the decision under appeal that the wording of the independent claims represents an undue generalisation by attempting to extend the scope of protection to any selection engine which could be considered "non-standards based" regardless of how this aim might be achieved at a technical level. This goes beyond the actual contribution to the art and thus against the general principle of law that the extent of the monopoly conferred by a patent should correspond to and be justified by the technical contribution to the art made by the disclosure of the invention described therein (see e.g. T 0409/91, OJ EPO 1994, 653). The board therefore maintains the objections under points 2 and 3 of the appealed decision.

3.7 For the afore-mentioned reasons, the board agrees with the objection under Art. 84 EPC in the appealed decision against independent claims 1 and 49 for lack of clarity, because of the expression "non-standards based engine", and also for lack of support by the description, in particular since the concrete interaction between the selection engine on the one

hand and the standards database on the other hand is not specified according to the claimed invention.

Claims 1 and 49 therefore do not fulfil the requirements of Article 84 EPC.

Auxiliary request

4. Article 84 EPC

The independent claims according to the auxiliary request overcome the objection raised against the expression "non-standard based engine". However, the term "essentially" of the added feature is unclear. Apparently the engine might still contain a few rules and standards. The term "essentially" therefore causes problems of interpretation of claims 1 and 49, *inter alia* for comparing the claimed subject-matter with the prior art on file.

5. Inventive step - Article 56 EPC

Even if the requirements under Article 84 EPC were fulfilled, the subject-matter of claim 1 of this request at least would not involve an inventive step.

5.1 D2 deals mainly with knowledge acquisition and is considered to be the closest prior art document. It discloses a Respirator Advisory System RAS with an expert system for selecting a respirator (RAS-Engine, figure 2), a separate Knowledge Base which contains "objects, facts, rules and procedures" and other Databases which contain chemical, product (i.e. respirator) and other information (see page 434,

paragraph bridging left and right hand column). A selection is made depending on contaminant-related attributes such as types of chemicals (see page 434, middle of the right hand column), work-related attributes such as work environment and operator-related attributes. In a software based system as disclosed in D2 this is usually done by executing corresponding program code. It is considered to be implicit in D2 that those attributes, including chemicals, must first be entered by a user of the expert system, in order to get a recommendation of a respirator.

D2 mentions 'standards' (see page 435, left-hand column, second question) and the board considers that those are part of the facts or rules in the Knowledge Base, because there must be knowledge about the standards in order to select a correct respirator. D2 hence discloses to select the respirator based on standards contained in a database (Knowledge Base or other Database according to figure 2). It is not clear from D2 where the selection of a respirator actually takes place. D2 can be interpreted in the sense that the RAS engine "controls the execution of the system" and, hence, centrally co-ordinates the selection process (see page 434, the paragraph bridging left hand and right hand columns). Alternatively, since the Knowledge Base contains "procedures", it may be the logic for the decision process.

5.2 The appellant argued that the selection engine in D2 was distributed between the RAS engine block and the knowledge base block. The appellant further argued in the statement setting out the grounds of appeal that D2

did not disclose that the selection engine incorporates essentially no rules that include standards in its program code according to the characterising portion of claim 1.

The objective problem underlying this alleged difference is considered to be to make the maintenance and update process of the software much simpler if data or functions change.

5.3 D3a reports a case study about designing and implementing an intelligent database application which integrates database management systems and expert systems technologies. Hence, publication D3a is pertinent prior art as referred to in general on page 2 of the present application regarding rule-based and partially rule-based expert systems. D3a states that expert systems may produce decisions (see page 411, left-hand column, first paragraph). D3a explicitly mentions the objective problem of making the maintenance and update process of software much simpler (see page 423, first paragraph). In section 5 of D3a (see sentence bridging pages 423 and 424) and in section 6.1 (see last paragraph of section 6.1 on page 429) the skilled person is explicitly motivated to avoid hard-coding of rules within the inference engine if the rules change frequently, and to express rules as data instead.

5.4 Even if it is not recommended to move all the rules to the database, as argued by the appellant, this is not required according to claims 1 and 49 which only specify that "essentially no standards" have to be in the program code. The corresponding argument of the

appellant (see page 4, paragraph 4 of the statement setting out the grounds of appeal) therefore does not convince.

The appellant argued that in D3a "not all rules should be expressed as data" (see statement setting out the grounds of appeal, page 6, paragraph 5) and that this was in contrast to the claimed subject-matter. However, the board considers that the teaching of D3a and present claims 1 and 49 do not differ in this regard, since only "essentially" no standards are in the program code of the selection engine according to the claims.

5.5 Furthermore, the board does not agree with the appellant's argument that the teaching of D3a could not be transferred to respirator selection, because it did not involve its complexities (see statement setting out the grounds of appeal, page 7, paragraphs 1 and 2). The fact that the claimed method and system are to be used for respirator selection is considered to be a non-technical aspect which by itself does not contribute to the technical character of the independent claims. The board agrees with the reasoning in point 12.2 of the appealed decision.

5.6 In the board's view, although neither D2 nor D3a teaches to distribute the selection engine by dividing it into two parts, both publications render it obvious to separate the rules or standards knowledge from the program code of the (selection/inference) engine. D2 discloses that the RAS system comprises an RAS engine which controls the execution of the system by drawing on other modules, *inter alia* the knowledge base

containing rules and the database containing relevant information (see page 434, the paragraph bridging left and right hand columns). D3a recommends dividing the rules set into two sets, i.e. into generalisations which are relatively stable over a span of time and exceptions which should be allowed to change (see sections 4 and 6).

5.7 Hence, when starting from a respirator selection system disclosed in D2 and trying to find a solution for the objective problem of making the maintenance and update process of the software much simpler if data or functions change, the board considers the subject-matter of claims 1 and 49 to be obvious when combined with the teaching of D3a. From this publication the skilled person was aware that hard-coding rules in the procedural code of a program has the disadvantage that any change in the rules requires corresponding modifications to the program code, and that as an alternative the rules might be migrated into data structures external to the procedural code of the program. The skilled person would therefore regard it as an obvious solution to move the rules, at least in part ("essentially"), to the database.

5.8 Therefore the board concludes that the subject-matter of claim 1 is obvious in the light of a combination of the teachings of publications D2 and D3a.

6. Thus, neither of the two requests is allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

K. Götz A. Ritzka