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D E C I S I O N
of 15 October 1997

Case Number: T 0192/96 - 3.5.1

Application Number: 89307080.5

Publication Number: 0351210

IPC: G06F 17/30

Language of the proceedings: EN

Title of invention:
Data base management system

Applicant:
International Business Machines Corporation

Opponent:
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Headword:
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Relevant legal provisions:
EPC Art. 84, 106(3), 113(1)
EPC R. 29(1), (3)

Keyword:
"Clarity (yes)"
"Substantial procedural violation (no)"

Decisions cited:
T 0047/90, G 0010/93

Catchword:
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Case Number: T 0192/96 - 3.5.1

D E C I S I O N
of the Technical Board of Appeal 3.5.1
of 15 October 1997

Appellant: International Business Machines
                        Corporation
                        Old Orchard Road
                        Armonk, N.Y. 10504   (US)

Representative: Davies, Simon Robert
                        IBM
                        UK Intellectual Property Departement
                        Hursley Park
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Decision under appeal: Decision of the Examining Division of the
                        European Patent Office posted 2 October 1995
                        refusing European patent application
                        No. 89 307 080.5 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: P. K. J. van den Berg
Members: A. S. Clelland
             C. Holtz

Summary of Facts and Submissions

I.   This appeal is against the decision of the examining
        division to refuse the application on the grounds that
        claims 1 and 10 of the main request contained added
        subject-matter (Article 123(2) EPC) and the subject-
        matter of claims 1 and 6 of the first auxiliary request
        lacked "essential features" (Article 84 and Rule 29(1)
        and (3) EPC).

II.   At the oral proceedings, the examining division
        announced its intention to grant a patent on the basis
        of the second auxiliary request. A communication under
        Rule 51(4) EPC was subsequently issued to this effect.
        In a letter in response the applicant indicated
        disapproval of the text and maintained the higher
        requests. The letter also contained a statement
        suggesting that the correct procedure was for the
        examining division to issue a separately appealable
        interlocutory decision under Article 106(3) EPC as
        regards the main and first auxiliary requests. The
        examining division thereupon refused the application.

III.   The appellant (applicant) lodged an appeal against the
        decision and paid the prescribed fee. A statement of
        grounds of appeal was filed in due time, together with
        a new set of claims of a main request; the second
        auxiliary request was maintained. The appellant
        requested reimbursement of the appeal fee on the
        grounds that a substantial procedural violation had
        been committed by the examining division. A request for
        oral proceedings was also filed.

IV.   Following a communication from the Board, the appellant
        filed a revised set of claims of the main request.

V.   Oral proceedings were held on 15 October 1997. At the
        oral proceedings the appellant requested that the
        decision under appeal be set aside and a patent granted
        on the basis of claims 1 to 26 as received on
        11 September 1997 (main request), the same set of
        claims with claims 13 and 26 to be amended (first
        auxiliary request), and claims 1 to 12 as accepted by
        the examining division (second auxiliary request). The
        request for reimbursement of the appeal fee was
        maintained.

VI.   Claim 1 of the main and first auxiliary requests reads
        as follows (omitting reference numerals):

        "A method for enforcing referential constraints in a
        database management system, each referential constraint
        involving a primary key and a foreign key, the database
        management system including at least one primary key
        index that allows a record to be quickly located given
        the primary key for that record, the method comprising
        the steps of:
        loading two or more records and extracting from each
        loaded record the primary and foreign key information
        related to referential constraints involving that
        record;
        storing the extracted foreign key information and using
        the extracted primary key information to update the
        primary key indexes; and
        enforcing referential constraints using the stored
        foreign key information and the updated primary key
        indexes."

        Independent system claim 14 of the main and first
        auxiliary requests corresponds in substance to method
        claim 1.

Claim 1 of the second auxiliary request reads as follows:

"A method for enforcing referential constraints in a relational data-base management system, each referential constraint involving a primary key and a foreign key, there being an index for each primary key, the method comprising the steps of:
loading two or more records;
storing for each loaded record information relating to the primary key in that record and for each foreign key in that record information relating thereto;
ordering the stored information, with information on primary keys preceding information on foreign keys;
updating the primary key indexes using the stored primary key information for each record; and
enforcing the referential constraints using the ordered information for each foreign key and the updated primary key indexes."

Independent system claim 7 of the second auxiliary request corresponds to method claim 1.

VII.   The appellant argued as follows:

The ordering of the stored information was only one way of ensuring that index updating preceded constraint checking, which was the essential idea of the invention. The second embodiment did not require any ordering and nowhere in the description was the ordering feature described as essential. Moreover, the separate loading, extracting and updating steps of the claim were clear and covered both the first and second embodiments.

The request for a refund of the appeal fee was
justified because the examining division did not inform
the appellant in advance that it would not follow the
suggested procedure and give an interlocutory
appealable decision on the main and first auxiliary
requests. Consequently, the appellant was denied the
opportunity to comment on the examining division's
reasons for not doing so. This amounted to a
substantial procedural violation.

Reasons for the Decision

1.   The appeal is admissible.

2.   *Background to the invention*

2.1 A typical database contains a number of tables, the
     example given in Figure 1 of the application being an
     employee table and a department table. Each table has a
     field containing primary keys relating to the main
     subject of the table, for example employees in the case
     of the employee table. Other fields contain foreign
     keys which refer to primary keys in other tables; in
     the example given the department number of the employee
     refers to the department table. The primary keys for a
     table are normally stored in an index, called the
     primary index, used to improve the access time of a
     record in that table. For internal consistency all the
     foreign keys in a given table must be shown to have
     corresponding primary keys in some primary key index of
     another table. The application is concerned with
     achieving this condition, which is referred to as
     referential constraint enforcement.

2.2   In the prior art, the referential constraints are
       enforced every time a new record is loaded. New records
       must therefore be sorted prior to updating the tables,
       since inputting a new foreign key value before the
       corresponding primary key has been updated could cause
       a temporary inconsistency. All data input operations
       must therefore be checked, which is said to be
       difficult and time-consuming. In the application the
       primary key indexes of all records to be loaded are
       updated **before** enforcing referential constraints. If
       all the primary keys have been updated, the checking
       process will find primary keys corresponding to all
       consistent foreign keys. In the preferred embodiment,
       primary and foreign key information is extracted from
       each record and ordered so that the primary keys come
       before the foreign keys. The enforcement phase uses the
       ordered key set and therefore finds and updates the
       primary keys before the foreign keys.

3.   *Clarity*

3.1   The independent claims of the main request correspond
       in scope to those of the first auxiliary request as
       refused by the examining division for lack of clarity.
       The examining division took the position that to
       construct indexes for constraint checking it was first
       necessary to sort, or order, the information so that
       primary keys preceded foreign keys; this was held to be
       an "essential technical feature" and its absence to
       offend Article 84 EPC. Reference was made to Figures 3
       and 5 and the description at page 4, lines 13 to 19 of
       the application. Although the examining division
       accepted that a second embodiment was present, it
       appears that they considered that in this embodiment
       there was in effect a sorting process during the data
       load phase in that the updating of the primary indexes
       was carried out as the records were loaded. The Board

understands that the examining division took this to imply that information on the primary keys is required before constraint checking using the foreign keys is possible, implying preliminary sorting prior to data load.

3.2   However, at page 10, lines 15 to 20 the description states that, whilst the primary indexes must be constructed before constraint checking is performed, it is a matter of design choice whether the primary indexes are updated during the Data Load phase or subsequently. A similar passage appears at page 20, lines 26 to 28. In other words, the sort phase, which is a subsequent phase in the preferred embodiment, is not essential to the invention. The Board can see no necessity for a sort phase to be invoked to account for the manner in which the key indexes are updated and accordingly takes the view that it is not necessary to mention explicitly the sorting feature in independent method claim 1 and system claim 14.

3.3   The examining division argued that updating the primary indexes during the Data Load phase would render redundant the claimed extracting and updating steps. The Board considers however that the claimed separate loading, extracting and updating steps may be performed either separately or simultaneously; the examples given in the description are of a direct update or an update after a sorting step.

3.4   However, the term "persistent structure", used in claims 13 and 26, is considered unclear. It is noted that these claims purport to amend the independent claims to which they are appended by replacing the primary index by the so-called "persistent structure". The term itself is not a term of art; It is not even defined in the 1994 edition of the appellant company's own "Dictionary of Computing". It therefore appears

that claims 13 and 26 are unclear, Article 84 EPC, as
are independent claims 1 and 14 as amended by these
claims. Since for the reasons given below the
application is remitted to the examining division for
further prosecution and in view of the appellant's
first auxiliary request it has not been necessary for
the Board to pursue this objection further, but it will
be necessary for the examining division to address this
question.

4.   *Patentability and Inventive Step (Articles 52(2) and 56
        EPC)*

4.1   Although clarity was the only substantive issue arising
        from the examining division's decision, the Board has
        noted that there are other issues which do not appear
        from the application file to have been fully addressed.

4.2   In the communication of 25 May 1993, point 1, the
        examining division stated that "The application appears
        to comprise patentable subject-matter". It is not clear
        whether this was intended to mean that no objection was
        considered to arise under Article 52(2) EPC; even if it
        was, the subsequent objections of lack of clarity
        against the claims and consequential amendments lead in
        the Board's view to a situation where it is unclear
        whether patentability has been evaluated in respect of
        the present claims. In order to preserve two instances
        it is considered necessary to remit the application to
        enable this to be done.

4.3   Similarly, it is not clear whether inventive step has
        been fully considered in respect of claims having the
        scope of the present independent claims. This matter
        will also have to be examined by the examining
        division.

5.   *Procedural Violation*

5.1   As noted at point II of the Summary of Facts and
       Submissions the applicant indicated disapproval of the
       text on which the examining division intended to grant
       a patent and maintained the higher requests. The
       following statement was made:

       "The applicant believes that the correct procedure now
       is for the Examining Division to issue a separately
       appealable interlocutory decision under Article 106(3)
       EPC as regards the main and first auxiliary requests.
       This approach conforms with the recommendation in
       T 47/90 (see paragraph 5), which indicates that an
       appeal should be allowed in respect of any refused
       request".

5.2   The appellant alleges that because the examining
       division not only failed to follow the "recommended
       procedure" but issued a final decision, and also failed
       to inform the appellant as to the grounds why this was
       done, there was a violation of Article 113(1) EPC
       constituting a substantial procedural violation.

       Article 113(1) EPC states that "The decisions of the
       EPO may only be based on grounds or evidence on which
       the parties concerned have had an opportunity to
       present their comments". In the present case, the
       decision to refuse was apparently based on the grounds
       that the main and first auxiliary requests were not
       patentable and that the applicant did not agree to the
       second auxiliary request within the four-month time
       limit. Although these grounds were known to the
       applicant from the protocol of the oral proceedings
       and, indirectly from page 2, full paragraph 3 of the
       communication under Rule 51(4) EPC, they were never the
       subject-matter of a reasoned decision.

5.3   The Board observes that the appellant's statement
        quoted at point 5.1 above arguably has the character of
        an observation on procedure rather than a formal
        request for a decision. Be that as it may, the
        appellant's position is apparently that Article 113 EPC
        applies to decisions on **any** request by a party. In the
        present case, the examining division did not respond to
        the appellant's suggestion of an interlocutory
        decision.

5.4   In the Board's view the appellant's belief that he had
        a right to a decision specifically on the main and
        first auxiliary requests is incorrect. His remaining
        request, the second auxiliary request, was allowed by
        the examining division. If a decision was desired on
        either of the other requests the correct procedure
        would have been to withdraw the remaining request from
        consideration. By not doing so until the examining
        division had reached a decision to grant on the basis
        of this text, i.e. by disapproving the text at the
        Rule 51(4) stage, the appellant ensured that the only
        decision which could be taken by the examining division
        was that the application be refused for lack of an
        approved text.

        Nor can any right to a decision on the procedure per se
        be derived from the EPC. Except in the case of a
        request for oral proceedings in accordance with
        Article 116 EPC, the proceedings are under the control
        of the responsible organ, in this case the examining
        division.

5.5   In the course of the oral proceedings before the Board
        the appellant raised a further argument in support of
        the proposed procedure: the examining division having
        in the present case allowed the second auxiliary
        request, interlocutory revision would avoid a situation
        in which the request would come within the Board's

competence and could give rise to *reformatio in peius*, contrary to the case law of the boards of appeal. However, this situation was considered by the Enlarged Board in G 10/93, OJ EPO 1994, 740, see in particular paragraphs 6 and 7, where it was stated that the boards of appeal have the power to examine in accordance with Article 114(1) EPC whether an application meets the requirements of the EPC, including requirements which the examining division did not take into consideration.

5.6 The appellant refers to T 47/90 (OJ 1991, 486) in support of his case. This decision does not suggest issuing an interlocutory decision but merely states that, to streamline the procedure and possibly avoid an appeal, the applicant may present one or more subsidiary requests which the examining division decides upon.

5.7 Finally, although the examining division did not issue a formal decision including reasons for refusal of the main and first auxiliary requests, the applicant did not ultimately lose any rights.

5.8 The Board therefore concludes that the failure to give reasons was not a substantial procedural violation. Under these conditions there can be no reimbursement of the appeal fee under Rule 67 EPC.

Order

For these reasons it is decided that:

1.   The decision under appeal is set aside.

2.   The case is remitted to the first instance for further
        prosecution of the application with regard to
        patentability under Article 52(2) EPC and inventive
        step under Article 56 EPC.

3.   The request for reimbursement of the appeal fee is
        refused.

The Registrar: The Chairman:

N. Maslin   P. K. J. van den Berg

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