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The opinion in support of the decision being entered today  
(1) was not written for publication in a law journal and  
(2) is not binding precedent of the Board.

Paper No. 26

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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***Ex parte*** WAYNE C. CARLSON

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Appeal No. 1999-1557  
Application 08/650,397

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ON BRIEF

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Before BARRETT, FLEMING, and RUGGIERO, ***Administrative Patent Judges***.

FLEMING, ***Administrative Patent Judge***.

***DECISION ON APPEAL***

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This is a decision on appeal under 35 U.S.C. § 134 from the final rejection of claims 1-23, all the claims pending in the instant application.

The instant invention relates to database recovery procedures and specifically to a dual database system that employs concurrent copy and update operations to recover from a failure of either database without interrupting the availability of the other database. Appellant's Specification ("Specifica- tion"), page 1, lines 5-7. Appellant's invention provides a continuously available fault-tolerant database by combining the copy operations necessary to reconstruct a failed database with incoming database transactions occurring during recovery. Specification, page 4, lines 2-4. The active database system copies one record at a time while interleaving updates into the operation stream at the redundant database system. Specifica- tion, page 4, lines 4-6. The concurrent redundant database system operations are queued and interleaved with the normal active database transaction processing operations. Specifica- tion, page 4,

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lines 6-8. When the copying completes, the redundant database is fully recovered into a concurrently consistent state and the continuing incoming update operations in the redundant database system serve to maintain the concurrent consistency of the redundant database until another failure occurs.

Specification, page 4, lines 8-11. The invention requires interchangeability of the operating status of each of

two database systems and identifiability of each database record by some unique Record Identification Key (RIK).

Specification, page 4, lines 11-14.

Appellant's representative claim 1 recites as follows:

1. In a transaction processing system including first and second database systems for processing queries and updates, each said database system having a database in which are stored a plurality of records, each having an (sic) unique Record Identification Key (RIK), wherein said second database system database is a replica of said first database system database, a method for recovering from failure of said second database system, said method comprising the steps of:

- (a) repairing said failure and restarting operation of said second database system;

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(b) deleting all said records from said second database system database; and

(c ) recreating said second database system database by performing the interleaved steps of

(c.1) processing in both said first and said second database system each said update as it occurs and processing only in said first database system each said query as it occurs, and

(c.2) copying each said record from said first database system database to said second database system database.

In rejecting Appellant's claims, the Examiner relies on two references:

Naito et al. (Naito)	5,060,185	Oct. 22, 1991
Strickland et al. (Strickland)	5,355,477	Oct. 11, 1994

Claim 6 stands rejected under 35 U.S.C. § 102(b) as being anticipated by Naito. Claims 1, 5, 7, 8, 11, 12, 16-19, 22 and 23 stand rejected under 35 U.S.C. § 103(a) as being obvious over Naito. Claims 2-4, 9, 10, 13-15, 20 and 21 stand rejected under 35 U.S.C. § 103(a) as being obvious over Naito and Strickland. Rather than repeat the arguments of the Appellant and Examiner, we refer the reader to the Appellant's

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Brief<sup>1</sup> and Examiner's Answer<sup>2</sup> for the respective details thereof.

**OPINION**

With full consideration being given the subject matter on appeal, the Examiner's rejection and the arguments of Appellant and Examiner, for the reasons stated *infra*, we will reverse the Examiner's rejection of claim 6 under 35 U.S.C. § 102(b) as being anticipated by Naito. We will reverse the Examiner's rejection of claims 1, 5, 7, 8, 11, 12, 16-19, 22 and 23 as being obvious over Naito. We will also reverse the Examiner's rejection of Claims 2-4, 9, 10, 13-15, 20 and 21 under 35 U.S.C. § 103(a) as being obvious over Naito and Strickland.

Focusing first on Appellant's arguments related to claim 6, Appellant first contends that Naito fails as an

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<sup>1</sup> Appellant filed a **Brief on Appeal** ("Brief") on December 3, 1998. Appellant filed a **Response to Examiner's Answer** on January 11, 1999.

<sup>2</sup> The Examiner, in response to Appellant's Brief, filed an **Examiner's Answer** on December 16, 1998.

anticipating reference because Naito teaches a file system and "file systems 'typically provide little or no support for recovery and concurrency controls.'" Brief at page 5, lines 1-6. The Appellant further asserts that the Examiner has not taken official notice of the equivalence of Naito's file system with a database system. Brief at page 5. Appellant's argument, at page 5, starting at line 24, additionally states:

Naito . . . refers to a "master file" that contains information . . . . In the discussion of the master file . . . Naito makes no reference to a "database" or to "records" each of which has "a unique Record Identification Key . . . . The "backup file" . . . of Naito . . . does not constitute a "redundant database system means" or a "redundant database" . . . . [T]hose terms have specific meanings in claim 6 that are different from the backup file . . . of Naito. The Examiner's statement that Naito's system "does input records and query them in a system . . ." is unsupported by judicial notice, citation of a reference, or reference to any part of Naito's disclosure . . . . Naito . . . teaches a file backup system having a master file that is capable of copying contents of a down file while simultaneously responding to requests and controlling data transfers, without stopping

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system operation. However, claim 6 is specific in limiting the "concurrent recovery means" to the function of "**recreating** said redundant database concurrently with continuing operation of said active database system means." It is clear with reference to the specification of this application that "recreating said redundant database" involves a manifold operation that not only copies, but updates database contents in the database being recreated during operation of the active database system. All Naito does is "copy" a down file . . . . [A] "down file" is not, without judicial notice or citation . . . a "redundant database."

Brief at pages 5-6.

The Examiner responds that although Naito calls his system a file backup system, it contains many of the features that belong to a database and not to a file management system. Examiner's Answer at page 8. Therefore, Examiner concludes that Naito contains a database system even if it does not specifically call it a database system. Examiner's Answer at page 8. The Examiner further states:

Naito teaches a system with records and a backup with records . . . . One of skill in the art would recognize that the rows are records and the Goods code is a record number or unique record identification key . . . . [Naito] [i]n col. 4, lines 44-65 shows that the goods code is used to query

or retrieve information from a row in the table or a record contained in the master file and to update that row or record in both the master file and the backup . . . . Naito does not

use terms such as record and database [but] it is apparent that his files contain a record equivalent structure and the records are updated through transaction from terminals as in a database . . . . [T]he examiner concludes that the main file . . . is equivalent to the "active database system means" in light of the claims and the specification . . . . [F]urther Naito's backup file is similarly equivalent to the "redundant database means" also referred to as the backup database . . . as Naito's backup file provides a backup and can become active to take the place of the main file providing requested data in the same manner as the main file . . . .

The "concurrent recovery means" is detailed in the current specification . . . as the records being copied while interleaving transactions or updates with the copying of records. Naito does teach "recovery and concurrence controls" as he teaches a [sic] equivalent "concurrent recovery means" . . . as it also interleaves the updating of the files with the copying of blocks of the files as "a check is made to see whether or not a request is sent from the terminal."

Examiner's Answer at pages 8-10.

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Additionally, Examiner asserts that Naito teaches an equivalent concurrent recovery means as it interleaves the updating of the files with the copying of blocks of files.

"A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference." ***In re Paulsen,***

30 F.3d 1475, 1478-79, 31 USPQ2d 1671, 1673 (Fed. Cir. 1994).

In addition, the reference must be enabling and describe the applicant's claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention. ***Id.*** The first step of an anticipation analysis is claim construction. ***Helifix Ltd. v. Blok-Lok Ltd.,*** 208 F.3d 1339, 1346, 54 USPQ2d 1299, 1303 (Fed. Cir. 2000). It is already well-settled that claim construction includes a review of the claim language and the specification. ***See Vitronics Corp. v. Conceptronic, Inc.,*** 90 F.3d 1576, 1582-83, 39 USPQ2d 1573, 1576-77 (Fed. Cir. 1996). Ordinary

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principles of claim construction require that "[c]laim language is given its ordinary and accustomed meaning except where a different meaning is clearly set forth in the specification or where the accustomed meaning would deprive the claim of clarity." **Northern Telecom Ltd. V. Samsung Elecs. Co.**, 215 F.3d 1281, 1287, 55 USPQ2d 1065, 1069 (Fed. Cir. 2000).

We commence with claim 6, the singular claim rejected under this code section. Claim 6 recites as follows:

6. A fault-tolerant transaction processing system comprising:

input means for accepting queries and updates;

active database system means coupled to said input means for processing said queries and updates as they are accepted;

redundant database system means coupled to said input means for processing said updates concurrently with the operation of said active database system means;

an active database in said active database system means for storing a plurality of records each having a unique Record Identification Key (RIK);

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a redundant database in said redundant database system means for storing a plurality of said records wherein said redundant database is a replica of said active database; and

concurrent recovery means coupled to said active database system means and to said redundant database system means for recreating said redundant database concurrently with continuing operation of said active database system means.

Construing claim 6, we first note that the claim language plainly requires a "database system." Appellant provides a meaning of the word database from the *Dictionary of Computing*. It reads, in part:

**database 1.** Normally and strictly, a body of information held within a computer system using the facilities of a database management system. All accessing and updating of the information will be via the facilities provided by this software as will be the recording of information on the log file, database recovery and multiaccess control.

*Dictionary of Computing* 119 (4th ed. 1996).

Appellant's "database," by definition, uses a "database management system." Although Appellant only claims a database, the database and database management system are integral entities. The *Dictionary of Computing* also defines "database management system." The definition reads in part:

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**database management system (DBMS or dbms)** A software system that provides comprehensive facilities for the organization and management of a body of information required for some particular application or group of related applications. . . . The system will provide a database language in which schemas and subschemas (user views) can be specified and retrieval and update programs written. There will be facilities to specify and modify the storage schema, for logging, rollback, and recovery.

*Dictionary of Computing* 120 (4th ed. 1996).

Relying strictly on Appellant's definition of "database" which includes a "database management system," we do not find any clear evidence that Naito teaches Appellant's required claim limitation of a "database system."

Claim 6 further requires an "input means for accepting queries." We extract the definition of "query" from **The Microsoft Computer Dictionary**. It reads:

query: The process of extracting data from a database and presenting it for use. Also, a specific set of instructions for extracting particular data repetitively. In this latter

context, for example, a query might be created to present sales figures for a particular region of the country. This query

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could be run periodically to obtain current reports.

We determine from this definition that "query" is a database related instruction. Having already established that Naito does not teach a database, Naito could therefore not teach "queries" which is a database associated instruction. The claim requirement of "queries" further buttresses our conclusion that Naito fails to teach a database or database management system.

Because we do not find that Naito teaches a database system, we reverse the Examiner's rejection of claim 6 under 35 U.S.C. § 102 as anticipated by Naito.

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a **prima facie** case of obviousness. **In re Oetiker**, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). **See also In re Piasecki**, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed Cir. 1984). The Examiner can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would

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lead that individual to combine the relevant teachings of the references. **In re Fine**, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellant. **Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444. **See also Piasecki**, 745 F.2d at 1472, 223 USPQ at 788 ("After a prima facie case of obviousness has been established, the burden of going forward shifts to the applicant."). If the examiner fails to establish a **prima facie** case, the rejection is improper and accordingly merits reversal. **Fine**, 837 F.2d at 1074, 5 USPQ2d at 1598.

An obviousness analysis commences with a review and consideration of all the pertinent evidence and arguments. **See Oetiker**, 977 F.2d at 1445, 24 USPQ2d at 1444 ("In reviewing the examiner's decision on appeal, the Board must necessarily weigh all of the evidence and argument.").

Considering independent claim 1, we note that it requires "database systems" and "queries." Having already established that Naito does not teach the limitation of

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"database systems" or "queries," a database related instruction, we further find that Naito does not suggest these limitations. Accordingly, we conclude that the Examiner has failed to establish a **prima facie** case of obviousness. We therefore reverse the Examiner's rejection of claim 1 under 35 U.S.C. § 103 as obvious over Naito. Independent claims 12, 17 and 23 also include the limitations of "database systems" and "queries." Without further consideration, we conclude that in the absence of any teaching or suggestion of these two limitations, that the Examiner has failed to establish a **prima facie** case of obviousness. Accordingly, we reverse the Examiner's rejection of independent claims 12, 17 and 23 as obvious over Naito. Dependent claims 2-5, 7-11, 13-16, and 18-22 also require at least the "database" limitation. Naito does not teach or suggest this limitation. Strickland fails to close the gap and likewise does not teach or suggest this limitation either. Furthermore, we find no reason to combine Strickland and Naito to satisfy this essential

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limitation. Accordingly, dependent claims 2-5, 7-11, 13-16, and 18-22 are reversed based on the same reasoning.

In summary, based on the foregoing, we reverse the rejection of claim 6 under 35 U.S.C. § 102(b) as anticipated by Naito. We further reverse the rejection of claims 1, 5, 7, 8, 11, 12, 16-19, 22 and 23 under 35 U.S.C. § 103(a) as unpatentable over Naito. Finally, we reverse the rejection of claims 2-4, 9,

10, 13-15, 20 and 21 under 35 U.S.C. § 103(a) as unpatentable over Naito and Strickland.

**REVERSED**

LEE E. BARRETT )  
Administrative Patent Judge )  
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BOARD OF

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