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Ramesh et al.

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(54) **ELIMINATING INNER JOINS BASED ON A TEMPORAL RELATIONSHIP CONSTRAINT**

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(57) **ABSTRACT**

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 306 days.

A query is received. It is determined that the query includes an inner join between a parent table and a child table. It is determined that the following relationships exist between the parent table and the child table: referential integrity (“RI”) between a primary key attribute (pk) in the parent table and a foreign key attribute (fk) in the child table, where “attribute” is defined to mean one or more columns, and a temporal relationship constraint (“TRC”) between a period attribute in the parent table and a TRC-attribute in the child table, the TRC-attribute being a date or time attribute. It is determined that the query does not access any attribute in the parent table other than the pk. It is determined that the query specifies an equality predicate of the form pk=fk. It is determined that the query selects a snapshot from the parent using a predicate of the form parent.[period attribute] contains a point in time (t1). It is determined that the query selects from the child those rows whose TRC-attribute is equal to or prior to t1. The inner join is eliminated when planning execution of the query. The query is executed to produce a result. The result is saved.

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G06F 17/30 (2006.01)
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(52) **U.S. Cl.** **707/609; 707/802; 707/803**

(58) **Field of Classification Search** **707/609,**
707/802, 803

See application file for complete search history.

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18 Claims, 4 Drawing Sheets

