A High-level User Interface for Network Databases Based on the CONTEXT Data Model

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How to construct a high-level user interface for network databases is under research. Several approaches to the problem have been proposed so far. However, no approaches can solve it thoroughly. In this thesis, the principle of the construction method is studied. As a result, the CONTEXT data model is designed for making the network databases easier to use, and then the new construction method based on the data model is proposed.

As the CONTEXT data model has powerful data description/mapping facility, it is possible to compose a suitable context for which a user with a particular purpose would represent his requests. We call the context CONTEXT.

The framework of CONTEXT is tree structure whose node is record type. A CONTEXT is constructed in two steps from the underlining network schema:

1. Every logical inter-record relationship in the network schema is uniformly represented as an access function.
2. A CONTEXT is composed of the record types and the access functions by means of powerful and simple concepts.

In order to allow various kinds of users to use the the network databases through the CONTEXT, a query language QLC for end users and a data manipulation language for application programmers are presented.

1. A complex query including many quantifiers is representable plainly and clearly on the tree structured data view by indicating the remarkable record.
2. A query for a recursive database can be described on a recursive CONTEXT.

Based on the CONTEXT data model with two steps construction method user interfaces according to the user levels can be constructed.