XML Update fundamentals

Data model

XQuery uses the Query Data model which views an XML document as a node-labeled tree with references.

Update operations

In the paper there is a description of a set of operations to be performed on XML documents. Beign delete(child), rename(child,name), insert(content), insertbefore(ref,content) replace(child, content) , sub-Update (patternMarch, predicates, updateOp) the operations contianed in the set

XML Update fundamentals

- delete(child): If the child is a member of a target object is removed
- rename(child,name): If the child is a non.PCDATA member of the target object iti is given a new name.
- insert(content): Inserts new content into target. (Can be PCDATA, element, attribute or reference)
- insertbefore(ref,content): Only for ordered execution. If ref is a child element then content must be an element or PCDATA.
- replace(child, content): Atomic replace operation
- sub-Update (patternMarch, predicates, updateOp): Invokes a nes pattern-matching operation over the input.

XQuery extensions for Update

Deletion: removes a node from a child

Insertion: introduce a constructor for new attributes and references.

Replacement:It has the same effect as inserting an item before another one and deleting it. It is just sometimes convenient to have it a single atomic operation.

Storing XML in relations

XML repositories are mostly constructed over relational database systems. So there are techniques to translate XML queries to generated SQL queries. Mapping XML into Relations: several methods have been proposed to map XML to SQL but in general they produce create excessive fragmentation .

The edge approach works with documents that don’t have a DTD. The shared inlining method exploit a DTD to better cluster parents and child methods.

The shared Inlining method exploits a DTD to better cluster parent and child elements. The DTD provides the information when the inlining is possible.

Storing XML in relations

XML Results as Outer Unions

When an XML structure is stored across multiple tables there are a number of possible ways of returning the results. There are different techniques to do this.

The one this paper uses is called Outer Union : To simplify the job of reconstructing the XML document at the cient, output tuples are sorted so that child element data comes after parent data and child elements. Instead of separately joining the relations Customer, Order and OrderLine