PsychoPath—Executive Summary

February 7, 2005

Introduction

The purpose of this project is to design and implement an XPath 2.0 processor. XPath 2.0 is an expression language which provides a means of hierarchical addressing for the nodes of trees which represent XML documents. If our project is successful, it will be the first open source XML Schema aware XPath 2.0 processor.

Key Requirements

- Design a modular architecture in which existing components may be replaced by new implementations with minimal effort, and in which new components may easily be added.
- Each component must be fully testable and its accompanying test suite must be scalable in order to promote the addition of extensive test cases.
- Implement the whole of the XPath 2.0 grammar and support all of the core XPath language. Support for *all* functions, operators and types will be added as the project evolves—for now, implement as much as possible.

Top-Level Design

The DOM implementation used is Xerces, which supports XML Schema. JFlex and CUP are used to parse expressions into a tree which supports the visitor design pattern. Visitors performing static analysis and evaluation have been implemented. Evaluation results are returned as a sequence of types which belong to a type hierarchy similar to the one defined in the XPath specification.

Future Development

Some features, such as numeric type promotion and collations, still need to be implemented. There also is a lack of support for various functions, operators and types. Performance is another issue which still needs to be addressed.