

## Functional and Efficient Query Interpreters: Principle, Application and Performances' Comparison

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**Abstract :** This paper presents a general approach to implement efficient queries' interpreters in a functional programming language. Indeed, most of the standard tools actually available use an imperative and/or object-oriented language for the implementation (e.g. Java for Jena-Fuseki) but other paradigms are possible with, maybe, better performances. To proceed, the paper first explains how to model data structures and queries in a functional point of view. Then, it proposes a general methodology to get performances (i.e. number of computation steps to answer a query) then it explains how to integrate some optimization techniques (short-cut fusion and, more important, data transformations). It then compares the functional server proposed to a standard tool (Fuseki) demonstrating that the first one can be twice to ten times faster to answer queries.

**Keywords :** data transformation, functional programming, information server, optimization

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