﻿In the second part, I give an overview of the semantic web (Sec. \ref{sec:preliminaries:semanticweb}) before I delve into \textbf{Tentris} Triple store in section \ref{sec:preliminaries:tentris}. An RDF triple store based on Tensor arithmetic. I describe its main principle and implementation in a nutshell. Primarily, I focus on its indexing data structure, Hypertrie.

Resource Description Framework

﻿The Resource Description Framework (RDF) is part of the W3C standard to define the web of data \cite{rdfonline}. Regardless of the nature of the data entity held on the web (blog post, image, publication, newspaper article, list of invoices, etc.), RDF identifies them uniformly as *resources*. In the standard, each resource is attached to a unique *Internationalized Resource Identifier (IRI)*. IRI is a standard defined by the Internet Engineering Task Force in RFC 3987 [DS05]. Literals are another sort of resources. A literal comprises a hardcoded value represented as a string; (“Martin,” “true”, “12.3”) are examples of literals. The third resource type is called a blank node. Blank nodes represent anonymous resources and always have local scope where they can be assigned a unique identifier. All definitions in this section are taken from “RDF 1.1 Concepts and Abstract Syntax” [WLC14].

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\subsubsection{Triple Stores}

\textit{Triple Stores} are a special kind of data management systems designed to store RDF triple data. It can store one or more RDF graphs. Generally, triple stores provide a standard interface to enable performing queries and other semantic operations on the stored RDF triples through a query language such as SPARQL.

Tensor Algebra

In mathematics, the term Tensor holds an abstract meaning. According to [], Tensors are “objects with many indices that transform in a specific way under a change of

Basis”.