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Rewriting of Visibly Pushdown Languages for XML Data Integration

In this paper, we focus on XML data integration by studying rewritings of XML target schemas in terms of source schemas. Rewriting is very important in data integration systems where the system is asked to find and assemble XML documents from the data sources and produce documents which satisfy a target schema.

As schema representation, we consider Visibly Pushdown Automata (VPAs) which accept Visibly Pushdown Languages (VPLs). The latter have been shown to coincide with the family of (word-encoded) regular tree languages which are the basis of formalisms for specifying XML schemas. VPLs enjoy a “well-behavedness” which facilitates us in addressing rewriting problems for XML data integration.

Using VPAs, we show algorithmic and complexity results for many variants of rewriting problems for XML data integration.

(Joint work with Alex Thomo)