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Distributed Object-Relational Knowledge as Positional-Slotted, Object-Applicative Rules

By:

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In F-logic and W3C's Rule Interchange Format (RIF), objects (frames) are separate from function and relation (predicate) applications. In POSL and RuleML, these fundamental notions are integrated by permitting applications with optional object identifiers and, orthogonally, arguments that are positional or slotted. The resulting positional-slotted, object-applicative (psoa) terms are given a novel formalization, reducing the number of RIF terms by generalizing its positional and slotted (named-argument) terms as well as its frame terms and class memberships. Like multi-slot frames accommodate for (Web-)distributed slotted descriptions of the same object identifier (IRI), multi-tuple psoa terms do for positional descriptions. The syntax and semantics of these integrated terms and rules over them are defined as PSOA RuleML in the style of RIF-BLD. The semantics provides a novel first-order model-theoretic foundation, blending slot distribution, as in F-logic and RIF (as well as tuple distribution), with integrated psoa terms, as in POSL and RuleML.
Visit http://www.cs.unb.ca/~boley/papers/SemanticsPsoaRules.pdf for the complete paper.

Dr. Harold Boley is adjunct professor at the Faculty of Computer Science, University of New Brunswick, and leader of the Semantic Web Laboratory at the National Research Council Canada, Institute for Information Technology. His specification of Web rules through RuleML has found broad uptake. It has been combined with OWL to SWRL and become the main input to the W3C Recommendation RIF. His work on Rule Responder has enabled deployed distributed applications for the Social Semantic Web.

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