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Distributed logic objects: A fragment of rewriting logic and its implementation. (English)

[Zbl 0912.68090](#)

Meseguer, J. (ed.), Rewriting logic and its applications. Proceedings of the 1st international workshop, Pacific Grove, CA, USA, September 3–6, 1996. Amsterdam: Elsevier, Electronic Notes in Theoretical Computer Science. 4, 16 p. (1996).

Summary: This paper presents a logic language (called Distributed Logic Objects, DLO for short) that supports objects, messages and inheritance. The operational semantics of the language is given in terms of rewriting rules acting upon the (possibly distributed) state of the system. In this sense, the logic underlying the language is Rewriting Logic. In the paper we discuss the implementation of this language on distributed memory MIMD architectures, and we describe the advantages achieved in terms of flexibility, scalability and load balancing. In more detail, the implementation is obtained by translating logic objects into a concurrent logic language based on multi-head clauses, taking advantage from its distributed implementation on a massively parallel architecture. In the underlying implementation, objects are clusters of processes, objects' state is represented by logical variables, message-passing communication between objects is performed via multi-head clauses, and inheritance is mapped into clause union. Some interesting features such as transparent object migration and intensional messages are easily achieved thanks to the underlying support. In the paper, we also sketch a (direct) distributed implementation supporting the indexing of clauses for single-named methods.

For the entire collection see [[Zbl 0903.00068](#)].

MSC:

[68Q42](#) Grammars and rewriting systems

[68N99](#) Theory of software

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[logic language](#); [distributed logic objects](#); [rewriting logic](#)

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