

# An Operational Semantics for an Efficient Abductive Logic Programming System

(Paper Category 4: Work in Progress)\*

Marco Gavanelli<sup>1</sup> , Pascual Julián-Iranzo<sup>2</sup> , and Fernando Sáenz-Pérez<sup>3</sup> 

<sup>1</sup> Department of Engineering, Univ. of Ferrara, Italy  
[marco.gavanelli@unife.it](mailto:marco.gavanelli@unife.it)

<sup>2</sup> Dept. of Information Technologies and Systems, Univ. of Castilla-La Mancha, Spain  
[pascual.julian@uclm.es](mailto:pascual.julian@uclm.es)

<sup>3</sup> Dept. of Software Engineering and Artificial Intelligence, Univ. Complutense de Madrid, Spain  
[fernan@ucm.es](mailto:fernan@ucm.es)

**Abstract.** Abductive logic programming (ALP) extends logic programming with hypothetical reasoning by means of abducibles, an extension able to cope with interesting problems such as diagnosis, planning, and verification with formal methods. Implementations of this extension have been using Prolog meta-interpreters and Prolog programs with Constraint Handling Rules (CHR). While the latter adds a clean and efficient interface to the host system, it still suffers in performance for large programs. Here, we are interested in obtaining a more efficient implementation of the SCIFF system following a compiled approach. In this paper, and as a first step in this long term goal, an operational semantics for a propositional ALP system following SCIFF is developed, eliding the need of CHR and accomplishing better performance.

**Keywords:** Abductive Logic Programming · SCIFF · Hypothetical Reasoning · System Implementation

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