

# A Property Which Guarantees Termination in Weak Combinatory Logic and Subtree Replacement Systems

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*1 Introduction* It is well-known that recursive equations may be conveniently used for defining functions and specifying their computations. A particular syntactic system for writing such equations is Weak Combinatory Logic. Such logical formalism, even if not particularly appealing to computer scientists because of its syntactical characteristics, could be useful when we want to consider also untyped functions and would like to avoid the extra problems due to the presence of variables and their bindings, as in type-free  $\lambda$ -calculus [1].

Those equations may be considered as production rules for deriving "simpler" terms from more complex ones, and in that case the crucial problem of the existence of the "normal form" arises: does there exist the "simplest" derivable term? Is it unique?

In this paper we study that problem and give the definition of a property which is sufficient, under some hypotheses, for assuring the existence of such

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