# PrologML: Programming with Logic and Functions

Ian Lewis, University of Cambridge, 7th June 2012

## Overview

PrologML is a language that combines the logic programming of the language Prolog with the functional evaluation of the language ML. The syntax has been carefully designed to provide a consistent combined paradigm that would be familiar to both Prolog and ML programmers.

Support for PrologML is provided within any ISO-standard Prolog environment (development was within GNU Prolog) although similar support could be provided within a Standard ML environment (perhaps then the language would be MLProlog…)

As the support is provided within Prolog, the full capabilities of the Prolog environment remain, e.g. you can declare *relations* such as:

append([],X,X).

append([Head|Tail],X,[Head|Rest]) :-

append(Tail, X, Rest).

Function *declaration* is supported with the fun keyword, e.g.

fun fact(X) = if (X=1)

then 1

else X\*fact(X-1).

Function *evaluation* is supported through the use of declared functions in arguments to relations, e.g. with a function max\_list and the relation wrapped:

wrapped([],[]).

wrapped([Head|Tail],[