

## Foreword

So-called "natural language" is a wonderful for the purposes it was created for, such as to be rude in, to tell jokes in, to cheat or to make love in (and Theorists of Literary Criticism can even be content-free in it), but it is hopelessly inadequate when we have to deal unambiguously with situations of great intricacy, situations which unavoidably arise in such activities as legislation, arbitration, mathematics or programming. To this perplexing dilemma we can observe three main reactions.

The first reaction is to stick to those activities where unrefined natural language (kind of) suffices (vide the educationist telling the future social worker to include in her reports no sentences of more than 17 words).

The second reaction is to bend the natural language to one's special purpose, as we can observe in the practice of government, but the resulting language is only superficially "natural", for it is in fact so unnatural that even the educated layman needs a lawyer or tax

consultant to decipher it.

The third reaction is the most drastic one: a completely new language is designed, geared to its purpose and without any pretence to being "natural", as we can see in formal mathematics and programming.

The last approach is, of course, the one with the greatest potential: unfettered by compatibility requirements, freed from the shackles of our native tongues, the new formalism can be designed to facilitate the major manipulations, and can thus become a highly effective, powerful and reliable tool, but experience has shown that it cannot avoid becoming controversial as well. All its technical merits fail to address the social problem that the smooth mastery that enables one to use a calculus with confidence and advantage is not reached without an intellectual investment of exercise and training for which most people are just too lazy: it is much simpler to declare that the formalism is no good and that learning how to use its calculus is not worth the trouble. The majority of people

- even in mathematics and computing! - prefer the comfort of a fuzzy language in which cruel precision is impossible.

In this field of tension, on the cross-roads of incompatible tendencies, "Teaching and Learning Formal Methods" is a valuable anthology. Most of its authors are seasoned scientists with considerable educational experience. In some of the essays one can read between the lines the sad combination (which is only to be expected) of high expectation of the technology and low expectation of the student body's willingness to turn the dream into reality. The book as a whole contains a wealth of technical or educational material that convinces me that in this area my academic colleagues are doing exactly what they should do: developing and propagating an indispensable technology so that it will be available when "the world out there" undeniably needs it.

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Edsger W. Dijkstra