NON-STANDARD ANALYSIS FEAR CREATES NON-SENSE ANALYSIS: THE CASE OF PRE-UNIVERSITY PORTUGUESE MANUALS

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Topic #10: *Nonstandard Methods and teaching.*

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With the Weierstrassian liberation from the infinitesimal dependency of Analysis, with all its metaphysical connotations, it became possible to express the intuitive idea of the true value of an indeterminate quantity without invoking the infinitely small that, however, had been so successful in the 18th century (and before). But, as we all know, there was a price to pay (perhaps too much high for the introduction of the basic notions of Analysis): the inversion of analysis reasoning.

Confronted with this difficulty, Portuguese responsibles for the elaboration of the Math programs (teachers and educators) sent (not to say minimized) the notion of limit to the last year of pre-university education (12th) and the concepts that depend upon it, like the derivative, were cleared (emptied) of any formal meaning, and are presented through (closed to, but informal) non standard notions, reduced into the typical expression of tends to. This tendency doesnt have any formal meaning in the Classical Analysis and, although it may be seen as being closed to the non- standard definition of limit, there is no reference to it, becoming impossible any formalization of the intuition in question.

We find, once again, that non-standard analysis looks like a possible path for a formal introduction of the essential and basic notions in Analysis, at a pre-university level. We would like to call the academic attention for some pseudo applications of non conventional ideas and concepts used in pre-university text books, through an example. This utilization emphasises the intuitive appeal of non-standard notions but, since these arent regarded as such, all is taught in a (dangerous) informal and heuristic way (relying only in examples).

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