► PEDEFERRI, *Some Remarks about the Status of Second Order Logic.*
Universita' degli Studi di Milano, Italy.
E-mail: andreapedex@gmail.com.

Second order logic has been always considered problematic by modern logicians: so problematic that some of them refuse to call it logic at all. Is the lack of completeness the only good reason we have to ban second order logic from the realm of pure logic? There have been many attempts to find a solution in order to do not entail sets in second order quantifications. Though not all of them have succeeded, they call the attention upon the fact that the standard requirements for a formal system to be called logic could not be only the requirements traditionally used.

In this respect, we migth, for instance, use a second order quantification that does not refer to sets, like the approach of the late George Boolos of a monadic second order with plural quantifiers. It can fulfill also systems based on abstraction principles, by using pairing functions to simulate dyadic second-order quantification in some suitable extension of plural first order logic. This method might work, however it seems it does not solve the problem. Indeed, it raises many concerns about the real meaning and the ontological commitments of pairs.

Lindström Theorem sets out a boundary between the "pure logicality" of first order logic and the "mathematicality" of second order logic: is the validity of completeness, compactness and Löwenheim-Skolem Theorem the only qualification to call a formal system "logic"? After all the lacking of expressive power of first order represented by the lacking of categoricity, could well be considered an important flaw too. Moreover, it could sound odd that, on the one hand we do not call second order a proper logic due to its beeing "uncontrollable", and on the other hand we state, as a corner stone of the "controllable" first order, the Löwenheim-Skolem Theorem, a theorem which states the incapability of a theory to "control" its models.