

REPLY TO QUERY: HOW OLD IS FIRST-ORDER LOGIC?

MOSES KLEIN

From: klein@math.wisc.edu (Moses Klein)

Subject: Re: How old is 1st order logic?

Kai Wehmeier <wehmeie@majestix.uni-muenster.de>wrote: "When and by whom was first order logic first explicitly isolated as a logical system? (My guess is Tarski, but I really do not know.)"

The earliest example that comes to my mind is Löwenheim, whose famous 1915(?) theorem on the existence of models of different transfinite cardinalities requires the assumption that the theory is first-order.

You might want to look at the last chapter of Stewart Shapiro's *Foundations without Foundationalism*, which includes a historical note on how first-order logic came to occupy center stage.

– Moses Klein (klein@math.wisc.edu)

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IRVING H. ANELLIS

Gregory Moore's articles "A House Divided Against Itself: The Emergence of First-order Logic as the Basis for Mathematics" (in Esther R. Phillips (editor), *Studies in the History of Mathematics* (Washington, D.C., Mathematical Association of America, 1987), 98–136) and "The Emergence of First-order Logic" (in William Aspray and Philip Kitcher (editors), *History and Philosophy of Modern Mathematics* (Minneapolis, University of Minnesota Press, 1988), 95–135) trace the history of the emergence of first-order logic. While finding first-order logics in Frege in 1879 and in Peirce in 1883, Moore states (pp. 129 and 128 respec-