Hajrudin Fejzic* (hfejzic@csusb.edu), Department of Mathematics, CSUSB, San Bernardino, CA 92407. On Peano derivatives in several variables.

Let $f$ be a function of several variables that is $n$ times Peano differentiable. A. Fischer proved that if there is a number $M > 0$ such that all Peano partials of order $n$ are less than $M$ or they are all greater than $-M$ then $f$ is $n$ times ordinarily differentiable. Here this result is improved to permit the possibility that some of the Peano partials are bounded from above by $M$ while others are bounded from below by $-M$. Also as a consequence we obtain some new results about the equality of mixed partial derivatives. (Received July 29, 2015)