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A Note on Global Implicit Function Theorem

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Abstract: We study the boundary behaviour of some certain maximal implicit function. We give estimates of the maximal balls on which some implicit functions are defined and we consider some cases when the implicit function is globally defined. We extend in this way an earlier result from [3] concerning an inequality satisfied by the partial derivatives $\frac{\partial h}{\partial x}$ and $\frac{\partial h}{\partial y}$ of the map h which verifies the global implicit function problem

$$h(t,x) = h(a,b), \quad x(a) = b.$$