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Quantifier elimination in some non-quasi-analytic classes

Let $\mathcal{F}$ be a class of real functions, continuous on a compact box B of $\mathbb{R}^n$ and C^n on a finite "regular" partition P_n of the interior of B for all $n \in \mathbb{N}$; let us also suppose that $\mathcal{F}$ is closed by sums, products, compositions, derivations and, in a certain way, by implicit functions.

If $\mathcal{F}$ satisfies a condition of non-degeneration (equivalent to quasi-analycity in the case of quasi-analytic functions), expressed via model theory, we prove that the complete theory of $\mathbb{R}$ equipped with $\mathcal{F}$ admits quantifier elimination and so is o-minimal.

As a consequence, we will give an example of an o-minimal structure on $\mathbb{R}$ which doesn't admit a C^∞ stratification. (This last result was obtained independently by O. Le Gal and J-P. Rolin via a geometrical proof.)