# Correction to "On the real exponential field with restricted analytic functions"

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We retract the claims made in subsection 9.9 of [3]. For example, the purported "relative" version of Lemma 9.5 is not true. Let $D$ be the ring of all real analytic functions on $\mathbb{R}$ definable in $\mathbb{R}_{an}$. Now $f(x) := \Gamma(1/(1+x^2))$ is an element of this ring, where $\Gamma$ denotes the gamma function. Note that the function $g$: $(0,1) \to \mathbb{R}$ given by $g(x) := \sqrt{(1-x)/x}$ is analytic, algebraic and definable in $\mathbb{R}_{an}$. However, the function $f \circ g = \Gamma \restriction (0,1)$ is not differentially algebraic over the differential domain $\{u \restriction (0,1)\colon u \in D\}$; see [4].

Subsection 9.9 was used in [3] solely for the proof of Proposition 9.10, which gives an iterated exponential bound for the growth at $+\infty$ of one-variable functions definable in $(\mathbb{R}_{an}, \exp)$. Proposition 9.10 is nevertheless true. Indeed, there are two different methods of proof; see 4.8 of [1] for a brief indication of one method and [2] for a full proof using the other.

We also take this opportunity to correct the definition of "regular at $a$" (also of "critical point") on page 23: "$\min\{m, n\}$" should be "$m$".

## References

[1] L. van den Dries, A. Macintyre and D. Marker, *The elementary theory of restricted analytic fields with exponentiation*, Annals of Mathematics **140** (1994), 183–205.

[2] L. van den Dries, A. Macintyre and D. Marker, *Logarithmic-exponential power series*, preprint.

[3] L. van den Dries and C. Miller, *On the real exponential field with restricted analytic functions*, Israel Journal of Mathematics **85** (1994), 19–56.

[4] C. Miller, *An extension of Hölder's theorem on the gamma function*, preprint.

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