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Functions of exponential type not vanishing in a half-plane. (English summary)

Analysis **17** (1997), *no. 4,* 395–402.

Suppose that f is an entire function of exponential type τ, which is bounded by 1 on the real axis and is nonzero in the half-plane $\operatorname{Im} z > k$. In the case $k = 0$, Boas showed that, if $\lim_{t\to+\infty} \log|f(it)|/t = 0$, then $|f'(x)| \le \tau/2$ for all real x. The authors have already shown that, in the case $k < 0$, an improvement of this inequality for f' is possible, under additional assumptions concerning the growth of $f'(z)$ and $e^{i\tau z}\overline{f(\overline{z})}$ on the positive imaginary axis. Perhaps surprisingly, their estimate is sharp. The present paper extends their earlier results slightly. *P. C. Fenton*