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J Marshall Ash* (mash@math.depaul.edu), DePaul University, Mathematics Department,
Chicago, IL 60614. *An analogue of L'Hospital's rule.*

L'Hospital's well known rule asserts that under certain conditions, the existence of a limit for $f'(x)/g'(x)$ implies the existence of the same limit for $f(x)/g(x)$. An analogous rule for series is this. Suppose f and g are functions such that $f, g \rightarrow 0$ at infinity, $g(n)g'(n)$ is nonzero for all natural numbers n , and in some neighborhood of infinity g' is nonzero and $|f'(x)/g'(x)|$ is decreasing. If $\sum_{n=1}^{\infty} |f'(n)/g'(n)|$ converges, then $\sum_{n=1}^{\infty} f(n)/g(n)$ converges. A simple example shows that the conclusion may no longer be true if the assumption $f, g \rightarrow 0$ at infinity is replaced by the assumption $f, g \rightarrow \infty$ at infinity. (Received September 21, 2009)