Abstract: The sum of the Möbius function $\mu(n)$ over positive integers $n \leq x$ appears unbiased in sign: suitably normalized, it appears to (roughly) oscillate about the $x$-axis. The same process using the similarly defined Liouville function $\lambda(n)$ however seems to have a negative bias: the values of its normalized summatory function appear to roughly oscillate around a real number near $-0.7$. In fact, a well-known problem posed by Pólya more than a century ago (and since resolved) asked if the latter sum ever achieved positive values for large $x$. We consider a natural family of functions, dubbed fake $\mu$’s, which includes the Möbius and Liouville functions, as well as a number of other natural functions that we also consider. We determine when their summatory functions should exhibit a bias, determine extremal examples, and discuss some connections to other problems, including the Riemann hypothesis.