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On the average root number of 1-parameter families of elliptic curves

We discuss the behaviour of the average of the root number in 1-parameter families of elliptic curves. By the work of Helfgott, in a typical family the root number has average zero, but it can happen in special circumstances that the average is non-zero. We study these special cases (with particular attention to the case when the parameter varies among integers), and show that all rational numbers between in $[-1, 1]$ can be average root numbers.