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# Branden's Conjectures on the Boros-Moll Polynomials

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We prove two conjectures of Branden on the real-rootedness of polynomials  $Q_n(x)$  and  $R_n(x)$  which are related to the Boros-Moll polynomials  $P_n(x)$ . In fact, we show that both  $Q_n(x)$  and  $R_n(x)$  form Sturm sequences. The first conjecture implies the 2-log-concavity of  $P_n(x)$ , and the second conjecture implies the 3-log-concavity of  $P_n(x)$ .

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