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Two competing versions of the Lex-Plus-Powers Conjecture are equivalent.

Roughly speaking, Lex-Plus-Powers (LPP) ideals are monomial ideals in $k[x_1, \dots, x_n]$ which contain powers of the variables in prescribed degrees and are as lex as possible otherwise. These ideals play a central role in the Lex-Plus-Powers conjecture of Evans and Charalambous—they are conjectured to have largest graded Betti numbers among all ideals containing a regular sequence with the same degrees and attaining the same Hilbert function. There has been some debate, however, about the correct definition of LPP ideals. Some authors require LPP ideals to contain powers of the variables in prescribed degrees as minimal generators, while others forgo minimality. On the face of it, this gives rise to competing versions of the Lex-Plus-Powers conjecture. We show (via a proof of Evan’s Convexity Conjecture about LPP ideals) that these competing versions of the Lex-Plus-Powers conjecture are equivalent. (Received February 04, 2018)