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# Almost simplicial polytopes: the lower and upper bound theorems

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## Abstract

This is an extended abstract of the full version. We study  $n$ -vertex  $d$ -dimensional polytopes with at most one nonsimplex facet with, say,  $d + s$  vertices, called almost simplicial polytopes. We provide tight lower and upper bounds for the face numbers of these polytopes as functions of  $d$ ,  $n$  and  $s$ , thus generalizing the classical Lower Bound Theorem by Barnette and Upper Bound Theorem by McMullen, which treat the case  $s = 0$ . We characterize the minimizers and provide examples of maximizers, for any  $d$ .

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