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Amplitude relations in two body b -baryon decays using $SU(3)$ symmetry

The decays of b -baryons provide an interesting opportunity to test $SU(3)$ flavor symmetries in the Standard Model. We study possible charmless decays of such anti-triplet b -baryons into an octet or decuplet baryon and a pseudoscalar meson using $SU(3)$ flavor symmetry. The analysis holds for arbitrarily broken $SU(3)$. By making some physical assumptions about the underlying transitions, we derive amplitude relations between several decay modes that are within the reach of future experiments.

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