

## A natural framework for baryonic R-parity violation in GUT

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We investigate the possibility of obtaining large (up to  $O(1)$ ) R-parity- and baryon-number- violating couplings in supersymmetric GUT. Since quarks and leptons are embedded into the same grand-unified multiplets, the natural expectation is that baryonic R-parity violation is always associated with similar-size lepton-number-violating couplings. Being the simultaneous presence of both types of couplings severely constrained by matter stability, the idea of grand unification may appear incompatible with the existence of large baryonic R-parity-violating interactions. On the other hand, an asymmetry between baryon- and lepton-number violating couplings can be generated after the grand-unified symmetry breaking. We study the natural implementation of such a mechanism in  $SU(5)$  and  $SO(10)$  models and comment on their phenomenological implications.

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