Title:	Reformulation of Hensel's Lemma and extension of a theorem of Ore
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Abstract:	In this paper, we extend the theorem of Ore regarding factorization of polynomials over p-adic numbers to henselian valued fields of arbitrary rank thereby generalizing the main results of Khanduja and Kumar (J Pure Appl Algebra 216:2648–2656, 2012) and Cohen et al. (Mathematika 47:173–196, 2000). As an application, we derive the analogue of Dedekind's Theorem regarding splitting of rational primes in algebraic number fields as well as of its converse for general valued fields extending similar results proved for discrete valued fields in Khanduja and Kumar (Int J Number Theory 4:1019–1025, 2008). The generalized version of Ore's Theorem leads to an extension of a result of Weintraub dealing with a generalization of Eisenstein Irreducibility Criterion (cf. Weintraub in Proc Am Math Soc 141:1159–1160, 2013). We also give a reformulation of Hensel's Lemma for polynomials with coefficients in henselian valued fields which is used in the proof of the extended Ore's Theorem and was proved in Khanduja and Kumar (J Algebra Appl 12:1250125, 2013) in the particular case of complete rank one valued fields.
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