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Differential fields with free operators.

While the theory of fields with free operators developed by Moosa and Scanlon allows for a wide variety of additive operators (such as derivations and endomorphisms), it has the shortcoming that it does not deal with theories where the operators are imposed to commute. In this talk we deal with some situations where commutativity can be imposed. Namely, fields with commuting derivations where the free operators commutes with the derivations. We discuss how to show the existence of a model companion using a new differential lifting lemma: a differential version of Hensel's lemma for local finite algebras. This is joint work with Rahim Moosa. (Received August 15, 2014)