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Hans Schoutens*, 365 Fifth Ave, Dept of Mathematics, NYC, NY 10016. *Defining affine space.*

It is a hard but important problem to distinguish affine space geometrically from other algebraic varieties (equivalently, to determine when an algebra is a polynomial ring), as the problem is linked to many long open standing problems like the Jacobian Conjecture, Zariski Cancellation, etc. A more recent approach uses locally nilpotent derivations (or an equivalent version via additive group actions). I will propose a first-order version of this, and describe a theory whose Noetherian models are precisely the affine spaces (over some ground field). (Received September 05, 2017)