Forbidden lattices and quasilattices

This talk will be a continuation of a talk given recently by R. Padmanabhan. We begin with some definitions: $\mathcal{K}$ is a *forbidden lattice* if the class of all lattices not containing $\mathcal{K}$ as a subalgebra is equational (that is, a variety of lattices). Let $\alpha : p \approx q$ be a type $< 2,2 >$ lattice identity and X the set of all variables occurring in α. Then α_r is the identity $\alpha_r : (\wedge X) \vee p \approx (\wedge X) \vee q$. Also, for a variety **V** of type τ we let $Id(\mathbf{V})$ be the set of all identities of type τ satisfied by **V** and $R(\mathbf{V}), E(\mathbf{V}), N(\mathbf{V}), H(\mathbf{V})$ be the varieties of algebras of type τ satisfying all *regular, external, normal hyper identities* respectively of **V**.

Theorem *Let $\mathcal{K}$ be a forbidden lattice and let $\mathbf{L}_{\mathcal{K}}$, the class of all lattices not containing $\mathcal{K}$, be defined by the identity $\alpha : p = q$. Then the variety $R(\mathbf{L}_{\mathcal{K}})$ of quasilattices (algebras of type $< 2,2 >$ satisfying all regular identities of $\mathbf{L}_{\mathcal{K}}$) is defined by the identity α_r and is the class of all quasilattices not containing $\mathcal{K}$.*

We will prove the above theorem using known results on the subdirectly irreducible algebras of $R(\mathbf{L}_{\mathcal{K}})$ and then discuss analagous results for $E(\mathbf{L}_{\mathcal{K}}), N(\mathbf{L}_{\mathcal{K}}), H(\mathbf{L}_{\mathcal{K}})$.