

## **Residuated lattices and density**

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We describe a uniform strategy for proving that a class of residuated lattices obeying prelinearity is generated by its dense linearly ordered members, and hence that the corresponding fuzzy logics are complete with respect to algebras based on the unit interval  $[0,1]$ . The strategy consists of two parts. First, it is shown that derivability in a logic extended with the Takeuti-Titani density rule is equivalent to validity in all dense linearly ordered members of the corresponding class of algebras. A syntactic elimination of the density rule from the logic is then given using hypersequents.