1127-03-264   **John T Baldwin*** (`jbaldwin@uic.edu`). *Generalized Fraïssé Constructions and Atomic models.*
I will discuss several results whose proofs depend on extensions of the Fraïssé method. I will outline the construction (with Koerwien and Laskowski) of an explicit complete $L_{\omega_1,\omega}$-sentence ϕ_n characterizing $\aleph_n$ for each n. This argument requires a new notion of n-dimensional amalgamation which allows the construction of *atomic* models in various uncountable cardinals. These considerations led to constructions (with Souldatos) of complete $L_{\omega_1,\omega}$-sentences which have maximal models in more than one cardinal, but all below $\aleph_{\omega_1}$. Note that an abstract elementary class with amalgamation and joint embedding can have at most one maximal model.

In contrast, Shelah and I have constructed (modulo presumably eliminable set theoretic hypotheses) a complete $L_{\omega_1,\omega}$-sentence with maximal models cofinally in the first measurable cardinal and forever if there is no measurable cardinal. (Received February 05, 2017)