1106-03-1100 **Ioannis Souldatos*** (souldaio@udmercy.edu), 4001 W.McNichols Ave, University of Detroit Mercy, Department of Mathematics, Detroit, MI 48221, and **John Baldwin** and **Martin Koerwien**. *The Joint Embedding Property and Maximal Models.*

We investigate the spectra of joint embedding and of maximal models for an Abstract Elementary Class. It is immediate that if $\boldsymbol{K}$ is an AEC with the full joint embedding property (any two models of any cardinality have a common extension) then $\boldsymbol{K}$ has arbitrarily large models if and only if it no maximal models. We show that without the hypothesis of full joint embedding the implication from arbitrarily large models to no maximal models fails. This is trivial if one just takes disjunctions, but such disjunctions fail joint embedding in $\aleph_0$. We provide counterexamples which satisfy joint embedding on a nonempty initial segment of the cardinals.

Main Theorem If $\langle \lambda_i : i \leq \alpha < \aleph_1 \rangle$ is a strictly increasing sequence of characterizable cardinals, there is an $L_{\omega_1,\omega}$-sentence ψ such that:

1. The models of ψ satisfy JEP up to λ_0, while JEP fails for all larger cardinals;
2. AP fails in all infinite cardinals;
3. There exist $2^{\lambda_i^+}$ nonisomorphic maximal models of ψ in λ_i^+, for all $i \leq \alpha$, but no maximal models in any other cardinality; and
4. ψ has arbitrarily large models.

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