1033-03-170 **Ekaterina Fokina** and **Julia F. Knight*** (knight.1@nd.edu), Mathematics Department, University of Notre Dame, 255 Hurley Hall, Notre Dame, IN, and **Christina Maher**, **Alexander Melnikov** and **Sara Miller Quinn**. *Describing classes of structures and structures within a class.* Preliminary report.

Many classes of structures are characterized using finitary sentences. For example, there are familiar finitary axioms for groups. The class of Abelian p-groups cannot be characterized by finitary axioms. We may use an infinitary sentence of $L_{\omega_1\omega}$, even a computable infinitary sentence. Lopez-Escobar showed that for a class K of countable structures, closed under isomorphism, if K is "Borel", then it is axiomatized by a sentence φ of $L_{\omega_1\omega}$. Vaught showed that φ may be taken to have the "same" complexity as K. Vanden Boom gave an effective analogue. For certain classes, non-isomorphic elements are distinguished by sentences of a particular form. For example, Q-vector spaces are distinguished by computable Σ_2 sentences saying that the dimension is at least n. We consider the "generalized low" members of some classes: graphs and "rank-homogeneous" trees (or Abelian p-groups). Using ideas of Friedman and Stanley, we see that the trees (or groups) are distinguished by computable infinitary sentences, while the graphs are not. (Received September 11, 2007)