1126-03-158 **Rachael Alvir**, **Julia F. Knight*** (`knight.1@nd.edu`) and **Charles McCoy**. *Complexity of Scott sentences.*

We consider effective versions of some results of A. Miller and Montalbán. We show that if a countable structure $\mathcal{A}$ has a computable $\Sigma_{\alpha+1}$ Scott sentence and one that is $\Pi_{\alpha+1}$, then it has a computable $d\text{-}\Sigma_\alpha$ Scott sentence. We also show that if $\mathcal{A}$ has a computable $\Pi_{\alpha+1}$ Scott sentence, then the orbits of all tuples are defined by computable Σ_α formulas. The converse fails. Applying the general results, we show that a finitely generated group has a $d\text{-}\Sigma_2$ Scott sentence iff the orbit of some generating tuple is defined by a Π_1 formula, and a computable finitely generated group has a computable $d\text{-}\Sigma_2$ Scott sentence iff the orbit of some generating tuple is defined by a computable Π_1 formula. (Received January 10, 2017)