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Rachael Alvir and **Julia F. Knight*** (knight.1@nd.edu), 255 Hurley Hall, Mathematics Department, University of Notre Dame, Notre Dame, IN 46556, and **Charles McCoy**. *Complexity of Scott sentences*.

By an old result of A. Miller, if a countable structure \mathcal{A} has a $\Pi_{\alpha+1}$ Scott sentence and one that is $\Sigma_{\alpha+1}$ Scott sentence, then it has a d - Σ_{α} Scott sentence. The result of A. Miller is based on a result of D. Miller on separators for disjoint $\Pi_{\alpha+1}$ classes of structures. Montalbán showed that \mathcal{A} has a $\Pi_{\alpha+1}$ Scott sentence iff the orbits of all tuples are defined by Σ_{α} formulas. We consider effective versions of these results. In particular, we show that if a countable structure \mathcal{A} has a computable $\Sigma_{\alpha+1}$ Scott sentence and one that is computable $\Pi_{\alpha+1}$, then it has a computable d - Σ_{α} 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. (Received September 18, 2018)