1163-03-1626 **Rachael Alvir*** (ralvir@nd.edu). *Relations Between various Scott Ranks.* Preliminary report.

Over the years, many different definitions of "Scott Rank" have been proposed. To help unify them, the "external" notion of the Scott Complexity of a countable structure Ahas been proposed: the least complexity of an infinitary formula which can characterize the structure up to isomorphism among countable structures. The speaker, along with Matthew Harrison-Trainor, Dan Turetsky, and Noam Greenberg has previously argued that this is a good notion since it is maximally "robust," i.e., is the finest notion of "rank" which has many different and desirable equivalent characterizations. While most existing notions of Scott Rank can be computed given the Scott Complexity, there are one or two exceptions. In this talk, we give an overview of all the previously explored notions of Scott Rank, explicitly show how to compute one notion of Scott Rank given another, and also explore other "internal" notions of Scott Rank. In this talk, we discuss why those "internal" notions of Scott Rank have sometimes been preferred in computable structure theory because of, rather than in spite of, their lack of "robust" characterizations. (Received September 15, 2020)