1077-VJ-2762 **Sean D Cox*** (sean.cox@uni-muenster.de). *Compactness properties of the second uncountable cardinal.*

Gödel's Compactness Theorem for (finitary) first order logic states: Any inconsistent collection of sentences has a *finite* subcollection which is inconsistent. In modern terminology: the countably infinite cardinal $\aleph_0$—i.e. the least infinite cardinal—is a *strongly compact cardinal*. The next few cardinals—such as the 1st and 2nd uncountable cardinals—can never be strongly compact (assuming the Axiom of Choice). However, it is possible that the 2nd uncountable cardinal (denoted $\aleph_2$) exhibits properties resembling strong compactness. This occurs especially in the presence of *Forcing Axioms*. I will discuss some recent research surrounding Forcing Axioms and compactness properties of the 2nd uncountable cardinal. (Received September 22, 2011)