LARGE CARDINALS, STRONG LOGICS AND REFLECTION PRINCIPLES

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ABSTRACT. Various results establish strong connections between the existence of large cardinals, regularity properties of strong logics and the validity of set-theoretic reflection principles. In particular, several compactness properties of strong logics were proven to be equivalent to large cardinal axioms, and such equivalences provide strong arguments to adopt these axioms. An important example of such an equivalence is given by a theorem of Makowsky that shows that *Vopěnka's Principle* is equivalent to the existence of strong compactness cardinals for all abstract logics. Motivated by work of Boney, Dimopoulos, Gitman and Magidor, I recently proved an analogous combinatorial characterization of the existence of weak compactness cardinals for all abstract logics that is closely connected to the notion of *subtle cardinals*, introduced by Kunen and Jensen in their studies of strong diamond principles, and the concept of *shrewd cardinals*, defined by Rathjen in proof-theoretic work. In my talk, I want to first discuss the details of this characterization and then present a result that shows that the existence of a proper class of subtle cardinals is consistent with the axioms of ZFC if and only if the existence of weak compactness cardinals for all abstract logics does not provably imply the existence of a strongly inaccessible cardinal.