Weak containment for topological actions

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Weak containment is a well-studied relation for measure preserving actions of countable groups with deep ties to combinatorics and mathematical logic. Roughly speaking, an action a weakly contains an action b if a approximately factors onto b. In this talk, I will give a definition of weak equivalence in the topological category and prove some preliminary results. I will extract a combinatorial characterization of weak containment for actions on Cantor spaces. And I will give a few characterizations of when such an action of a free group is weakly contained in a topologically mixing action. This last result has connections to work on distributed algorithms.