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A Derivation of a Weaker, Local Bell inequality MICHAEL CLOVER, SAIC — We argue that Bell made a third assumption in his Theorem, and that by assuming that incompatible measurements (as opposed to hidden variables predicting the measurements) could occur simultaneously, Bell's inequality only applies to local hidden variable theories that violate Heisenberg's Uncertainty Principle. If the hidden variable(s) reproduce quantum mechanics, and we assume they prevent us from considering A-prime to be measured (or thought of theoretically) at the same time as A, our rederivation of Bell's inequality has extra terms that weaken the constraint. Since the same locality and reality assumptions hold for this derivation as for Bell's, we conclude that only time independent static, i.e., measurement-order independent, local hidden variable theories are constrained by Bell's inequality; time dependent, non-classical local theories (*i.e.* theories respecting Heisenberg's Uncertainty Principle, such as local de Broglie-Bohm models) can satisfy this new bound while exceeding Bell's limit. We note that quantum-mechanically, the square of the Bell operator has a similar extra term involving commutators of *local* measurement operators. Unconditional nonlocality is only expected to occur with Bell parameters between $2\sqrt{2}$ and 4.

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