AN OPTIMAL CONDITION FOR FACTORS OF G-MEASURES

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We weaken the assumption of summable variations in a paper by Verbitskiy to a weaker condition, Berbees condition, in order for a 1-block factor (a single site renormalisation) of the full shift space on finitely many symbols to have a g-measure with a continuous g-function. Thus we find a bigger class of g-functions that is closed under taking 1-block factors, in the sense that the factored measure is still a g-measure. But we also prove by means of a counterexample, that this condition is (within constants) optimal. The counterexample is based on a non-trivial modification of results for the long-range Ising model and is evidence of the principle proposed by van Enter-Fernandez-Sokal hat loss of Gibbsianity occurs when there is a hidden phase transition in the original system.

This is joint work with A. Johansson and M. Pollicott.