Functional-analytic version of concentration compactness

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Abstract. We present a functional-analytic theory covering the known phenomena of concentration compactness and allowing a uniform approach to a range of variational problems without compactness. The key points of the theory are the notion of cocompact imbedding and a theorem on structure of bounded sequences in presence of a given operator group ("dislocations") Among applications we name verification of Palais-Smale condition in non-compact problems, semilinear elliptic problems with oscillatory nonlinearity of critical growth, variational problems on Lie groups and on fractional Sobolev spaces.